January 9, 2023

Linda Jackson,
Payette Forest Supervisor
Stibnite Gold Project
500 N. Mission Street, Building 2, McCall, Idaho 83638
Portal (https://cara.fs2c.usda.gov/Public//CommentInput?Project=50516)

Re: Comments on the Stibnite Gold Project Supplemental Draft Environmental Impact Statement

Dear Forest Supervisor Jackson,

Save the South Fork Salmon, Idaho Conservation League, Earthworks, Idaho Rivers United, Center for Biological Diversity, American Rivers, American Whitewater and Winter Wildlands Alliance submit these comments on the Stibnite Gold Project Supplemental Draft Environmental Impact Statement (SDEIS) prepared by the Payette National Forest. We appreciate the opportunity to comment.

These comments represent the work of the coalition of groups listed below, which have notable expertise in environmental issues, including those issues that stem from mining projects, as well as numerous professional scientific consultants. We incorporate by reference all previous comments, including scoping comments, and comments on the Draft

Environmental Impact Statement (DEIS) submitted by each of the individual groups described above, whether submitted individually or jointly, on the Stibnite Gold Project, and comments on the DEIS and SDEIS from the Nez Perce Tribe. This letter is in addition to any separate letters that the groups mentioned above may submit.

Save the South Fork Salmon is a Valley County, Idaho, community-based non-profit organization dedicated to protecting the South Fork of the Salmon River watershed, its outstanding and remarkable natural values, and the economies that depend on those values. Save the South Fork Salmon has members that live, work, and recreate in and around the South Fork of the Salmon River and in the communities that will be impacted by the Stibnite Gold Project. Idaho Conservation League is a non-profit organization dedicated to preserving Idaho's clean water, wilderness, and quality of life through citizen action, public education, and advocacy. Idaho Rivers United's mission is to protect and restore the ecological integrity of Idaho's rivers and ensure their legacy remains for generations to come. American Rivers is a leading conservation organization working to protect and restore the nation's rivers and streams. American Whitewater is a national river conservation organization that advocates for the preservation and protection of whitewater rivers throughout the United States. Earthworks is a non-profit organization dedicated to protecting communities and the environment against the adverse effects of hard rock mining. Winter Wildlands Alliance (WWA) is a national non-profit working to inspire and empower people to protect America's wild snowscapes.

Members of our organizations utilize the South Fork Salmon River watershed and surrounding area for recreational activities including family camping, road-biking, wildlife observation, scenery appreciation, birding, hunting and fishing, botanizing, whitewater kayaking, rock climbing, backcountry skiing, hiking, firewood cutting, berry and mushroom picking, mountain biking, and accessing wilderness as well as their private land holdings--to name just a few.

Our members seek to protect and support restoration efforts in the South Fork Salmon River watershed so that it will continue to provide habitat for Endangered Species Act-listed Chinook salmon and steelhead, and to facilitate bull trout recovery efforts. We do this under the belief that these fish species, as an integral part of the watershed ecosystem, are what make the South Fork Salmon such an amazing place in central Idaho. These fish are the essence of what makes Idaho, Idaho.

The South Fork Salmon is a major tributary to the second longest free-flowing river in the lower 48 states, the Wild and Scenic Main Salmon River. Most of the South Fork Salmon and many sections of its tributaries have been deemed eligible and suitable under the Wild and Scenic Rivers Act by the U.S. Forest Service. It continues to boast critically important

spawning habitat for migratory fish. Recognizing this importance, federal agencies, tribes, and other organizations have expended significant efforts to improve the ecological health of the watershed. The South Fork Salmon watershed is indeed a cornerstone in ongoing efforts to restore threatened Chinook salmon and steelhead to Idaho.

The proposed Stibnite Gold Project (SGP) is a massive cyanide leach gold mining operation proposed on federal public lands at the headwaters of the South Fork Salmon River watershed - an area that has already been impaired by past mining activities. The proposed mine would double the area of land disturbance, from 1,593 to 3,265 acres, including the excavation of three open pits, and generate an estimated 400 million tons of additional mine waste that will remain on the landscape in perpetuity - creating a permanent source of potential pollution within the watershed.

The Stibnite Gold Project has generated significant opposition in Valley County and throughout Idaho because of its proposed location directly on top of the headwaters of a major tributary to the South Fork Salmon River, and the unavoidable environmental, social, and economic risks it poses to the ecosystem and local communities.

The permitting process for the proposed Stibnite Gold Project has been substantively delayed by Perpetua Resources (formerly Midas Gold), which has repeatedly failed to provide accurate and timely information, and made repeated and fundamental changes to the mine plan midway through the National Environmental Policy Act (NEPA) process.[1] Midas Gold/Perpetua rushed a series of unfinished proposals out for public review in the DEIS, and the permitting process was delayed as a result.

The SDEIS suffers from some of the same issues. The SDEIS is missing fundamental information necessary to an informed analysis, including:

- basic engineering specifications and analysis of the tailings storage facility,
- sediment modeling,
- details and analysis of proposed underground exploration (Scout Prospect Tunnel),
- detailed reclamation plans.

Furthermore, the proposed mine is predicted to harm the traditional lands of indigenous peoples, such as the Nez Perce Tribe, including harm to treaty rights, such as preventing access to traditional lands, harming traditional fishing and hunting rights, impacting endangered salmon and concerns that it would harm the tribe's salmon restoration efforts.

[1] Earthworks, "The Stibnite Project: A Case Study in Mine Applicant-Related Delays in the Hardrock Mine Permitting Process, August 25, 2022. https://earthworks.org/wp-content/uploads/2022/09/STIBNITE-CASE-STUDY-2022.pdf

The Forest Service should reject the proposed mine plan because it:

1) Conflicts with the Payette and Boise Forest Plans
2) Fails to minimize all adverse environmental impacts as required by the Federal Land Policy and Management Act and the Organic Act
3) Fails to demonstrate compliance with the Clean Water Act
4) Conflicts with established Treaty Rights
5) Fails to demonstrate compliance with the Endangered Species Act
6) Fails to provide mining claim data that demonstrates valid existing rights
7) Lacks key information necessary for an informed public review under NEPA
8) Fails to consider climate change and incorporate climate change within model projections
9) Considers only the mine applicant's proposed mine plan, failing to consider a reasonable range of alternatives as required by NEPA.

As a result of these serious deficiencies, we urge the Forest Service to select the "No Action" alternative, and pursue timely clean up of legacy pollution via ongoing CERCLA actions. This is the only option that protects the watershed from more expansive harm from large-scale cyanide leach gold mining.

Should the Forest Service not endorse the "No Action" alternative, we urge the agency to complete a revised SDEIS, with stand-alone supporting documents, to address these substantive issues and provide a more realistic and thorough analysis of the potential impacts of the Stibnite Gold Project.

Thank you for your consideration.

Sincerely,

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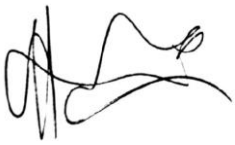

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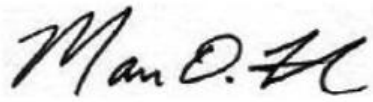

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I. BACKGROUND

The South Fork Salmon River is a major tributary to the second longest free-flowing river in the lower 48 states, the Wild and Scenic Main Salmon River. Most of the South Fork Salmon and many sections of its tributaries have been deemed eligible and suitable under the Wild and Scenic Rivers Act by the U.S. Forest Service. It continues to boast critically important spawning habitat for migratory fish. Recognizing this importance, federal agencies, tribes, and other organizations have expended significant efforts to improve the ecological health of the watershed. The South Fork Salmon watershed is indeed a cornerstone in ongoing efforts to restore threatened Chinook salmon and steelhead to Idaho.

Mining projects, even with a restoration component, can have dramatic and permanent impacts on the landscape, soils, water, and wildlife. The proposed Stibnite Gold Project is no exception. Because of its proposed location directly on top of the headwaters of a major tributary to South Fork Salmon River, and the unavoidable environmental, social, and economic risks it poses to the ecosystem and local communities, the Stibnite Gold Mine has generated significant public opposition in Valley County and throughout Idaho.

II. REVISED PLAN OF OPERATIONS

The revised Plan submitted by Perpetua in October 2021 is considered to be the Proposed Action, also known as the 2021 Modified Mine Plan (MMP), and would consist of cyanide leach mine operations, including an open pit hard rock mine and associated processing facilities, located within Valley County in central Idaho on federal, state, and private lands (Figure ES-1). The SGP would have a projected life (construction, operation, closure, and reclamation), not including post-reclamation monitoring, of approximately 20 years, with active mining and ore processing occurring over approximately 15 years.

The following mine components would be common to the revised plan and the two action alternatives:

- Mine pit locations, areal extents, and mining and backfilling methods
- Transportation on existing and proposed roads
- Pit dewatering, surface water management, and water treatment
- Ore processing
- Lime generation
- Tailings storage facility (TSF) construction and operation methods
- TSF buttress construction methods
- Water supply needs and uses
- Management of mine impacted water and stormwater runoff
- Stibnite Gold Logistics Facility (SGLF)

- A road maintenance facility
- Surface and underground exploration
- Worker housing facility

The SDEIS analyzes just one action alternative for the mine plan and two alternatives regarding access from Landmark, Idaho to the mine site. The 2021 MMP alternative would utilize the Burntlog Route as the primary access during the last year of construction, mining and ore processing operations, and closure and reclamation. The Burntlog Route Alternative would be 38 miles long and would require improving 23 miles of existing roads and constructing 15 miles of new roads. The Johnson Creek Route Alternative would use the existing Johnson Creek road from Landmark to Yellow Pine and the existing Stibnite Road from Yellow Pine to the mine site at Stibnite. This alternative would require upgrading sections of these roads, would add two years of construction time and would not require any new road construction.

III. THE SDEIS IS BASED ON THE WRONG REGULATORY STRUCTURE

The Forest Service is under the mistaken belief that its review and approval of Perpetua's proposed uses of federal land are authorized by the 1872 Mining Law and governed solely by the agency's hardrock mining regulations at 36 CFR Part 228 Subpart A. SDEIS at 1-8. According to the Forest Service, this is because there are unpatented mining or millsite claims on the lands to be covered by project facilities. The SDEIS also states that the existing Forest Plan must be amended to accommodate the company's plans, based on Perpetua's presumed "rights" under the Mining Law.

According to the Forest Service, its authority is limited by the company's purported and asserted "rights" under the 1872 Mining Law.

> 1872 Mining Law (as Amended) -The statutory right to search for, develop, and extract mineral deposits on federal lands open to mineral entry was established by the Mining Law and later legislation. These rights include the right to initially locate a mining claim and the right to reasonable access to the claim for further exploration, mining, or necessary ancillary activities, consistent with the Mining and Mineral Policy Act of 1970 (30 United States Code [USC] 21a) and other applicable laws.

SDEIS at 3-3. *See also* SDEIS at Section 1.6.1.(SDEIS at 1-8)("The Forest Service's purpose is to consider approval of Perpetua's proposed use of the surface of NFS lands in connection with *operations authorized by the U.S. mining law* as first described in the Plan submitted September 2016, then refined in 2019 (Brown and Caldwell 2019a), and further modified in 2021 as the 2021 MMP (Perpetua 2021a))(emphasis added). This tracks the

initial DEIS' statement that the agency's review of the project was based on the company's "statutory right" to conduct its operations under the Mining Law.

3.2.2.1 1872 Mining Law

> The statutory right to search for, develop, and extract mineral deposits on public-domain lands open to mineral entry was established by the General Mining Act of 1872 (1872 Mining Law) and later legislation. These rights include the right to initially locate a mining claim and the right to reasonable access to the claim for further exploration, mining, or necessary ancillary activities, consistent with the Mining and Mineral Policy Act of 1970 (30 United States Code 21a) and other applicable laws. As described elsewhere in this EIS, regulations at 36 Code of Federal Regulations (CFR) 228, subpart A apply to U.S. Forest Service (Forest Service) regulation of surface use of National Forest System lands for locatable mineral operations. DEIS at 3.2-1.

The mere fact that the company submitted a mining plan does not mean that all, or any, aspects of the project that remain in federal ownership are regulated only under Part 228 or that approving the plan is the Forest Service's only choice. Indeed, because the record lacks the requisite evidence that the company has statutory rights under federal mining laws, including the 1872 Mining Law, to the lands that remain in federal ownership, review and regulation of the project is not under Part 228, but rather the agency's special use and multiple use authorities (36 CFR Part 251/261), including right-of-ways (ROW) under the Federal Land Policy and Management Act (FLPMA).

The Forest Service's overly-restricted interpretation of its authority was squarely and recently rejected by the Ninth Circuit Court of Appeals, which has jurisdiction over Idaho. On May 12, 2022, the court issued its decision in *Center for Biological Diversity v. U.S. Fish and Wildlife Service*,[2] in which the court affirmed the district court decision that vacated and remanded the Forest Service's approval of a large copper mine (the Rosemont Mine) due to the agency's erroneous interpretation and application of the 1872 Mining Law, federal public land law, and NEPA.

The court squarely rejected the same federal government position taken by the Forest Service in the SDEIS – that mining claimants are entitled to use and occupy mining or millsite claims absent any evidence that the claims are valid under the Mining Law, and that the Part 228A regulations are the only proper regulatory vehicle for operations proposed on such lands/claims. The court ruled that the government's statutory interpretation was

[2] *Ctr. for Biological Diversity v. U.S. Fish & Wildlife Serv.*, 33 F.4th 1202 (9th Cir. 2022).

contrary to the plain language and controlling case law under the Mining Law, Organic Act, NEPA, Surface Resources Act of 1955 (30 U.S.C. Section 612), and other laws. The Rosemont decision rejected the government's position that it has no authority to apply its broader public land regulations to mining operations proposed on lands that fail to meet the Mining Law's statutory prerequisites for rights against the United States.

The agency's review of the Stibnite Gold Project is based on the erroneous legal view that the entire project is authorized by the 1872 Mining Law and can only be regulated by the Part 228 Subpart A regulations simply because it involves uses of federal land related to mining. Here, although it is difficult to ascertain the exact number and nature of the claims from the SDEIS, the Forest Service believes that it is precluded from choosing the no-action alternative, as well as being significantly restricted in its review authority over the Project.

In regard to Stibnite, the agency recently stated that the "228A regulatory framework was applied pending additional guidance from counsel. No validity assessment of unpatented claims was incorporated per Forest Service practice." USFS – Stibnite Gold Project SDEIS Comment Response Table – 20 October 2022, at 1.

Yet the Ninth Circuit ruled that this Forest Service position erroneously interprets the 1872 Mining Law as well as other public land and mining laws. The court held that unless sufficient evidence exists in the agency record that the claims proposed for use and occupancy met the requirements of the Mining Law and were therefore valid–that is, each mining claim must contain the requisite "valuable minerals," and each millsite claim must meet the strict requirements of Section 42 of the Mining Law, including the requirement that the lands are nonmineral and do not exceed the allowable number of valid millsites, which are limited to a strict 5 acres of millsites (the maximum size for each millsite claim) for each full size mining claim (20 acres)–the Mining Law did not govern the agency's review of the proposed use/occupancy of those lands. Simply put, unless each claim is shown to be valid and meets all factual and legal requirements, the Forest Service cannot simply assume rights under the Mining Law that limit the federal land agency's full and broad authority to protect public land and resources.

The Ninth Circuit also held that the agency's failure to inquire into whether the claims covering the ancillary uses (such as waste dump and tailings) were valid under the Mining Law was essentially the same as assuming the claimant had a right to use and occupy these lands – and that such an assumption illegally created statutory rights where none exist.

> In the FEIS, the Service either assumed that Rosemont's mining claims on that land were valid or (what amounted to the same thing) did not inquire into the validity of the claims. Based on its assumption that the mining claims were valid, the Service concluded that Rosemont's permanent occupation of the claims with its waste rock was permitted under the Mining Law.[3]

"The Government's argument is not only foreclosed by the text of Section 22. It is also foreclosed by a century of precedent."[4]

At Rosemont, the issue was the validity of the mining claims. At Stibnite, while the company recently refiled millsite claims on much of the project's lands, the court's requirement is the same – the agency cannot assume that the company has rights to use/occupy these lands without verifying that each claim meets the validity requirements in the Mining Law (whether for lode or millsite claims). As noted, the agency's failure to inquire as to whether the claims are valid fundamentally flaws the entire SDEIS and agency review.

The Forest Service's review of the Stibnite proposal is very similar to and based on the same legal positions as its illegal review of the Rosemont Mine. The Arizona court detailed how the agency never inquired into whether the mining claims away from the mine pit met the Mining Law's prerequisite for use/occupancy rights (discovery of valuable minerals), yet the agency "accepted, without question, that those unpatented mining claims were valid" and "assumed that Rosemont had the right to use those 2,447 acres to support its mining operation (i.e., by dumping 1.9 billion tons of waste on that land)."[5] "This was a crucial error as it tainted the Forest Service's evaluation of the Rosemont Mine from the start."[6] The court held that such use/occupancy, without verification that such rights under the Mining Law actually exist on those lands/claims, was *not* authorized by the Mining Law, and thus was not governed by the agency's mining regulations.

The situation is the same here, as there is nothing in the record that provides "a factual basis to support [the claimant's] assertion of rights." Under basic principles of administrative law: "Any decision made without first establishing the factual basis upon which the Forest Service could form an opinion on surface rights would entirely ignore an important aspect of the problem."[7]

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[3] *Center for Biological Diversity*, 33 F.4th at 1212.
[4] *Id*. at 1219.
[5] *Ctr. for Biological Diversity v. U.S. Fish & Wildlife Serv.*, 409 F.Supp.3d 738, 747 (D. Ariz. 2019).
[6] *Id.*
[7] *Id*. at 757-58 (citing *Motor Vehicles Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983)).

Based on the Forest Service's erroneous view of "rights" under the Mining Law, the SDEIS asserts that only Forest Service mining regulations at 36 C.F.R. Part 228A (which have no public interest requirement and no required compliance with the agency's multiple use mandate) apply to every aspect of the project. The Forest Service mining regulations at 36 C.F.R. Part 228A only apply to "operations authorized by the mining laws." 36 C.F.R. § 228.1. The Arizona federal court held that only upon the satisfaction of the Mining Law's prerequisite requirements for statutory rights against the United States are "operations authorized by the mining laws."

> [I]t does not follow that the Forest Service must use these Part 228 regulations merely because an action falls within the regulation's definition of operations. The Forest Service's reliance on its definition of operations ignores the purpose of its own regulations. Part 228 regulates "use of the surface of National Forest System lands in connection with operations *authorized* by the United States mining laws (30 U.S.C. 21-54 [Mining Law of 1872])." 36 C.F.R. § 228.1. Therefore, authorization under the Mining Law of 1872 acts as a precursor to any regulation through Part 228.[8]

As the court held: "the regulations state that mining activities on Forest Service land are permitted only as specifically authorized by the Mining Law of 1872. As Rosemont has no rights under the Mining Law as to the land at issue, it follows that the regulations certainly do not create independent rights that do not exist under the Mining Law."[9]

Here, at Stibnite, since the Forest Service has refused to inquire as to whether all of the mining and millsite claims are valid, the record does not show that the proposed facilities, uses, and associated operations are "authorized by the Mining Law of 1872." As such, use of the Part 228A regulations, instead of the Part 251/261 special use regulations, is illegal.

Regarding whether only the Part 228A regulations applied in such a case, the Ninth Circuit slightly modified the District Court's remand instructions to the Forest Service, holding that the Forest Service could not rely on "rights" under the Mining Law or the Surface Resources Act:

> The Service relied on Part 228A regulations in its FEIS and ROD, but it did so based on Section 612 of the Multiple Use Act and on its assumption that Rosemont's mining claims are valid under the Mining Act. The Government

[8] *Id*. at 764 (emphasis in original).
[9] *Id*. at 749.

> has now abandoned any argument based on Section 612. Further, for reasons explained above, the Service incorrectly assumed that Rosemont's mining claims are valid under the Mining Law. That is, neither of the statutes upon which the Service relied to support its application of Part 228A regulations to Rosemont's MPO provides such support. Thus, the Service's approval of Rosemont's MPO is unsupported by the basis upon which the Service relied.[10]

Due to the agency's fundamental assumption of rights under the Mining Law, the court instructed the agency as to the proper scope of its authority – given that the agency never determined whether the claims were valid.

> We do not know whether, if the Service had understood that Section 612 gave no rights beyond those conferred by the Mining Law and that Rosemont's mining claims are invalid under the Mining Law, it would have found some other statutory basis to support the application of Part 228A regulations. Nor do we know whether, if it were to rely on some other statutory basis, the Service would construe Part 228A regulations to authorize Rosemont's permanent occupancy of invalid mining claims with its waste rock.
>
> In applying Part 228A regulations and relying on their own construction of those regulations to authorize Rosemont's proposed occupancy, the Government, Rosemont, and our dissenting colleague are putting the cart before the horse.[11]

The District Court (affirmed by the Ninth Circuit) also rejected the legal position taken by Forest Service here, where it asserts that it cannot choose the No-Action Alternative for the project. In the Rosemont Mine decision, after discussing the agency's erroneous assumption of "rights" under the Mining Law (detailed above), the court discussed how this erroneous legal position also violated the agency's duties under NEPA:

> Based on the administrative record, the Forest Service improperly applied its Part 228 regulations to actions not authorized under the Mining Law of 1872. This mistake infected the FEIS and led to the Forest Service misinforming the public and failing to consider reasonable alternatives within the scope of its duties under the Organic Act.

[10] 33 F.4th at 1223.
[11] *Id*. at 1223-24.

> For example, in response to a public comment requesting the Forest Service "give true consideration to selection of the No Action Alternative", the Forest Service responded: "The Forest Service may reject an unreasonable Mine Plan of Operation but cannot categorically prohibit mining or deny reasonable and legal mineral operations under the mining laws." *Id.* at G-10 [Final Rosemont EIS]. In response to a comment requesting the Forest Service "consider other locations for copper mining", the Forest Service responded: "The Forest Service lacks the authority to deny Rosemont Copper's proposal if it can be legally permitted." *Id.* at G-12. And in response to a comment that the Forest Service "should scale down the size of the project or limit it to private lands only", the Forest Service repeated: "The Forest Service may reject an unreasonable Mine Plan of Operation but cannot categorically prohibit mining or deny reasonable and legal mineral operations under the mining laws." *Id.* These examples did not occur in isolation. Rather, they illustrate how heavily the Forest Service relied upon this rationale in its decision-making process.
>
> Under the Part 251 regulations, the Forest Service could limit the mine to any of the above options if it found they ran afoul of the public interest. The Forest Service failed to take the requisite hard look at these alternatives by informing the public that it could not truly consider any alternative that rejected the MPO or substantially modified it as to make the mine economically unfeasible. *See Nat. Res. Def. Council*, 421 F.3d at 813-14. A "thorough discussion of the significant aspects of the probable environmental consequences" will include the regulatory framework in which the Forest Service analyzes those consequences. *See California v. Block*, 690 F.2d 753, 761 (9th Cir. 1982). No amount of alternatives or depth of discussion could "foster[] informed decision-making and informed public participation" when the Forest Service bases its choice of alternatives on an erroneous view of the law. *See Westlands Water Dist. v. U.S. Dep't of Interior*, 376 F.3d 853, 868 (9th Cir. 2004).[12]

As the court stated, the agency's erroneous interpretation of federal mining law resulted in a violation of the Organic Act and NEPA. "[A] grant to use the surface when the administrative record shows such a right does not exist would contravene the Forest Service's duty to protect the forest from depredations and offer an opinion that runs contrary

[12] *Ctr. for Biological Diversity*, 409 F. Supp. 3d at 764-766 (internal footnotes omitted).

to the evidence."[13] "In the absence of any statutory right on the part of Rosemont, the Forest Service could deny Rosemont's off-claim activities as part of the Forest Service's Organic Act obligations."[14]

The court further rejected the agency's view that alternatives that greatly reduced environmental impacts to public land could be dismissed because they were too expensive for the company. "As discussed throughout this Order, the administrative record before the Forest Service reflects that Rosemont did not have valid surface rights for thousands of acres of its unpatented mining claims. Thus, rather than summarily rejecting this claim as 'technically and financially infeasible,' further consideration and evaluation of this alternative was warranted as it greatly reduced the impacts to the Coronado National Forest."[15]

Thus, at Stibnite, the Forest Service must fully comply with all federal laws and is not constrained by the limits in Part 228. Nor is the agency limited in its duties to protect public resources by Perpetua's assertions of financial need or costs.

Here, as at Rosemont, unless all the operations are proposed on verified valid claims, the operations are not "authorized by the mining laws" and the Forest Service must regulate the project under its Part 251/261 special use regulations, as well as FLPMA's ROW provisions (discussed herein), and not under the Part 228 regulations. The agency's authority under the Part 251 regulations are very different from, and much more environmentally protective, than the Part 228 regulations. For example, the agency must deny the project if "[t]he proposed use would not be in the public interest." 36 C.F.R. § 251.54(e)(5)(ii).

> In contrast [to the Part 228A regulations], the Forest Service's Part 251 regulations apply to "all uses of National Forest System lands, improvements, and resources." 36 C.F.R. § 251.50. Any use not regulated under the Part 228, or several other groups of Forest Service regulations, falls into the Part 251 special use regulations. *See id.* These regulations provide a dual screening process in which the Forest Service may deny any activity that does not meet several standards or otherwise comport with the public interest. *See id.* § 251.54(e). The Part 251 regulations provide significant authority and discretion to prohibit activity on Forest Service lands, whereas the Part 228 regulations merely balance competing interests.[16]

[13] *Id.* at 758.
[14] *Id.* at 761.
[15] *Id.* at 765, n.15.
[16] *Id.* at 764 (emphasis added).

The Part 251 regulations apply to occupancy and use of National Forest System lands. 36 C.F.R. §§ 251.54–251.64. The applicant must file a special use proposal with the District Ranger or Forest Supervisor having jurisdiction over the affected land. *Id.* § 251.54(b). The Forest Service conducts an initial screening to determine whether the proposed use meets the "minimum requirements applicable to all special uses." *Id.* § 251.54(e)(1). If the proposal passes this initial screening, the Forest Service conducts a second-level screening which requires, among other things, a showing that the proposed use is in the public interest. *Id.* § 251.54(e)(5)(i)–(v). If the proposed use satisfies the Forest Service's screening criteria, the Forest Service may grant a special use permit, but must include terms and conditions to "[m]inimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment," among other requirements. *Id.* § 251.56(a)(1)(i)(B). The Forest Service must also "[o]therwise protect the public interest." *Id.* § 251.56(a)(1)(ii)(G). In addition, under the related Part 261 regulations, the Forest Service is required to prohibit the destruction of cultural resources on public lands. *See* 36 C.F.R. §§ 261.9(g)-(h), 261.10(a), (b).

> (a) *General.* (1) Each special use authorization must contain:
> (i) Terms and conditions which will:
> (A) Carry out the purposes of applicable statutes and rules and regulations issued thereunder;
> (B) Minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment;
> (C) Require compliance with applicable air and water quality standards established by or pursuant to applicable Federal or State law; and
> (D) Require compliance with State standards for public health and safety, environmental protection, and siting, construction, operation, and maintenance if those standards are more stringent than applicable Federal standards.
> (ii) Such terms and conditions as the authorized officer deems necessary to:
> (A) Protect Federal property and economic interests;
> (B) Manage efficiently the lands subject to the use and adjacent thereto;
> (C) Protect other lawful users of the lands adjacent to or occupied by such use;
> (D) Protect lives and property;
> (E) Protect the interests of individuals living in the general area of the use who rely on the fish, wildlife, and other biotic resources of the area for subsistence purposes;

(F) Require siting to cause the least damage to the environment, taking into consideration feasibility and other relevant factors; and
(G) Otherwise protect the public interest. *Id.* § 251.56.

These regulations also require the payment of fair market value for the use of the public's land: "(a) …special use authorizations shall require the payment in advance of an annual rental fee as determined by the authorized officer. (1) The fee shall be based on the fair market value of the rights and privileges authorized, as determined by appraisal or other sound business management principles." *Id.* § 251.57.

Because the Forest Service makes the same errors here as it did at Rosemont, the agency must reject the revised Plan of Operations submitted by Perpetua as inadequate and incomplete. The Forest Service must regulate the project under the correct legal regime.[17] Further, the Forest Service has not shown that the project would meet all the requirements in Parts 251/261 to protect the public interest and the natural and cultural resources at/around the site.[18] As such, the Forest Service must deny the proposed uses of public land.

A. A new Surface Use Determination is necessary to assess whether Perpetua Resources even has the right to use and occupy unpatented mining claims associated with the Stibnite Gold Project.

In February 2020, a Surface Use Determination (SUD) was conducted for the Stibnite Gold Project (SGP) to:

> inform the authorized officer as to whether the proposed operational elements of the 2016 Stibnite Gold Project Plan of Operations proposed by Midas Gold, Inc. within Idaho Roadless areas are reasonably incident to mining and support the logical and sequential development of their mineral resource. SUD, p.1.

A SUD should be conducted "[i]f questions arise about the logical sequence of a proposed or existing activity, or whether the activity is reasonably incident" to mining operations authorized by the United States mining laws. *See* FSM 2817.03a; *see also* 36 C.F.R. § 228.1. Moreover, as stated elsewhere in this letter, the Forest Service may not

[17] The SDEIS does not detail the types and acreages of unpatented claims. As discussed herein, regardless of the type of claim, the Forest Service cannot assume that the claimant has statutory rights to use the lands covered by the claim without determining whether such rights actually exist and meet the prerequisites for such rights on each claim.

[18] Here, in Stibnite, as with Rosemont, the Mining Law's provision that lands are "free and open to exploration," 30 U.S.C. § 22, is not at issue, as none of the alternatives involve exploration under the Mining Law on claims that the Forest Service proposes to approve long-term or permanent use/occupancy of federal land.

assume that unpatented mining claims are valid before regulating mining activities solely under the 36 C.F.R. Part 228A mining regulations. *Ctr. for Biological Diversity v. United States Fish & Wildlife Serv.*, 33 F.4th 1202, 1221 (9th Cir. 2022). Although Perpetua Resources Corp., through its subsidiary Idaho Gold Resources, LLC, holds nearly 1500 unpatented lode and millsite claims within the "operations boundary" and along the proposed Burntlog Route, there is nothing in the record that indicates any of these claims—especially those where use and occupancy will occur because of proposed mining activities—meet the statutory requirements of the United States mining laws. Because this and several other questions either have arisen or remain since the 2020 SUD, the Forest Service should conduct a new SUD to determine whether proposed activities are "reasonably incident mining uses." *Id.* at 1222 (wondering whether permanent occupancy of invalid mining claims is a reasonably incident use). Furthermore, the SUD should be made available prior to any future NEPA milestones.

B. Unpatented millsite claims in the vicinity of the TSF.

When the Forest Service conducted the SUD in 2020, Perpetua Resources held a block of unpatented lode claims in the upper Meadow Creek drainage. These claims would have been buried beneath mine tailings as well as the TSF buttress dam. *Compare* SUD, at 37, Figure 7, *with* SUD, at 33, Figure 2. Additionally, a subsidiary of Perpetua Resources Corp. holds a block of 16 patented millsite claims (80-acres) where the Spent Ore Disposal Area/Bradley tailings are located. On September 1, 2022, Perpetua Resources abandoned a group of approximately 50 unpatented lode claims located to the west and south of these patented millsite claims (in the upper Meadow Creek drainage). That same day, Perpetua Resources filed 187 unpatented millsite claims in the same area as the just described abandoned unpatented lode claims.

Commenters have provided the following map to illustrate where these new millsite claims are located in relation to historic and proposed mining claims and features. *See* Figure 1 and 2 below. Under the United States mining laws, millsite claims associated with a "vein or lode" must be located on "nonmineral land not contiguous to the vein or lode" and may not exceed five acres in size. 30 U.S.C. § 42(a). Additionally, the number of millsites a claimant can locate may be dependent upon the number of "associated" mining claims that meet the patenting requirements to ensure a one-to-one ratio between the two types of claims. Accordingly, if there are 188 unpatented mill site claims that were located and filed with BLM on September 1, 2022, there should also be 188 unpatented lode claims that meet the requirements necessary for patent, i.e., the claims must be valid because a discovery has occurred within the boundaries of the claim. *See* 30 U.S.C. §§ 26 and 29; *see also United States v. Cameron*, 252 U.S. 450, 460 (1920) ("All must conform to the law under which [mining claim patents] are initiated; otherwise they work an unlawful private appropriation in derogation of the rights of the public."). Because it appears that the mineral resources proposed to be mined for the SGP are located almost entirely on private lands, it is unclear

whether there are 188 valid unpatented mining claims associated with the mineral resource. *See* Brown & Caldwell, Final Development Rock Management Plan 1-4 (May 2022) (depicting location of mineral resources at the proposed SGP mine site). Indeed, the SDEIS provides no documentation regarding specific mining claim locations and validity thereof nor has the Forest Service responded to requests for such documentation of specific claim locations and validity thereof.

It also appears that at least 15 of the new millsite claims are located on top of an area that is proposed to be "re-mined" under the 2021 MMP. See Figure 1 and 2 below. *See also* Brown & Caldwell, Final Development Rock Management 4-5 (May 2022) (describing "plans to re-mine and reprocess the Bradley tailings deposited in the Meadow Creek Valley located within the planned footprint of the proposed TSF. . . . Other legacy materials that constitute tailings from pre-Bradley milling operations are likely present and commingled with the Bradley era materials in the area beneath the SODA as well as in adjacent areas"); *Id.* at 5-2 (map depicting core holes west of the SODA and Bradley tailings on National Forest lands).

Because the plan to "re-mine" this area indicates the presence of mineralized land beneath the 15 (and perhaps more) millsite claims, the mill sites do not qualify as "nonmineral land" under the United States mining laws. Millsites identified as potentially being over-filed on land that is not "nonmineral" are: TSF-A-157; TSF-A-144; TSF-A-126; TSF-A-125; TSF-A-124; TSF-A-123; TSF-D-1; TSF-D-2; TSF-D-3; TSF-D-4; TSF-C-1; TSF-C-2; TSF-C-3; TSF-C-4; TSF-B-2. **This list is not exhaustive**. Depending on the extent of "re-mining" that occurs in this area, other millsite claims may overlay mineralized land. In any event, the Forest Service must determine whether the millsites are valid. *These comments also incorporate by reference the map depicting locations of the newly filed unpatented mill site claims in relation to other mine site features–which is similar to maps in Figures 1 and 2 below–that is included on page 12 of the comments from the Nez Perce Tribe.*

Furthermore, the Forest Service's "story map" for the original 2020 DEIS indicates that the area where Perpetua has filed the new millsite claims includes the Bradley Tailings, which are proposed to be "re-mined.[19]

In sum, the Forest Service must verify the validity of each unpatented lode and millsite claim within the operations boundary as well as along the proposed Burntlog Route where operations authorized by the United States mining laws are proposed to occur — whether or not the proposed operations' use and occupancy of those claims is temporary or permanent.

[19] https://usfs.maps.arcgis.com/apps/MapJournal/index.html?appid=82ba2d3f83204e5ca31c3de28faf5481

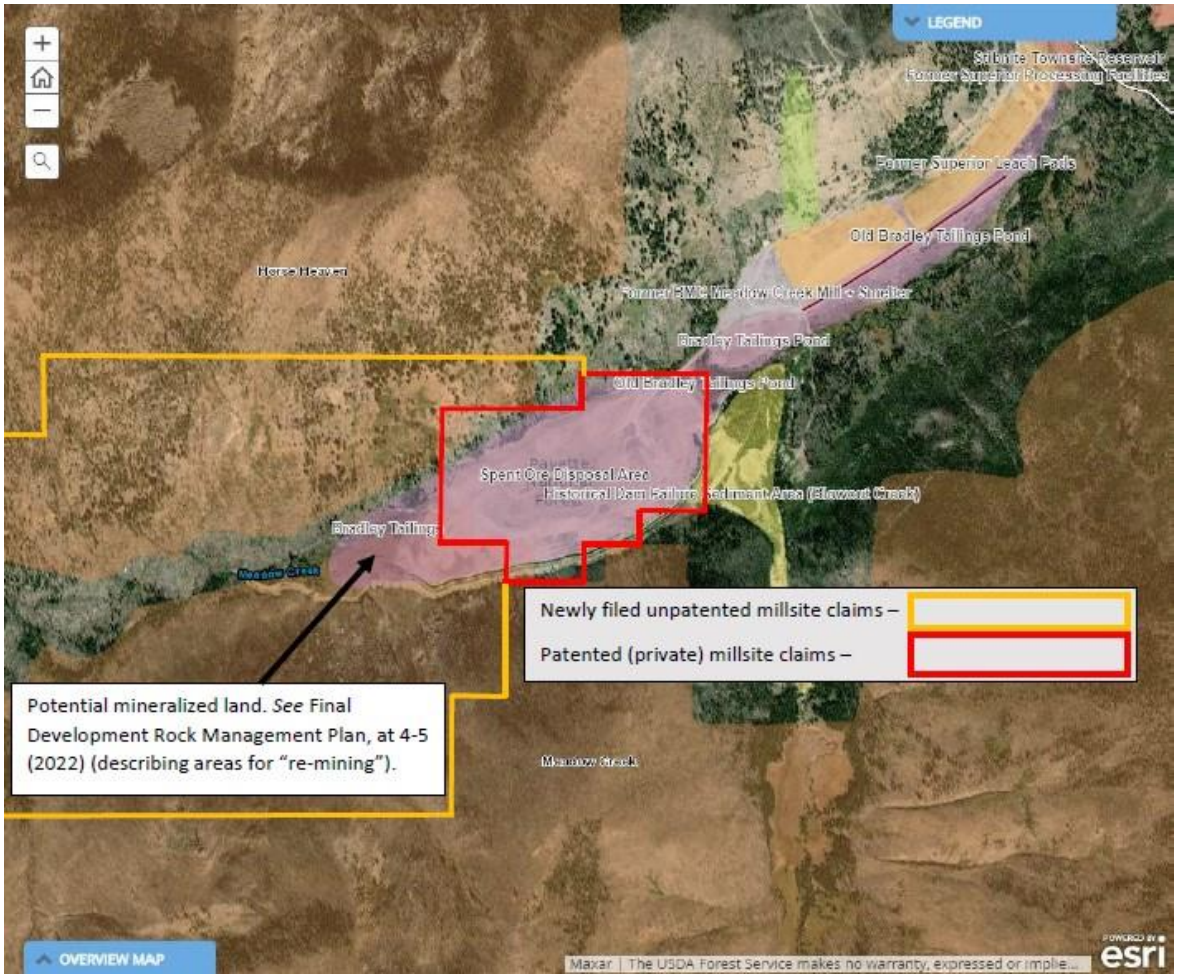

Figure 1 - Map of millsite claims

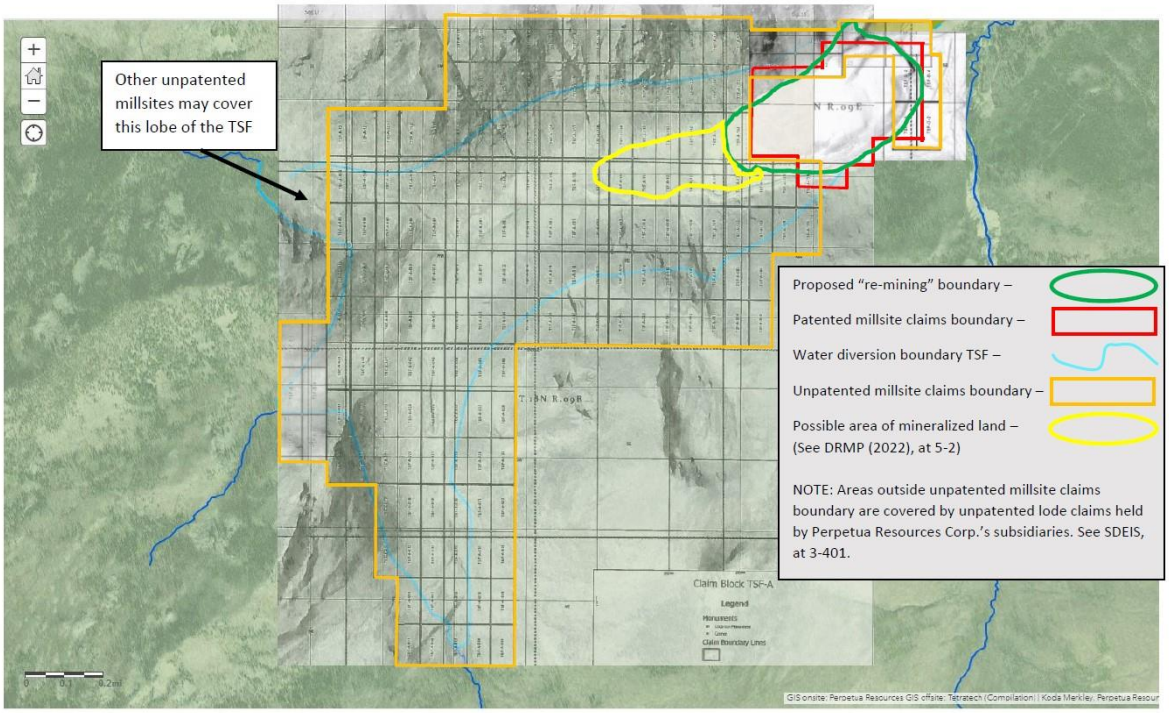

Figure 2 - Millsite claims[20]

C. Unpatented lode claims located along the proposed Burntlog Route.

Perpetua Resources Corp.'s subsidiaries have located unpatented lode mining claims along portions of the Burntlog Route between Trapper Creek and the larger claim block comprising the SGP project area. *See* Midas Gold PRO, Appendix C-4 (2016). With respect to these claims, if they will be used or occupied, whether temporarily or permanently, for activities reasonably incident to mining, they must be valid. Absent evidence supporting validity, their use and occupancy may not be permitted solely under 36 C.F.R. Part 228A. *See Ctr. for Biological Diversity v. United States Fish & Wildlife Serv.*, 33 F.4th 1202 (9th Cir. 2022). Here, validity is a critical determination because only "mining activities conducted pursuant to the General Mining Law of 1872" remain unaffected by the Idaho Roadless Rule. *See* 36 C.F.R. § 294.25(b). In other words, if mining activities are not conducted pursuant to the General Mining Law of 1872, the Idaho Roadless Rule restrictions fully apply.

Use of lands not covered by valid claims under the Mining Law, are not "authorized by the mining laws." *See Ctr. for Biological Diversity v. United States Fish & Wildlife Serv.*, 33 F.4th 1202 (9th Cir. 2022). Thus, in this case, for the Burntlog Route, the agency can only consider approval under the right-of-way (ROW) provisions of Title V of FLPMA (43 U.S.C.

[20] Figure 1 and 2. Maps depicting approximate location of millsite claims filed on September 1, 2022, in relation to other features at the proposed SGP mine site.

§§ 1761-1771) and its implementing regulations. As noted herein and in previous comments, due to the significant adverse impacts to environmental and cultural resources, and Treaty Rights, the project, including the Burntlog Route, does not qualify as an acceptable ROW.

In addition, the Idaho Roadless Area themes along the Burntlog Route are designated Backcountry/Restoration and Special Areas of Historic or Tribal Significance. Under the Rule, "the Forest Service will not authorize sale or use common variety mineral materials in Special Areas." 36 C.F.R. § 294.25(c)(2). Thus, borrow pits to support construction and maintenance of the proposed Burntlog Route must not be sited in these areas whatsoever.

Similarly, the Forest Service "may authorize the use and sale of common variety mineral materials . . . only if the use of these mineral materials is incidental to an activity otherwise permissible in backcountry/restoration" areas. 36 C.F.R. § 294.25(d)(2). As such, the Rule limits road construction and reconstruction in these areas only to a narrow set of circumstances, which includes, among other things, roads "needed pursuant to . . . outstanding rights, or other legal duty of the United States. *See* 36 C.F.R. § 294.23(b)(1). None of these circumstances apply to the SGP if Perpetua's mining operations are not pursuant to, i.e., "authorized by," the General Mining Law of 1872.

The Rule also allows "[t]emporary road construction or road reconstruction *to reduce hazardous fuel conditions*" within community protection zones or outside of community protection zones provided certain conditions exist. 36 C.F.R. §§ 294.23(b)(2) and (3); *see also Jayne v. Sherman*, 707 F.3d 944, 997 (9th Cir. 2013). Again, none of these conditions are satisfied *unless* the SGP is a mining activity pursuant to the General Mining Law of 1872.

Notably, the SDEIS treats the road profile as a "permanent" total soil resource commitment because the roadbed would never move. SDEIS, at 4-82. Additionally, permanent features such as soil nails and cut and fill material would remain on the landscape indefinitely. Thus, regulating this type of permanent use and occupancy of unpatented mining claims along the Burntlog Route solely under 36 C.F.R. Part 228A requires that the claims on which the use and occupancy occur be valid.

Even if a permit that authorizes mining activities is issued under another regulatory framework—such as 36 C.F.R. Part 251/61—the Burntlog Route would not be "needed" because other options exist to access the SGP. Indeed, a miner's preferred means of access to mining claims has never been a right, i.e., "needed," under the United States mining laws. *See Clouser v. Espy*, 42 F.3d 1522 (9th Cir. 1994).

D. Proposed borrow pits along the Burntlog Route may not be permitted as "free use."

The 2020 Surface Use Determination claims that borrow sites along the Burntlog Route would be established "as needed," and permitted under 36 C.F.R. § 228.62(d) and 16 U.S.C. § 477. SUD, at 12 n.8. Although free-use permits *may* be issued for mineral materials

to miners, if the miner "owns or controls an adequate supply of mineral material in the area of demand," the permit cannot be issued. 36 C.F.R. § 228.62(d). In addition, the volume of mineral materials removed by a corporation or individual cannot exceed "5,000 cubic yards (or weight equivalent) during any period of 12 consecutive months." 36 C.F.R. § 228.62(d)(2). Accordingly, the Forest Service cannot issue free use permits if materials necessary for the construction and maintenance of the proposed Burntlog Route exceed this amount. Rather, the Forest Service must authorize such use under a different regulatory framework that is consistent with the United States mining laws governing disposal of common variety minerals. *See* 36 C.F.R. § 228.59(e)(1); *see also* 16 U.S.C. § 477 (Forest Service "*may* permit" use of sand and gravel by miners subject to regulations prescribed by the Secretary). The SDEIS must include a determination of the volume (or weight equivalent) of common varieties minerals that would be excavated annually from each proposed borrow pit along the proposed Burntlog Route, and must determine and disclose whether Perpetua's proposed borrow pits qualify for "free use" permits.

E. Validity of unpatented lode claims within the project boundary must be determined.

Other landscape features associated with SGP mining activities, such as the fish tunnel, waste rock piles, portions of the tailing storage facility, and other landscape features, may permanently occupy unpatented lode mining claims. The Forest Service must determine whether *each* proposed mining operation that would occur on *each* unpatented lode claim held by Perpetua Resources is authorized by the United States mining laws. If the Forest Service determines these mining operations are not authorized by the United States mining law, it must regulate the project under the correct regulatory regime, which may require altering the scale, intensity, and/or scope of the SGP—even if that means a substantial reduction in the amount of mining waste that can be stored on national forest lands.

IV. THE PROJECT FAILS TO COMPLY WITH REQUIREMENTS FOR SPECIAL USES ON FEDERAL LANDS AND RIGHTS OF WAY UNDER FLPMA TITLE V

Like with the other facilities proposed on the federal lands, the Forest Service is under the mistaken belief that the access/support corridors and uses thereof are subject only to the Part 228A regulations. The DEIS stated that: "transportation and utility uses associated with mineral development activities are authorized under 36 CFR 228A as part of an operator's plan of operations and do not require a separate special use permit." DEIS at 3.15-7. As noted above and herein, that is wrong. For the corridors, the DEIS failed to meet the strict public interest, environmental protection, and financial requirements of the Federal Land Policy and Management Act (FLPMA).

The SDEIS modified this slightly, but does not specify which regulatory provisions actually apply – leaving the public in the dark:

> The action alternatives would require new ROWs or easements to accommodate the construction of new and upgraded access roads and transmission lines. These impacts would be located on private, state, and NFS lands; new transmission line ROW would not cross any Bureau of Reclamation lands for either action alternative. New ROWs on NFS lands are considered a direct effect to land use and may be authorized under Forest Service special uses regulations at 36 CFR 251 or under 36 CFR 228A depending on the type of use, location, and other factors. For purposes of this environmental analysis, the agency is assuming the proposed uses would be able to be authorized under existing regulatory authorities. However, the agency will need to evaluate the eventual applications for rights of way to make a final determination.[21]

Yet, as noted above, unless the proposed transmission lines, access roads, and other crossings of federal land are authorized by the Mining Law on valid claims, these uses are regulated under FLPMA, not under any assumed "rights" under the Mining Law.

Under FLPMA Title V, Section 504 (which applies to both the Forest Service and BLM), the Forest Service may grant a ROW only if it "(4) will do no unnecessary damage to the environment." 43 U.S.C. § 1764(a). Rights of way "shall be granted, issued or renewed … consistent with . . . any other applicable laws." *Id.* § 1764(c). A right-of-way that "may have significant impact on the environment" requires submission of a plan of construction, operation, and rehabilitation of the right-of-way. *Id.* § 1764(d). A Title V SUP/ROW "shall contain terms and conditions which will . . . (ii) minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment." *Id.* § 1765(a).

In addition, the ROW can only be issued if activities resulting from the ROW:

> (i) protect Federal property and economic interests; (ii) manage efficiently the lands which are subject to the right-of-way or adjacent thereto and protect the other lawful users of the lands adjacent to or traversed by such right-of-way; (iii) protect lives and property; (iv) protect the interests of individuals living in the general area traversed by the right-of-way who rely on the fish, wildlife, and other biotic resources of the area for subsistence purposes; (v) require location of the right-of-way along a route that will cause least damage to the environment, taking into consideration feasibility

[21] 347 F.3d 1081 (9th Cir. 2003).

and other relevant factors; and (vi) otherwise protect the public interest in the lands traversed by the right-of-way or adjacent thereto. *Id.* § 1765(b).

At least three important potential substantive requirements flow from the FLPMA's ROW provisions. First, the Forest Service has a mandatory duty under Section 505(a) to impose conditions that "will minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment." *Id.* § 1765(a). The terms of this section do not limit "damage" specifically to the land within the ROW corridor. Rather, the repeated use of the expansive term "the environment" indicates that the overall effects of the ROW on cultural/historical, wildlife, environmental, scenic and aesthetic values must be evaluated and these resources protected. In addition, the obligation to impose terms and conditions that "protect Federal property and economic interests" in Section 505(b) requires that the Forest Service must impose conditions that protect not only the land crossed by the right-of-way, but all federal land affected by the approval of the ROW. This includes the federal waters and water rights that will be eliminated or significantly reduced by the project.

The requirements in Section 505(b) mandate a Forest Service determination as to what conditions are "necessary" to protect federal property and economic interests, as well as "otherwise protect[ing] the public interest in the lands traversed by the right-of-way or *adjacent thereto*." (emphasis added). This means that the agency can only approve the ROW if it "protects the public interest in lands" not only upon which the road would traverse, but also lands and resources adjacent to and associated with the ROW. As noted herein, the Forest Service would be unable to make a legitimate finding that industrial use of the lands served by the ROW, given the massive adverse impacts from the Mine, would "protect the public interest."

Third, is the requirement that the right-of-way grants "do no unnecessary damage to the environment" and be "consistent with … any other applicable laws." *Id.* §§ 1764(a)-(c). This means that a grant of a ROW supporting other activities must satisfy all applicable treaties and laws, regulations and policies, including FLPMA, the Endangered Species Act (ESA), Organic Act, the National Forest Management Act (NFMA), National Historic Preservation Act (NHPA), Clean Water and Air Acts (CWA, CAA), all state and local laws, etc.

Federal courts have repeatedly held that the federal land agency not only has the authority to consider the adverse impacts on lands and waters outside the immediate ROW corridor, it has an obligation to protect these resources under FLPMA. In *County of Okanogan v. National Marine Fisheries Service*, the court affirmed the Forest Service's imposition of mandatory minimum stream flows as a condition of granting a ROW for a

water pipeline across Forest Service land.[22] This was true even when the conditions/requirements restricted or denied vested property rights (in that case, water rights).[23]

The Forest Service thus cannot issue a ROW that fails to "protect the environment" as required by FLPMA, including the environmental resource values in and out of the ROW corridor. "FLPMA itself does not authorize the Supervisor's consideration of the interests of private facility owners as weighed against environmental interests such as protection of fish and wildlife habitat. FLPMA *requires* all land-use authorizations to contain terms and conditions which will protect resources and the environment."[24]

The Interior Department, interpreting FLPMA Title V and its right-of-way regulations, has held that: "A right-of-way application may be denied, however, if the authorized officer determines that the grant of the proposed right-of-way would be inconsistent with the purpose for which the public lands are managed or if the grant of the proposed right-of-way would not be in the public interest or would be inconsistent with applicable laws."[25]

Similar to the *County of Okanogan* and *Colorado Trout Unlimited* federal court decisions noted above, the Interior Department has held that the fact that a ROW applicant has a property right that may be adversely affected by the denial of the ROW does not override the agency's duties to protect the "public interest." In *Kenneth Knight*, the BLM's denial of the ROW was affirmed due not only to the direct impact of the water pipeline, but on the adverse effects of the removal of the water in the first place:

> [T]he granting of the right-of-way and concomitant reduction of that resource, would, in all likelihood, adversely affect public land values, including grazing, wildlife, and riparian vegetation and wildlife habitat. The record is clear that, while construction of the improvements associated with the proposed right-of-way would have minimal immediate physical impact on the public lands, the effect of removal of water from those lands would be environmental degradation. Prevention of that degradation, by itself, justified BLM's rejection of the application.[26]

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[22] 347 F.3d 1081 (9th Cir. 2003).
[23] *Id.* at 1085-86.
[24] *Colo. Trout Unlimited v. U.S. Dep't of Agric.*, 320 F. Supp. 2d 1090, 1108 (D. Colo. 2004) (emphasis in original) *appeal dismissed as moot*, 441 F.3d 1214 (10th Cir. 2006).
[25] *Clifford Bryden*, 139 IBLA 387, 389-90 (1997) (affirming denial of right-of-way for water pipeline, where diversion from spring would be inconsistent with BLM wetland protection standards).
[26] 129 IBLA 182, 185 (1994).

That was also the case in *Clifford Bryden*, as the adverse impacts from the removal of the water was considered just as important as the adverse impacts from the pipeline that would deliver the water.[27]

In *King's Meadow Ranches*,[28] the Interior Board of Land Appeals (IBLA) affirmed the denial of right-of-way for a water pipeline, where the pipeline would degrade riparian vegetation and reduce bald eagle habitat. The Department specifically noted that under FLPMA Title V: "[A]s BLM has held, it is not private interests but the public interest that must be served by the issuance of a right-of-way."[29] As the IBLA recently held:

> The public interest determination is more than a finding that no laws will be violated by granting the ROW. Even if UUD [Unnecessary or Undue Degradation] can be avoided, degradation to public resources posed by a requested ROW may factor into BLM's determination of whether that ROW would be in the public interest. For example, in *Sun Studs*, we upheld BLM's rejection of a logging road ROW permit based on environmental considerations without any suggestion that the environmental harm rose to the level of unlawful degradation.[30]

The Interior Department has ruled that pipelines and associated infrastructure, including those across public land related to a mining operation, are not covered by statutory rights under the Mining Law. "[A] right-of-way must be obtained prior to transportation of water across Federal lands for mining."[31] Although these cases dealt with BLM lands, they apply equally to Forest Service lands. As noted in *Alanco*, ROWs for access roads (as opposed to internal mine roads) are subject to FLPMA's Title V requirements.

The IBLA has expressly rejected the argument that rights under the mining laws apply to pipelines and roads associated with water delivery:

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[27] 139 IBLA at 388-89. *See also C.B. Slabaugh*, 116 IBLA 63 (1990) (affirming denial of right-of-way for water pipeline, where BLM sought to prevent the applicant from establishing a water right in a wilderness study area).

[28] 126 IBLA 339 (1993).

[29] 126 IBLA at 342 (emphasis added).

[30] *Klamath-Siskiyou Wildlands Ctr.*, IBLA 2019-75, at 9 (April 29, 2019), citing *Sun Studs*, 27 IBLA at 282-83.

[31] *Far West Exploration, Inc.*, 100 IBLA 306, 308, n. 4 (1988) *citing Desert Survivors*, 96 IBLA 193 (1987). *See also Alanco Environmental Resources Corp.*, 145 IBLA 289, 297 (1998) ("construction of a road, was subject not only to authorization under 43 C.F.R. Subpart 3809, but also to issuance of a right-of-way under 43 C.F.R. Part 2800."); *Wayne D. Klump*, 130 IBLA 98, 100 (1995) ("Regardless of his right of access across the public lands to his mining claims and of his prior water rights, use of the public lands must be in compliance with the requirements of the relevant statutes and regulations [FLPMA Title V and ROW regulations].").

> Clearly, FLPMA repealed or amended previous acts and Title V now requires that BLM approve a right-of-way application prior to the transportation of water across public land for mining purposes. See 43 U.S.C. § 1761 (1982). As was the case prior to passage of Title V of FLPMA, however, approval of such an application remains a discretionary matter and the Secretary has broad discretion regarding the amount of information he may require from an applicant for a right-of-way grant prior to accepting the application for consideration. *Bumble Bee Seafoods, Inc.*, 65 IBLA 391 (1982). A decision approving a right-of-way application must be made upon a reasoned analysis of the factors involved in the right-of-way, with due regard for the public interest. *See East Canyon Irrigation Co.*, 47 IBLA 155 (1980).
>
> BLM apparently contends that a mining claimant does not need a right-of-way to convey water from land outside the claim for use on the claim. It asserts that such use is encompassed in the implied rights of access which a mining claimant possesses under the mining laws. Such an assertion cannot be credited.
>
> The implied right of access to mining claims never embraced the right to convey water from outside the claim for use on the claim. This latter right emanated from an express statutory grant in the 1866 mining act. *See* 30 U.S.C. § 51 (1970) and 43 U.S.C. § 661 (1970). In enacting FLPMA, Congress repealed the 1866 grant of a right-of-way for the construction of ditches and canals (see § 706(a) of FLPMA, 90 Stat. 2793) and provided, in section 501(a)(1), 43 U.S.C. § 1761(a)(1), for the grant of a right-of- way for the conveyance of water under new procedures. In effect, Congress substituted one statutory procedure for another. There is simply no authority for the assertion that mining claimants need not obtain a right-of-way under Title V for conveyance of water from lands outside the claim onto the claim.[32]

The same analysis applies to transmission lines, pipelines, etc., delivering or transporting power, water, water, tailings, etc., on federal land. The leading treatise on federal natural resources law confirms this rule: "Rights-of-way must be explicitly applied

[32] *Desert Survivors*, 96 IBLA 193, 196 (1987) (emphasis added). *See also Far West Exploration*, 100 IBLA 306, 309, n.4 (1988) ("a right-of-way must be obtained prior to transportation of water across Federal lands for mining.").

for and granted; approvals of mining plans or other operational plans do not implicitly confer a right-of-way."[33]

The fact that the Forest Service mining regulations consider roads and pipelines associated with the project part of the mineral "operations," 36 CFR § 228.3, does not override these holdings or somehow create statutory rights where none exist.

> [I]t does not follow that the Forest Service must use these Part 228 regulations merely because an action falls within the regulation's definition of operations. The Forest Service's reliance on its definition of operations ignores the purpose of its own regulations. Part 228 regulates "use of the surface of National Forest System lands in connection with operations *authorized* by the United States mining laws (30 U.S.C. 21-54 [Mining Law of 1872])." 36 C.F.R. § 228.1. Therefore, authorization under the Mining Law of 1872 acts as a precursor to any regulation through Part 228.[34]

Further, "Access to patented mining claims, mineral leases, and private property inholdings are not subject to 36 CFR part 228, subpart A nor to the access provisions as discussed herein." U.S. Forest Service Minerals Manual § 2817.25.

Overall, the SDEIS and agency review of these facilities fails to apply the proper discretionary and public interest review applicable to Title V and its implementing regulations. This failure, as well as the fundamental errors in assuming that Perpetua has a statutory right to receive approval of any delivery, conveyance, transmission, or access facilities, further undermines the agencies' NEPA alternatives and mitigation analysis.

Lastly, the Forest Service failed to comply with the financial requirements of FLPMA regarding ROW applications and approvals. At a minimum, the Forest Service must obtain "Fair Market Value" (FMV) for the use of federal land and resources. FLPMA requires that "the United States receive fair market value of the use of the public lands and their resources." 43 U.S.C. § 1701(a)(9). "The holder of a right-of-way shall pay in advance the fair market value thereof, as determined by the Secretary granting, issuing, or renewing such right-of-way." 43 U.S.C. § 1764(g). In addition, Perpetua must fully "reimburse the United States for all reasonable administrative and other costs incurred in processing an application for such right-of-way and in inspection and monitoring of such construction, operation, and termination of the facility pursuant to such right-of-way." *Id.* Forest Service regulations state that: "(a) …special use authorizations shall require the payment in advance of an annual rental fee as determined by the authorized officer. (1) The fee shall be based on the fair

[33] George C. Coggins & Robert L. Glicksman, *Pub. Nat. Res. Law*, § 15.21 (2d ed. 2020).
[34] *Ctr. for Biological Diversity*, 409 F. Supp. 3d at 764 (emphasis in original).

market value of the rights and privileges authorized, as determined by appraisal or other sound business management principles." 36 C.F.R. § 251.57.

V. MANY SERIOUS AND UNRESOLVED CONCERNS ABOUT THE PROJECT ANALYSES WARRANT A SUPPLEMENTAL SDEIS.

CEQ regulations provide:

> NEPA regulations must ensure that the environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA.
>
> 40 C.F.R. § 1500.1 (1978).

"If a [DEIS] is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft . . . ." 40 C.F.R. § 1502.9(a) (1978). The SDEIS is riddled with data gaps, inaccurate description of the current environmental conditions, missing but available baseline information, among other concerns, which require revising and/or supplementing the SDEIS to comply with NEPA.

A. The SDEIS improperly relies on inaccurate or incomplete baseline data.

To take the required "hard look" under NEPA, an EIS must describe the environmental baseline of the areas to be affected. 40 C.F.R. § 1502.15. An accurate baseline is "essential" to an informed analysis. 40 C.F.R. § 1502.21(b). Baseline conditions are necessary to "determine what effect the project will have on the environment" and thus to comply with NEPA.[35] "Without establishing the baseline conditions which exist . . . before [a project] begins, there is simply no way to determine what effect the [project] will have on the environment and, consequently, no way to comply with NEPA."[36]

An agency cannot rely on post-approval surveys, studies, or mitigation as a substitute for suitable baseline information.[37] For example, courts have held that the Forest Service violates NEPA when it approves a mine exploration project without gathering baseline

[35] *Great Basin Res. Watch v. BLM*, 44 F.3d 1095, 1101 (9th Cir. 2016).
[36] *Half Moon Bay Fishermans' Mktg. Ass'n v. Carlucci*, 857 F.2d 505, 520 (9th Cir. 1988).
[37] *See N. Plains Res. Council v. Surface Transp. Bd.*, 668 F.3d 1067, 1083 (9th Cir. 2011).

groundwater hydrology information to assess impacts of drilling before approving a project.[38] While it may be permissible in some circumstances for an agency to estimate baseline conditions–instead of conducting actual measurements–by using data from a similar area, computer modeling, or some other method, the agency's method "must be based on accurate information and defensible reasoning."[39]

As shown throughout many sections of these comments, the Forest Service failed to gather and utilize adequate baseline data—data which is available or readily attainable. The Forest Service must correct these errors by gathering and utilizing up-to-date, accurate baseline data, and must issue a revised or supplemental SDEIS for public comment.

B. There are several unsupported assumptions, unknowns, and changing circumstances about the Stibnite Gold Project.

As discussed already, an EIS must disclose sufficient details about each alternative to enable meaningful review of environmental effects and consideration of alternatives. Throughout the EIS and its supporting documents, the Forest Service makes numerous unsupported and unreasonable assumptions about the Stibnite Gold Project on issues that are unknown, subject to change, and/or still being decided–issues that could have major implications on the likely environmental effects, feasibility, and other factors related to each alternative, including the proposed action, and for the associated mitigation and monitoring.

For example, degraded water quality is a major concern both in the short and long term. Water quality effects will depend significantly on the CWA permitting for the mine site. But Perpetua and the Forest Service have failed to disclose in any detail what types of CWA permits will be issued for which point sources, where those permitted point sources will be located, which standards will apply to them, and other important factors.

As another example, critical details about public access along the Burntlog Route are still undecided. While Perpetua states public access will be allowed on the Burntlog Route all the way to the mine site, many of the Forest Service's disclosures and analyses in the SDEIS assume the Burntlog Route would be closed at its current terminus and would not allow the public to travel on the newly constructed part of the road and to the mine site. Without deciding on this, the environmental effects are unresolved and likely have not been adequately considered and disclosed in the SDEIS.

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[38] *Idaho Conservation League v. U.S. Forest Serv.*, No. 1:11-cv-00341-EJL, 2012 WL 3758161, *14 (D. Idaho Aug. 29, 2012); *Gifford Pinchot Task Force v. Perez*, No. 03:13-cv-00810-HZ, 2014 WL 3019165 (D. Or. 2014); *Idaho Conservation League v. U.S. Forest Serv.*, No. 1:16-cv-0025-EJL, 2016 WL 3814021, *10 (D. Idaho July 11, 2016); *Idaho Conservation League v. U.S. Forest Serv.*, No. 1:18-cv-504-BLW, 2019 WL 6896908 (D. Idaho Dec. 18, 2019).

[39] *Oregon Natural Desert Ass'n v. Jewell*, 840 F.3d 562, 570 (9th Cir. 2016).

The Forest Service also fails to fully disclose or fully consider in the SDEIS that Perpetua is exploring for additional mining opportunities at the site. For example, it proposes to approve underground exploration of the Scout Prospect, with extremely limited data and analysis. Further, while the SDEIS does acknowledge that Perpetua's Golden Meadows exploration project was previously approved and suggests that it might still be underway, the Forest Service fails to explain how Perpetua is using this exploration to identify additional mining opportunities beyond the scope of the Stibnite Gold Project as proposed and discussed in the SDEIS, or what the potential cumulative effect are. Perpetua's mining claims along the proposed Burntlog Route suggest that additional mineral exploration activities may be reasonably foreseeable. If Perpetua does not plan to conduct any exploration or development on these sites, it is unclear if these claims are valid. The idea that additional mineral exploration and development will be occurring in one or more of these locations brings into question the overall timeline for mine closure and restoration.

Since the DEIS, Perpetua has abandoned some mining claims and submitted new mining claims, as discussed already. The Forest Service cannot simply assume the claims are valid, the claims cover the proposed activities, and that the Stibnite Gold Project will have the same effects as it would have previously under the different configuration of claims.

Instead of rushing ahead to approve Perpetua's mine, the Forest Service should take the time to resolve these uncertainties, or should at least disclose these uncertainties and properly factor them into the SDEIS and its analyses.

C. There are several instances of missing or incomplete information that are relevant to the foreseeable impacts and essential to a choice among the alternatives.

NEPA's purpose is "to foster excellent action," and the "NEPA process is intended to help public officials make decisions that are based on an understanding of environmental consequences, and take actions that protect, restore, and enhance the environment." 40 C.F.R. § 1500.1(c) (1978). To this end, an EIS must "provide full and fair discussion of significant environmental impacts." *Id.* at 1502.1 (1978).

NEPA requires that "environmental information is available to public officials and citizens before decisions are made and before actions are taken." *Id.* at 1500.1(b) (1978). In an EIS, an agency must explain its methodology and results, and include its baseline studies as an appendix for the public to review.[40]

[40] *See* Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Fed. Reg. 18,026, 18,033-34 (Mar. 23, 1981).

Information disclosed during the NEPA process "must be of high quality."[41] "Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA."[42] As the Ninth Circuit has explained:

> Congress wanted each federal agency spearheading a major federal project to put on the table, for the deciding agency's and public's view, a sufficiently detailed statement of environmental impacts and alternatives so as to permit informed decision making. The purpose of NEPA is to require disclosure of relevant environmental considerations that were given a "hard look" by the agency, and thereby to permit informed public comment on proposed action and any choices or alternatives that might be pursued with less environmental harm.[43]

"[T]he very purpose of NEPA's requirement that an EIS be prepared for all actions that may significantly affect the environment is to obviate the need for speculation by insuring that available data is gathered and analyzed prior to the implementation of the proposed action."[44] "NEPA requires that the agency provide the data on which it bases its environmental analysis."[45] NEPA, thus, requires transparency and placing the high-quality information the agency relied on before the public, before approving a project.[46] This is true of supposedly confidential information too.[47]

As set forth in many sections in these comments, the SDEIS and its supporting documents rely/depend upon missing, incomplete, confidential, low quality, and inaccurate information.

The Forest Service must, therefore, gather, consider, and disclose to the public important and high quality information about the Stibnite Gold Project, the proposed

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[41] *Id.*

[42] *Id.; see also Or. Natural Desert Ass'n v. Jewell*, 840 F.3d 562, 570 (9th Cir. 2016) (NEPA violation where agency's "inaccurate data and unsupported assumption materially impeded informed decisionmaking and public participation"); *Great Basin Res. Watch v. BLM*, 844 F.3d 1095 (9th Cir. 2016) (NEPA violation where agency failed to provide support for its selected baseline values).

[43] *Lands Council v. Powell*, 395 F.3d 1019, 1027 (9th Cir. 2005).

[44] *LaFlamme v. F.E.R.C.*, 852 F.2d 389, 400 (9th Cir. 1988).

[45] *N. Plains Res. Council*, 668 F.3d at 1083.

[46] *See, e.g., Idaho Conservation League v. Lannom*, 200 F. Supp. 3d 1077, 1088 (D. Idaho 2016) (Payette National Forest violated NEPA when it concluded "internally" that mining proposal complied with law but where agency's calculus "was not shared with the public in any written analysis").

[47] *Id.* at 1089 ("The transparency that NEPA requires was ignored when [the mining company] and the Forest Service held a confidential meeting. . . . Under NEPA, the agency cannot rely on material that is kept secret from the public. . . . [T]he agency either must explain it did not rely on this confidential information or, if it did rely upon it, describe the information and how it affected the agency's decision.").

alternatives, and their environmental effects in a supplemental or revised SDEIS and release it for public comment before rushing ahead to approve the Project.

Additionally, in determining whether an EIS fosters informed decision-making and public participation, courts consider not only the content of an EIS, but also its form.[48] The NEPA document "is where the [agency's] defense of its position must be found."[49] To provide a "full" and "fair" discussion of environmental effects, an agency must address issues "up front" and cannot "cobble together a 'hard look' from various other analyses."[50]

Here, even when information is purportedly available, much of it is incomprehensible, or extremely burdensome to find and use. Commenters hired multiple experts to review the SDEIS, who had to spend significant time cobbling together critical information the Forest Service relied upon in reaching its conclusions. The Forest Service must make all information available in a form suitable for public review as part of a supplemental or revised SDEIS released for public comment.

D. The limited temporal and geographic scales render the analyses inadequate.

"[A]n agency has the discretion to determine the physical scope used for measuring environmental impacts," so long as its choice represents a reasoned decision and is not arbitrary.[51] Similarly, an agency's discretion to determine the temporal scope of its NEPA analysis requires the agency to consider the relevant factors and provide a rational connection between the facts found and the choice made.[52] An agency must offer a "reasonable justification for why it drew the line where it did."[53]

As set forth throughout these comments, the Forest Service arbitrarily constrained the temporal and/or geographic scope of its effects analysis to omit disclosure and evaluation of potential significant effects caused by the Stibnite Gold Project. For example, as discussed in more detail later in these comments, data collected to model baseline conditions is limited to small areas of the mine site and are spatially-biased. *See infra*.

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[48] *State of Cal. v. Block*, 690 F.2d 753, 761 (9th Cir. 1982).
[49] *Or. Natural Desert Ass'n v. Rose*, 921 F.3d 1185, 1191 (9th Cir. 2019).
[50] *See Nat'l Parks & Conservation Ass'n v. BLM*, 606 F.3d 1058 (9th Cir. 2010) (NEPA violation where "[a] reader seeking enlightenment on the issue would have to cull through entirely unrelated sections of the EIS and then put the pieces together."). *See also Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1216 (9th Cir. 1998) ("NEPA emphasizes the importance of coherent and up-front environmental analysis to ensure informed decisionmaking").
[51] *Idaho Sporting Cong. v. Rittenhouse*, 305 F.3d 957, 973 (9th Cir. 2002).
[52] *Selkirk Conservation All. v. Forsgren*, 336 F.3d 944, 962 (9th Cir. 2003).
[53] *Friends of the Wild Swan v. Weber*, 767 F.3d 936, 944 (9th Cir. 2014).

The scope of the effects analyses are also geographically limited. For example, as described in Lubetkin (2022), the transport of hazardous materials to the mine site will involve a much larger geographic area than the transportation route identified in the SDEIS. Instead of only considering the transportation corridor from SH-55 at Cascade to the mine site, the true measure of the communities and environment at risk will extend to the distribution points of the reagents brought to the mine and the destinations of the ore concentrate and wastes taken from it. Spills of hazardous materials may have significant impacts to public health and the environment that must be fully analyzed in the SDEIS.

Similarly, as described below, Chapter 4 of the SDEIS only analyzes effects to fisheries or water quality at the mine site area; it fails to analyze consequences of the project to fisheries and surface water quality in the larger analysis area downstream and outside of the local mine site. For example, impacts to waters downstream of the Yellow Pine pit lake -- which may be the most impacted waters--are not evaluated. Such impacts that could occur well-beyond the local mine site include, but are not limited to, increased water temperatures, increased risk of hazardous spills, increased detrimental impacts from roads, and increased metals concentrations. The geographic scale of the impacts does not match, and well exceeds, that of the management areas identified and affected by the proposed Forest Plan amendment at SDEIS, Appendix A-3. By failing to include impacts beyond the mine site, the geographic scope of the proposed amendment was unreasonably narrow. The true impacts of this proposed amendment were neither considered nor disclosed to the public.

Temporal data is also limited. As discussed below, the SDEIS fails to address the potential long-term impacts of water treatment at the West End Pit and the Tailings Storage Facility, which may continue for an indefinite period of time. This is particularly important when it comes to the SDEIS's failure to provide a financial assurance calculation, which is necessary to ensure that sufficient funds are available for reclamation in the event that the company files for bankruptcy or is otherwise unable to complete reclamation. It is important to disclose and analyze the assumptions that will be made in establishing the financial assurance, the amount of post-closure financial assurance needed to protect the public if water treatment is required beyond Mine Year 40.

The Forest Service defers the financial assurance calculation until after the ROD, yet the information that is available at this stage of the mine design, and for the SDEIS analysis, is more than sufficient to analyze the reclamation and closure costs. In fact, those calculations have already been made in the Feasibility Study (M3 2021). The Forest Service has decided not to include them in the SDEIS. By doing so, the SDEIS fails to take a hard look at the financial assurance calculations for reclamation and closure costs at the proposed SGP, including those water treatment liabilities that may continue for an undetermined time.

Geographical and temporal limitations in the effects analyses can result in both underestimated and unrealized significant impacts that will not be disclosed in the SDEIS. The Forest Service must expand the geographic and temporal scales of the analyses and disclose the potential impacts in a supplemental or revised SDEIS for public review.

E. The SDEIS fails to include essential information and project designs.

The SDEIS completely omits critical information for the evaluation of the impacts of the Stibnite Gold Project. Some of these items include:

- An analysis under the CWA 404(b)(1) guidelines
- A detailed reclamation plan
- Plans and analysis of underground exploration (Scout Prospect Tunnel)
- A description of financial assurance calculations
- Designs of the transmission line upgrades and construction
- A fugitive dust control plan
- Sediment modeling
- Cyanidation facility permanent closure plan

This reliance on future studies and design plans violates NEPA, as NEPA's entire purpose is to ensure that environmental considerations are taken into account *before* a decision is reached. The Forest Service should have obtained--and Perpetua should have provided--all this information before issuance of the SDEIS. Without the missing information, the Forest Service and the public cannot assess the full impacts of the project or meet the basic requirements of NEPA.

F. There are significant changed circumstances since the SDEIS was released that require preparation of a supplemental SDEIS.

NEPA requires preparation of a supplemental EIS if there are "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." 40 C.F.R. § 1502.9(c)(ii) (1978).[54]

1. Department of Defense grant

[54] *See Idaho Conservation League v. U.S. Forest Serv.*, 2016 WL 3814021, No. 1:16-cv-00025-EJL (D. Idaho July 11, 2016) (Forest Service violated NEPA when it failed, before approving mine exploration, to resurvey baseline plant populations and habitat conditions after "changed circumstances" caused by recent wildfire and fire-fighting activities).

A significant new development occurred on December 19, 2022, when the Department of Defense announced $24.8 million in grant funding for the Stibnite Gold Project, stating that:

> The DPA Investments Program will provide $24.8 million to Perpetua *to complete environmental and engineering studies* necessary to obtain a Final Environmental Impact Statement, a Final Record of Decision, and other ancillary permits. Perpetua will perform this study work related to its Stibnite-Gold Project in central Idaho through 2024.(emphasis added).[55]

A similar press release by Perpetua Resources further emphasizes the development of essential information related to the SGP, including environmental baseline data monitoring, environmental and technical studies, as provided by new grant funding, announced on December 19, 2022:

> Under the funding agreement, Perpetua may request reimbursement for certain costs incurred over 24 months *related to environmental baseline data monitoring, environmental and technical studies and other activities* related to advancing Perpetua's construction readiness and permitting process for the Stibnite Gold Project. (emphasis added)[56]

These environmental and engineering studies, which the DoD press release says Perpetua will perform through 2024, and are deemed "necessary to obtain a Final Environmental Impact statement," must be provided for public review and comment in the NEPA process.

2. Whitebark pine listing

On December 15, 2022, toward the end of the SDEIS comment period, the U.S. Fish and Wildlife Service listed whitebark pine (*Pinus albicaulis*) as threatened under the Endangered Species Act (ESA). This rule is to become effective starting January 17, 2023. Threatened species are likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Due to the listing, there are now additional restrictions regarding the removal of whitebark pine: "The protections for whitebark pine also make it illegal to remove, possess, or damage the tree on federal lands."[57] Federal actions that may

[55]https://www.defense.gov/News/Releases/Release/Article/3249350/dod-issues-248m-critical-minerals-award-to-perpetua-resources/

[56]https://www.investors.perpetuaresources.com/investors/news/perpetua-resources-receives-critical-minerals-award-of-up-to-24-million-under-the-defense-production-act?_ga=2.91994718.57117094.1671652940-1831349263.1668023864

[57]https://www.fws.gov/press-release/2022-12/whitebark-pine-receives-esa-protection-threatened-species

impact whitebark pine must now go through section 7 consultation with the U.S. Fish and Wildlife Service to make sure that project activities will not jeopardize this species.

NEPA requires informed public comment "on proposed actions and any choices or alternatives that might be pursued with less environmental harm."[58] The Forest Service must, therefore, account for these changed circumstances in a new supplemental or revised SDEIS and issue it to the public for review. The Forest Service must not only include updated baseline information and effects analysis, but must also include appropriate project modifications and additional mitigation measures.

3. WOTUS rule change

In February 2022, the Corps adopted the pre-2015 WOTUS rule, which no longer categorically excludes ephemeral features as jurisdictional waters and the General Condition 23(d) Stream Mitigation threshold changed to all losses of stream bed that exceed 3/100-acre. Although impact analysis is completed and jurisdictional review is underway, it isn't clear how this review will address impacts to WOTUS identified in the SDEIS. Would this increase the impacted acreage if adopted? The results of this review including (identification of acreage, full analysis and disclosure of impacts) need to be addressed in a revised SDEIS.

4. CEQ guidance on climate change

In addition to the comments below, the Forest Service must incorporate CEQ's recent interim guidance to assist federal agencies in analyzing greenhouse gas emissions and climate change effects of their proposed actions under NEPA.[59] As CEQ poignantly reminds all federal agencies:

> Given the urgency of the climate crisis and NEPA's important role in providing critical information to decision makers and the public, NEPA reviews should quantify proposed actions' GHG emissions, place GHG emissions in appropriate context and disclose relevant GHG emissions and relevant climate impacts, and identify alternatives and mitigation measures to avoid or reduce GHG emissions. CEQ encourages agencies to mitigate GHG emissions associated with their proposed actions to the greatest extent possible, consistent with national, science-based GHG reduction policies established to avoid the worst impacts of climate change.[60]

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[58] *Lands Council v. Powell*, 395 F.3d 1019, 1027 (9th Cir. 2005).
[59] Council on Environmental Quality, [CEQ-2022-0005], National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change), 88 Fed. Reg. 1196 (Jan. 9, 2023)..
[60] *Id.* at 1197.

G. The SDEIS contains multiple discrepancies between references listed in the document and those available on the Forest Service website, with implications for public review.

As described in Maest (2022), the SDEIS contains multiple discrepancies between references listed in the document and those available on the USDA Forest Service website. The implication from these discrepancies is that the SDEIS was not adequately reviewed before it was released to the public, and, even more concerning, the SDEIS may not have used the most up-to-date data and information in its preparation.

Table 1. Discrepancies between geochemistry and water quality references cited in the SDEIS and those available on the USDA Forest Service website.

As listed in SDEIS, Section 7.1 References	**Available from USDA Forest Service website, Project Documents[1]**
Brown and Caldwell. 2021b. Stibnite Gold Project Water Management Plan. Prepared for Perpetua Resources Idaho, Inc. October 2021.	Brown and Caldwell. 2021. Stibnite Gold Project Water Management Plan. Prepared for Perpetua Resources Idaho, Inc. *December*. 638 pgs. (more recent)
Brown and Caldwell. 2021c. Stibnite Gold Project. Environmental Monitoring and Management Program. Prepared for Perpetua Resources Idaho, Inc. May 2021.	Brown and Caldwell. 2021. Stibnite Gold Project Environmental Monitoring and Management Program. Prepared for Perpetua Resources Idaho, Inc. *September*. 64 pgs. (more recent)
Brown and Caldwell. 2021d. Stibnite Gold Project. Development Rock Management Plan. Prepared for Perpetua Resources Idaho, Inc. October 2021.	Brown and Caldwell, *2022*. Final Development Rock Management Plan. Prepared for Perpetua Resources Idaho, Inc. *May*. 143 pgs. (more recent)
Not listed in SDEIS	Brown and Caldwell. 2021. Stibnite Gold Project Water Resources Monitoring Plan. Prepared for Perpetua Resources Idaho, Inc. November. 50 pgs.

SRK Consulting (SRK). 2018b. Stibnite Gold Project Proposed Action Site-Wide Water Chemistry (SWWC) Modeling Report. Prepared for Midas Gold Idaho, Inc. December 2018.	SRK Consulting (SRK). *2021*. Stibnite Gold Project ModPRO2 Site-Wide Water Chemistry (SWWC) Modeling Report. Prepared for Perpetua Resources Idaho, Inc. *October*. 558 pgs. (more recent)
SRK Consulting (SRK). 2021a. Stibnite Gold Project Baseline Geochemical Characterization Report – Phase 1 and Phase 2. Prepared for Perpetua Resources Idaho, Inc. December 2021. (not available on USDA website)	SRK Consulting (SRK). *2021*. Stibnite Gold Project Comprehensive Baseline Geochemical Characterization Report. Prepared for Perpetua Resources Idaho, Inc. *November*. 3514 pgs. (not as recent but may be a more comprehensive report)
1 https://www.fs.usda.gov/project/?project=50516 *Italics in the column to the right highlight the discrepancies in dates.*	

H. Failure to calculate the financial assurance for reclamation and closure

The SDEIS fails to include an analysis of the financial assurance associated with reclamation and closure. The public is ultimately liable for this cost if the company cannot pay it, and it is liable for any difference between the amount established by the Forest Service for the financial assurance, and cost overruns of reclamation and closure that may occur. Cost estimates must be made conservatively in order to protect the public.

In the 2019 Prefeasibility Analysis, the cost estimate for the financial surety was $66.5 million. In the 2021 Feasibility Study that cost estimate increased to $100 million. This cost calculation is not included in the EIS analysis, only in the feasibility analyses, but it has potential significant financial impact on taxpayers and the public. There is no technical justification for delaying the analysis of these calculations, since the calculations have already been done. The public deserves to be able to comment on these calculations as a part of the EIS.

In his Technical Report from the Center for Science in Public Participation (Chambers 2022), Dr. David Chambers provides an important perspective on bonding, starting with a citation from SDEIS 2-91:

> The SDEIS notes that, "Perpetua would be required to post financial assurance to ... provide adequate funding to allow the Forest Service to complete reclamation and post-closure operation, including continuation of any post-closure water treatment, maintenance activities, and necessary

monitoring for as long as required to return the site to a stable and acceptable condition in the event Perpetua was unable to do so."

When mines are developed, financial assurance is required by federal land managers and many state regulatory agencies. Financial assurance is necessary to cover the cost of reclaiming the disturbed surfaces of the mine, and to pay for all post-closure requirements. In this case, a significant part of the financial assurance will be for the cost of water treatment.

It is also important to note that the financial assurance does not cover the cost of a potential mine accident. The financial assurance only covers planned closure. The financial assurance requirement is important for several reasons. First, there have been numerous instances in virtually every state of mining companies filing for bankruptcy without sufficient financial resources to complete their reclamation and closure obligations. In these instances, the government regulatory agencies did not require enough financial assurance to cover the actual costs of mine closure. In British Columbia, it is estimated that the province holds over $1 billion less than the full value for financial assurance required to reclaim BC mines. If the mining company cannot clean up and close the mine, then the public becomes liable either for the cost of cleanup, or for the environmental consequences of the damaged mine site.

There is significant political pressure to keep the costs of these financial assurances as low as possible in order to enhance the economic viability of the mine. This has led to significant underestimations of the amount of financial assurance required to close a mine after a bankruptcy. Alaska, Montana, Nevada, South Dakota, and other states have been victims of this problem. In each instance, taxpayer dollars were required to augment inadequate financial sureties.

Second, the amount of money required to close the mine and to perform post-closure water treatment can be enormous. The present financial assurance for closure of the Red Dog mine in Alaska is $563 million, most of which is related to water treatment in perpetuity. At closure, the Red Dog Mine plans to treat approximately 1.8 billion gallon/year, which drives the majority of the financial assurance requirement. Perpetual water treatment at Stibnite would add hundreds of millions of dollars to the closure cost, which must be covered by the financial assurance.

The method the agency uses to calculate financial assurance is an important issue that is not covered in the EIS. Public disclosure, and an opportunity to review the cost calculations, is not only appropriate, but the potential financial and/environmental impact on the public is also significant.

The National Environmental Policy Act requires federal agencies to undertake a pre-action analysis in the form of an Environmental Impact Statement (EIS) of potential environmental impacts for "major Federal Actions" that may "significantly affect" the quality of the human environment. 42 U.S.C. § 4332(2)(C).

The applicable version of the Code of Federal Regulations, Title 40: Protection of Environment defines "human environment" as:

> **§1508.14 Human environment**
>
> Human environment shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment.(See the definition of "effects"(§1508.8).) This means that economic or social effects are not intended by themselves to require preparation of an environmental impact statement. When an environmental impact statement is prepared and economic or social and natural or physical environmental effects are interrelated, then the environmental impact statement will discuss all of these effects on the human environment. (emphasis in original)

If a financial guarantee is required to protect environmental values, like clean water and fish, then 40 CFR1508.14 clearly suggests that the significant financial assurance required by agency regulations should be evaluated in an EIS. When a federal agency intentionally decides to ignore analyzing the requirement for a financial assurance to protect the environment, the message it clearly sends is that it is not confident in its ability to defend its financial assurance calculations to the public. Deferring the analysis of the financial assurance requirement until later in the permitting process expedites the permitting process, as well as make it more difficult, if not impossible, for the public to review and comment on the adequacy of the financial assurance requirement.

Reclamation and Closure costs are not only a significant factor for calculating the capital costs of a mine, but are also a potential major liability to the public if they are not properly calculated and managed. This means reclamation and closure costs could have a major potential impact on the economic environment of both the community hosting the mine, and the taxpayers who would be liable to pay the costs of reclamation and closure if the mining company becomes financially insolvent. Under the NEPA definition of "significant environmental impact," the potential impacts of an inadequately calculated financial assurance for the reclamation and closure of this mining project could have significant economic, social, and environmental impacts. The financial assurance should be analyzed as a part of this SDEIS.

In the SDEIS, it is important to disclose and analyze the assumptions that will be made in establishing the financial assurance, the amount of post-closure financial assurance needed to protect the public if water treatment is required beyond Mine Year 40. At a minimum, tens of millions of dollars are at issue.

However, in the SDEIS it is noted: “Calculation of the initial bond amount would be completed following the Record of Decision (ROD) when enough information is available to adequately and accurately perform the calculation.” (SDEIS2022).

The information available at this stage of the mine design, and for the SDEIS analysis, is more than sufficient to analyze the Reclamation and Closure costs. In fact, those calculations have already been made in the Feasibility Study (M3 2021). The Forest Service has decided not to include them in the SDEIS. By doing so, the Forest Service is playing a classic game of “hide the ball.”

The DEIS for the Idaho Cobalt Project on the Salmon-Challis National Forest included a draft bond calculation of $44 million dollars.

I. Failure to include necessary information on the tailings dam

Another serious flaw in the technical analysis is the failure to include technical reference documents containing technical specifications and analysis of the tailings dam. The SDEIS refers to calculated factors of safety for both static and seismic considerations, and provides the updated seismic risk analysis necessary to make these calculations, but is still lacking the basic engineering specifications for the dam itself. For example, there is no discussion of the specifications for the fill for the different sections of the dam, and how the quality assurance for dam construction will be performed. Developing this information is standard procedure for an EIS, and since the fundamental dam design does not appear to have changed since at least 2017, there should have been more than sufficient time to develop this information.

J. Insufficient information about the autoclave

The autoclave is a major component of the ore processing system. It operates at very high temperatures, and requires pure oxygen as a continual input. Any mercury in the ore processed in the autoclave will be volatilized into the autoclave exhaust, along with other potential contaminants, like arsenic. There is no detailed discussion of this system, its emission controls, or how its fuel and oxygen needs will be met. Because the mercury emission control systems must operate at a very high efficiency in order to conform to air quality requirements, monitoring their performance is very important. There is no discussion of the efficiency at which these control systems must operate, or how and when the mercury emission control systems will be monitored. Autoclave operation needs to be given more importance in the SDEIS, and a thorough discussion of the monitoring for air emissions from the autoclave, for mercury and any other potential contaminants, needs to be provided.

K. Additional information needed about underground exploration

A mile-long exploration tunnel is being authorized as part of the SDEIS. Underground exploration could potentially impact water quality and quantity. Drilling this exploration tunnel involves the surface disposal of rock with undefined geochemical properties, which could affect the type and level of contaminants that leach from this rock. The only information provided about this project is limited to 10 sentences. The lack of information, data, and analysis in the SDEIS is blatantly insufficient to authorize an activity of this scope.

> In addition to the development rock sources included in Table 3.9-2, advancement of the Scout Exploration Decline is expected to produce 25,000 tons of development rock, approximately 0.01 percent of the project's total mined material. The development rock from the Scout Exploration Decline would consist of the metasedimentary lithologies of the Stibnite roof pendant most prevalent in the West End area including quartzite, carbonate and schists with diorite and quartz monzonite intrusives (SRK 2021a). **The development rock from the decline would be destined for the buttress and backfill locations along with the West End pit development rock.** Hence, the characterizations of the open pit mined lithologies (Table 3.9-3) are applied to the **limited amount** of those lithologies present in the development rock from the Scout Exploration Decline. SDEIS 3-151. (Emphasis added.)

Inferring characteristics from other locations and limited drill samples of the underground area is not sufficient analysis to permit underground mining. Stand alone exploration tunnels such as this have warranted their own NEPA analyses, including the decline for exploration for the Idaho Cobalt Project as well as the EIS for underground development of the Idaho Cobalt Project in which the Forest Service disclosed the geochemical properties of the underground material, discussed how this material was going to be segregated, handled, stored or backfilled, and included extensive information on water quality monitoring and water treatment related to underground mining.

In 1994, the Boise National Forest permitted underground exploration of the Talache Level 900 adit through a Categorical Exclusion without taking a hard look at water treatment needs. The Forest Service did not require a bond for water treatment and has been entirely reliant on the absentee operator to deal with this discharge. Under a court ordered settlement, the operator obtained an NPDES permit for this discharge in 2009 but has been unable to effectively treat this water since, leading to frequent arsenic and iron discharge concentration violations. The operator was subsequently penalized $2 million dollars for Clean Water Act violations and ordered to come into compliance. More recently, since the spring of 2020, arsenic concentrations within discharge from the 900 adit have significantly increased exceeding modern permitted arsenic standards by as much as 12,000%. Despite court order

and recent letters from the Boise National Forest to the mining company, the site continues to violate the Clean Water Act to this day. The Payette National Forest needs to fully address all aspects of the underground exploration for the SGP.

VI. THE SDEIS LACKS ANALYSIS OF CWA 404 b(1) GUIDELINES

In addition to the above comments addressed to the Forest Service and the Army Corps of Engineers (Corps), the following additional comments pertain more directly to the Corps' review of Perpetua's application for a CWA Section 404 permit, although they should be considered by the Forest Service too, as the Forest Service cannot authorize any activities that could violate the CWA or other federal or state laws/regulations.

Congress enacted the CWA in 1972, to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). The Act sets several goals, including attainment and preservation of "water quality which provides for the protection and propagation of fish, shellfish, and wildlife . . . ." *Id.* § 1251(a)(2). To further its goals, the Act prohibits "discharge of any pollutant" into navigable waters except in accordance with the CWA terms. *Id.* § 1311(a).

The Corps issues permits for the discharge of dredged or fill material pursuant to section 404 and subject to the Corps' and EPA's 404(b)(1) Guidelines (Guidelines). 33 U.S.C. §1344; 40 C.F.R. pt. 230. Corps regulations governing the issuance of Section 404 permits declare that "[m]ost wetlands constitute a productive and valuable public resource, the unnecessary alteration or destruction of which should be discouraged as contrary to the public interest." 33 C.F.R. § 320.4(b)(1); *see also id.* § 320.4(b)(2) (identifying eight types of wetland functions important to the public interest).

The Corps' and EPA's 404(b)(1) Guidelines impose important limitations on the Corps' ability to issue a Section 404 permit. 40 C.F.R. pt. 230. The Corps must ensure compliance with the 404(b)(1) Guidelines before issuing a permit. The Guidelines impose important limitations on when a Section 404 permit may be issued. *Id.* The Guidelines prohibit the permitting of any discharge of dredged or fill material: (1) if there is a practicable alternative to the proposed discharge; (2) if the discharge causes or contributes to violations of applicable state water quality standards; (3) if the discharge will cause or contribute to significant degradation of the environment; or (4) unless all appropriate steps have been taken to minimize potential adverse impacts. *Id.* § 230.10. The 404(b)(1) Guidelines provide that significant adverse effects on human health or welfare; aquatic life and other water dependent wildlife; aquatic ecosystem diversity, productivity, and stability; or recreational, aesthetic, and economic values are effects contributing to significant

degradation. *Id.* § 230.10(c)(1)–(4). These factors both individually and cumulatively must be considered when evaluating the specific details of the 404 application.

The Corps cannot authorize a discharge without "sufficient information to make a reasonable judgment as to whether the proposed discharge will comply with [the Section 404(b)(1)] Guidelines." *Id.* § 230.12(a)(3)(iv); *see* 33 C.F.R. §§ 320.2(f) and 320.4(a)(1). EPA notes that:

> the record must contain sufficient information to demonstrate that the proposed discharge complies with the requirements of Section 230.10(a) of the Guidelines. The amount of information needed to make such a determination and the level of scrutiny required by the Guidelines is commensurate with the severity of the environmental impact (as determined by the functions of the aquatic resource and the nature of the proposed activity) and the scope/cost of the project.[61]

As discussed herein, the proposed discharge does not comply with the 404(b)(1) Guidelines. Pursuant to the Guidelines, no discharge of dredged or fill material shall be permitted if, among other things, a practicable alternative to the proposed discharge would have less of an adverse impact on the aquatic ecosystem. 40 C.F.R. § 230.10. The Corps also cannot authorize any discharge of dredged or fill material that will cause or contribute to significant degradation of the waters of the United States. *Id.* § 230.10(c). The "degradation or destruction of special aquatic sites, such as filling operations in wetlands, is considered to be among the most severe environmental impacts covered by the[] Guidelines." *Id.* § 230.10(d).

Under the 404(b)(1) guidelines, the Corps is required to consider the following effects, individually and collectively, that contribute to significant degradation:

> (1) Significantly adverse effects of the discharge of pollutants on human health or welfare, including but not limited to effects on municipal water supplies, plankton, fish, shellfish, wildlife, and special aquatic sites.
> (2) Significantly adverse effects of the discharge of pollutants on life stages of aquatic life and other wildlife dependent on aquatic ecosystems, including the transfer, concentration, and spread of pollutants or their byproducts outside of the disposal site through biological, physical, and chemical processes;

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[61] *See* Environmental Protection Agency, *Memorandum: Appropriate Level of Analysis Required for Evaluating Compliance with the Section 404(b)(1) Guidelines Alternatives Requirements*, https://www.epa.gov/cwa-404/memorandum-appropriate-level-analysis-required-evaluating-compliance-section-404b1 (Attached).

> (3) Significantly adverse effects of the discharge of pollutants on aquatic ecosystem diversity, productivity, and stability. Such effects may include, but are not limited to, loss of fish and wildlife habitat or loss of the capacity of a wetland to assimilate nutrients, purify water, or reduce wave energy; or
> (4) Significantly adverse effects of discharge of pollutants on recreational, aesthetic, and economic values.

Id. § 230.10(c).

As shown throughout these comments, the proposed mine will violate these requirements and thus a 404 permit cannot be issued.

The Corps is required to base this determination on factual determinations, evaluations, and tests required under the guidelines, and to focus, in particular, on the persistence and permanence of the effects. *Id.* The Guidelines require the Corps to make certain factual determinations addressing the potential short-term or long-term effects of a proposed discharge of dredged or fill material on the physical, chemical, and biological components of the aquatic environment. This includes determinations on (a) physical substrate; (b) water circulation, fluctuation, and salinity determinations; (c) suspended particulate/turbidity determinations; (d) contaminant determinations; (e) aquatic ecosystem and organism determinations; (f) proposed disposal site determinations; (g) determinations of cumulative effects on the aquatic ecosystem; and (h) determinations of secondary effects on the aquatic ecosystem. *Id.* § 230.11(a)–(h).

When a project is not "water dependent," as in the case of the mine, and the project would fill "special aquatic sites," including wetlands, the Corps' regulations create a rebuttable presumption that there are practicable and environmentally preferable alternatives, and such alternatives are presumed to have less adverse impact unless "clearly demonstrated" otherwise. 40 C.F.R. § 230.10(a)(3).[62] This substantive requirement mandates the Corps to select the least environmentally damaging practicable alternative (LEDPA).

An alternative is practicable "if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." 40 C.F.R. § 230.10(a)(2). Practicable alternatives include "activities which do not involve a discharge of dredged or fill material," as well as "discharges of dredged or fill material at other locations" where such discharges would result in fewer impacts to the aquatic environment. § 230.10(a)(1). The applicant has the burden of demonstrating that no feasible alternative exists, and the Corps must engage in a reasoned analysis of this issue.[63]

[62] *Sierra Club v. Flowers*, 423 F. Supp. 2d 1273, 1352 (S.D. Fla. 2006).
[63] *Id.* at 1356–57.

The Corps cannot blindly and uncritically accept an applicant's study of alternatives and its assertions that no practicable alternative exists.[64] Under the regulations, any "practicable" alternative to achieve the basic and overall project purposes must be determined to be cost-effective, when viewed from the perspective of the industry as a whole. The financial circumstances of a particular applicant are not considered relevant if an alternative could be achieved practicably by a "typical" applicant. The preamble to the 404(b)(1) regulations states: "Our intent is to consider those alternatives which are reasonable in terms of the overall scope/cost of the proposed project. The term economic might be construed to include consideration of the applicant's financial standing, or investment, or market share, a cumbersome inquiry which is not necessarily material to the objectives of the Guidelines. We consider it implicit that, to be practicable, an alternative must be capable of achieving the basic purpose of the proposed activity."[65]

But the least environmentally damaging practicable alternative need not be the least costly, nor the most profitable.[66] The regulations presume that less environmentally damaging alternatives are available to the applicant and practicable, unless the applicant clearly demonstrates otherwise. In the absence of such a clear showing, the Corps is required to deny the permit application. *See* 40 C.F.R. § 230.12(a)(3)(i), (iv). Thus, in this case, the preferred tailings location in upper Meadow Creek does not comply with these requirements.

To ensure the mandatory CWA requirements are satisfied, the Corps must evaluate the direct, secondary, and cumulative impacts of the activity on a number of resources. *See, e.g.*, 33 C.F.R. §§ 320.4(a)(1), 336.1(c)(5) (endangered species), 336.1(c)(8) (fish and wildlife); 40 C.F.R. §§ 230.11(a)-(h), 230.20-23 (aquatic ecosystem), 230.53 (aesthetics). The EPA Guidelines require the Corps to make detailed factual determinations regarding the individual and collective effects associated with the discharge activity, and "no discharge of dredged or fill material shall be permitted which will cause or contribute to significant degradation of the waters of the United States." 40 C.F.R. §230.10(c). "Findings of significant degradation related to the proposed discharge shall be based upon appropriate factual determinations, evaluations, and tests required by subparts B and G …, with special emphasis on the persistence and permanence of the effects outlined in those subparts." *Id.*

The "factual determinations, evaluations, and tests" mandated in subpart B include Section 230.11, which requires that "[t]he determinations of effects of each proposed discharge shall include the following:

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[64] *Friends of the Earth v. Hintz*, 800 F.2d 822, 835–36 (9th Cir. 1986).
[65] 45 Fed. Reg. 85,339 (Dec. 24, 1980).
[66] *La. Wildlife Fed'n v. York*, 761 F.2d 1044, 1048 (5th Cir. 1985) (noting that the Corps had properly chosen "alternatives that reduced both the applicants' profit and the economic efficiency of their proposed operations in order to preserve other environmental values").

> (h) *Determination of secondary effects on the aquatic ecosystem.*
> (1) Secondary effects are the effects on an aquatic ecosystem that are *associated with a discharge* of dredged or fill materials, but do not result from the actual placement of the dredged or fill material. Information about secondary effects on aquatic ecosystems shall be considered prior to the time final section 404 action is taken by permitting authorities.
> (2) . . . Activities to be conducted on fast land created by the discharge of dredged or fill material in waters of the United States may have secondary impacts within those waters which should be considered in evaluating the impact of creating those fast lands.

40 C.F.R. §230.11(h)(emphasis added).

The Guidelines also require the Corps to "control runoff and other discharges from activities to be conducted on the fill." *Id.* § 230.77(a).

Thus, the secondary effects that the Corps is required to consider are not limited in time or space to just the initial discharge. Rather, they encompass all activities and impacts "associated with" the fill activities. Furthermore, "[f]undamental to these Guidelines is the precept that dredged or fill material should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern." 40 C.F.R. § 230.1(c)(emphasis added).

Indeed, according to the regulatory preamble to EPA's promulgation of the 404(b)(1) Guidelines: "in authorizing a discharge which will create fast lands the permitting authority should consider in addition to the direct effects of the fill itself the effects on the aquatic environment of any reasonably foreseeable activities to be conducted on that fast land."[67] And, regarding the "factual determinations" in § 230.11 (including secondary effects in 230.11(h)), EPA stated: "in response to many comments, we have moved the provisions on cumulative and secondary impact to the Factual Determination section to give them further emphasis. We agree that such impacts are an important consideration in evaluating the acceptability of a discharge site."[68]

In another rulemaking implementing the CWA, the Corps and EPA reiterated that the Corps' must fully consider the indirect/cumulative impacts as well as direct impacts from the discharge itself:

[67] 45 Fed. Reg. 85,336, 85,340-41 (Dec. 24, 1980).
[68] *Id.* at 85,343.

> EPA's long-standing interpretation of Section 404, as reflected in the Section 404(b)(1) Guidelines, demonstrates that EPA and the Corps are not limited to considering solely the environmental effects of the discharge itself. The Guidelines expressly require consideration of "secondary effects," which are defined as:
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> effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material. 40 CFR § 230.11(h).

EPA and the Corps believe that considering the primary and secondary effects of a discharge is clearly consistent with the language and intent of Section 404 to ensure protection of the aquatic system from effects associated with the discharge of dredged and fill material.[69]

The agencies highlighted the Tenth Circuit's decision in *Riverside Irrigation Dist. v. Andrews*:[70]

> In this case, the Corps denied nationwide permit coverage for the construction of a dam, the operation of which would have resulted in depleted stream flows that would adversely affect habitat of an endangered species. Even though the discharge of fill material itself to construct the dam would not have had an adverse impact, the court held that the CWA authorized the Corps to consider the total environmental impact of the discharge, including indirect effects such as the impact of the operation of the dam on flows downstream and associated wildlife impacts.[71]

The court in *Riverside* concluded that "the Corps was required to consider all effects, direct and indirect, of the discharge for which authorization was sought."[72]

Additional courts have acknowledged the Corps' duty to consider secondary and cumulative effects resulting from issuance of a 404 permit. In *Greater Yellowstone Coalition v. Flowers*, the Tenth Circuit upheld a Corps 404 permit in part because of the Corps'

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[69] 58 Fed. Reg. 45,008, 45,012 (Aug. 25, 1993). Although that rulemaking focused on whether "incidental fallback" from activities should be considered a "discharge of fill material" (not at issue in this case), and not on the scope of review for secondary effects, both agencies detailed their position on secondary effects "to help the public understand how we administered the Section 404 program generally." *Id.* at 45,012.
[70] 758 F.2d 508 (10th Cir. 1985).
[71] 58 Fed. Reg. 45,012 (emphasis added).
[72] 758 F.2d at 513.

analysis of the "upland aspects" of the entire development, not just the limited direct impact of the fill itself: "the Corps' §404(b)(1) analysis should, and we believe did, take into account the impact of the Canyon Club development as a whole on bald eagle nesting and foraging habitat."[73] The court highlighted the Corps' requirement to consider the impacts on the "aquatic ecosystem," which includes "habitat for interrelated and interconnecting communities and populations of plants and animals."[74]

In confirming the need to consider the adverse impact of the "development as a whole" on wildlife habitat and species, the court further found that: "A discharge of dredged or fill material may adversely affect these species either by directly impacting these [wildlife habitat] elements, [citing §230.30(b)(2)], or by '*facilitating incompatible activities*,' *id.*, § 230.30(b)(3)."[75] For the Stibnite Gold Project, there is no question that issuance of the 404 Permit "facilitates incompatible activities" of the mine's construction and operations, which will adversely affect wildlife and habitat.

In *Sierra Club v. Van Antwerp*,[76] the plaintiffs challenged the issuance of Section 404 permits to limestone mining companies. In order to determine whether the permitted activities would cause or contribute to "significant degradation" of the aquatic ecosystem, "[t]he Court must decide whether the Corps considered, as required by the CWA and implementing regulations, as well as NEPA, the significant adverse effects on municipal water supplies (which were a reasonably foreseeable result of the mining)."[77]

In *Sierra Club v. U.S. Army Corps of Engineers*,[78] the plaintiffs challenged the issuance of a 404 permit for a stretch of new highway. The court relied on the "secondary effects" analysis requirements in 40 C.F.R. § 230.11(h), and the "cumulative effects" determinations in § 230.11(g), to find that the Corps failed to consider the "reasonably foreseeable development" and cumulative effects on the nearby operation of a dam and associated water flow conditions.[79]

The same was true in *Fox Bay Partners v. U.S. Corps of Engineers*,[80] where the court upheld the Corps' denial of a 404 permit for a commercial marina. The court relied on §230.11(h) and § 230.10(c) to find that "the Corps must look not only at the direct effects of

[73] 359 F.3d 1257, 1272 n.15 (10th Cir. 2004).
[74] *Id.* quoting 40 C.F.R. § 230.3(c).
[75] *Id.* (emphasis supplied by court).
[76] 709 F. Supp. 2d 1254 (S.D. Fla. 2009).
[77] *Id.* at 1270.
[78] 2012 WL 13040281 (S.D. Tex. 2012).
[79] *Id.* at *18-19 ("Federal Defendants do not dispute that the Corps was required to consider the cumulative impacts at Addicks [the nearby dam] under the CWA and the 404 Guidelines.").
[80] 831 F.Supp. 605 (N.D. Ill. 1993).

a discharge but also at the indirect effects."[81] There, even though "[n]o one claims that the proposed fill or construction [of a marina boat ramp] itself will cause a significant degradation of the waters of the Fox River and Chain-O-Lakes," the court found that the Corps properly considered the degradation that would result from increased boat traffic on the river and lakes that would result from building the boat ramp.[82]

The court's analysis in *Sayler Park Vill. Council v. U.S. Army Corps of Engineers*,[83] is also applicable here, as the court enjoined the upland development associated with a 404 permit for a barge facility on the Ohio River, where "the upland portion . . . would be practically useless without the water-based portion" and the upland development would have potential adverse visual effects on nearby historic properties. The court highlighted the need for an injunction of the entire project, including the upland portion, as "Federal courts have recognized that both economic pressure and regulatory inertia may substantially and improperly impact the decision-making of a federal agency."[84]

In *Save Our Sonoran v. Flowers*,[85] a case challenging a 404 permit, the court upheld a preliminary injunction against the entire development, despite the fact that the actual acreage of the waters of the United States (WOTUS) discharge was limited. There, the Corps failed to review the impacts from the project as a whole, focusing only on the limited direct impacts from the fill discharge. "[B]ecause the uplands are inseparable from the washes, the district court was correct to conclude that the Corps' permitting authority, and likewise the court's authority to enjoin development, extended to the entire project."[86]

> Because this project's viability is founded on the Corps' issuance of a Section 404 permit, the entire project is within the Corps' purview. *SOS* makes this clear. 408 F.3d at 1124. In *SOS,* we affirmed an injunction barring any development pending adequate environmental review. We did so ''[b]ecause no development could occur without impacting jurisdictional waters.''[87]

The Corps cannot issue a 404 permit if it "would be contrary to the public interest." 33 C.F.R. § 320.4(a)(1). This requires the Corps to consider "the probable impacts" of a proposed project on "[a]ll factors which may be relevant to the proposal[,] including the cumulative effects." *Id.* "Evaluation of the probable impact which the proposed activity may

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[81] *Id.* at 609.
[82] *Id.*
[83] 2003 WL 22423202 (S.D. Ohio 2003)
[84] *Id.*
[85] 408 F.3d 1113 (9th Cir. 2003).
[86] *Id.* at 1124; *see also White Tanks Concerned Citizens v. Strock*, 563 F.3d 1033 (9th Cir. 2009).
[87] *White Tanks Concerned Citizens*, 563 F.3d at 1042 (quoting *Save Our Sonoran*).

have on the public interest requires a careful weighing of all those factors which become relevant in each particular case." *Id.*

> All factors which may be relevant to the proposal must be considered including the cumulative effects thereof: among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people. *Id.*

The Corps must fully consider the impacts from the entire mine in making its public interest determination. "To require [the Corps] to ignore the indirect effects that would result from its actions would be to require it to wear blinders that Congress has not chosen to impose."[88] In addition to the above-analyzed cases, the Ninth Circuit has recognized the Corps' duty to consider these impacts in order to ensure that issuance of the 404 permit is in "the public interest." In *Ocean Advocates,* after finding that the Corps failed to consider the cumulative impacts from increased shipping traffic resulting from the issuance of a 404 permit for an oil refinery dock, the court noted that upon remand and consideration of these effects, "the Corps may impose conditions on the operation of permitted terminals at any time 'to satisfy legal requirements or to otherwise satisfy the public interest.' 33 C.F.R. § 325.4(a)."[89]

In *Clatsop Residents Against Walmart v. U.S. Army Corps of Engineers*,[90] the court upheld a Corps 404 permit needed to construct a Walmart, including the Corps' public interest review, because the Corps had "balanced the 'benefits which reasonably may be expected to accrue from the proposal . . . against its reasonably foreseeable detriments.' 33 C.F.R.§ 320.4(a)(1)," which included the potential indirect detrimental effects of the Walmart "on small businesses."[91]

The same was true in *Greater Yellowstone Coalition*,[92] discussed above, where the Corps successfully argued to the court that it properly considered the impacts of the "development as a whole" on wildlife and habitat, not just impacts from the fill itself. The

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[88] *Riverside*, 758 F.2d at 512.
[89] 402 F.3d at 871 (emphasis added).
[90] 735 Fed. App'x 909 (9th Cir. 2018).
[91] *Id.* at 912; see also Corps' brief in *Clatsop*, 2017 WL 1757558, **45-46 (noting that the Corps' public interest determination considered the potential indirect effects of the Walmart, including adverse impacts on smaller businesses and traffic).
[92] 359 F.3d at 1272 n.15.

Corps had argued that the impacts of a proposed project "beyond those associated with the proposed discharge into waters of the United States – such as the environmental impacts of upland aspects of the overall project – are for the most part meant to be addressed . . . through the Corps' public interest review," and that the Corps had "thoroughly considered and addressed the impacts on bald eagles from upland aspects of the proposed Project as part of its public interest and NEPA reviews."[93]

If the Corps properly considered in its public interest determinations these larger regional cumulative effects to wildlife from the golf course development in *Greater Yellowstone,* and on the regional economy and traffic resulting from the Walmart project in *Clatsop,* then it certainly must consider the cumulative and indirect impacts from construction and operation of the Stibnite Gold Project and all associated facilities and impacts – impacts that show the mine/project is not in the public interest and thus the 404 permit cannot be issued.

The 404(b)(1) Guidelines also prohibit the Corps from issuing a 404 permit "unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem." 40 C.F.R. § 230.10(d). Those seeking a 404 permit must mitigate the impacts of the proposed dredge and fill activities by "avoiding, minimizing, rectifying, reducing, or compensating for resource losses." 33 C.F.R. § 320.4(r)(1). The purpose of the compensatory mitigation program is to "offset unavoidable impacts to waters of the United States authorized through" 404 permits. 40 C.F.R. § 230.9l(a)(l). *See also Id.* § 230.93(a). Mitigation is required for "significant resource losses which are specifically identifiable, reasonably likely to occur, and of importance to the human or aquatic environment." 33 C.F.R. § 320.4(r)(2). These adverse effects to aquatic resource functions, whether direct or indirect, must be mitigated. *Id.*; 40 C.F.R. § 230.93(a).

Additionally, under NEPA, an EIS must: (1) "include appropriate mitigation measures not already included in the proposed action or alternatives," 40 C.F.R. §1502.14(f), and (2) "include discussions of: . . . Means to mitigate adverse environmental impacts (if not already covered under 1502.14(f))." 40 C.F.R. § 1502.16(h). "All relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or the cooperation agencies. . ."[94]

As part of reviewing and approving the mitigation plan, Corps regulations require that Resolution provide "financial assurance" to cover mitigation costs: "(n) *Financial assurances.* (1) The district engineer shall require sufficient financial assurances to ensure a

[93] Corps/Appellee's brief to Tenth Circuit, 2003 WL 23723859, *34.
[94] Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Fed. Reg. 18,026, 18,031 (Mar. 23, 1981).

high level of confidence that the compensatory mitigation project will be successfully completed, in accordance with applicable performance standards. . . .” 33 C.F.R. § 332.3(n). “The rationale for determining the amount of the required financial assurances must be documented in the administrative record for either the DA permit or the instrument.” 33 C.F.R. § 332.3(n)(2).

“The final mitigation plan must include the items described in paragraphs (c)(2) through (c)(14) of this section.. . .” 33 C.F.R. § 332.4(c)(1)(i). Item (c)(13) is “Financial assurances.” 33 C.F.R. § 332.4(c)(13). The mitigation plan must include: “A description of financial assurances that will be provided and how they are sufficient to ensure a high level of confidence that the compensatory mitigation project will be successfully completed, in accordance with its performance standards (see §332.3(n)).” *Id.* § 332.4(c)(13). *See also id.* § 332.3(k)(“permit conditions . . . must . . .(iv) Describe any required financial assurances or long-term management provisions for the compensatory mitigation project, unless they are specified in the approved final mitigation plan.”).

“[T]he district engineer must assess . . . the costs of the compensatory mitigation project.” 40 C.F.R. § 230.93(a)(1). “District engineers must document the analysis used to determine the amount of the financial assurance, and must include this analysis in the administrative records for their permits.”[95] As noted herein, the SDEIS neither mentions nor analyzes financial assurance, although Perpetua has made varying estimates in both its Pre-Feasibility and Final Feasibility studies.

VII. THE PROJECT FAILS TO COMPLY WITH NATIONAL FOREST MANAGEMENT ACT (NFMA)

The SDEIS fails to comply with all of the requirements of the Payette and Boise Forest Plans in violation of the National Forest Management Act (NFMA), 16 U.S.C. § 1601 *et seq.* Congress enacted NFMA in 1976 to establish a new legal framework for managing natural resources on National Forest lands. Among other requirements, NFMA requires the Forest Service to prepare a land and resource management plan, or “forest plan,” for each National Forest. 16 U.S.C. § 1604(a). Each plan must include standards and guidelines for how the forest shall be managed. 16 U.S.C. §§ 1604(c), (g)(2) & (g)(3). Once a forest plan is adopted, all resource plans, permits, contracts, and other instruments for use of the lands must be consistent with the plan. 16 U.S.C. § 1604(i). “It is well-settled that the Forest Service’s failure to comply with the provisions of a Forest Plan is a violation of NFMA.”[96]

[95] Guidance on the Use of Financial Assurances, and Suggested Language for Special Conditions for Department of the Army Permits Requiring Performance Bonds 2 (February 14, 2005) (Regulatory Guidance Letter No. 05-1) (Attached).

[96] *Native Ecosystems*, 418 F.3d at 961. *See also Idaho Conservation League v. U.S. Forest Serv.*, No. 1:16-cv-0025-EJL, 2016 WL 3814021 at *17 (D. Idaho, Jul. 11, 2016) (Forest Service violated NFMA by approving

Failing to follow, or to evaluate and document compliance with a Forest Plan provision can also be a NEPA violation.[97]

The Forest Plans for the Payette and Boise National Forests that apply to the Stibnite Gold Project set forth numerous standards, guidelines, goals, and objectives to protect the environment and cultural resources. SDEIS at 4-4. However, the Stibnite Gold Project, as proposed for approval, fails to comply with many Forest Plan provisions, and the Forest Service has failed to explain how the Project complies with many other Forest Plan provisions in violation of NFMA and NEPA.

As detailed herein and in our previous comments, the fact that Perpetua has filed claims under the Mining Law covering the public lands at the site does not mean that the Forest Service's obligations under federal public land laws like the Organic Act and NFMA do not apply. That was the agency's argument that was rejected most recently in the Rosemont case.

A. The project is not consistent with the Boise and Payette Forest Plans.

The Forest Service proposes amending the Forest Plan to accommodate the Stibnite Gold Project. As discussed in the next section (B), the amendments are unlawful. As discussed in this section, even if lawful, the amendments do not address numerous Forest Plan provisions that apply to the Project and will not, or might not, be met, and which have not been disclosed to the public and discussed or analyzed in the SDEIS.

In 2019, the Forest Service recognized that approving the Stibnite Gold Project would violate numerous Forest Plan provisions, and that it might violate many more provisions.[98] The Forest Service's draft Forest Plan consistency table from July 2019 identifies *roughly 175 different Forest Plan provisions* that apply to the Stibnite Gold Project, but which the Forest Service either determined would not be met or was unsure would be met. *See id.* This is never disclosed in the SDEIS.

Appendix A to the SDEIS, titled "Payette National Forest and Boise National Forest Land and Resource Management Plans Consistency Review and Amendments", is focused

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mine exploration without following Boise Forest Plan standard and guideline to identify sensitive plant occurrences and habitat and conduct up-to-date surveys).

[97] *See ONDA v. BLM*, 625 F.3d 1092, 1110–11 (9th Cir. 2010) (NEPA analysis must include "considerations made relevant by the substantive statute driving the proposed action"). *See also Westlands Water Dist. v. United States Dept. of Interior*, 376 F.3d 853, 866 (9th Cir. 2004) ("When an action is taken pursuant to a specific statute, the objectives of that statute serve as a guide by which to determine the reasonableness of alternatives" examined under NEPA).

[98] *See* Letter from A. Haslam (Midas Gold) to P. Goessel (Forest Service) (July 18, 2019) with Attachment: Annotated Forest Plan Consistency Review Spreadsheet (Attached).

exclusively on the proposed amendments and merely glosses over these Forest Plan consistency issues in one and a half pages. SDEIS, App. A, pp. A-1 – A-2. There, the Forest Service acknowledges: "It is recognized that not all proposals would move towards or achieve desired conditions, goals, or objectives and there may be tradeoffs between moving towards or achieving these for one resource or another." SDEIS, App. A, p. A-1. But the Forest Service provides no further information about which goals and objectives the Project will detract from and to what degree, and the Forest Service makes no similar acknowledgment for the many standards and guidelines the Project would violate or threatens to violate. Instead, the Forest Service states: "Additional information on the consideration of Forest Plan consistency, including guidelines, is contained in the Project Record." SDEIS, p. A-2.

This failure to disclose and consider important information about the Project and the many Forest Plan standards, guidelines, objectives, and goals it may be inconsistent with violates NEPA. Further, allowing the Stibnite Gold Project to proceed in violation of binding Forest Plan standards, and in violation of guidelines without offering an explanation, violates NFMA.

Among many other important Forest Plan provisions that the Stibnite Gold Project might violate — and which are nowhere mentioned in the DEIS or SDEIS — are binding Forest Plan standards designed to protect riparian areas and streams. Recognizing the ecological complexity and importance of riparian zones, as well as their vulnerability to land management activities like mining, the Payette and Boise Forest Plans establishes "Riparian Conservation Areas" (RCAs), which extend 300 feet to either side of streams and 150 feet to either side of intermittent streams.

Among other provisions to protect RCAs, the Payette and Boise Forest Plans have standards MIST08 and MIST09, which apply to mineral resource projects, like the Stibnite Gold Project. MIST08 prohibits locating new "structures," "support facilities," and "roads," in RCAs unless "no alternative exists." Even when there is no alternative, the Forest Service must "minimize degrading effects to RCAs and streams, and adverse effects to TEPC species" from any such RCA incursions. And road incursions into RCAs incursions must be kept to the "minimum necessary for the approved mineral activity." MIST09 prohibits locating "solid and sanitary waste facilities" in RCAs unless "no alternative exists." "[I]f no alternative to locating mine waste (waste rock, spent ore, tailings) facilities in RCAs exists," then the Forest Service must take specifically listed steps to prevent, monitor, and mitigate potential impacts.

The Wallowa-Whitman Forest Plan includes virtually similar standards to MIST08 and MIST09. In *Hells Canyon Preservation Council v. Haines*,[99] a federal district court held that the Forest Service violated NFMA when it approved constructing mining roads and settling ponds within RCAs without first performing a thorough analysis of whether in fact there was no alternative to each incursion into RHCAs and without providing specific assurances that new road construction was limited to the minimum amount necessary.[100]

Similarly here, the Forest Service has failed to thoroughly analyze whether there are alternatives to each RCA incursion under the alternatives, and failed to provide specific assurances that any RCA incursions are being kept to the minimum necessary. While the SDEIS lists MIST08 in a table (SDEIS p. 2-99), it never fully states the standard and fails to explain whether, or how, the Stibnite Gold Project will satisfy the standard. The same is true for MIST09. SDEIS, p. 2-95. Yet Perpetua's proposal would locate many roads, structures, and facilities in RCAs. The SDEIS fails to acknowledge or consider which of the alternatives being considered have the least RCA incursions, and fails to consider whether there are additional alternatives to each proposed RCA incursion. And for RCA incursions that truly cannot be avoided, the Forest Service has also failed to minimize degrading effects to RCAs and streams, and adverse effects to TEPC species. Additionally, for proposed mine waste facilities, the Forest Service has failed to show how it is taking the specific steps listed in MIST09 to prevent, monitor, and mitigate potential impacts.

The Forest Service must address these Forest Plan inconsistencies and protect RCAs by carrying out required alternatives analyses, altering the Project, imposing additional monitoring and mitigation measures, and making all other necessary changes through a supplemental or revised SDEIS.

Not only must the Forest Service ensure the Project complies with MIST08 and MITS09, but it must ensure the Project complies with other standards, guidelines, goals, and objectives in the Forest Plans. This includes provisions designed to protect: the environment from the harmful effects of mining (*see* Payette Forest Plan at pages III-48 - III-51); threatened, endangered, proposed, and candidate species (*id.* pp. III-8 - III-15); air quality (*id.* pp. III-16 - III-17); soil, water, riparian, and aquatic resources (*id.* pp. III-18 - 24); wildlife (*id.* pp. III-25 - III-28); vegetation, botanical resources, and non-native plants (*id.* pp. III-30 - III-37); and other public land values. But the SDEIS fails to disclose and consider these provisions, fails to state whether or explain how the Project will comply, and fails to provide information and analysis sufficient to take a hard look at these issues.

[99] No. CV 05-1057-PK, 2006 WL 2252554 (D. Or. Aug. 4, 2006).
[100] *See also Gifford Pinchot Task Force v. Perez*, 2014 WL 3019165 (D. Or. 2014) (locating drilling sumps in riparian areas violated NFMA).

The Forest Service cannot simply sweep these issues under the rug by claiming the proposed Forest Plan amendments somehow cover these dozens and dozens of inconsistencies with the Forest Plans. The Forest Service must actually consider the relevant Forest Plan provisions and must explain to the public whether and how the Stibnite Gold Project complies with them; and where it does not comply, must make changes to the Project, reject the Project, or amend the Forest Plan consistent with, among other laws and regulations, the substantive requirements of the 2012 Planning Rule.

B. The proposed forest plan amendments are not consistent with the 2012 planning rule.

1. The Forest Service failed to comply with the Organic Act and NFMA when it amended the Forest Plans.

The SDEIS is also under the mistaken belief that the Forest Service must amend the Payette National Forest Plan in order to allow Stibnite's proposed plans to be approved. The SDEIS states:

> It is recognized that not all proposals would move towards or achieve desired conditions, goals, or objectives and there may be tradeoffs between moving towards or achieving these for one resource or another.
>
> Most areas of the PNF and BNF are open to mineral activities, including the Stibnite Gold Project (SGP) area. The desired condition for mineral projects is that operating plans include appropriate mitigation measures and contain bonding requirements commensurate with the costs of anticipated site reclamation. Where practicable, sites are returned to a condition consistent with management emphasis and objectives. (Payette Forest Plan, p. III-48; Boise Forest Plan, p. III-50).

Much of this rationale violates federal law by making achievement of the environmental requirements of the Forest Plan, NFMA, and the 1897 Organic Act subservient to Perpetua's desired mining operations.

First, NFMA and the Organic Act do not allow the Forest Service to "tradeoff" public land and environmental protection requirements with the Stibnite Gold Project's desired economic returns. At the outset, it should be noted that under the Organic Act and NFMA, all

Forest Plan standards, guidelines, and desired conditions must be met.[101] One of the Organic Act's guiding principles directs the agency to "improve and protect" the national forests. 16 U.S.C. § 475. It further requires the Secretary of Agriculture (through the Service) to "make provisions for the protection [of the lands] against destruction by fire and depredations." 16 U.S.C. §551. The Service "will insure the objects of such [forest] reservations, namely, to regulate their occupancy and use and to preserve the forests thereon from destruction." *Id*. "[P]ersons entering the national forests for the purpose of exploiting mineral resources 'must comply with the rules and regulations covering such national forests.' 16 U.S.C. § 478."[102] Instead of complying with these mandates, the Forest Service proposes to eliminate the forest protection requirements of the Forest Plan.[103] The agency's belief that it must comply with the NFMA and Organic Act only "where practicable" violates these laws. SDEIS Appx. at A-1 ("Where practicable, sites are returned to a condition consistent with management emphasis and objectives.").

Second, the fact that the public lands on which Perpetua has filed its claims are "open" for claiming under the Mining Law does not override the agency's NFMA and Organic Act requirements. As noted herein, this relies on the mistaken view that the agency's authority over the project is limited to reviewing the mining plan under alleged "rights" under the Mining Law. The agency is not under any statutory obligation to amend the Forest Plan based on purported "rights" under the Mining Law that have not been shown to meet all the prerequisites for such "rights" under that Law.

Third, the agency's self-imposed restriction on its authority to comply with all Forest Plan requirements is unfounded: "a standard is a binding limitation placed on management actions. It must be within the authority and ability of the Forest Service to enforce." SDEIS Appx. at A-1. This statement implies that the agency does not have "the authority and ability" to enforce standards, guidelines and desired conditions in the Forest Plan due to

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[101] *See, e.g., Save Our Cabinets v. U.S. Dept. of Agric.*, 254 F.Supp.3d 1241, 1258-59 (D. Mont. 2017) (Forest Service approval of mining project that would not meet the Forest Plan's "desired conditions" protecting water quality violated the NFMA).

[102] *Clouser v. Epsy*, 42 F.3d 1522, 1529 (9th Cir. 1994).

[103] The agency may attempt to rely on another provision of the Organic Act, one cautioning that the creation of national forests was not meant to categorically prevent the exercise of valid rights under the Mining Law or for other lawful purposes. "Nothing in section . . . 551 of this title shall be construed as prohibiting … any person from entering upon such national forests for all proper and lawful purposes, including that of prospecting, locating, and developing the mineral resources thereof." 16 U.S.C. § 478. But section 478 does not override the duties Congress gave it in the same enactment "to improve and protect the forest [and] secur[e] favorable conditions of water flows" (§ 475) and "preserve the forests thereon from destruction." Id. § 551. Section 478 was included in the Organic Act to make clear that the Act did not withdraw the national forests from the filing of new claims under the Mining Law. It did not deny the Forest Service meaningful regulatory authority over such operations. That was made plain by Congress's simultaneous mandate that the Forest Service "regulate their occupancy and use" so as to "preserve the forests thereon from destruction," 16 US.C. § 551, protect them against "depredations," id., and to require persons seeking to develop mineral resources to "comply with the rules and regulations" of the Service. Id. § 478.

Perpetua's purported "rights" under the Mining Law. As noted herein, however, the Forest Service has not made the necessary factual determinations to support such assertions of "rights." For the Rosemont mine, "[t]his was a crucial error as it tainted the Forest Service's evaluation of the Rosemont Mine from the start."[104] That court held that such use/occupancy, without verification that such rights under the Mining Law actually exist on those lands/claims, was *not* authorized by the Mining Law, and thus was not governed by the agency's mining regulations.[105]

Even if the agency's assumption of "rights" under the Mining Law was supported by the evidence on the ground (which as noted herein is not the case), the agency cannot amend the Forest Plan, or disregard its requirements, to allow mining operations to damage the fisheries, wildlife, and other resources under its Part 228A regulations and the Organic Act. Under the Organic Act and Part 228A regulations, the agency must "*maintain and protect* fisheries and wildlife which may be affected by the operations." 36 C.F.R. §228.8(e) (emphasis supplied). These impacts also violate USFS's duties to "minimize adverse environmental impacts on National Forest surface resources." 36 C.F.R. §228.8. "The operator also has a separate regulatory obligation to 'take all practicable measures to maintain and protect fisheries and wildlife habitat which may be affected by the operations.' 36 C.F.R. §228.8(e)."[106] "Under the Organic Act the Forest Service must …require [the project applicant] to take all practicable measures to maintain and protect fisheries and wildlife habitat."[107] These duties are in addition to the agency's/project's failure to fully protect all uses, including Treaty-guaranteed uses and rights.

Thus, the proposed Forest Plan amendments violate the Organic Act and the National Forest Management Act. This is also true because under the NFMA, the agency cannot amend a Forest Plan unless the amendment is supported by a legally-adequate EIS, which as shown herein, has not been done.

2. The proposed Forest Plan amendments violate NEPA and the 2012 Planning Rule.

The reader is advised to use SDEIS Appendix A tables while reading this section, in order to guide them through the relevant sections, parts, and subparts of the Planning Rule.

The SDEIS proposes four project-specific amendments to the BNF and PNF Forest

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[104] *Center for Biological Diversity*, 409 F.Supp.3d at 747.
[105] *Id.* at 763.
[106] *Rock Creek Alliance v. Forest Service*, 703 F.Supp.2d 1152, 1164 (D. Montana 2010) (mine approval violated Organic Act and 228 regulations by failing to protect water quality and fisheries).
[107] *Id. at 1170.*

Plans. *See* SDEIS Appx. A. As discussed above, the Forest Service has the authority to reject this project as inconsistent with the Forest Plan and the discretion to deny approval. But when the Forest Service decides to resolve that inconsistency by amending the Forest Plan, that amendment must be consistent with the substantive requirements of the 2012 Planning Rule, 36 C.F.R. Part 219, as amended.

Consistency of any Forest Plan amendment with the substantive requirements of the Planning Rule is not subject to valid existing (mining) rights, but must be adhered to.

The Planning Rule sets out substantive requirements for each forest plan and dictates various components that must be included in each plan, including standards, objectives, and guidelines in order to ensure that each forest plan supports ecological, social, and economic sustainability. 36 C.F.R. § 219.10. A forest plan standard "is a mandatory constraint on project and activity decisionmaking, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements." *Id.* § 219.7(e)(1)(iii). Forest plans, however, may be amended "at any time." *Id.* § 219.13(a).

When a proposed project will be inconsistent with a forest plan the Forest Service may, subject to valid existing rights, resolve the inconsistency by: (1) modifying the project; (2) rejecting the project; (3) amending the forest plan so the project is consistent with the forest plan; or (4) making project-specific forest plan amendments in conjunction with approval of the project. *Id.* § 219.15(c). For each plan amendment, however, the Forest Service must "[d]etermine which specific substantive requirement(s) [of the 2012 Planning Rule] are directly related to the plan direction being added, modified, or removed by the amendment *and apply such requirement(s) within the scope and scale of the amendment*."[108] *Id.* § 219.13(b)(5) (emphasis added). In other words, all forest plan amendments, including project-specific amendments such as the ones at issue here, must be consistent with relevant substantive requirements of the 2012 Planning Rule.[109] And unlike the Forest Service's discretion to amend the Forest Plan, the directive to apply the substantive requirements of the Planning Rule to a proposed amendment is not subject to valid existing rights. Therefore, any plan amendment for any project must be consistent with the 2012 Planning Rule.[110]

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[108] "The [Forest Service's] determination must be based on the purpose for the amendment and the effects (beneficial or adverse) of the amendment, and informed by the best available scientific information, scoping, effects analysis, monitoring data or other rationale." *Id.* § 219.13(b)(5)(i).

[109] *Friends of Bitterroot v. Marten*, No. CV 20-19-M-DLC, 2020 WL 5804251, at *8 (D. Mont. Sept. 29, 2020); *see also Native Ecosystems Council v. Dombeck*, 304 F.3d 886 (9th Cir. 2002).

[110] As discussed throughout this letter, the Forest Service has not made a determination that the project proponent has "valid" mining claim. Therefore, even if the Forest Service contends that the general mining laws and regulations restrict the agency's ability to ensure that the forest plan amendments are consistent with the 2012 Planning Rule, those laws and regulations do not apply in the present case. Even so, 36 C.F.R.

In the SDEIS, beginning on page A-2, the document describes standards and guidelines and when amendments are needed. The SDEIS neglects to discuss the biological opinions (BOs) from NOAA and FWS on the Payette and Boise Forest Plans. Those BOs contain terms and conditions the Forest Service *must* follow. The BOs also discuss how they were determined, assuming the Forest Service would not only implement the standards, but also the guidelines. The SDEIS does not mention the BOs for the Forest Plans.

a. Project Specific Amendments are not appropriate for this effort.

The amendments proposed are for the life of this project only. That timeframe is identified as a minimum of 20 years, not including indefinite water treatment, monitoring, exploration, and maintenance of mitigations. The SDEIS (Appendix A) states "impacts to aquatic, terrestrial, and watershed resource conditions would be expected to occur for the length of the proposed SGP." This statement is in direct conflict with the disclosed effects in the SDEIS, which state that the detrimental and significant environmental effects of this project will persist well beyond the stated 20 years. The next section highlights some of the effects which the SDEIS documents in Chapter 4:

1. Elevated water temperatures are modeled to last over 100 years which will directly and adversely affect three ESA- listed fish species. The SDEIS– neither in Appendix A's rationale for the proposed Forest Plan amendments nor in Chapter 4–does not analyze the immediate and long-lasting effects on the populations of these fishes and how that will impact perpetuation of those populations. Nor does it discuss how the Forest Plans' Aquatic Conservation Strategy (resultant from the Forest Plan Biological Opinions) will be addressed, altered and impacted.
2. The Burntlog Route will have long term effects on wolverine, whitebark pine, Visual Quality Objectives (VQOs), Roadless Character and Wilderness. The SGP does not include removing the road prism from the landscape post project. Wolverines are proposed for listing as Threatened and discussed in the Boise LRMP Wildlife Conservation Strategy (WCS). A population of whitebark pine, recently listed under the ESA as threatened, will be destroyed with construction of the road. The VQO's will be forever altered, as will the roadless and wilderness character.
3. The SGP will change the Forest Plan's desired conditions for the

228.8(d) still requires that the agency minimize adverse impact "to maintain and protect fisheries and wildlife habitat . . . ."

mining area and beyond, for generations. Nowhere in the SDEIS is there a discussion regarding this change.

4. The Forest Service ignores the needs for change identified in the 2003 Forest Plans.[111] The SDEIS does not address the effects of ignoring the "need for change" Topic 6, identified in the 2003 Forest Plans, on page II-23, which led to the Aquatic Conservation Strategy. The SDEIS is silent on this topic and how or when it plans to return to the Aquatic Conservation Strategy post mining activities (which may be in perpetuity) at Stibnite. There is no disclosure of the effects of non-implementation of the Aquatic Conservation Strategy.

The proposed Amendment 1 waives all timing requirements for effects that degrade forest resource conditions caused by the Stibnite Gold Project because "[d]ue to the nature of proposed SGP activities, impacts to aquatic, terrestrial, and watershed resource conditions would be expected to occur for the length of the proposed SGP. SDEIS Appx. at A-3; *see also* A-5 to A-11. Point blank, proposed Amendment 1 is the Forest Service's concession that the project will *not* avoid resource degradation in the "temporary time period (up to 3 years)" and is *not* "designed to avoid resource degradation in the short term (3-15 years) and long term (greater than 15 years)." SDEIS Appx. A-3. Even assuming that the project will last for 20 years, as discussed throughout this letter and below, the effects as analyzed in the SDEIS will last much longer. This makes the SDEIS's assertion that "[t]he proposed plan amendment maintains the intent of the original plan standard" a dubious proposition.

The Forest Service is proposing project specific amendments because amendments that change the Forest Plan beyond this project would require completion of an Ecological Sustainability Analysis. *See* 36 C.F.R. § 219.8 (requiring any Forest Plan revision to "provide for social, economic, and ecological sustainability within Forest Service authority" and maintain consistency with "the inherent capability of the plan area"). Yet, the SGP will adversely change the conditions of the landscape for at least 100 years. Even if a definite project completion date existed for the SGP–that is, proposed Amendment 1 had an actual sunset date–the proposed "revision" to the Forest Plan creates conditions that will continue to degrade forest resources for time frames that extend well beyond the SGP's proposed project-specific amendment. This contravenes the Planning Rule's substantive requirement to include plan components, including standards and guidelines, that "maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area, including plan components to maintain or restore structure, function, composition, and connectivity" of those ecosystems. 36 C.F.R. § 219.8(a)(1).

[111] Both the Payette and Boise Forest Plans were revised in 2003 using the 2000 Planning Rule.

For example, regarding aquatic species, the SGP must meet the Forest Plans' Aquatic Conservation Strategy, which is to maintain or improve the conditions for those species. However, it is unclear how Amendment 1 could ever comport with the Aquatic Conservation Strategy given that the SGP's effects on these resources will last for at least 100 years. Moreover, for the Boise NF, the SGP must meet the Wildlife Conservation Strategy for wolverines–which it fails to do because of the proposed Burntlog Route. As stated above, even if Perpetua purports to have mining "rights," the Forest Service cannot merely cast aside the Planning Rule's substantive requirements, which appears to be the purpose and effect of proposed Amendment 1. Because proposed Amendment 1 is a Forest Plan revision that permits resource degradation far exceeding the lifetime of the proposed project that it is intended to address, it violates the substantive requirements in 36 C.F.R. § 219.8 of the Planning Rule.

b. The SDEIS failed to analyze the impacts of the proposed Forest Plan amendments, in violation of the Planning Rule and NEPA.

Under the Planning Rule, any amendment requires disclosure of the effects the amendment is going to generate. 36 C.F.R. § 219. Although the Planning Rule, as amended, allows the Forest Service to analyze and disclose the effects of a proposed project-specific amendment in the same NEPA document it prepares for the project itself, this was not done. There are no details given in the SDEIS anywhere of the nature (it should be included in the description of the alternatives) or effects of any of the four proposed amendments. This alone is a violation of NFMA and NEPA.

c. The Forest Service failed to identify "species of conservation concern" as required under the 2012 Planning Rule for the proposed amendments.

The Forest Service abdicated its responsibility to identify "species of conservation concern" (SCC), and determine how substantive requirements of the 2012 Planning Rule apply with respect to those identified SCCs. For any "amendment to a plan that was developed or revised under a prior planning rule," such as the Payette and Boise Forest Plans, "if species of conservation concern (SCC) have not been identified for the plan area and if scoping or NEPA effects analysis for the proposed amendment reveals substantial adverse impacts to a specific species, or if the proposed amendment would substantially lessen protections for a specific species, the [Forest Service] must determine whether such species is a potential SCC, and if so, apply section 219.9(b) with respect to that species as if it were an SCC." 36 C.F.R. § 219.13(b)(6).

First, the SDEIS, as mentioned above, does not undertake a "NEPA effects

analysis for the proposed amendment,"as required under the Planning Rule. 36 C.F.R. § 219.13(b)(6).

Second, even if the Forest Service considered the effects analysis of the proposed project the same as the effects analysis for the proposed amendment, which it cannot, the NEPA effects analysis of the proposed project (SDEIS Chapter 4) "reveals substantial adverse impacts to a specific species" and "substantially lessens protection for a specific species." 36 C.F.R. § 219.13(b)(6). Instead, Appendix A of the SDEIS simply states that "[t]here are no [SCC] species known to occur within the proposed Stibnite Gold Project area with a substantial concern about the species capability to persist over the long-term in the Forest Plan area." SDEIS Appx. A. It is apparent from the SDEIS and Appendix A that the determination of whether SCCs exist in the plan area was not made.

A SCC is a Forest-Service specific classification defined by the 2012 Planning Rule as a species for which the best available science indicates there is a substantial concern about the species' capability to persist over the long-term in the plan area. Sensitive species (SDEIS Table 13-1) are selected by the Regional Forester because population viability may be a concern, as evidenced by a current or predicted downward trend in population numbers or density, or a current or predicted downward trend in habitat capability that would reduce a species' existing distribution. Although every Forest sensitive species may not qualify as a SCC because of the different criteria for identification, there are species that may not be on the Forest sensitive species list that may be a SCC. Analysis of the Regional Forester's list of sensitive species cannot therefore compensate for the failure to identify potential SCCs. *See* SDEIS section 4.13.2.1. (analyzing impacts to sensitive species). It is therefore critical that the Forest Service identify SCCs prior to amending the Forest Plans.

The SDEIS states that the project "may cause changes in wildlife habitat in the analysis area that may affect wildlife species including special-status species (threatened, endangered, Management Indicator Species, and sensitive species)." SDEIS at 4.13-1. Other species of concern include Idaho Species of Greatest Conservation Need (SGCN) identified in Idaho's State Wildlife Action Plan (SWAP; IDFG 2017). The Wildlife analysis in the SDEIS discloses effects to wildlife SGCN.

Best available science also shows concern for other SGCN species, such as the Pacific lamprey and Western pearlshell mussel. The western pearlshell mussel, *Margaritifera falcata,* is designated as an imperiled species (S2) in Idaho. They depend especially heavily on westslope cutthroat trout and anadromous salmonids (Montana study) as their vector for the glochidia (mussel larvae) "infestation" and dispersal. Declines in distribution and abundance of cutthroat trout and other salmonids may logically also start the loss of the mussel. All ESA-listed, MIS, sensitive, special status, and Forest Watch

species[112] as well as Idaho SGCN, have concern about capability to persist over the long-term in the project area (SDEIS 3.13.4.2), and need to be evaluated as potential SCCs. None of them were. This is both a violation of NFMA and NEPA.

C. Proposed Amendment 1: General Management Actions

The SDEIS proposes a sweeping Forest Plan amendment that would eviscerate a majority of the BNF and PNF Forest Plan standards and guidelines and violate the substantive standards in the 2012 Planning Rule in order to approve the Stibnite Gold Project. These standards and guidelines are critical to Appendix B of the Forest Plans, which move aquatic, watershed, and terrestrial conditions toward desired conditions. Effects of waiving this standard are not adequately analyzed in the SDEIS, therefore the amendment does not meet the intent of the original plan standard.

The SDEIS proposes to amend both the Payette and Boise Forest Plans in certain management areas to allow the Stibnite Gold Project to "degrade aquatic, terrestrial, and watershed resource conditions" through the duration of project implementation (including construction, operations, closure, reclamation, exploration; and various post-reclamation actions, like water treatment potentially in perpetuity, stream channel maintenance, more exploration, and monitoring). This would be a change from the current Forest Plan standards that only allow projects or actions to degrade these resources "in the temporary time period (up to 3 years), and must be designed to avoid resource degradation in the short term (3-15 years) and long term (greater than 15 years)." As discussed further below, this proposed amendment is problematic on several fronts.

1. The timeframe of proposed Amendment 1 exceeds the rationale for a project-specific amendment.

The life of the Stibnite Gold Project may continue for an indefinite period, or in perpetuity. Therefore, indefinite and "in-perpetuity" timeframes for these actions should be included in the timeframes for the proposed amendment. Resource degradation for indefinite timeframes and for a larger impact area could result in a "significant environmental effect" and needs a more extensive Forest Plan amendment process. *See* 36 C.F.R. § 219.13b(3). With the existing low populations of Chinook salmon and steelhead, the times that degradation would be allowed — even if only for the lifetime of construction, operations, and closure — could destroy several generations of this fish species.

[112] "Special Status" is generally used to denote species that are considered sufficiently rare that they require special consideration and/or protection by the federal and/or state governments. Special status species include forest watch plant species identified in the Payette Forest Plan (Forest Service 2003) and/or Boise Forest Plan (Forest Service 2010a). Forest watch species are those that are confirmed to occur in the planning area for a Forest and are listed as S1, S2, or S3 at the state level but may not be on the Forest Service regional sensitive species list. (SDEIS at 3.13.4.2).

The SDEIS, Chapter 4, describes project actions that degrade aquatic and terrestrial conditions indefinitely and in perpetuity. Examples for ESA-listed Chinook salmon include less optimal habitat, mortality, injury, and temporary and permanent displacement. Examples for ESA-listed steelhead include mortality, injury, temporary or permanent displacement, temporal loss of habitat, and decrease in net productivity for decades. Examples for ESA-listed bull trout include injury or mortality to individuals, permanent displacement from the analysis area, net decrease in quantity and quality of habitat, net loss of thermally suitable habitat, and a net loss of critical habitat. Exceedances of water quality standards are anticipated to extend indefinitely post-closure (SDEIS Table 2.8-1).

The No Action alternative moves toward desired conditions described in the Forest Plans. The rationale for the amendment (SDEIS Appendix A), states that Action Alternatives would depart from desired conditions, and then theoretically move back toward them. The analysis in SDEIS Chapter 4 does not demonstrate how aquatic, terrestrial, and watershed conditions resulting from Action Alternatives, would depart from desired conditions, and then move toward them. Neither does it describe how conditions resulting from the No Action Alternative will move toward and achieve those desired conditions. And neither does it compare conditions between the Action and No Action alternatives, as required by NEPA. Therefore, the effects of waiving the timeframes for allowable degradation of conditions cannot be compared to the No Action alternative, which moves toward desired conditions (Forest Service 2003, 2010a). Engineered stream channels need maintenance over time to generate and support aquatic habitat suitable for the four special status salmonids; these actions are not described in the SDEIS, but will need to occur in perpetuity.

Indefinite or "forever" amendments to the Forest Plan should not be done through project-specific amendments because they establish a particular trajectory for resource conditions that once implemented forever move away from desired conditions– that is, they fail to provide for "sustainability." *See* 36 C.F.R. 219.8 (requiring "ecological *sustainability*") (emphasis added). Additionally, indefinite or "forever" project specific amendments violate the NFMA, which requires that Forest Plans be "maintain[ed]" and "revise[d]" "us[ing] a systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, and other sciences." 16 U.S.C. §§ 1604(a) and (b).

2. The scale of impacts of proposed Amendment 1 exceeds the rationale for a project-specific amendment.

The Stibnite Gold Project will affect aquatic and watershed resources beyond the management areas proposed for Amendment 1. Anticipated impacts cannot reasonably be

limited to those management areas proposed for this amendment.

The SDEIS describes the analysis area as the entire East Fork South Fork Salmon River, and upper South Fork Salmon River watershed. SDEIS at 3.12.2 (Figure 3.12-1). "The analysis area encompasses all areas in which fish resources and fish habitat may be affected directly or indirectly by the Stibnite Gold Project, and not merely the immediate area involved." SDEIS at 3.12.2. The surface water quality analysis area is also described to include streams and lakes located in the 22 sub-watersheds and MAs that encompass the proposed mine site, access roads, transmission lines, and on-site facilities within the East Fork and South Fork Salmon River watersheds. SDEIS at 3.9.2. Yet Chapter 4 only analyzes effects to fisheries or water quality at the mine site area; it fails to analyze consequences of the project to fisheries and surface water quality in the larger analysis area downstream and outside of the local mine site. For example, impacts to waters downstream of the Yellow Pine Pit Lake -- which may be the most impacted waters--are not evaluated. Such impacts that could occur well-beyond the local mine site include, but are not limited to, increased temperatures, increased risk of spills, increased impacts from roads, and increased metals concentrations.

Clearly, the geographic scale of the impacts does not match, and well exceeds, that of the management areas identified and affected by the proposed amendment. By failing to include impacts beyond the mine site, the geographic scope of the proposed amendment was unreasonably narrow. The true impacts of this proposed amendment were neither considered nor disclosed to the public.

3. Proposed mitigations do not sufficiently minimize impacts to avoid degradation allowed by proposed Amendment 1.

The lists of design features and mitigations (U.S. Army Corps of Engineers NWW-2013-0321, 2021, Draft Conceptual Stream and Wetland Mitigation Plan; TetraTech 2021, Draft Wildlife Habitat Mitigation Plan; Brown and Caldwell 2021, Final Fisheries and Aquatic Resources Mitigation Plan) are intended to reduce impacts to various resources. The tables in SDEIS Appendix A justify the compliance of the amendment with the 2012 planning rule requirement with general statements such as: "The mitigations and reclamation actions developed for each resource are created to maintain and restore ecosystem integrity;" and "The mitigations and reclamation actions are developed to minimize impacts to fish and wildlife and maintain and/or restore terrestrial and aquatic habitat." They are merely lists, with no rationale or interpretation or analysis. SDEIS Chapter 4.11-4.12 clearly describes multiple aquatic and watershed degradations, yet omits any analysis of specific mitigations.

Mitigation methods proposed are not sufficient to reliably reverse impacts, much less improve existing, impaired habitat during or after additional mining occurs. The SDEIS needs to include analysis of the specific mitigations that allegedly "correct" specific aquatic and watershed degradation.

4. Proposed Amendment 1 is not based on best available science.

The Planning Rule requires that the Forest Service's proposed amendment be "informed by the best available scientific information, scoping, effects analysis, monitoring data or other rationale." 36 C.F.R. § 219.13(5)(I). The Forest Service's amendment was not based on best available science. Its fisheries and water quality analyses were flawed as described above. The Forest Service failed to act in accordance with this section of the Planning Rule.

5. Proposed Amendment 1 is not consistent with the substantive requirements of the Planning Rule.

As established above, Forest Plan amendments must be consistent with the substantive requirements of the Planning Rule. Here, proposed Amendment 1 is not. The SDEIS repeatedly, for almost every requirement, states that the proposed plan amendment maintains the intent of the original plan standard, while allowing for the implementation of the proposed Stibnite Gold Project (SDEIS Appx. A). However, it has failed to demonstrate how proposed Amendment 1, which would allow degradation of aquatic, terrestrial, and watershed condition resources indefinitely into the future or in perpetuity, is consistent with the Planning Rule's substantive requirements for:

- Sustainability of ecosystem integrity;
- Sustainability of air, soil, and water;
- Diversity of plant and animal communities;
- Ecosystem diversity;
- Species-specific plan components for recovery of listed or proposed species; and
- Integrative resource management.

a. Proposed Amendment 1, substantive requirements: Sustainability of ecosystem integrity

First, the proposed amendment does not meet the requirement to maintain or restore ecosystem integrity. 36 C.F.R. § 219.8(a)(1). The SDEIS claims that the amendment meets this requirement (SDEIS Appx. A at A-5). However, the simple statements there do not demonstrate that the amendment is consistent with the ecosystem

integrity component for several reasons.

The SDEIS does not document maintenance and restoration of integrity of the aquatic ecosystem, but instead documents exceedances in water quality and blocked fish habitat (SDEIS Chapter 4). The aquatic ecosystem would experience adverse impacts to surface water quality during operations and the post closure/reclamation period, and exceedance of water quality standards would continue after operations into the post closure/reclamation period (Maest 2022).

The SDEIS describes project actions which severely degrade aquatic and terrestrial conditions indefinitely and in perpetuity. Examples for ESA-listed Chinook salmon include less optimal habitat, mortality, injury, and temporary and permanent displacement. Major examples for ESA-listed steelhead include mortality, injury, temporary or permanent displacement, temporal loss of habitat, and decrease in net productivity for decades. Major examples for ESA-listed bull trout include injury or mortality to individuals, permanent displacement from the analysis area, net decrease in quantity and quality of habitat, net loss of thermally suitable habitat, and a net loss of critical habitat. Exceedances of water quality standards are anticipated to extend indefinitely post-closure (SDEIS Table 2.8-1).

The analysis in the SDEIS does not support that "[t]he mitigations and reclamation actions developed for each resource are created to maintain and restore ecosystem integrity" SDEIS Appx. A. The terms "ecological integrity," "ecological sustainability," "ecosystem integrity," and "ecosystem diversity" do not even appear anywhere in the body of the SDEIS in Chapter 4. Restoring ecosystem integrity during operations and after closure is not only not described, but impossible to assure.

Our expert review of the SDEIS demonstrates the absolute inadequacy of the analyses of the potential impacts to fisheries and water quality, and the clear inconsistency with meeting the Planning Rules substantive requirements (These aspects are similarly ignored, and impacts similarly inevitable, in the SDEIS):

> O'Neal 2020, Gregory 2022: "While some important aspects of habitat complexity and connectivity were characterized in baseline assessments referenced in the document (e.g., channel and riparian habitat, existing large woody debris, zones of groundwater and surface water exchange, etc.), they are ignored in the DEIS predictions of impacts. Degradation of those habitats from decreased flows, road crossings, increased sediment loads, spills, and other activities associated with mine development will inevitably impact salmonid populations."

See also Maest 2022 for more details.

b. Proposed Amendment 1, substantive requirements: Sustainability of air, soil, and water

Second, the proposed amendment does not meet the requirement for ecological sustainability for air, soil, and water. 36 C.F.R. § 219.8(a)(2). The SDEIS does not claim that this amendment is consistent with the substantive requirement of the Planning Rule, but that it "retains the plan components to maintain or restore these resources" (SDEIS Appx. A).

The SDEIS does not demonstrate that the plan amendment meets this requirement. First, as discussed above, there are long-term predicted impacts to water quality during operations and post-closure. In addition, "groundwater flows are poorly predicted, their role in salmonid survival and resulting impacts is unaddressed, and impacts to water quantity and quality are vastly underestimated in the DEIS," and "ground and surface water flows are poorly characterized and treatment is neither sufficiently described nor tested for effectiveness (O'Neal 2020, Gregory 2022)." These aspects are similarly underestimated and insufficiently described in the SDEIS. An amendment that would allow these predicted adverse impacts to water quality is not consistent with the requirement to "maintain or restore" water quality or water resources in the area.

c. Proposed Amendment 1, substantive requirements: Diversity of plant and animal communities

Third, proposed Amendment 1 does not meet the ecosystem integrity component under the diversity of plant and animal communities requirement. 36 C.F.R. § 219.9(a)(1).

The SDEIS rationalizes that it meets this requirement. However, there is no reference provided in Appx. A regarding ecological integrity or maintenance and restoration of plant and animal community diversity. Instead, references provided there document impacts long term and into the future.

Physical impacts to plants and animals and their habitats from mining are underestimated in the SDEIS. While some important aspects of habitat complexity and connectivity were characterized in baseline assessments referenced in the document (e.g., off channel and riparian habitat, existing large woody debris, zones of groundwater and surface water exchange, etc.), they are ignored in the SDEIS predictions of impacts. Degradation of those habitats from decreased flows, road crossings, increased sediment

loads, spills, and other activities associated with mine development will inevitably impact salmonid populations.

The SDEIS also assumes no interactions among impacts, which are a key component of ecological integrity. By considering fish species, stream reaches, and limited habitat impacts (e.g., stream dewatering, temperature increases, metals concentration increases, road impacts) all separately, the SDEIS fails to acknowledge the broad ecological understanding that multiple stressors will amplify one another's effects on the ecosystem. This leads to a serious underestimate of impacts to fish and their habitat. This amendment is therefore inconsistent with the Planning Rule.

d. Proposed Amendment 1, substantive requirements: Ecosystem diversity

Fourth, the proposed amendment fails to be in accordance with substantive provisions on ecosystem diversity: 36 C.F.R. § 219.9(a)(2). Plan components are intended to maintain or restore key characteristics. The SDEIS describes degradation of those key characteristics. For example, temperature is a key characteristic of the life history of salmon and trout, which are rare aquatic animal communities with three species listed under the ESA. According to the SDEIS (pgs. ES-11, ES-18, 4-280, 4-336), some streams would have potential water temperatures that are lethal to salmonids during the summer for up to 100 years or more, when vegetation growth may or may not attain stream shading to reduce temperatures. Diversity of ecosystems relies on terrestrial and aquatic food webs. Mountain whitefish (*Prosopium williamsoni*), suckers (*Catostomus* sp.), anadromous Pacific lamprey (*Entosphenus tridentatus*) and other important fish, freshwater insects, algae, and other primary producers are all critical elements of the foodwebs supporting salmonids considered in the EIS. But here, by "[i]gnoring impacts to salmonid foodwebs" the DEIS "ignor[ed] impacts to salmonids at large." Impacts were ignored similarly in the SDEIS. The SDEIS, therefore, has not demonstrated that it meets the requirements for ecosystem diversity.

e. Proposed Amendment 1, substantive requirements: Species-specific plan components for the recovery of listed or proposed species

Fifth, there are additional species-specific plan components that are problematic with respect to proposed Amendment 1. *See* 36 C.F.R. § 219.9. The SDEIS does not demonstrate that the proposed amendment meets this requirement. The SDEIS (Appendix A A-7) states:

The mitigations and reclamation actions are developed to minimize impacts

> to fish and wildlife and maintain and/or restore terrestrial and aquatic habitat. There would be impacts to individual Endangered Species Act (ESA)-listed wildlife and fish species and habitat, but the implementation of the Stibnite Gold Project would not result in jeopardy (pending Section 7 consultation).

However, there is no documentation in the SDEIS of a "responsible official's determination that the required plan amendment components are sufficient to provide the ecological conditions necessary to contribute to the recovery of federally listed or proposed species (and viable SCC)". As preliminarily determined, the project will degrade conditions for ESA-listed bull trout, Chinook salmon, steelhead, and their critical habitats; and may indirectly impact westslope cutthroat trout (SDEIS at 4.12.2). In short, the Stibnite Gold Project management actions, together with proposed Amendment 1, are predicted to adversely affect listed fish species and their habitats.

According to the SDEIS, the project will decrease or provide "less optimal" critical habitat overall for Chinook salmon and bull trout, increase some stream temperatures to lethal levels for salmonids in perpetuity, and result in exceedances of National Marine Fisheries' and U.S. Fish & Wildlife Service's and other criteria for antimony, arsenic, copper, and mercury during operations and indefinitely post-closure. An amendment to this standard needs to include effects analysis and demonstration of compliance with substantive requirements of the planning regulations.

Though the implementation of the Stibnite Gold Project may not result in jeopardy (pending Section 7 consultation), significant adverse effects to ecological conditions and species are documented throughout Chapter 4 in the SDEIS, demonstrating that the project is inconsistent with NFMA.

f. Proposed Amendment 1, substantive requirements: Integrative resource management

Finally, the proposed amendment is not in accordance with the substantive requirement for integrated resource management for multiple use.

The SDEIS (Appendix A) states that the amendment meets this requirement; and that: the lists of design features and mitigations (US Army Corps of Engineers NWW-2013-0321, 2021, Draft Conceptual Stream and Wetland Mitigation Plan; TetraTech 2021, Draft Wildlife Habitat Mitigation Plan; Brown and Caldwell 2021, Final Fisheries and Aquatic Resources Mitigation Plan) are intended to reduce impacts to various resources. The tables in SDEIS Appendix A justify the compliance of the amendment with the 2012 planning rule

requirement with general statements such as: “The mitigations and reclamation actions developed for each resource are created to maintain and restore ecosystem integrity;” and “The mitigations and reclamation actions are developed to minimize impacts to fish and wildlife and maintain and/or restore terrestrial and aquatic habitat.” They are merely lists, with no rationale or interpretation or analysis. SDEIS Chapter 4.11-4.12 clearly describes multiple permanent and long-term aquatic and watershed degradations, yet omits any analysis of specific mitigations. The SDEIS needs to include analysis of the specific mitigations that allegedly “correct " specific aquatic and watershed degradation.

According to O’Neal (2020) and Gregory (2022):

> While the proposed alternatives describe some remediation of historic impacts, mine cleanup efforts (mitigation) simply cannot restore habitat to pre-mining conditions and cannot outweigh impacts from currently proposed mining. The (S)DEIS assumes that mitigation and restoration efforts are possible and effective. The (S)DEIS assumes that mitigation for historic mining efforts will offset impacts from proposed mining efforts. Experience has shown that habitat restoration and mitigation are difficult, and often ineffective” (O’Neal 2020).

Moreover, effects of climate change are not predicted to enable the terrestrial and aquatic ecosystems on the plan area to adapt to change. “Temperature increases ignore climate change, are otherwise underestimated and their impacts are unreasonably minimized. In addition to other shortcomings of the model used to predict project related temperature changes, it fails to incorporate temperature increases due to climate change. Climate change is already impacting bull trout and cutthroat trout habitat and those impacts will only be compounded by project related temperature increases. Moreover, even impacts of predicted temperature changes (up to about 7º C) are minimized despite the pivotal role of temperature in determining spawn and emergence timing, incubation rates, and salmonid growth and subsequent survival.

In conclusion, the SDEIS has failed to demonstrate how proposed Amendment 1, which would allow degradation of aquatic, terrestrial, and watershed condition resources indefinitely and possibly into perpetuity, is consistent with the Planning Rule’s substantive requirements. This proposed amendment would thus violate NFMA. The fact that a full analysis of the proposed amendment’s impacts are not disclosed in the SDEIS render this SDEIS in violation of NEPA.

D. Amendments 2 and 3: Total Soil Resource Commitment and Visual Quality Objectives

The SDEIS proposes to amend both the Payette and Boise Forest Plans by waiving several Forest Plan standards relating to total soil resource commitment and visual quality objectives. *See* SDEIS Appx. A at A-12, A-21. It is clear from the SDEIS impact analysis that the degradation of soils and visual quality will be permanent features of the landscape, even after closure and reclamation.

Furthermore, as described above, the "lists"of mitigation measures are just that — lists without any substance, detail, or analysis of how the proposed amendments will be consistent with the identified Planning Rule requirements.

These proposed amendments meet neither the requirements of NFMA nor NEPA.

E. Amendment 4: Fish Passage Diversion

Proposed Amendment 4, which would waive the requirement that new surface diversions provide upstream and downstream fish passage, fares no better under a similar analysis of the consistency of the proposed amendment with the Planning Rule requirements. It appears that the intent of this amendment is to remove the Forest Plan standard. The SDEIS should clarify this issue when it provides the required analysis of the impacts of this proposed amendment. It does not. Proposed Amendment 4 is not consistent with the Planning Rule's substantive requirements**.**

1. Proposed Amendment 4**,** substantive requirements: Ecosystem integrity

As discussed above for the proposed Amendment 1, proposed Amendment 4 also does not meet the requirements for ecosystem integrity found in 36 C.F.R. § 219.8(a)(1), and § 219.9(a)(1).

> To justify this amendment to the Forest Plan, the SDEIS states:
> "...the Meadow Creek diversion that would not allow for fish passage would be in place for 10 to 17 years. After that time, habitat for listed fish species in upper Meadow would be permanently blocked due to the TSF/TSF buttress, while other habitat would be made available by the removal of fish-passage barriers (Sections 4.12.2.2). The SGP design features and mitigations developed for fish habitat are developed to maintain and restore ecosystem integrity and the intent of compensatory mitigation would be to offset impacts that cannot be avoided or minimized (e.g. blocked fish access to upper Meadow Creek) (SDEIS Section 2.4.9). (SDEIS Appx. A).

Ten to 17 years of blocked fish passage for the Meadow Creek diversion, permanent blockage of upper Meadow Creek, 13 years of blockage of the East Fork South Fork Salmon River (EFSFSR), uncertain speculative fish passage beyond those 13 years in perpetuity, and permanent blockage of the upper EFSFSR, even considering removal of other fish passage barriers and mitigation, would result in an overall decrease in quantity and quality of bull trout, steelhead, and Chinook salmon habitat.

This decrease in habitat does not maintain or restore the structure, function, composition, and connectivity of aquatic ecosystems, as required in 219.8 and 219.9 above.

Both the Yellow Pine pit barrier cascade and the remnant box culvert will be removed to allow for natural upstream fish passage by both resident and anadromous species. This "natural upstream fish passage" would depend largely on the success of the "Fish Tunnel." The East Fork Fish Tunnel is described in Brown and Caldwell et al. 2021: Fishway Operations and Management Plan. Claims of the success of this tunnel are assumed in the body of the SDEIS. However, "There is some question regarding the effectiveness and efficacy of the EFSFSR tunnel to pass fish (USFWS 2019). The U.S. Fish and Wildlife Service (USFWS) notes, in a letter to Midas Gold (now Perpetua Resources) dated October 3, 2019, "[E]ven after close consultation and collaboration with NMFS, meeting applicable NMFS passage criteria and guidelines, and executing all potential adaptive management measures, there exists a reasonable probability that the project will not be able to volitionally pass fish safely, timely, or effectively" (USFWS 2019). Results are presented with the assumption that the tunnel would allow volitional passage (SDEIS 2-60).

There is little rationale to support the proven success of such a tunnel in the SDEIS. Of the three references cited, none analyzed Chinook salmon, bull trout or steelhead, or sites with characteristics similar to Stibnite (i.e., from an accessible river to an inaccessible channel upstream). Gowans et al. 2003 tracked Atlantic salmon in Scotland on a river system from a reservoir through four fish passes including fish ladders, fish lifts, and a tunnel . Only 4 out of 54 tagged adults made it to spawning grounds. Wollenbaek et al. 2011 examined genetic connectivity of lake-dwelling Arctic char in Norway across a dam through a subterranean tunnel and spill gates. The char were represented by two genetically distinct lake populations, and connectivity was demonstrated, but it was questioned to what extent char utilized the tunnel for upstream migration. Rogers and Cane (1979) indicated "numbers of fish succeeding the tunnel and weir" for Atlantic salmon from a pumped storage reservoir to upstream spawning grounds in New Wales, but the complete study was unavailable.

The backup plan, should the tunnel not work, would be to trap and haul fish up and downstream of the Yellow Pine pit until the reconstructed East Fork channel is completed (this relies on the assumption that the constructed and enhanced stream reaches would

perform as described in the Stream Design Report). According to the DEIS, about 100,000 fish are modeled to be "affected" (injured/killed) from 1.6 km of stream removals and diversions in the East Fork (Table 4.12-2b, and p. 4.12-17) due to dewatering, getting caught in screens, traps, dipnets, seines, and electroshing; during transport; at the relocation site by predation, lack of food, disorientation, and competition; and from increasing temperatures, decreased dissolved oxygen, and predation from being stranded in partially dewatered areas.(From DEIS Table 4.12-2b: 84,066 Chinook salmon + 1,009 steelhead + 620 bull trout + 10,647 cutthroat trout = 96,342 fish potentially affected). While this analysis was included in the DEIS and these components of the plan have not changed, this information is not included in the SDEIS. This discrepancy must be explained.

This magnitude of injury or death would certainly be considered a degradation, not maintenance and restoration, of ecological integrity of aquatic ecosystems and watersheds.

2. Proposed Amendment 4, substantive requirements: Diversity of plant and animal communities, and ecosystem diversity

As discussed above for the proposed Amendment 1, proposed Amendment 4 also does not meet the requirements for ecosystem integrity found in 36 C.F.R. § 219.9(a)(2). The SDEIS (Appendix A, A-32) claims that substantive requirement at 36 C.F.R. § 219.9(a)(2) does not apply to this proposed amendment. This requirement states:

> The plan must include plan components, including standards or guidelines, to maintain or restore the diversity of ecosystems and habitat types throughout the plan area. In doing so, the plan must include plan components to maintain or restore: (i) Key characteristics associated with terrestrial and aquatic ecosystem types; (ii) Rare aquatic and terrestrial plant and animal communities; and (iii) The diversity of native tree species similar to that existing in the plan area.

This requirement is certainly directly related to this project-specific amendment. Plan components, while intended to maintain or restore key characteristics, are determined in the SDEIS to degrade those key characteristics. For example, connectivity is a key characteristic of the life history of salmon and trout, which also comprise rare aquatic animal communities, with three species listed under the ESA in the project area. Blocking fish passage to upstream habitats will decrease the quantity and quality of bull trout and Chinook salmon habitat. (SDEIS at 4.12). This decrease in habitat does not maintain or restore key characteristics or rare aquatic animal communities, as required in

219.8 and 219.9 above.

3. Proposed Amendment 4, substantive requirements: Additional species-specific plan components

Third, the proposed amendment does not comply with additional species-specific plan components found in 36 C.F.R. § 219.9(b). As described above, the requirement directs that the Forest Service make a determination "whether or not the plan components . . . provide ecological conditions necessary to contribute to the recovery of federally listed threatened and endangered species . . ."

There is no documentation in the SDEIS of a responsible official's determination that the required plan components are sufficient to provide the ecological conditions necessary to: contribute to the recovery of federally listed threatened and endangered species, and conserve proposed and candidate species.

In fact, the SDEIS indicates that the Forest Service has preliminarily found that the entire Stibnite Gold Project project will adversely affect ESA-listed bull trout, Chinook salmon, steelhead, and their critical habitats; and may indirectly impact westslope cutthroat trout. (SDEIS 4.12)

Though the implementation of this amendment would not result in jeopardy (pending Section 7 consultation), significant adverse effects to ecological conditions and species are documented throughout Chapter 4 in the SDEIS. An amendment to this standard needs to include effects analysis and demonstration of compliance with substantive requirements of the planning regulations.

In conclusion, none of the proposed amendments are consistent with the Planning Rule. None of the proposed amendments were adequately analyzed as to their effects, violating both NFMA and NEPA.

VIII. FAILURE TO MINIMIZE ALL ADVERSE ENVIRONMENTAL IMPACTS AND TO PROTECT PUBLIC RESOURCES

Even under the Forest Service's erroneous decision to regulate the project solely through its Part 228A regulations, the agency failed to minimize all adverse impacts, as shown herein. Under the Organic Act and Part 228A regulations, the agency must "maintain and protect fisheries and wildlife which may be affected by the operations." 36 C.F.R. § 228.8(e). These impacts also violate the Forest Service's duties to "minimize adverse environmental impacts on National Forest surface resources." 36 C.F.R. § 228.8.

"The operator also has a separate regulatory obligation to 'take all practicable measures to maintain and protect fisheries and wildlife habitat which may be affected by the operations.' 36 C.F.R. § 228.8(e)."[113] "Under the Organic Act the Forest Service must …require [the project applicant] to take all practicable measures to maintain and protect fisheries and wildlife habitat."[114]

The CWA, Organic Act, and agency regulations preclude the Forest Service from approving aspects of a mining operation that would violate federal or state water quality standards.

> Under the Clean Water Act Section 313, the Forest Service cannot authorize mining operations that do not comply with state and federal water quality regulations, including a state's antidegradation policy. 33 U.S.C. § 1323(a).[115]

The Organic Act mandates the same compliance, as the Part 228 regulations "further require that mining operators comply with applicable state and federal water quality standards including the Clean Water Act; [and] take all practicable measures to maintain and protect fisheries and wildlife habitat."[116] The 228 regulations require that the operator submit sufficient information to enable the agency to ensure that the Project will comply with all applicable state and federal requirements to protect water quality and fisheries. *See* 36 C.F.R. §§ 228.4(c)(3), 228.8(b), 228.8(e). The SDEIS does not show, or properly analyze, that all aspects of the project will fully protect "fisheries and wildlife habitat." This is in addition to the agency's/project's failure to fully protect all uses, including Treaty-reserved rights and resources.

In addition, regardless of whether the proper Part 251 regulations, or the improper Part 228 regulations are used, the Organic Act prevents the Forest Service from adversely affecting public waters, such as the waters and springs that will be adversely affected/eliminated by the project.

This is also true for the critical wetlands, riparian areas, and Groundwater Dependent Ecosystems that will be severely impacted by the project. In addition to the Executive Order

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[113] *Rock Creek All. v. Forest Serv.*, 703 F. Supp. 2d 1152, 1164 (D. Mont. 2010) (mine approval violated Organic Act and 228 regulations by failing to protect water quality and fisheries).
[114] *Id.* at 1170.
[115] *Save Our Cabinets v. U.S. Dep't of Agric.*, 254 F. Supp. 3d 1241, 1249 (D. Mont. 2017) (Forest Service approval of mining project violated duties under CWA and Organic Act to ensure compliance with water quality standards). *See also Hells Canyon Pres. Council v. Haines*, 2006 WL2252554, *4-5 (D. Or. 2006) (Forest Service mine approvals violated state CWA standards).
[116] *Save Our Cabinets*, 254 F. Supp. 3d at 1250.

on Wetlands Protection (which requires the Forest Service to protect wetlands), the Organic Act requires the Forest Service to protect public land water resources, which has not been done.

> [N]ational forests . . .shall be as far as practicable controlled and administered in accordance with the following provisions. No national forest shall be established, except to improve and protect the forest within the boundaries, or for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of citizens of the United States. 16 U.S.C. § 475.

"The legislative debates surrounding the Organic Administration Act of 1897 and its predecessor bills demonstrate that Congress intended national forests to be reserved for only two purposes – 'to conserve the water flows, and to furnish a continuous supply of timber for the people.'"[117] "The objects for which the forest reservations should be made are the … preservation of forest conditions upon which water conditions and flows are dependent."[118]

New Mexico recognized that the "preservation" of conditions for water flow was aimed primarily at providing water for uses outside the forest boundaries – contradicting the agency's position here that it has no authority over actions on the forests that may eliminate or impair off-forest resources. "Congress authorized the national forest system principally as a means of enhancing the quantity of water that would be available to the settlers of the arid West."[119] Yet instead of "enhancing" water supplies, the project will adversely affect water that would otherwise be available and in good quality for the Forest, to downstream water users, and under rights reserved and guaranteed to the Nez Perce Tribe by treaty.

Although the Act itself and the *New Mexico* decision shows that the Forest Service's abdication of authority here is invalid, this does not mean that mining is precluded whenever it affects downstream water supplies. "Congress intended the national forests to be put to a variety of uses … *not inconsistent with the two principal purposes of the forests*."[120]

Thus, the Forest Service failed to "preserv[e] forest conditions upon which water conditions and flows are dependent."[121] Here, the Forest Service never considered whether its approval of the Stibnite Gold Project is "consistent with" one of the "primary purposes" of the Payette National Forest – "enhancing" and "preserving" water conditions/flows. And based on the information that is provided in the SDEIS, the Stibnite Gold Project is not

[117] *U.S. v. New Mexico*, 438 U.S. 696, 707 (1978).
[118] *Id.* at 708.
[119] *Id.* at 713.
[120] *Id.* at 716 (emphasis added)
[121] *Id.* at 708.

consistent with that purpose, as it will destroy, alter, and degrade wetlands and creeks throughout the mining area and along the transportation and utility routes.

Regarding long-term impacts to public resources, the SDEIS admits that long-term or perpetual treatment of water pollution would be needed. SDEIS at 2-91. At the outset, the SDEIS admits that treatment issues have not been adequately considered in the DEIS: "Evaluation of post closure water treatment is ongoing." SDEIS at 2-91. This is the exact same statement from the first DEIS (at 2-75), yet the problem has not been resolved. The agency cannot proceed to issue a Final EIS without allowing the public to comment on final treatment issues in the SDEIS.

Allowing such perpetual pollution conditions to exist, including a permanently polluted pit lake, violates the Forest Service's duties to protect public resources, water quality, aquatic life, and wildlife. The Forest Service cannot approve any operations that will require long-term or perpetual treatment (e.g., mine water treatment). The potential for a financial assurance/bond to cover treatment of perpetual pollution (as noted in the SDEIS) does not satisfy the agency's obligation not to approve operations that would result in such conditions in the first place.

Allowing an operation to begin that will admittedly never be fully reclaimed due to its unending need for perpetual treatment violates the Forest Service's duties to ensure the protection of public resources under the Organic Act, Minerals Policy Act of 1970, and other applicable laws.[122] Although written for coal mines, there is no reason why the Forest Service cannot adopt this requirement for the Stibnite Gold Project in order to comply with the Organic Act, NFMA, CWA, etc.

Under the Organic Act, NFMA, the CWA, 1970 Act, and the Part 228 regulations (as well as the Part 251/261 rules), the Forest Service cannot approve a mine that does not ensure that reclamation will be completed – i.e., a mine that will require perpetual treatment. Under the Part 228 regulations, the agency can only approve a mine that can be reclaimed. In detailing the reclamation requirements, the regulation states that the:

> [O]perator shall, where practicable, reclaim the surface disturbed in operations by taking such measures as will prevent or control onsite and off-site damage to the environment and forest surface resources including:

[122] *See, e.g.,* Interior Department, *Hydrologic Balance Protection, Policy Goals and Objectives on Correcting, Preventing and Controlling Act/Toxic Mine Drainage* (Mar. 31, 1997) at 5. https://www.osmre.gov/lrg/docs/amdpolicy033197.pdf ("In no case should a permit be approved if the determination of probable hydrologic consequences or other reliable hydrologic analysis predicts the formation of a post-mining pollutional discharge that would require continuing long-term treatment without a defined endpoint.") (Attached to previous comments and already part of the administrative record).

(1) Control of erosion and landslides;
(2) Control of water runoff;
(3) Isolation, removal or control of toxic materials;
(4) Reshaping and revegetation of disturbed areas, where reasonably practicable; and
(5) Rehabilitation of fisheries and wildlife habitat.

36 CFR § 228.8(g) (emphasis added). By allowing the continuation/creation of a mine with perpetual toxic/polluted waters, the agency has violated these requirements.

As noted in the Forest Service's *Anatomy of a Mine* regulatory guidance report, reclamation is a critical and required component of a logical, complete and reasonable mining plan:

> Satisfactory reclamation should emphasize three major objectives:
> 1. The productivity of the reclaimed land should at least equal that of the premine surface. This does not necessarily mean that the site must be restored to an approximation of its original condition, or that surface uses after mining will be the same as those existing prior to mining. For example, an area used for marginal grazing prior to mining may be changed to a useful and attractive recreational complex, or perhaps in another case to a housing area.
> 2. Satisfactory reclamation should leave the mined area in a condition that will not contribute to environmental degradation either in the form of air- or water-borne materials, or from chemical pollution.
> 3. The reclaimed area should be aesthetically acceptable and it should be safe for the uses intended.[123]

The Mining and Minerals Policy Act also mandates successful and final reclamation of mine operations approved by the Forest Service, requiring "the reclamation of mined land, so as to lessen any adverse impact of mineral extraction and processing upon the physical environment that may result from mining or mineral activities." 30 U.S.C. § 21a. No such plan to "lessen any adverse impact" from the creation of the polluted waters has been proposed or required in this case.

The creation of a perpetual source of contaminated water, especially one which is a direct threat to wildlife, violates the federal laws and regulations noted herein. As such, the

[123] U.S. Dep't of Agric., Forest Serv., *Anatomy of a Mine, From Prospect to Production* (Feb. 1995) at 68-69 (emphasis added) (General Technical Report INT-GTR-35) (Attached to previous comments and already part of the administrative record).

Forest Service cannot issue a record of decision (ROD) that may involve such activities and must reject any plan of operations that does not prevent the mine water contamination. Furthermore, the Forest Service's failure to fully review, and subject the review to public comment, these water quality treatment issues violates NEPA, as discussed below.

IX. THE SDEIS VIOLATES NEPA

A. The SDEIS fails to consider a reasonable range of alternatives

Under NEPA, federal agencies are instructed to "inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment." 40 C.F.R. § 1502.1 (1978). NEPA requires an EIS to describe and analyze "every reasonable alternative within the range dedicated by the nature and scope of the proposal." *Alaska Survival v. Surface Transp. Bd.*, 705 F.3d 1073, 1087 (9th Cir. 2013). Consideration of alternatives "is the heart of the [EIS]," and agencies should "[r]igorously explore and objectively evaluate all reasonable alternatives" that relate to the purposes of the project and briefly discuss the reasons for eliminating any alternatives from detailed study. *Id.*; 40 C.F.R. § 1502.14 (1978).

While an EIS "need not consider an infinite range of alternatives, only reasonable or feasible ones," the failure to examine a reasonable range of alternatives renders an EIS inadequate. *Id. See also Idaho Conservation League v. Lannom,* 200 F. Supp. 3d 1077, 1090–91. (Payette National Forest violated NEPA by failing to discuss in the SDEIS any alternatives that reduced ground disturbing mining activities while still meeting purpose and need). In discussing alternatives, the Forest Service must state how the alternatives "will or will not achieve the requirements of . . . other environmental laws and policies." 40 C.F.R. § 1502.2(d). A failure to consider a reasonable range of alternatives or "present complete and accurate information to decision makers and to the public" regarding the alternatives will violate NEPA. *See Natural Resources Def. Council v. U.S. Forest Serv.*, 421 F.3d 797, 813–14 (9th Cir. 2005).

An agency derives its project alternatives from the environmental impact statement's "purpose and need" section, which defines "the underlying purpose and need to which an agency is responding in proposing the alternatives including the proposed action." *City of Carmel-by-the-Sea,* 123 F.3d at 1155; 40 C.F.R. § 1502.13. The reasonableness of an alternative is governed by a given project's "purpose and need." *Id.* Agencies enjoy considerable discretion in defining the purpose and need of a project. *Friends of Southeast's Future v. Morrison,* 153 F.3d 1059, 1066 (9th Cir. 1998). However, in doing so "an agency cannot define its objectives in unreasonably narrow terms." *City of Carmel-by-the-Sea,* 123 F.3d at 1155.

As set forth below, the SDEIS fails to consider a reasonable range of alternatives, and it improperly dismisses viable alternatives from consideration.

For example, the SDEIS does not provide adequate justification for eliminating underground mining as an alternative to be considered in the SDEIS. Unlike the Feasibility Study, which aggressively promotes the possibility for underground mining to potential investors, the SDEIS avoids serious discussion of underground mining as a possibility. Underground mining is declared to be uneconomic, but there is no quantitative information provided in the SDEIS to defend that supposition. The potential for underground mining should be viewed first in the light of a choice as an environmentally preferable SDEIS alternative. Underground mining would mean less waste disposal on the surface, and less disruption of existing surface water flows, while still allowing removal of the existing source of contamination proposed for the open pit mining alternative. In the haste to eliminate underground mining as a consideration, a potential environmentally preferable option is not being properly analyzed.

Further, the SDEIS does not include an alternative that examines a dry stack tailings facility or a mining footprint limited to the existing footprint of previous disturbance. Given the significant negative issues of placing the Tailings Storage Facility in the upper Meadow Creek streambed, wetlands, and RCAs, the Forest Service should develop an alternative 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. Once all the suitable, non-sensitive areas are used for tailings storage sites, mining should cease.

We also recommended developing 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. We appreciate rounding the crests and utilizing variable slope angles of waste rock piles to blend in with natural landforms where this can be done without compromising stability or integrity of the waste rock piles.

Related to reducing the footprint of mine operations, the Forest Service should assess how utilizing 85 ton mine trucks instead of 200 ton mine trucks would reduce the size of the roads that would be needed to support mine operations.

Given Perpetua’s recent statements that antimony production is one of the primary goals and the grant from the Department of Defense, the Forest Service should develop an

alternative emphasizing antimony recovery. In the SDEIS, it is noted that only 15 to 20% of the total mill feed would contain sufficient antimony mineral grades to warrant production of antimony concentrate. We suggest developing an alternative focused on only developing the ore that contains high antimony mineral grades. This mineralized area would still contain some gold and silver but could dramatically reduce the footprint, wetlands impacts, and water treatment costs. Perpetua has already received a subsidy to mine this material so there is no longer a need to fully fund this project through gold extraction.

As an alternative to the proposed transmission line route from Johnson Creek substation to the mine site along an old and revegetated transmission line route from the 1940's, the Forest Service should develop an alternative constructing this transmission line along the Johnson Creek/Stibnite Road. This route would avoid the need to clear a 100-foot swath of vegetation for 9.1 miles and reconstruct a new access road and also make transmission line maintenance and decommissioning easier. Another ROW alternative that the Forest Service should consider is the old Thunder Mountain Road. The road prism is in place but water management features such as water bars are needed.

Furthermore, the SDEIS fails to include an alternative that considers early closure or long-term cession of mining activities due to the sequence of ore production anticipated for the SGP and/or inherent volatility of gold prices. Perpetua's 2021 Feasibility Study indicates that Mill Feed and Gold Head Grade peaks at production year 4 before sharply declining for the remaining 11 years of the life of the mine.[124] Notably, while the average gold grade (g/t) declines over time, the amount of development rock that must be removed to reach the lower grade ores increases.[125] In short, the SGP becomes a less profitable mining operation overtime.[126] Given uncertainty in gold, silver, and antimony prices, early closure is a reasonably foreseeable possibility for the SGP. Even if an early closure alternative is not developed, the SDEIS must address how long the mine will remain idle (i.e., in "care and maintenance") before the operator is required to enter a permanent closure phase. This is critically important because the anticipated "back-filling" of both the Hangar Flats Pit and the Yellow Pine Pit as well as other reclamation activities (backfilling the Midnight Pit) rely on development rock mined from the SGP's lowest grade deposit within the West End Pit.[127] If mine sequencing fails to follow that which is proposed in the 2021 MMP, the whole plan falls apart and the Payette National Forest is back to square one with even deeper and more

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[124] M3 Engineering and Technology Company, *Stibnite Gold Project Feasibility Study Technical Report*, at 1-15, 22-2 (2020), https://perpetuaresources.com/wp-content/uploads/2021/06/2021-01-27-feasibility-study.pdf.
[125] *Id.* at 1-13.
[126] *Id.* at 22-6; *see also* Perpetua Resources Corp., *Investor Presentation*, at 33-36 (Jan. 2023), https://perpetuaresources.com/wp-content/uploads/Perpetua-Resources_Investor-Presentation_January-2023_FINAL.pdf.
[127] SDEIS 2-45 ("*Development rock to backfill the Yellow Pine pit would be sourced predominantly from the West End pit*, with minor quantities originating from the Yellow Pine and Hanger Flats pits.") (emphasis supplied).

giant holes in the ground than currently exist. **Failure to plan, is planning to fail.** The SDEIS must consider and evaluate plans for early closure at critical mining phases that if not achieved would significantly impact the mine operator's ability to perform proposed restoration and reclamation actions[128]—actions this SDEIS assumes are events that *will* occur.

As recounted in these comments, there are a number of other significant resource issues that will be adversely affected by the proposal that should have been the basis for the development of additional alternatives. These resource issues include the destruction of whitebark pine trees, degradation of the Frank Church River of No Return Wilderness (FCRNRW), wetlands, and water quality, the mobilization of arsenic in the environment, and the lengthy and unknown rate of restoration and ecological recovery after the mine's closure.

1. The refusal to consider any alternatives to "the Mining Portion" of Perpetua's proposed mine violates NEPA

The SDEIS (p. 2-2) considers only two action alternatives: the 2021 MMP (Perpetua's proposal); and the Johnson Creek Route Alternative. While the Johnson Creek Route Alternative considers a different access route to the site, there is no other difference. As the SDEIS states: "The mining portion of this alternative would be the same as the 2021 MMP." *Id.* There is no difference between these two action alternatives when it comes to:

- Mine pit locations, areal extents, and mining and backfilling methods;
- Transportation management on existing and proposed roads
- Pit dewatering, surface water management, and water treatment
- Ore processing
- Lime generation
- Tailings storage facility (TSF) construction and operation
- TSF buttress construction methods
- Water supply needs and uses
- Management of mine impacted water and stormwater runoff
- Electrical transmission lines
- Stibnite Gold Logistics Facility (SGLF)
- A road maintenance facility
- Surface and underground exploration
- Stibnite Gold Project worker housing facility

SDEIS, p. 2-3.

[128] For example, a critical mining phase would be mining the West End deposit. The SDEIS must evaluate how to address the Hangar Flats and Yellow Pine pits if development rock is not available to backfill them.

Perpetua's proposal is for *mining*. While alternative access routes are an important consideration, it is "the mining portion" of Perpetua's proposal which will have the greatest number of, the most severe, and the longest lasting environmental impacts. Yet, the SDEIS fails to consider any alternatives related to any aspects of "the mining portion" of Perpetua's proposal. This violates NEPA. To consider a reasonable range of alternatives, the Forest Service must consider one or more alternatives to "the mining portion" of Perpetua's proposal, such as alternatives to: mine pit locations and extents; mining and backfilling methods; pit dewatering, surface water management, and water treatment; ore processing; and TSF construction and operation. These are major, controversial issues with huge and lasting environmental implications; yet, the SDEIS does not consider any alternatives with any difference when it comes to these issues.

In the August 2020 DEIS, the Forest Service did consider two additional alternatives to "the mining portion" of Perpetua's proposal. *See* SDEIS ES-1. But in the SDEIS, Forest Service eliminated those alternatives from further consideration and is no longer considering any alternatives to "the mining portion" of Perpetua's proposal. *Id.* Without considering any alternatives to "the mining portion" of Perpetua's proposal, the Forest Service is not considering a reasonable range of alternatives as required by NEPA. Additionally, the Forest Service improperly dismissed viable alternatives proposed in public scoping comments and at other points which would satisfy the purpose and need of the project and could reduce the adverse environmental impacts, as discussed next for some of these potential alternatives.

a. Underground alternative

As described in CSP2 (2022), the SDEIS does not provide adequate justification for eliminating underground mining as an alternative to be considered in the SDEIS. In explaining why underground mining was eliminated as a consideration in the SDEIS, the rationale presented begins by asserting:

"In aggregate, grades for these three deposits above a 0.48 grams per ton (g/t) gold cut-off grade averaged 1.43 g/t gold, 1.91 g/t silver, and 0.064 percent antimony (M3 2021). ***Typical economic cutoff grades for underground mine operations are approximately 5 g/t gold****." (SDEIS 2022,* ***emphasis added****)*

The basic consideration for potential economic viability must begin by considering how much gold that is greater than the cutoff grade has been identified, and whether this amount would justify underground mining. This is not addressed in the SDEIS analysis.

In addition, if underground mining were to take place, the cutoff grade would likely be less than the 5 g/t proposed in the SDEIS. The reference cited in the SDEIS, the Stibnite

Gold Project Feasibility Study (M3 2021), has an entire section devoted to the discussion of "*Potential high-grade underground exploration prospects*" (M3 2021, Section 9.8). In that section M3 used "gold cutoff" values of 2.4 g/t and 3 g/t, both of which are well below the 5 g/t cited in the SDEIS. The SDEIS does not give a citation for its choice of 5 g/t as "*Typical economic cutoff grades for underground mining* ...". The 5 g/t cutoff grade is not mentioned in the Feasibility Study. The choice of a typical cutoff grade for underground mining in the SDEIS should at least be consistent with the information being presented to the company's potential investors in its technical reports.

Unlike the Feasibility Study, which aggressively addressed the possibility for underground mining to potential investors, the SDEIS appears to avoid serious discussion of underground mining as a possibility by proposing underground mining is economically unfeasible, then failing to defend that premise with any quantitative analyses.

The potential for underground mining should also be viewed in the light of a potential choice as an environmentally preferable SDEIS alternative. Underground mining would mean less waste disposal on the surface, and less disruption of existing surface water flows, while still allowing removal of much of the existing waste sources of contamination proposed for the open pit mining alternative. The SDEIS should also consider this alternative in terms of reduced impacts to soils. Section 4.5.2.2 indicates that Total Soil Resource Commitment (TSRC) guidelines in the PNF Forest Plan to limit TSRC to 5% of activity area would be violated with the project leading to a TSRC of 17%. Reclamation activities would not reduce this amount as noted on p. 4-78:

"*As a general rule, the processes responsible for restoration of soil productivity occur over a very long timeframe (centuries to millennia) and do not directly correlate to successful reclamation, which is mainly oriented to short-term objectives."*

And,

"*Thus, the recovery of greater than 40 percent soil productivity within a 50-year timeframe is unlikely (Forest Service 2022c)."*

This conclusion led the Forest Service to propose a Forest Plan Amendment (FPA) which would waive the TSRC guidelines. The Forest Service should consider whether an underground alternative would reduce these unacceptable impacts to soils and the deficit in available reclamation materials. In the haste to eliminate underground mining as a consideration, a potential environmentally preferable option is not being properly analyzed.

b. Utility corridors

The SDEIS fails to consider any alternatives to the utility corridor to reduce potential impacts. For example, at the proposed Montanore Mine in Montana, multiple alternatives to

the proposed utility corridor were proposed, with detailed comparisons, to determine which alternative would reduce impacts to important fish and wildlife resources.[129]

c. Off-site processing of gold concentrates

The Forest Service evaluated and rejected Off-Site Gold Processing in Section 2.6.2.1 of the SDEIS that states:

> Under this alternative, raw ore would be processed off-site and would reduce the amount of reagents transported and used at the SGP, and the number of employees traveling to the site. It would also eliminate the need to store mill tailings at the SGP site. Transporting approximately 22,000 tons per day by trucks to an offsite mill would require approximately 550 round trips daily during the 15 years of mine operations. This would greatly increase the air emissions and transportation impacts of the SGP and dramatically increase operational costs. The main problem with this alternative is that there currently is no commercial milling operation in the U.S. West that could economically process the SGP ore. So, a new mill, with all the same associated environmental impacts as the proposed SGP on-site mill would need to be constructed." (Emphasis added)

However, the 2021 Technical Feasibility Report disclosed that pilot tests showed that the processes were technically and economically viable. Furthermore, that report indicated, "Average estimated supplemental loss in gold recovery was 3.3%, compared with the flotation of an on-site POX-ready concentrate." This implies a 25 to 30-fold concentration of LOM gold grades, reducing the required trucking to 20 loads/day (versus the 550 loads/day referenced by the SDEIS) at concentrate metals values comparable to the antimony concentrate Perpetua intends to ship to Asia or the Middle East to be processed.

This alternative would minimize, or eliminate, the highly toxic POX/CN leaching processes at Stibnite. This would reduce the total TSF arsenic disposal burden by >85% or by >350,000 tons, with the remainder of the arsenic burden being disposed of in Class 1 facilities in Nevada rather than the sensitive headwaters of the EFSFSR. This would result in a 55% decrease in on-site disposal of arsenic, and elimination of labile As downstream of the flotation circuits.

These findings certainly suggest that off-site processing of gold concentrates meet the Alternatives criteria noted by the SDEIS: i) Does the alternative, including a combination of component options, meet the purpose and need of the SGP *(yes)*, ii) Does the alternative or

[129] USDA, Kootenai National Forest, Montana Department of Environmental Quality, Supplemental Draft Environmental Impact Statement for the Montanore Project, Available at: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5331996.pdf

component option potentially reduce environmental effects to at least one resource *(yes)*, iii) is the alternative or component option technically feasible *(yes)*, and iv) is the alternative or component option economically feasible *(yes)*.

The Forest Service should include off-site processing of gold concentrates as an alternative in a revised Supplemental DEIS.

B. The purpose and need are unreasonably narrow

An agency violates NEPA when it "define[s] its objectives in unreasonably narrow terms."[130] "A purpose and need statement will fail if it unreasonably narrows the agency's consideration of alternatives so that the outcome is preordained."[131]

> One obvious way for an agency to slip past the strictures of NEPA is to contrive a purpose so slender as to define competing "reasonable alternatives" out of consideration (and even out of existence). The federal courts cannot condone an agency's frustration of Congressional will. If the agency constricts the definition of the project's purpose and thereby excludes what truly are reasonable alternatives, the EIS cannot fulfill its role. Nor can the agency satisfy the Act.[132]

While the Forest Service is permitted to take the applicant's purposes into consideration, it cannot draft a narrow purpose statement that restricts the consideration of alternatives to one motivated by private interests.[133] "[A]n applicant cannot define a project in order to preclude the existence of any alternative sites and thus make what is practicable appear impracticable."[134] Federal courts have routinely found that NEPA prevents federal agencies from effectively reducing the discussion of environmentally sound alternatives to a binary choice between granting and denying an application.[135]

Here, the Forest Service defined its objectives in unreasonably narrow terms, and as a result, failed to consider other reasonable alternatives and proposes reaching a preordained conclusion in violation of NEPA.

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[130] *Nat'l Parks & Conservation Ass'n v. BLM*, 606 F.3d 1058, 1072 (9th Cir. 2010).
[131] *Alaska Survival v. Surface Transp. Bd.*, 705 F.3d 1073, 1084 (9th Cir. 2013).
[132] *Simmons v. U.S. Army Corps of Eng'rs*, 120 F.3d 664, 666 (7th Cir. 1997); *see Citizens Against Burlington v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991) ("[A]n agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative from among the environmentally benign ones in the agency's power would accomplish the goals of the agency's action.").
[133] *Nat'l Parks & Conservation Ass'n*, 606 F.3d at 1072.
[134] *Sylvester v. U.S. Army Corps of Eng'rs*, 882 F.2d 407, 409 (9th Cir. 1989).
[135] *See e.g., Save Our Cumberland Mountains v. Kempthorne*, 453 F.3d 334, 345 (6th Cir. 2006).

The SDEIS states, with respect to the Forest Service's purpose and need:

1.6.1 Purpose and Need for Federal Action

The Forest Service's purpose is to consider approval of Perpetua's proposed use of the surface of NFS lands in connection with operations authorized by the U.S. mining law as first described in the Plan submitted September 2016, then refined in 2019 (Brown and Caldwell 2019a), and further modified in 2021 as the 2021 MMP (Perpetua 2021a). The Forest Service's need for action is to ensure that the proposed occupancy and use of NFS lands is consistent with statutory and regulatory requirements. For purposes of this environmental analysis, the agency is assuming the proposed uses would be able to be authorized under existing regulatory authorities. However, the agency will need to evaluate the eventual applications for rights of way to make a final determination.

The need for the action is to:

> Consider approval of Perpetua's 2021 MMP for development of the SGP to mine gold, silver, and antimony deposits that, where feasible, would minimize adverse environmental impacts on NFS surface resources; and ensure that measures are included that provide for mitigation of environmental impacts and reclamation of the NFS surface disturbance.

SDEIS at 1-8. Elsewhere, the SDEIS describes the Forest Service's purpose and need as:

> The Forest Service's purpose is to consider approval of the Plan to mine and process gold, silver, and antimony from deposits at the mine site in central Idaho for commercial sale. The purpose of the proposed SGP is consistent with Congress' declaration in the Mining and Mineral Policy Act of 1970 (Public Law 91-631 as amended through Public Law 106-193).
>
> The Forest Service's need for action is established by the agency's responsibilities under the Locatable Minerals regulations at 36 CFR 228 Subpart A, which were promulgated under authority granted by the Mining Law of 1872 (Mining Law) (30 USC 22 et seq.) and the Organic Administration Act of 1897 (16 USC 478, 482, and 551). These regulations require that all locatable mineral prospecting,

> exploration, development, mining and processing operations, and associated means of access, shall be conducted in a manner that minimizes adverse environmental effects on NFS surface resources.

SDEIS at A-12–A-13. *See also* A-22, A-29.

First, the Forest Service's focus on the general need to support mineral development under the 1970 Mining and Mineral Policy Act is misplaced. That Act, which merely notes general principles, creates no controlling statutory mandate on the agency. Instead, the Forest Service's primary mandate is to protect the forest from destruction and depredations under the 1897 Organic Act. The agency's guiding congressional mandate regarding the national forests is "to regulate their occupancy and use and to preserve the forests thereon from destruction." 16 U.S.C. § 551. Yet, as discussed throughout these comments, the SGP would be inconsistent with numerous and important aspects of the Payette and Boise Forest Plans and other environmental laws and standards, would adversely affect public resources, would restrict or eliminate uses and rights enshrined in treaties with the Nez Perce Tribe, and would otherwise significantly degrade forest resources.

Instead of focusing the purpose and need on fostering mining, the Forest Service should focus on its authorities and duties under the Organic Act, the CWA, ESA, NFMA, NEPA, and other applicable laws and regulations. This way the Forest Service could consider alternatives and mitigation to Perpetua's full-scale mine, including alternatives already proposed and/or considered in earlier comments and agency documents, such as: a cleanup/remediation first alternatives; different mining method alternatives, like underground mining; different processing methods; different facility locations; different water management.

Second, the Forest Service's assertion in the purpose and need statement that for "purposes of this environmental analysis, the agency is *assuming* the proposed uses would be able to be authorized under existing regulatory authorities," and that it will evaluate later whether Perpetua's proposal could be authorized, also violates NEPA because it unreasonably limits the alternatives the Forest Service considered. SDEIS at 1-8 (emphasis added). By making the assumption that all of Perpetua's proposed activities would be authorized, the Forest Service is considering only two very similar alternatives—each of which authorizes the full suite of mining Perpetua has proposed in the manner the company proposes doing them. To credibly evaluate the purpose and need for this Project and associated features of it, the entire section needs to be rewritten following determination of the legal status of Perpetua's claims and other asserted rights.

C. The SDEIS fails to adequately analyze and disclose the direct, indirect and cumulative impacts of the project.

One of NEPA's fundamental goals is to "promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man." 42 U.S.C. § 4321. Accordingly, the scope of NEPA review is quite broad, and agencies are required to evaluate "any adverse environmental effects which cannot be avoided should the proposal be implemented." *Id.* at 4332(C)(ii). Agencies must disclose and consider direct, indirect, and cumulative effects on "ecological . . . aesthetic, historic, cultural, economic, social, or health" interests.[136] 40 C.F.R. § 1508.1(g)(1) (1978). NEPA requires that an agency use state of the art science to make sound scientific decisions.[137] The chosen methodology must be accurate and defensible.[138]

As discussed for many issues throughout the remainder of these comments, the analyses of the direct, indirect, and cumulative impacts contain a number of unreasonable deficiencies, omissions, and errors that our experts have identified as being critical for an adequate analysis and disclosure of potential environmental impacts for several resources. For a complex project in a sensitive environment, such a SDEIS is completely unacceptable. The Forest Service must correct these errors, must take a hard look at all reasonably foreseeable direct, indirect, and cumulative effects, and must then issue a revised or supplemental SDEIS for public comment.

X. THE SDEIS FAILS TO ADEQUATELY EXPLAIN AND DEMONSTRATE HOW THE PROPOSED PROJECT WOULD COMPLY WITH THE ENDANGERED SPECIES ACT

[136] Agencies must consider the reasonably foreseeable direct, indirect, and cumulative effects. Direct effects are those effects "which are caused by the action and occur at the same time and place." 40 C.F.R. § 1508.8(a). Indirect effects are those "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." 40 C.F.R. § 1508.8(b) (1978). "Indirect effects may include . . . related effects on air and water and other natural systems, including ecosystems." *Id.*; *see also S. Fork Band Council v. U.S. Dep't of Interior*, 588 F.3d 718, 725 (9th Cir. 2009) (air quality impacts associated with transport and off-site processing of ore are "prime examples of indirect effects that NEPA requires be considered"); *Mont. Envtl. Info. Ctr. v. Off. of Surface Mining*, 274 F. Supp. 3d 1074 (D. Mont. 2017) (NEPA analysis for coal mining failed to take hard look at reasonably foreseeable indirect and cumulative effects of coal train transportation beyond immediate area); *WildEarth Guardians v. Zinke*, CV 17-80-BLG-SPW-TJC, 2019 WL 2404860 (D. Mont. Feb. 11, 2019) (NEPA violation where agency failed to consider shipping destinations, rail routes, and coal plants receiving coal from mine).

[137] *WildEarth Guardians v. Zinke*, 368 F. Supp. 3d 41, 79 n.31 (D.D.C. 2019); 40 C.F.R. §§ 1500.1(b), 1502.22(b), 1502.24.

[138] *See Nat. Res. Def. Council v. U.S. Forest Serv.*, 421 F.3d 797, 813 (9th Cir. 2005) (holding that agency's "misleading" economic methodology violated NEPA's "procedural requirement to present complete and accurate information to decision makers and to the public to allow an informed comparison of the alternatives").

The Endangered Species Act (ESA) represents "the most comprehensive legislation for the preservation of endangered species ever enacted by any nation." *Tennessee Valley Authority v. Hill*, 437 U.S. 153, 180 (1978). "The plain intent of Congress in enacting this statute was to halt and reverse the trend towards species extinction, whatever the cost." *Tennessee Valley Authority*, 437 U.S. at 184. In enacting the ESA, Congress spoke "in the plainest of words, making it abundantly clear that the balance has been struck in affording endangered species the highest of priorities, thereby adopting a policy which it described as 'institutionalized caution.'" *Id.* at 194.

> One would be hard pressed to find a statutory provision whose terms were any plainer than those in [Section] 7 of the Endangered Species Act." *Tennessee Valley Authority*, 437 U.S. at 173. "It's very words affirmatively command all federal agencies 'to *insure* that actions *authorized, funded, or carried out* by them do not *jeopardize* the continued existence' of an endangered species or '*result* in the destructions or modification of habitat of such species.'" *Id*., (quoting 16 U.S.C. 1536) (emphasis in original). "This language admits of no exception. *Id*.

Pursuant to Section 7 of the ESA, each federal agency must consult with the United States Fish and Wildlife Service (FWS) and/or NOAA Fisheries to ensure that any proposed action is not likely to jeopardize the continued existence of any threatened or endangered species, or result in the destruction or adverse modification of the species' critical habitat. 16 U.S.C. § 1536(a)(2). As recognized in the SDEIS, FWS "generally manages ESA-listed terrestrial and freshwater plant and animal species, while NOAA Fisheries is responsible for marine fisheries, including anadromous fish." SDEIS, p. 3-263.

During Section 7 consultation, the action agency, FWS, and NOAA Fisheries must use the best scientific data available. 16 U.S.C. § 1536(a)(2). If the proposed action "may affect" any listed species or critical habitat, the action agency must engage in "formal consultation" with FWS and/or NOAA Fisheries. 50 C.F.R. § 402.14(a). To complete formal consultation, FWS and/or NOAA Fisheries must provide the action agency with a "biological opinion" explaining how the proposed action will affect listed species and critical habitat. 16 U.S.C. § 1536(b)(3); 50 C.F.R. § 402.14(g)(3)-(4), (l)(1). The biological opinion must include the current status of the listed species, a detailed discussion of the "effects of the action" on listed species and critical habitat, and the expert agency's conclusion as to whether the action is likely to jeopardize a listed species or adversely modify critical habitat. 16 U.S.C. § 1536(b)(3)(A); 50 C.F.R. § 402.14(h); *Wild Fish Conservancy v. Salazar*, 628 F.3d 513, 518 (9th Cir. 2010).

If FWS and/or NOAA Fisheries conclude that the action is likely to jeopardize the continued existence of a listed species, or result in the destruction or adverse modification of critical habitat, FWS and/or NOAA Fisheries must outline "reasonable and prudent

alternatives" to the proposed action. 16 U.S.C. § 1536(b)(3)(A). If FWS and/or NOAA Fisheries conclude in the biological opinion that the action is not likely to jeopardize listed species, or destroy or adversely modify critical habitat, the expert agency must provide an "incidental take statement" with the biological opinion, specifying the extent of incidental takings of listed species, the "reasonable and prudent measures" considered necessary or appropriate to minimize such impact, and the "terms and conditions" that must be complied with to implement those measures. *Id.* § 1536(b)(4); 50 C.F.R. § 402.14(i). If at any time the anticipated amount of incidental taking is exceeded, the agencies must immediately reinitiate consultation. 50 C.F.R. § 401.14(i)(4); *id*. § 402.16(a).

The ESA mandates that "federal agencies take no action that will result in the 'destruction or adverse modification' of designated critical habitat." *National Wildlife Federation v. National Marine Fisheries Service*, 524 F.3d 917, 933 (9th Cir. 2007) (*quoting* 16 U.S.C. 1536(a)(2)). "Destruction or adverse modification" of critical habitat is defined as a direct or indirect alteration that appreciably diminishes the value of the critical habitat for the conservation of a listed species. 50 C.F.R. § 402.02. During the Section 7 consultation, the agencies must consider impacts that appreciably diminish the value of critical habitat for either the survival or recovery of the species. *National Wildlife Federation v. National Marine Fisheries Service*, 524 F.3d at 934; *Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service*, 378 F.3d 1059, 1069-71 (9th Cir. 2004).

Thus, the agencies' assessment of the impacts of a proposed action on a listed species' critical habitat during ESA consultation must include the project's impact on the species' habitat in terms of the species' recovery as well as its survival, and how the action may impact the physical or biological features that were the basis for the species' critical habitat determination. 50 C.F.R. § 402.02; *National Wildlife Federation*, 524 F.3d at 935; *Gifford Pinchot*, 378 F.3d at 1069. In addition, the agencies are not allowed to characterize as "insignificant" the potential impacts on a species' critical habitat by considering only the broad scale or long-term impacts. *National Wildlife Federation*, 524 F.3d at 935; *Gifford Pinchot*, 378 F.3d at 1069.

For the proposed Stibnite Gold Project, the Forest Service states that the following species have been included in informal consultation discussions based on suitable habitat and known occurrences in and around the Project:

- Canada Lynx (Federally Threatened)
- Northern Idaho Ground Squirrel (Federally Threatened)
- Wolverine (Proposed Threatened)
- Killer whale (Federally Endangered)
- Snake River Spring/Summer Chinook salmon (Federally Threatened with Designated Critical Habitat)

• Snake River Basin Steelhead (Federally Threatened with Designated Critical Habitat)
• Columbia River bull trout (Federally Threatened with Designated Critical Habitat)
• Monarch Butterfly (Federal Candidate)
• Whitebark Pine (Federally Threatened)

SDEIS, p. 6-4.

In order to comply with Section 7 of the ESA, it is clear from the SDEIS and the proposed action that the Forest Service must engage in formal consultation with both FWS and NOAA Fisheries concerning the potential impacts to listed species, especially concerning the impacts to the federally threatened Chinook salmon, steelhead, bull trout, and their formally designated critical habitats.

The Forest Service acknowledges in the SDEIS that the federally threatened Chinook salmon, steelhead trout, and bull trout are known to be present in the analysis area. SDEIS, p. 3-266. NOAA Fisheries listed the Snake River spring/summer-run Chinook salmon Evolutionary Significant Unit as threatened under the ESA in 1992. *Id.* The Forest Service acknowledges that this threatened species is found throughout the analysis area, including the South Fork Salmon River subbasin. *Id.* Additionally, designated critical habitat for Chinook salmon "includes all presently and historically accessible rivers and streams within the analysis area, except for the Payette River drainage." *Id*., p. 3-270. The Forest Service further acknowledges that Chinook salmon and its designated critical habitat would be adversely affected by the proposed action. *Id*., pp. 4-357 - 4-366.

NOAA Fisheries listed the Snake River Basin Steelhead Distinct Population Segment as threatened in 1997. SDEIS, p. 3-280. The threatened steelhead is found in the East Fork, South Fork Salmon River drainage and its tributaries downstream of the Yellow Pine pit lake. *Id.* NOAA Fisheries has also designated critical habitat for Snake River Basin steelhead throughout much of the analysis area, including the East Fork, South Fork Salmon River drainage to approximately 0.4 km upstream of the confluence with Sugar Creek. *Id*. The Forest Service recognizes that the proposed action would adversely affect steelhead, including its critical habitat. *Id*., pp. 4-366 – 4-373.

FWS listed the Columbia River Distinct Population Segment of bull trout in 1998. SDEIS, p. 3-286. Bull trout are currently known to use spawning and rearing habitat in at least 28 streams within the South Fork Salmon River subbasin. *Id.* FWS also designated critical habitat for bull trout throughout the South Fork Salmon watershed, including the East

Fork, South Fork Salmon River. *Id.* The Forest Service acknowledges that the proposed action would adversely affect bull trout, including its critical habitat. *Id.*, pp. 4-373 – 4-379.

Based on the Forest Service's analysis and acknowledgments within the SDEIS, the Forest Service, FWS, and NOAA Fisheries must formally consult on the adverse impacts of the proposed action on threatened fish and their designated critical habitat in the analysis area in order to comply with Section 7 of the ESA. 16 U.S.C. § 1536(a)(2). This formal consultation must result in either reasonable and prudent alternatives, if jeopardy or adverse modification is found to be likely, or an incidental take statement that fully satisfies the requirements of the ESA. Moreover, during the consultation process and within the Biological Opinion, or Biological Opinions, the Forest Service, FWS, and NOAA Fisheries must use the best scientific data available. 16 U.S.C. § 1536(a)(2). The agencies must also consider all phases and the entire scope of the agency action. *See Conner v. Burford*, 836 F. 2d 1521 (9th Cir. 1988); *Greenpeace v. NMFS*, 80 F. Supp. 2d 1137 (W.D. Wash. 2000). The agencies also cannot arbitrarily limit the time frame of the proposed action. *See Wild Fish Conservancy v. Salazar*, 628 F.3d 513 (9th Cir. 2010); *American Rivers v. U.S. Army Corps of Engineers*, 271 F. Supp. 2d 230 (D.D.C. 2003).

Additionally, in order to determine whether the proposed project's adverse impacts may jeopardize one or more of the listed species under the ESA, FWS and NOAA Fisheries must identify each of the species' tipping points for survival and recovery, and then determine whether the project's impacts would reach that threshold. *Ctr. for Biological Diversity v. Salazar*, 804 F. Supp. 2d 987, 999-1000 (D. Ariz. 2011). The agencies must know at what point survival and recovery will be placed at risk for each species before they can conclude whether or not jeopardy may result from further impairments to habitat that is already degraded. *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 524 F.3d 917, 936 (9th Cir. 2008).

During the Section 7 consultation, FWS and NOAA Fisheries may rely on mitigation measures "only where they involve 'specific and binding plans' and 'a clear, definite commitment of resources for future improvements' to implement those measures." *Ctr. for Biological Diversity*, 804 F. Supp. 2d at 100, quoting *Nat'l Wildlife Fed'n*, 524 F.3d at 935-36. Furthermore, "mitigation measures supporting a [biological opinion's] no jeopardy or no adverse modification conclusion must be 'reasonably specific, certain to occur, and capable of implementation; they must be subject to deadlines or otherwise-enforceable obligations; and most important, they must address the threats to the species in a way that satisfies the jeopardy and adverse modification standards.'" *Id.*, quoting *Ctr. for Biological Diversity v. Rumsfeld*, 198 F. Supp. 2d 1139, 1152 (D. Ariz. 2002).

Overall, despite the anticipated, significant adverse impacts to listed species and critical habitat, the SDEIS fails to demonstrate that the proposed Project can meet the strict

standards under the ESA to protect the listed species and to ensure that there will be no destruction or adverse modification of their designated critical habitats. The commenters request copies of the biological opinions for the proposed Project as soon as they are completed and available.

XI. IMPACTS TO RESOURCES

A. Groundwater and surface water hydrology

1. The MODPRO2 model needs additional clarification, testing, and potential improvement before predictions of groundwater and streamflow impacts can be made and conclusions can be formed.

There remain unaddressed comments from the MODPRO modeling that apply to the MODPRO2 modeling, as well as new comments on the MODPRO2 groundwater modeling effort. The MODPRO2 model needs additional clarification, testing, and potential improvement before predictions of groundwater and streamflow impacts can be made and conclusions can be formed. These concerns include spatial calibration bias, a model domain that is too close to areas of impacts, model layering that may be inadequate to estimate vertical hydraulic gradients, model layer geometry that may adversely affect model results, and a lack of testing major geologic structures in the area, to name a few. These concerns should be addressed and potentially corrected to improve upon the model's ability to predict impacts.

One of the largest concerns of the MODPRO2 modeling is the lack of correlation of what the model results mean in terms of potential impacts to sensitive ecosystems. The modeling results are presented in terms of a) drawdown of the water table during and after mining at discrete times, b) modeled predictions of the recovery of streamflow after mining, and c) percentage of abundance of particles (flow paths) from the three pits (two backfilled and one pit lake) that will report to various stretches of different streams, creeks, and rivers. Furthermore, drawdown impacts are only shown for a minimum evaluation of the 10-foot drawdown contour, and sensitive ecosystems may be impacted at levels below this threshold. The model predicted impacts should be equated to volumes of impacted groundwater and rates of impacted groundwater movement to sensitive downstream ecosystems, rather than only in the context of groundwater and surface water drawdown and recovery.

The general impact of modifying the model to address the comments in this letter could potentially change model predictions such as:

- Groundwater flow directions and interaction with surface water during and after mining,

- Estimated depth to groundwater and impacts of groundwater mounding beneath or within facilities and generated geochemistry, and
- Estimates of groundwater discharge to the open pits which could, in turn, influence estimates of ultimate pit lake level, the amount of and impacts from groundwater pumping for makeup water, and the geochemistry of seepage during and after mining.

The SDEIS must take a hard look at the potential impacts to surface and groundwater hydrology, and associated impacts. More detailed comments are provided in Semmens (2022).

2. The water-quantity related modeling is substantively flawed and must be addressed to provide an accurate analysis of potential impacts.

There was no adoption of science-based widely-available forecasts of climate change in the MWB and SWWB models and simulations that looked out as much as 100 +/- years into the future and informed the Modflow 6 simulations. Thus, there is 100 +/- years worth of bias built into not only these outputs but also in the Modflow 6 simulation outputs, because MWB model outputs of runoff and recharge, used as Modflow 6 inputs and SWWB inputs are based on MWB climate inputs of temperature and total precipitation – with snowfall derived, presumably, from these two time series that start nearly 120 years ago. The temperature and snowfall biases that likely result are unacceptable. The precipitation bias that likely results is small and perhaps acceptable. What was done should not be characterized as the "best available science".

Uncertainty, while apparently considered in the SWWB/GoldSim model, has not been addressed for the MWB and Modflow 6 models (which together form the SHSM model couplet). The apparent uncertainty analysis conducted for the SWWB/GoldSim model is identified with that particular adjective because the lack of documentation on what was done, how it was done and why it was done leave this reviewer with more questions than answers on the matter. The Forest Service should stipulate that Perpetua apply the tools in the GoldSim uncertainty analysis toolkit to all elements in the SWWB/GoldSim model that can potentially affect surface water and groundwater quantity demands and the timing of those demands, and to adequately document and interpret the actions taken and the results.

It appears as though the Water Quantity Specialist Report (USDA Forest Service 2022b) and SDEIS (USDA Forest Service, 2022a) authors did not have the resources necessary to comprehend and understand the MWB model development and simulations, nor the SWWB model development and simulations, based on the very limited coverage given to each in the SDEIS and Water Quantity Specialist Report. This is most regrettable and of dire consequence for the Forest Service's assessment of hydrological environmental impacts and of environmental impacts that stem from hydrosystem impacts. The Forest Service needs to

request all model supporting documents from Perpetua and hire independent third party hydrologists with very strong backgrounds in numerical modeling to reanalyze MWB and SWWB model results. The focus needs to be on the question of whether the assumptions, data selection, and conceptualizations used in development and application of these models were conservative with respect to the environmental impacts that depend on the predicted changes to the hydrologic system.

The validity of the MWB model has not been established. Similarly, the validity of the apparent 1-way coupling between the MWB model and the Modflow 6 model has not been established. The validity and logic for the use of monthly averaging for climatic data inputs in both the MWB and SWWB models has not been established. The Forest Service should require that Perpetua establish validity in both of these regards.

There is considerable groundwater model domain with projected future peak drawdowns less than 10 feet that exist outside of the 10-ft drawdown contour used to define what the proponent feels are the areas of certain drawdown, or level of drawdown that is significant in comparison with their estimate (method unknown) of uncertainty. The areas of lesser drawdown, which include wetlands and groundwater-dependent ecosystems (GDEs), are not adequately considered. Also, it is not clear in the SDEIS water-related sections that water resource monitoring will actually occur both outside of and within this artificial boundary. Much greater emphasis needs to be placed on monitoring drawdowns less than 10 feet and areas of impact outside of this artificial boundary.

Forecasts of future stream flow using the Modflow 6 model need to be based on probable future climate conditions, not on improbable past or present climate conditions. Only then can the associated simulations correctly inform assessments of water quality, ecosystems, fish species and other water-dependent environmental impacts. It is possible that the impacts on stream flow from the combination of mine-related surface water and groundwater abstractions and probable future climate change will leave stream water quality in a state that is inferior to that projected under the no-action alternative. This needs to be addressed by the proponent.

Please see more extensive details on these issues in Schlinger (2023).

B. Geochemistry

1. The geochemical testing results and modeling efforts are flawed and inadequate, and will likely underestimate impacts.

The selection of samples for geochemical testing did not consider hydrothermal alteration, which can substantially affect contaminant leaching and acid generation potential.

Failing to use geochemical test units within each lithology means that the testing results are most likely not representative of the range of leachate chemistry that will develop at the mine. In addition, the volumes of each subgroup within a lithology with different leaching characteristics is not known and cannot be applied to the block model and the SWWC model to more accurately estimate site water quality.

The methods used to estimate neutralization potential (NP) will likely overestimate NP in the long term. Overestimating NP will make it appear as if fewer samples and waste types are potentially acid generating (PAG). If more mined material is PAG, additional mitigation measures will be needed to prevent the formation of acid drainage from new mining activity.

Much uncertainty exists about whether the newly mined materials will produce acid and therefore leach higher contaminant concentrations over the long term. Although the kinetic tests were conducted for more than 100 weeks in many cases, rocks in the deposits could take even longer to form acidic drainage. The depletion rates of NP and acid production potential are similar, which makes it difficult to predict which will "win out" in the long run. Because the wastes will exist at the site in perpetuity, long-term leachate production is important, and conservative estimates should be used to design effective mitigation measures.

Source terms were created using leaching rates and concentrations from long- and short-term leach tests, respectively. They are expressed as rates (in mg/kg/week) and are one of the most important inputs to the SWWC model for predicting water quality. The "first flush" of contaminants is released during the early weeks of humidity cell testing, but rates from those times were not used to develop source terms. Instead, lower average "steady-state" rates from later times in testing were used. The first flush of contaminants from mined materials will occur when weathered wastes and ore are flooded (e.g., in flooded pits) and when weathered wastes and ore are wetted from storm events or snowmelt, especially after a previous dry period. Such conditions will exist at the Stibnite site in waste and ore stockpiles, backfilled pits, pit walls, and in the TSF buttress/embankment. Because the first-flush rates have been ignored, the source terms for development rock and ore will underestimate the release of contaminants from these mine facilities during operations and closure/post-closure.

Source terms were developed using the designations of PAG versus non-PAG and waste versus ore for a given deposit and lithology. However, these distinctions do not result in a meaningful difference in source term values for arsenic and antimony, which are two of the mine-related contaminants of highest concern (that is, source term values are very similar for PAG versus non-PAG and for waste versus ore). Source terms for the SWWC model need to be thoroughly reexamined in a revised SDEIS.

2. Management plans for waste are poorly developed or completely undeveloped.

Management plans for waste rock and tailings are poorly developed or completely undeveloped and will need more supporting

information and detail in the Final SEIS. According to the Development Rock Management Plan (DRMP), active segregation of PAG/metal leaching material is not required, presumably because this material will be placed in the pit as backfill or in the TSF buttress. Such an assumption relies on the performance of engineered measures to limit the transport of mine-influenced leachate from the pits and the TSF buttress to downgradient water bodies. Cutoff values for rock with low ARD/ML potential (which could be used for facility construction materials) are defined in the DRMP as ≤500 mg/kg total arsenic and NPR values >1.5. However, a substantial number of HCT samples with NPR values >1.5 had elevated arsenic release rates, and samples with total arsenic values <500 mg/kg leached arsenic in excess of the federal drinking water standard of 10 mg/L. The adaptive management plan (AMP) or plans are not developed. These and other management plans should be developed and available for public review in a revised SDEIS.

C. Groundwater and surface water quality

1. The site-wide water chemistry model is inadequate and underestimates impacts.

As detailed in Maest (2022), the site-wide water chemistry (SWWC) model relies on inputs from the geochemical characterization program, source terms, the water balance model, and water treatment plant (WTP) effluent quality to predict water quality resulting from development of the Stibnite Gold Project. The model predicts average annual and average monthly concentrations for site water quality and uses average precipitation, runoff, and infiltration without considering climate change. The extensive use of averages will underestimate potential maximum concentrations that will require treatment or management.The SWWC does not evaluate the effects of ammonia or selenium. Ammonia will result from blasting of the open pits, and selenium can be leached from mined materials. The effluent discharge permit (IPDES) for release of treated water to Meadow Creek may require monitoring and permit limits for both of these mine-related contaminants. The treatment evaluation does not consider the removal of ammonia or selenium.

The SWWC model includes individual conceptual models for the pits and the TSF but does not include an overall conceptual model for the entire site. The SWWC model also does not consider the stream sediment (surface water-stream sediment) or food-chain (sediment-macroinvertebrates/periphyton-fish) pathways, and no monitoring of these environmental media (sediment, macroinvertebrate, periphyton contaminant content) is proposed.

Although the movement of contaminants from the TSF and the pits is considered in the water balance model, the future use of groundwater for drinking water has been excluded from consideration in the SDEIS. The potential for domestic groundwater use in the future cannot be discounted. The Forest Service is obligated to ensure that the proposed mine plan is in compliance with all applicable state and federal laws.

The SWWC and the underlying water balance model do not consider climate change. The past precipitation and temperature record is included in water balance calculations, but future climate projects are not included in any evaluations for the SDEIS. Because the mine life is proposed to be 20 years (including construction, operation, closure, and reclamation), TSF seepage is predicted to last for 40 years, and post-closure and active management of the site will be needed in perpetuity, it is unacceptable that climate change has not been incorporated into the predictions for the proposed project. Climate change must be incorporated into all water balance estimates and the SWWC model, and made available for public review in a revised SDEIS. The need for perpetual capture and treatment of mine-influenced water should also be evaluated in a revised SDEIS.

The mine water treatment approaches proposed have not been evaluated using laboratory bench studies, and the desk study that was performed used outdated references whose conclusions have been contradicted by more recent studies. These many shortcomings indicate that the SWWC model and associated studies need to be thoroughly reevaluated in a revised SDEIS.

2. Surface water quality standards must be protective of aquatic life.

The lack of aquatic life criteria for antimony is concerning. The SDEIS must consider the potential impacts of antimony on aquatic life. As described in more detail in Maest (2022), a chronic aquatic life guideline for antimony should be incorporated to provide adequate protections for fish and other aquatic life.

The selenium standard used to compare to predicted surface water concentrations in the SWWC model may not reflect the most updated approach used by the U.S. EPA that includes monitoring of not only water but also aquatic biota.

3. Groundwater quality protections must account for public use.

Existing groundwater under the TSF buttress/embankment does not exceed arsenic or antimony standards, but all predicted groundwater arsenic and antimony concentrations are higher than background values and Idaho groundwater standards, showing that groundwater quality in this location is expected to worsen as a result of the project. The use of groundwater at the site as a drinking water resource in the future should require that the project cannot worsen groundwater quality.

The arsenic groundwater standard of 0.05 mg/L does not reflect the current federal drinking water standard and should be updated for future groundwater use.

The SDEIS seems to imply that the proposed mine plan does not need to consider human health concerns related to groundwater pollution at SGP. According to the SDEIS (ES-15),

> There are no active domestic groundwater wells used for residential drinking water within 15 miles of the SGP. Because groundwater is not currently used as a public drinking water source at the SGP and is assumed to be unlikely to be used as a drinking water source in the future, the Agency for Toxic Substances and Disease Registry Public Health Assessment conducted for the existing mine site eliminated the groundwater as drinking water pathway from consideration as a public health concern (ATSDR 2003).

Yet the cited report is 20 years old, and the ATSDR was completing an assessment of the site to fulfill its congressional mandate for preparing a public health assessment within one year of EPA proposing *a site to the National Priority List (Superfund)*. In contrast, the proposed SGP is a new mine plan subject to applicable groundwater quality standards.

The SDEIS must consider groundwater as a potential future drinking water pathway for the purposes of the proposed SGP. Mine operations, closure and post-closure are predicted to affect area resources for the next 60 years (20 years of operations and 40 years of water treatment), with ongoing groundwater impacts continuing post-closure. It is reasonable to expect that groundwater resources in the area may be needed for drinking water resources in the next 20-60+ years, given the increase in population, demands on water resources and the effects of climate change. According to IDEQ, ground water supplies drinking water to 95% of Idaho citizens.[139] As Idaho's population grows, so does the need for clean, usable groundwater, with recent reports pointing to Idaho's population boom putting demands on domestic water supplies.[140]

4. The SDEIS must take a hard look at potential impacts to groundwater and provide adequate data, including maps of existing and predicted groundwater plumes.

The SDEIS fails to provide sufficient information to determine the extent of groundwater pollution from the proposed SGP, detailed information about applicable groundwater standards and compliance points, and whether groundwater standards will be met. The SDEIS must include appropriate modeling, with detailed maps to document the existing and anticipated groundwater plumes at the site, similar to those done for the East Smoky Canyon EIS.[141] Without this information, it is impossible to determine the geographic extent of groundwater pollution.

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[139] https://www.deq.idaho.gov/water-quality/ground-water/

[140] https://idahocapitalsun.com/2022/08/18/exploding-population-boom-in-idaho-is-affecting-domestic-water-supply/

[141] USDA and UDOI, Final Environmental Impact Statement for the Proposed East Smoky Panel Mine Project, February 2020. DOI-BLM-ID-I020-2014-0046-EIS

5. Water quality impacts may be underestimated due to location of assessment nodes.

Surface water quality predictions were made at assessment nodes downstream of project facilities (pits, DRSFs, and the TSF). The predicted changes at the assessment nodes account for both impacts due to project facilities and dilution in the streams between the project discharges and the assessment node. This could result in an under prediction of water quality impacts since stream chemistry between the project discharges and the assessment node could be greater than that predicted at the node. For example, assessment node YP-SR-4 appears to be about 2000 feet downstream of the Yellow Pine pit and therefore is not necessarily representative of impacts to the EFSFSR closer to the pit. This could imply that a mixing (dilution) zone would be authorized, which would not typically be available in an impaired situation such as the current situation at the project site. As such, the SDEIS may be underestimating water quality impacts associated with the project. The SDEIS needs to analyze the potential impacts to surface water, which requires identifying water quality impacts at the point of greatest potential impact. The SDEIS should provide data to demonstrate that the proposed assessment points accurately represent this.

The SDEIS must also provide details on the groundwater points of compliance, with separate points of compliance for the Sugar Creek and the EFSFSR watersheds. There is no reason to believe that groundwater containing high levels of arsenic won't move under the perched water table created for the Stibnite Lake, through the Yellow Pine backfill and emerge at the first downstream gaining reach of the EFSFSR. Without this information, it is impossible for the public to determine the extent of potential impacts to groundwater and potentially surface water resources.

6. A TMDL is required for 303(d) listed streams.

All IDEQ-inventoried water bodies at the proposed mine site (except for West End Creek) are listed under Section 303(d) of the federal CWA as “impaired” due to water quality. The causes for listing of these waters are associated with elevated concentrations of arsenic, antimony, and mercury. Each of the 303(d)-listed water bodies has designated beneficial uses of “cold water communities,” “salmonid spawning,” and “primary contact recreation,” and all (except Sugar Creek) have designated beneficial uses of “drinking water supply.”

Sugar Creek is 303(d) listed category 5 for arsenic (PCR) and mercury (COLD, PCR, SS). (SDEIS, Table 6-16). The SDEIS predicts an “increase in arsenic concentrations (0.013 mg/L to 0.014 mg/L),” and an “increase in mercury concentrations (6 ng/L to 8 ng/L) in Sugar Creek in association with the closure of the Bailey Tunnel and the removal of its

contributions to Sugar Creek chemistry plus the arrival of groundwater outflow from the West End pit lake in the post-closure period (SRK 2021a)." (WQ specialist report, p. 155)

As described in the SDEIS (p. 4-225), water quality in the West End pit lake will exceed water quality standards for antimony, arsenic and mercury concentrations throughout the operating and closure period. Mine-impacted groundwater flowing from the West End pit lake is hydrologically connected to surface water in Sugar Creek.[142] As a result, an NPDES Permit is required for discharges of groundwater to surface water. Furthermore, a TMDL is required to address the contribution of arsenic and mercury to Sugar Creek, a 303(d) limited stream for those parameters.

A TMDL should be completed for all 303(d) listed streams at the Mine Site, including, but not limited to the East Fork SFSR (1st, 2nd and 3rd order streams) (See Table 3.9-17).

The SDEIS also identifies numerous 303(d) limited streams along the access road and utility corridor. IDEQ lists Johnson Creek on its 303(d) list of impaired waters "due to temperature, which routinely exceeds the 10 degrees Celsius (50 degrees Fahrenheit) guideline for bull trout spawning in the summer." (SDEIS, p. 3-488) Other 303(d) limited streams along the utility corridor are identified in Table 4.9-23. (P. 4-265). Many of these streams are identified as impaired for temperature, sediment, and phosphorus. A TMDL should be completed for all 303(d) listed streams along the access road and utility corridor, and where TMDLs are already developed, the SDEIS must demonstrate that the impacts from proposed mine activities will not result in further impairment. The SDEIS must take a hard look at the potential direct, indirect and cumulative impacts of the proposed impacts (including vegetation clearing, sediment loading, etc.). These impacts must be quantified, and climate change must be taken into account. It is also inadequate to assert that BMPs or specific design requirements will adequately address the potential impacts, without providing data to support that assertion. A qualitative assessment is inadequate to understand the potential impacts to these resources. Please see additional detailed comments on this issue from Newberry (2022).

7. The SDEIS fails to demonstrate that the proposed project will comply with Clean Water Act requirements for mercury.

[142] Most of the groundwater movement from origin locations within the Yellow Pine pit backfill concludes as surface water discharge to the East Fork SFSR below the Yellow Pine pit area. However, approximately 10 percent of the groundwater flow discharges to surface water in Sugar Creek (Figure 4.9-20). Twenty-five percent of groundwater outflow from the West End pit lake discharges as surface water in West End Creek with the remainder discharging as surface water in Sugar Creek. SDEIS, P. 4-243.

According to the SDEIS (p. 4-353), mercury concentrations in the East Fork SFSR downstream of Sugar Creek would be predicted to increase during active mining due to expanded excavation. Baseline, predicted active mine, and predicted post-closure mercury concentrations in the East Fork South Fork Salmon River downstream of Sugar Creek are not predicted to exceed the aquatic life criteria. However, uncertainty remains whether incremental changes in mercury concentrations beyond baseline would increase bioaccumulation of methylmercury in fish tissue at concentrations exceeding the tissue-based criterion." The SDEIS (p. 4-353) further states that "Long-term, regional influences on downstream mercury methylation are not quantified."

Idaho has adopted the fish tissue residue criterion for mercury as the state's water quality standard. The SDEIS must demonstrate that the mine plan will be in compliance with the state's tissue-based water quality standard, not defer to some potential future action. It must also analyze the long-term regional influences on downstream mercury methylation, and the potential impacts to water quality, aquatic, avian and other wildlife.

8. The SDEIS fails to provide baseline data to characterize organic carbon or quantify the increase in organic carbon from the sewage treatment plant and its potential impacts.

The SDEIS (4-220) predicts 25,000 - 50,000 gallons per day of discharge from the sewage treatment plant to the EFSFSR. However, it fails to provide detailed information about the sewage treatment plant, describe the potential effluent concentrations, or analyze the potential effects of these discharges to surface waters.

The SDEIS fails to provide current baseline data to characterize organic carbon in area streams. (Water Specialist Report p. 67) It relies on another study (Holloway 2017) in which water quality data was collected in 2015 - baseline data which is now seven years old and outdated. The SDEIS (p. 452) predicts increases in organic carbon loading rates in the East Fork SFSR, but it hasn't modeled potential surface water quality changes resulting from the wastewater treatment plant discharges.

- The SDEIS must provide current baseline data to characterize organic carbon in area streams, and quantify the potential impacts to surface water from the sewage water treatment plant, including the potential for increased algae. It should also analyze the cumulative effects of increased carbon and other pollutants from the sewage treatment plant on the EFSFSR and associated aquatic life, in association with the other potential impacts, such as predicted increases in stream temperature associated with climate change, increases in mercury from air deposition, and other potential impacts.

The SDEIS should also consider the risks of a sewage spill from operations and/or transport of sewage materials. For example, the Pogo gold mine in Alaska has experienced repeated spills of raw sewage when transferring sewage to vacuum trucks, and as a result of a myriad of problems at the Water Treatment Plant, resulting in violations of fecal coliform in nearby surface waters.[143]

9. The Forest Service should not approve any operations that increase water pollution, especially in impaired waters.

In addition, to the increased pollution in water bodies in (6), there are additional areas where the SDEIS predicts that water quality will exceed standards or worsen existing conditions as a result of mining activities.

- The SDEIS (p. 4-192) predicts that subsurface infiltration from the TSF embankment and buttress will mix with the alluvial groundwater under the facility footprint, resulting in a groundwater chemistry with antimony and arsenic concentrations above the strictest potentially applied water quality standards. Infiltration from the unlined TSF buttress is predicted to have a more notable effect on groundwater analyte concentrations. Specifically, mixing of infiltrated leachate with previously unimpacted alluvial groundwater is predicted to increase antimony and arsenic groundwater concentrations above existing conditions and groundwater standards. (SDEIS, p. 4-243)

- The SDEIS predicts that a small portion of the groundwater flow from the Yellow Pine pit backfill would reach groundwater to the west of the EFSFSR channel, where antimony and arsenic concentrations are currently below standards, and could cause an increase in groundwater concentrations for those two pollutants. (p. 4-244).

- Immediately downstream of the West End pit on West End Creek at node YP-T-6 (above the confluence with Sugar Creek), predicted surface water mercury concentrations are an order of magnitude higher than existing conditions during the operating period due to the observed West End concentrations. (SDEIS, p. 4-251)

- Similarly, downstream of the project on the EFSFSR at node YP-SR-2 (below the confluence with Sugar Creek), mercury concentrations are expected to

[143] Earthworks et. al., "Alaska Metal Mines, The track record of impacts to land and water from the failure to capture and treat mine pollution," March 2020. Available at: https://earthworks.org/resources/alaska-mining-spills/

increase in surface water due to variability in water treatment, although remain below standards.

- The West End pit lake water quality concentrations are predicted to exceed potentially applicable water quality standards for antimony, arsenic, and mercury throughout the operating and closure period (Figure 4.9-14 and Table 4.9-12). The SDEIS (p. 4-348) also predicts that water quality standards for these contaminants will be exceeded permanently post-closure, and that the pit lake would not be reclaimed or restored and would therefore have impacts on fish in perpetuity.

The SDEIS (P. 4-243) also finds that "Where the local groundwater has not been previously impacted, the groundwater interactions with inundated backfill pore water and the West End pit lake would have the potential to increase groundwater concentrations for antimony and arsenic to levels above groundwater standards."

The SDEIS fails to demonstrate that the proposed plan will comply with applicable water quality standards.

The SDEIS also predicts uncertainty about the potential overflow of the pit lake during high flow conditions, and describes the potential for the use of either or both surface water diversions or the use of a mobile water treatment plant if water levels reach a threshold level. (SDEIS, p. 2-87) It states that lake levels will be monitored after closure, as specified in the EMMP, but no specific reference or details to this are found in the 2021 EMMP.

The plan must demonstrate that the pit lake and a potential overflow of the pit lake will comply with applicable standards, and not defer to some future options without sufficient detail to demonstrate viability. An overflow of the pit lake will most likely be in response to a storm event, in which there may be inadequate time to mobilize a water treatment plant. Further, the diversions are expected to be decommissioned after mine closure, which appears to conflict with their proposed use in the event of an overflow.

The SDEIS concludes that "Formation of the West End pit lake acts to permanently raise temperatures compared to existing conditions in the stream segment immediately below that area which receives discharges of groundwater that has interacted with the pit lake." (p. 4-275)

The additional pollution loading caused by the Project, including allowing discharges before the required TMDL is produced and waste load and load allocations are

implemented, violates the Forest Service's duties to "minimize adverse environmental impacts on National Forest surface resources." 36 C.F.R. § 228.8. "The operator also has a separate regulatory obligation to 'take all practicable measures to maintain and protect fisheries and wildlife habitat which may be affected by the operations.' 36 C.F.R. § 228.8(e)."*Rock Creek All. v. Forest Serv.*, 703 F. Supp. 2d 1152, 1164 (D. Mont. 2010) (mine approval violated Organic Act and 228 regulations by failing to protect water quality and fisheries). "Under the Organic Act the Forest Service must …require [the project applicant] to take all practicable measures to maintain and protect fisheries and wildlife habitat." Id. at 1170. The CWA, Organic Act, and agency regulations preclude the Forest Service from approving aspects of a mining operation that would violate federal or state water quality standards. "Under the Clean Water Act Section 313, the Forest Service cannot authorize mining operations that do not comply with state and federal water quality regulations, including a state's antidegradation policy. 33 U.S.C. § 1323(a). *Save Our Cabinets v. U.S. Dep't of Agric.*, 254 F. Supp. 3d 1241, 1249 (D. Mont. 2017) (Forest Service approval of mining project violated duties under CWA and Organic Act to ensure compliance with water quality standards). *See also Hells Canyon Pres. Council v. Haines*, 2006 WL2252554, *4-5 (D. Or. 2006) (Forest Service mine approvals violated state CWA standards).

The Organic Act mandates the same compliance, as the Part 228 regulations "further require that mining operators comply with applicable state and federal water quality standards including the Clean Water Act; [and] take all practicable measures to maintain and protect fisheries and wildlife habitat." *Save Our Cabinets*, 254 F. Supp. 3d at 1250. The 228 regulations require that the operator submit sufficient information to enable the agency to ensure that the Project will comply with all applicable state and federal requirements to protect water quality and fisheries. *See* 36 C.F.R. §§ 228.4(c)(3), 228.8(b), 228.8(e). The SDEIS does not show, or properly analyze, that all aspects of the project will fully protect "fisheries and wildlife habitat" and comply with all CWA standards and requirements.

10. The SDEIS must provide clarity on applicable standards and criteria

The SDEIS refers to "potentially applicable standards" and "potentially applicable criteria in many locations throughout the document. The Forest Service must demonstrate through the NEPA process that the proposed mine plan will be in compliance with all state and federal laws, yet it is impossible for the public to determine what standards will apply, and whether the proposed mine plan will be in compliance. Cyanide leach mining operations frequently result in water quality impacts that were not predicted during the permitting process. It is essential that the NEPA process provide detailed information and take a hard look at the potential impacts of the proposed project on surface and groundwater quality.

11. The SDEIS fails to provide current baseline data to characterize water quality in streams adjacent to proposed access roads, utility corridors and off-site facilities that have the potential to be impacted by SGP activities

According to the Water Quality Specialist Report, the Surface Water Quality Baseline Study (HDR 2017) did not include sample locations outside of the proposed SGP. However, streams adjacent to proposed access roads, utility corridors, and off-site facilities have the potential to be impacted by these SGP activities. According to the report, "The types of impacts that could occur are usually described qualitatively because little is known about the existing water quality of these streams." (Water Quality Specialist Report, p. 72). Instead, the SDEIS refers to IDEQ's 303(d) water quality monitoring program, and provides general descriptions of area streams based on whether they fully support beneficial uses, don't support beneficial uses or weren't assessed. (Figure 6-14). NEPA requires current and detailed baseline data to characterize all streams and other water bodies that have the potential to be impacted by SGP activities, including access roads and utility corridors. Without this data, it is impossible to determine the potential impacts associated with the proposed project.

12. The mining plan fails to provide sufficient information on discharge methods or analyze the potential impacts associated with forced evaporation

According to the SDEIS (p. 2-66), "Contact water which exceeds regulatory discharge standards set by IDEQ and that cannot be used during operations would be disposed through a variety of methods including forced evaporation using sprayers located within the TSF or other managed areas or treated and discharged. Water would be treated to meet IPDES permit limits and treated water would then be discharged through IPDES permitted outfalls to the East Fork SFSR or Meadow Creek."

The mine plan is unacceptably vague about its proposed methods for disposing of contaminated mine contact water. It must provide specific information about whether forced evaporation will be used, where it will be used, and how it will be managed and monitored. At the Kendall cyanide leach gold mine in Montana, the discharge of contact water via sprayers has been an issue with respect to elevated metal and salt concentrations in soils. The SDEIS must analyze the potential direct, indirect and cumulative impacts of spraying contaminated contact water into the air as a means of forced evaporation.

13. The SDEIS must consider surface water & groundwater quality cumulative effects

It should be noted that both the liner and cover systems installed on the TSF and TSF buttress are engineered materials with finite life times. It is reasonably foreseeable that they will eventually degrade and fail at some point in the future. The magnitude and duration of

contaminant release at that time is unknown, however it would certainly have the potential to adversely affect both surface water and groundwater. The SDEIS must take a hard look at the potential for long-term, cumulative effects to water quality, and analyze potential mitigation measures, including pumpback wells, or other mitigation options.

Furthermore, the SDEIS Section 2.4.7.4 states that "A low permeability geosynthetic liner would be incorporated into the cover over the entire surface of the backfilled Yellow Pine pit, including the reconstructed channel floodplain corridor to reduce the infiltration of meteoric water into backfill material, which could dewater the restored stream channel and result in additional metal leaching from the underlying backfill." This is not a realistic long-term mitigation measure. The SDEIS fails to provide detailed information about the liner, or examples of where this has been successfully conducted on other mine sites at this elevation and subject to flash flooding, plant roots, and other impacts that would compromise the liner integrity. Further, the SDEIS provides no detailed information about how this system would be maintained in perpetuity. The SDEIS must analyze the direct, indirect and cumulative impacts associated with the inevitable failures in the liner system over time, including the cumulative effects of climate change. For example, the 500-year storm event that occurred in Montana in 2022, which resulted in massive flooding, destruction of roads, rerouting of rivers and streams, and other substantial impacts.

D. Fisheries[144]

1. The SDEIS displays major shortcomings of virtually every factor used to evaluate impacts to fish (particularly intrinsic potential, streamflow productivity, barrier, and stream temperature models), and concludes negative impacts to Chinook salmon, bull trout, steelhead, and westslope cutthroat trout and their habitat

It does so without consideration of climate change, accidents and spills, and the cumulative and synergistic effects of overall habitat simplification and degradation. In general, the conclusion of negative impacts to habitat quantity and quality is oversimplified and underestimated. The SDEIS reports substantial impacts to fisheries and their habitats throughout the mining period and beyond. These impacts are of particular concern for Chinook salmon, bull trout, steelhead, and westslope cutthroat trout, where decades of mining impacts, particularly when combined with the plethora of other impacts on the populations, could adversely affect population persistence.

[144] The following reports are incorporated by reference and attached to this comment: Maest (2020, 2022); O'Neal (2020), Faurot, M. (2020), Newberry, D. (2020, 2022) Gregory (2022).

For Chinook salmon, “Following closure and reclamation, the overall net effect from the SGP would be a net increase in available habitat; however, flows and temperatures make the additional habitat less optimal.” “Changes in flows would result in a net decrease in (steelhead) productivity”. “There would be net decreases in both quantity and quality of habitat for bull trout and westslope cutthroat trout.” A slightly beneficial outcome for steelhead habitat could only occur assuming the models are correct (which is highly questionable), and the habitat restoration is done appropriately and to the extent modeled.

These are the longest migrating salmon and steelhead at this elevation in the world. Even small losses to these species cannot be "mitigated" by near-river sources of other runs of salmon and steelhead.

2. The SDEIS incorrectly assumes that mitigation and restoration efforts are possible and effective

The SDEIS assumes that mitigation for historic mining efforts will offset impacts to salmon and trout from proposed mining efforts. Experience has shown that habitat restoration and mitigation is difficult, expensive, and often ineffective. Restoration activities to restore salmon, trout, lamprey, and other fish are ongoing and extremely expensive. From 1980 to 2018, BPA spent just under $25 billion (which is close to $27 billion, adjusting for inflation) towards its Fish and Wildlife program to aid in the restoration of the ESA listed salmon that inhabit the river, including configuration and operational changes to the dams."[145] Multi-billion dollar expenditures continue, although no Pacific salmon population has been removed from the ESA list of threatened and endangered species. Even modern fish passage design simply cannot account for spatial and temporal variability of historic baseline conditions, current conditions, and future conditions that will result from mining and associated development activity in addition to climate change.

SDEIS mitigation methods proposed rely heavily on unspecified and/or unproven habitat “improvements,” fish salvage, and trap and haul operations. Trap and haul operations are well documented to induce significant stress (e.g., increased cortisol levels, gill flaring, etc.), disorientation (particularly in salmon homing to natal rivers and streams), deleterious changes to migration timing, increased mortality, and direct injury.[146] Experience throughout Pacific salmon habitat, and particularly in the Columbia River basin, indicates beyond question that trap and haul operations and most other restoration techniques are simply palliative. Already threatened salmonid populations will not be restored by (and may not survive) mining activity and the mitigation methods proposed in the SDEIS.

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[145] Lower Snake River Dams: Benefit Replacement Report. Pg 17

[146]Robert A. Lusardi & Peter B. Moyle (2017) Two-Way Trap and Haul as a Conservation Strategy for Anadromous Salmonids, Fisheries, 42:9, 478-487, DOI: 10.1080/03632415.2017.1356124

3. Water temperature increases ignore climate change, are otherwise underestimated, and their impacts are unreasonably minimized

The SDEIS reports alarming increases in stream temperature in occupied salmonid habitat: "Meadow Creek temperatures are predicted to increase by up to 10 degrees C as the stream channel is "restored" atop the TSF" (SDEIS 4-275). And: " On the Meadow Creek segment atop the reclaimed TSF, temperature….would remain warmer than existing conditions after 100 years" (SDEIS 4-274). And: Predicted temperatures are based on effective implementation of stream restoration and riparian shading. Increased temperatures attributable to climate change are not incorporated (SDEIS Table 4.12-2, pg. 4-339). And: "Insufficiently effective closure activities and/or adverse changes in broader climate conditions could result in higher than predicted stream temperatures. Stream temperatures downstream of the Yellow Pine Pit could be greater than existing conditions" (SDEIS 4-281).

Crozier[147], in their assessment of the climate change threat to Chinook salmon throughout their life cycle, concluded that "…dramatic increases in smolt survival are needed to overcome the negative impacts of climate change for this threatened species." Temperature increases in the SDEIS analysis area were outlined as follows. Meadow Creek upstream from the East Fork of Meadow Creek is expected to have temperature increases for up to 52 years, with predicted temperature increases up to 6.8° C above baseline (Table 4.12-12 of the SDEIS). Additionally, "…stream temperatures are increased in restored stream channels until revegetation establishes to provide riparian shading for the streams" (SDEIS) and "Following closure and reclamation, the overall net effect from the SGP would be a net increase in available habitat; however, flows and temperatures make the additional habitat less optimal" (SDEIS). These increases were predicted in addition to climate change which is "…predicted to increase average August stream temperatures by "an average of 0.72°C (1.3°F) by 2040 and 1.4°C (2.6°F) by 2080 (Isaak et al. 2017)" (SDEIS).

Water temperature is fundamental to salmonid growth and survival during multiple (and for some species all) aspects of their freshwater life history. Therefore, seemingly small increases in temperature could result in drastic impacts to these species. In addition to temperature, climate change is expected to reduce summer flows, which further impacts stream temperatures. Tonina[148] found that climate-induced changes in flow resulted in large reductions in usable habitat area and connectivity between the main channel and adjacent off-

[147]Crozier, L.G., Burke, B.J., Chasco, B.E. *et al.* Climate change threatens Chinook salmon throughout their life cycle. *Commun Biol* 4, 222 (2021).

[148] Tonina, D., McKean, J. A., Isaak, D.,Benjankar, R. M., Tang, C., & Chen,Q. (2022). Climate change shrinks andfragments salmon habitats in a snow-dependent region.Geophysical ResearchLetters

channel habitats. These reductions decrease the capacity of freshwater habitats to support historical salmon abundances and could pose risks to population persistence in some areas.

Given the negative relationship between summer temperature and survival and flow and survival for juvenile Chinook salmon,[149] permitting a project that is predicted to increase stream temperature and decrease flow, in the face of imminent climate change, which will also increase stream temperature and decrease flow, will undoubtedly negatively impact salmonid species of concern in the analysis area and downstream.

Water temperature predictions rely on the same baseline hydrologic model outputs (indicating they are also flawed), predict substantial temperature increases, but fail to incorporate well documented impacts of climate change. Because water temperature is fundamental to salmonid growth and survival during multiple (and for some species all) aspects of their freshwater life history, seemingly small deviations from predictions could result in drastic underestimations of mining impacts. In addition to other shortcomings of SPLINT, the model used to predict project related temperature changes, it fails to incorporate temperature increases due to climate change. Climate change is already impacting bull trout and cutthroat trout habitat and those impacts will only be compounded by project related temperature increases.

4. Stream Function Analysis (SFA)

The Stream Function Assessment (SFA) (Rio ASE 2019) was developed for the Stibnite Gold Project to track impacts on streams before, during, and after mining following restoration, as a tool to quantify compensatory mitigation debits and credits for the U.S. Army Corps of Engineers to determine compliance with the Clean Water Act, and for the SDEIS analysis and associated ESA consultation. The SFA is an unproven, unrepeatable model, based loosely on Watershed Condition Indicators (WCIs), used in the SDEIS to assure mitigation for the Stibnite Gold Project's unavoidable impacts on jurisdictional aquatic resources. Other proven models exist and are used in the Payette and Boise National Forests and in the Pacific Northwest to characterize impacts to streams (p. 2-9). Using a new, unproven, made-for Stibnite model does not comply with NEPA's best available science requirement.

The SFA used some WCIs to feed the model, and ignored others, replacing the WCI analysis with SFA analysis for Stibnite Gold Project NEPA and ESA consultation. Forest Plans, ESA Biological Opinions, and associated NEPA direct using the WCI analysis for all NEPA and ESA consultation for projects affecting ESA-listed aquatic species. Usage of the

[149] Walters et al. 2013 - Interactive Effects of Water Diversion and Climate Change for Juvenile Chinook Salmon in the Lemhi River Basin (U.S.A.).

SFA instead of the WCI needs to go through ESA consultation to be a valid replacement for WCI analysis.

Description and results of the SFA do not appear anywhere in the body of the SDEIS. Yet they are pivotal to the SDEIS conclusions that mitigation for historic and proposed mining efforts will offset impacts from proposed mining efforts.

5. The SDEIS does not adequately consider synergistic effects on fish

By considering fish species, stream reaches, and limited habitat impacts (e.g., stream dewatering, temperature increases, increases of metals concentrations, migration barriers) all separately, the SDEIS fails to acknowledge the broad ecological understanding that multiple stressors will amplify one another's effects on the ecosystem. This assumption ignores volumes of peer-reviewed and other literature contradicting it, particularly that related to the so-called "death of a thousand cuts" leading to salmon population declines. It results in a serious underestimate of impacts to fish and their habitat.

The SDEIS does not sufficiently discuss the inextricable connections between the myriad impacts to fish. An impact from, for example, temperature increase, will inevitably cause synergistic and/or cumulative impacts to other impacts such as metals exceedances (i.e., mercury, arsenic).

In general, mining typically causes stream habitat simplification, decreased water quality and quantity, increased water temperature, migration barriers, and introduction of non-native species. The SDEIS discusses these impacts but fails to define the interrelationship of these and other stressors, and does not adequately consider their synergistic effects.

6. Impacts to all non-salmonid fishes — and other aquatic life that support them- are ignored in the SDEIS

Mountain sucker, mottled sculpin, longnose dace, speckled dace, redside shiner, mountain whitefish, Pacific lamprey and other important fish, freshwater insects, algae, and other primary producers are all critical elements of the food webs supporting the salmonids that are not considered in the SDEIS. Ignoring impacts to salmonid food webs is equivalent to ignoring impacts to salmonids at large.

a. Failure to analyze impacts on macroinvertebrates

Macroinvertebrates are food for fish, and therefore are critical elements of the aquatic environment which support salmon and trout life histories. The SDEIS does not include any

analysis or data presentation of the decades of macroinvertebrate sampling which occurred in Stibnite mine site streams from the mid 1990s through the mid 2000s (Payette National Forest files). These species were completely disregarded in the SDEIS analysis, despite their roles in the aquatic ecosystem.

b. **Failure to analyze impacts on Pacific lamprey**

Lamprey are mentioned only three times in the SDEIS. They are indicated to be found within the analysis area (Section 3.12.4.1 page 3-266), historically harvested and dried by the Nez Perce Tribe (Section 3.24.4.1 page 3-504), and culturally important (Section 3.24.4.4 Page 3-515). However, no analysis of the extent, duration, or scale of impacts to individuals, populations, or habitat was provided.

Pacific lamprey were historically widespread along the West Coast of North America, though their abundance has declined,[150] and their distribution is contracting throughout Oregon, Washington, Idaho, and California.[151] The declines were extensive enough that, in January 2003, the USFWS received a petition to list Pacific Lamprey as threatened or endangered under the Endangered Species Act of 1973, as amended. In December 2004, the USFWS found that the petition and additional information in their files did not present substantial scientific or commercial information indicating that listing the species was warranted (Department of the Interior, Fish and Wildlife Service, 50 CFR Part 17, Endangered and Threatened Wildlife, and Plants; 90-Day Finding on a Petition To List Three Species of Lampreys as Threatened or Endangered). However, recent advancements in the understanding of Pacific lamprey ecology and causes of population declines support a renewed look at listing lamprey under the Endangered Species Act.[152]

Like salmon, Pacific lamprey are a tribal trust resource, and thus the federal government has a heightened responsibility to ensure the continued existence of the species.[153] Pacific lamprey are also classified as a Species of Greatest Conservation Need Tier 1, a Bureau of Land Management Sensitive Species Type 2, a U.S. Forest Service Northern Region Sensitive Species, and Endangered and Protected Nongame by the state of Idaho.[154]

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[150] Close et al. (1995) Status Report Of The Pacific Lamprey In the Columbia River Basin; Moser and Close (2000) Assessing Pacific Lamprey Status in the Columbia River Basin

[151] Luzier, C.W. and 7 coauthors. 2009. Proceedings of the Pacific LampreyConservation Initiative WorkSession – October 28-29, 2008.U.S. Fish and Wildlife Service,Regional Office, Portland, Oregon, USA

[152] Adam Wicks-Arshack, Matthew Dunkle, Sammy Matsaw & Christopher Caudill,An Ecological, Cultural, and Legal Review of PacificLamprey in the Columbia River Basin, 54Idaho L. Rev.45 (2018)

[153] *Id.*

[154] *See* https://idfg.idaho.gov/species/taxa/17473

Threats to Pacific lamprey include restricted mainstem and tributary passage; reduced flows; dewatering of streams; stream and floodplain degradation; degraded water quality; invasive species and predation; and changing marine and climate conditions.[155] Several of these impacts are anticipated within the mine and analysis areas .

Since 2012, the Nez Perce Tribe has been planting lamprey in the South Fork Salmon River and screw traps downstream from those locations in the South Fork Salmon River have captured numerous juvenile lamprey outmigrants. The SDEIS did not indicate whether lamprey were present in the analysis area or what impacts might occur to the species or to their habitat that would be caused by implementation of the MMP 2021.

7. The validity of the model results should be viewed with skepticism

SDEIS models used to predict fish habitat conditions are fraught with uncertainty, including flow (SDEIS 3-282), temperature/SPLNT (SDEIS 3-318, 4-268, 4-280), reclamation success (SDEIS 4-78), soil productivity (SDEIS 4-86), groundwater flow (SDEIS 4-153 and 162), hydrological model (SDEIS 4-175), water treatment rates (SDEIS 4-212), stream restoration (SDEIS 4-274), and mercury bioaccumulation (SDEIS 4-353). The models used output from other models for input into these models, constituting an estimate of an estimate. And, as in the case of the PHABSIM model, 30-year-old data from another area was used to predict habitat changes in the mining area. Multiple models used to describe various aspects of habitat are flawed oversimplifications of salmonid ecosystems, and/or rely on model inputs generated by other flawed and inaccurate models. This renders their utility for predicting and measuring impact questionable at best. Flawed models include the stream and pit lake network temperature (SPLNT), intrinsic potential (IP), occupancy (OMs), and physical habitat simulation (PHABSIM) models.

8. The SDEIS failed to evaluate effects of winter conditions, and winter survival effects on ESA-listed fish species

This is especially problematic given that winter temperature and flow, both affected by mining operations, have been shown to strongly correlate with winter survival and, thus, population abundance and, ultimately, persistence.The interaction of groundwater to fish habitat and fish distribution, a vitally important component of bull trout winter and spawning habitat, which also affects other salmonid species, was completely ignored, despite the best available science showing significant relationships.

9. Water quality: Multiple contaminants of significant concern to salmonids and other aquatic life received little consideration

[155] Anonymous (2022) Conservation Agreement for Pacific Lamprey

Effects analysis needs to include food chain pathways, toxicity for arsenic, antimony, mercury, and other contaminants, and other lacking information stated by Maest (2020) in order to understand the effects to aquatic life of the Stibnite Gold Project mining proposal.

a. Habitat impairments are significant enough to consider Stibnite among the U.S.'s most contaminated sites

Contaminants associated with historic mining at Stibnite resulted in heavy metals and cyanide contamination in area soils, groundwater, seeps, sediments, and thus surface waters (USEPA 2020). An initial assessment conducted by the U.S. Environmental Protection Agency (USEPA) in 1985 determined habitat impairments in the watershed were significant enough to consider it among the U.S.'s most contaminated sites in (USEPA 2020). Despite significant restoration and some cleanup efforts, the site remains contaminated and an eligible Superfund site. Moreover, numerous streams in the East Fork drainage of the South Fork Salmon River (EFSFSR) as well as the South Fork Salmon River (SFSR) exceed Idaho standards for drinking water and aquatic habitat, and thereby are considered 'impaired.' Exceedances are documented for arsenic, antimony, mercury, temperature, and sediment in watersheds and subwatersheds that will be impacted by mining (IDEQ 2018). While the SDEIS indicates that some water quality will be improved by treatment associated with the proposed Stibnite mining project, ground and surface water flows are poorly characterized and treatment is neither sufficiently described nor tested for effectiveness.[156]

b. Stream sediment chemistry

Maest (2020) states: "The food chain/dietary pathway for fish (contaminated stream sediment to macroinvertebrates to fish) was not considered in the DEIS conceptual models, in the examination of existing conditions, or in current or future modeling efforts. It was also not considered when evaluating potential environmental improvements from planned legacy cleanup or mitigation measures. No information is provided in the DEIS on stream sediment metal/metalloid concentrations"; and "A reliable evaluation of the potential effects of the mine cannot be completed without site-specific information on chemical speciation and the toxicity of antimony to fish populations". Further, Maest discloses that sediment arsenic concentrations exceed the probable effects level (PEL) by up to 400 times, and sediment mercury concentrations exceed the PEL by up to 50 times. The food chain/dietary pathway for arsenic has been shown to adversely affect salmonids in laboratory experiments and at locations in Montana and Idaho, yet it was completely ignored in the DEIS". These same comments apply to the SDEIS as well (Maest 2022).

[156] *See* Prucha 2020, Schlinger 2022, Semmens 2020 & 2022, Zamzow 2020.

Stream sediment chemistry is an important source of analyzing contaminant loading to fish. The food chain/dietary pathway for fish, starting with contaminated stream sediment, was not considered in the SDEIS conceptual models for existing conditions or current and future modeling efforts. Excluding stream sediment from the contaminant pathway analysis is a major, fundamental flaw with the conceptual model for this site, ignoring best available science, biological opinions, and U.S. FWS and NMFS Recovery Plans for ESA-listed salmonids.

The SDEIS does show limited sediment quality data from five stream locations taken in June 2016. These samples showed that at three of five locations for arsenic, and four of five locations for mercury, levels exceeded Canadian guidelines for the protection of aquatic life. Although the U.S. does not have established sediment guidelines, Canadian guidelines provide a useful reference for sediment concentration guidelines to protect aquatic life. The food chain/dietary pathway for arsenic has been shown to adversely affect salmonids in laboratory experiments and using stream sediment from mined areas in Montana and Idaho. Yet, the SDEIS completely ignored stream sediment data.

A conceptual model showing the food chain/dietary pathway for contaminant impacts to fish from consuming macroinvertebrates residing in contaminated stream sediment is needed. More sediment sampling is needed, and the results should be included in the design of conceptual models, mitigation, and clean-up measures.[157]

c. Temporal variability of metal contaminants

One of the most distinctive features of site surface water quality is the temporal variability in concentrations associated with stream hydrographs. Consideration of temporal variability is especially important at sites affected by mine contaminants, such as streams in the Stibnite area. Although the Forest Service and plan proponent analyzed surface water samples, surface water monitoring was not frequent enough or well-timed with snowmelt to identify temporal changes and maximum concentrations. Knowing maximum concentrations of contaminants is important in understanding the potential for acute short-term toxicity to aquatic biota and for assessing the effectiveness of clean-up and mitigation measures.

Therefore, weekly, daily, or ideally hourly sampling is needed during or shortly after spring freshet and summer thunderstorms to estimate potential maximum concentrations and to use in the calibration of the inputs for water quality models. These should be presented in a supplemental SDEIS.

[157] *See* Maest 2020 and 2022

d. Antimony speciation and food chain pathway

The toxicity of arsenic and antimony to humans via drinking water and to aquatic biota is highly dependent on their chemical form (chemical speciation) in surface water and groundwater. The SDEIS did not analyze any water samples for chemical speciation.

Essentially no information is available in the literature on the potential food chain/dietary pathway for antimony, which is one of the most important contaminants from legacy and proposed mining activity. Further, little fundamental information is available on the aquatic toxicity of antimony, and arsenic cannot be used as a surrogate. Neither the state of Idaho nor the federal government have established antimony criteria for the protection of aquatic life. A reliable evaluation of the potential effects of the mine cannot be completed without site-specific information on chemical speciation and the toxicity of antimony to resident fish populations. Site-specific toxicity testing should be conducted using clean sediment and sediment with a range of elevated antimony concentrations. Such work is especially important for understanding the effectiveness of promised legacy cleanup measures.

e. Metals concentrations in fish

Metals concentrations of tissue from fish and other aquatic species can be a useful indicator of baseline conditions and an early indicator of low-level, chronic and/or indirectly accumulating increases of metals concentrations that may go undetected by routine monitoring. The DEIS evaluation of baseline metals concentrations in tissues are limited to a very small number of highly mobile westslope cutthroat trout specimens, and two sculpin specimens. Because of their mobility, cutthroat trout are a poor indicator of local conditions. Sculpin tend to more closely reflect their environment, though sample size is vastly insufficient for any utility in characterizing baseline or measuring future impacts. Moreover, metals concentrations in tissues of biota inhabiting lower trophic levels are absent in the SDEIS. The SDEIS indicated that “In 2015, fish tissue was collected to check for metal concentrations …” but no metal concentrations in fish tissue data was reported or referenced. More baseline metals concentration data from area biota should be required prior to any permitting decisions.

f. Water chemistry impact predictions consider unjustifiably limited parameters of concern

The SDEIS qualitatively evaluates impacts to fish from potential increases in concentrations of a few metals (mainly arsenic, copper, mercury, and antimony). Those described impacts are largely minimized in the document. Copper is considered amongst the

most toxic elements to all aquatic life with increases of 2-20 parts per billion imparting deleterious indirect impacts on salmonid survival. Mercury biomagnifies with increasing trophic levels, ultimately leading to grave concerns for human health. Information regarding toxicological impacts of both arsenic and antimony are insufficient in the literature at large, and virtually non-existent for the Stibnite Gold project area.

g. Multiple other contaminants of significant concern to salmonids and other aquatic life receive no consideration in the SDEIS

In addition to impacts of several other existing contaminants at the site most likely related to historic mining activities were overlooked or not considered at all (aluminum, cadmium, iron, manganese, selenium, and zinc; see Zamzow 2020). Other metals are likely to increase as a result of Stibnite Gold Project development, but given the certainty of increases in these metals, some potential impacts of lesser-considered metals are described below. In particular, because they biomagnify, mercury and selenium should both be considered in much more depth than they are in the SDEIS. Moreover, information regarding toxicity (direct, indirect, lethal, and/or sublethal) of antimony is widely lacking.[158] Given the near certainty of increases in antimony concentrations resulting from Stibnite Mine development, laboratory toxicity testing (including laboratory tests using site-specific waters) should be required prior to permitting.

Maest (2020) concludes that little information on the toxicity of antimony to aquatic biota; no site-specific information on antimony or arsenic toxicity to resident and protected fish, macroinvertebrate, and aquatic plant populations; and no information is provided on the relationship between fish life cycles and temporal variability of arsenic, antimony, mercury, or any other analytes in site surface waters. No information is provided on the exposure to fish from arsenic, antimony, mercury, or other contaminants via the dietary pathway (sediment-macroinvertebrate-fish). This pathway has been shown to cause adverse effects to salmonids at mine sites in Idaho and Montana."

10. Loss of headwater streams, and other impacts within the project area, are falsely assumed to have no downstream impacts

While the loss of stream miles and impact to habitats are estimated for the project area itself, those estimates exclude consideration of the function of upstream, contributing water bodies, and downstream, receiving water bodies. Headwater and/or upstream habitats are fundamental drivers of physical, chemical, and biological characteristics of their downstream receiving waters. Intact headwaters and wetlands comprise fundamental elements of thriving salmon habitat, and their fragmentation is considered a leading cause of

[158] Eisler 2004 - Cyanide Hazards to Plants and Animals from Gold Mining and Related Water Issues

global salmon declines.[159] Both long-term small-scale and short-term large-scale developments fragment and simplify the complex physical habitat mosaics upon which all fish and aquatic life depend, introduce contaminants into the environment, and ultimately degrade the biological interactions that support robust fish populations. Failure to incorporate those impacts in the SDEIS result in a substantial underestimation of project impacts.

The SDEIS describes the fish analysis area as encompassing all areas in which fish resources and fish habitat may be affected directly or indirectly by the Stibnite Gold Project, and not merely the immediate area involved. The analysis area is located in the South Fork Salmon River hydrological subbasin and the North Fork Payette River hydrological subbasin as illustrated Figure 3.12-1, Yet, the SDEIS does not analyze potential effects to subwatersheds downstream and outside of the Stibnite Gold Project mine site area within the fish analysis area illustrated in Figure 3.12-1. Effects to waters downstream of the Yellow Pine pit lake — which may be the most impacted waters — are not evaluated. Failure to incorporate those effects in the SDEIS results in substantial underestimation of project effects. (i.e., increases in temperature, spill risk effects, road effects, metals concentrations, and synergistic effects on fish populations).

SDEIS Figure 3.9-1 describes the surface water quality analysis area to include streams and lakes located in the 22 sub-watersheds that encompass the proposed mine site, access roads, transmission lines, and off-site facilities within the East Fork and South Fork Salmon River watersheds. Yet Chapter 4 only analyzes effects to water quality at the mine site area. The SDEIS does not analyze consequences to the surface water quality analysis area downstream and outside of the Stibnite Gold Project area (increased temperatures, spill risk, metals concentrations).

ESA-listed salmon, steelhead, and bull trout migrate through many miles of waters downstream and outside of the mine site, and rely on habitat conditions therein to complete their life histories. A supplemental SDEIS needs to describe and analyze effects of the mine downstream of the mine site to water quality and fish, and if not, analyze and describe why there are no downstream effects.

11. The proposed Forest Plan amendments are not compliant with the Forest plans, specifically regarding the Aquatic Conservation Strategy, USFWS and NOAA Biological Opinions, Terms and Conditions, and Reasonable and Prudent Alternatives

[159] Colvin et al.(2018) - Headwater Streams and Wetlands are Critical For Sustaining Fish, Fisheries, and Ecosystem Services, American Fisheries Society

The timeline for mine operation is approximately 12 years with reclamation and closure of approximately 5 years. Due to the nature of proposed SGP activities, impacts to aquatic, terrestrial, and watershed resource conditions would be expected to occur for the length of the proposed SGP, and beyond. This impact time length is in excess of the Forest Plan direction, which indicates that "Management actions, including salvage harvest, may only degrade aquatic, terrestrial, and watershed resource conditions in the temporary time period (up to 3 years)." The Forest Plan amendment that waives this requirement does not maintain the intent of the original plan standard. SDEIS mitigations and reclamation actions will not restore or maintain aquatic resource conditions, according to adverse effects described in Chapter 4.

12. The proposed Forest Plan amendment that waives the requirement for fish passage at surface water diversions is not compliant with the Forest plans, specifically regarding the Aquatic Conservation Strategy, USFWS and NOAA Biological Opinions, Terms and Conditions, and Reasonable and Prudent Alternatives

Blocking fish passage results in harm to fish. SDEIS design features and mitigations will not maintain or restore connectivity or cold water refugia, important components of aquatic ecosystem integrity. The SDEIS admits that "bull trout may be extirpated from the reaches upstream from the TSF when the reaches within the footprint would be dewatered and flow would be diverted into the diversions that route water around the facilities. With the gradient barrier that would be created along the TSF, there would be no mechanism by which bull trout would be able to volitionally (i.e., naturally) recolonize the reaches upstream from or on top of the TSF."

13. Project actions are not consistent with ESA recovery plans

Blockage of fish passage is not consistent with U.S. Fish and Wildlife Service bull trout recovery plan actions which include: 1) Protect, restore, and maintain suitable habitat conditions for bull trout, and 2) Minimize demographic threats to bull trout by restoring connectivity or populations where appropriate to promote diverse life history strategies and conserve genetic diversity.

Decreased flows and increased temperatures resulting from mining actions (see SDEIS Figure 4.12-3 and Table 4.9-24). are inconsistent with the National Marine Fisheries Service Chinook salmon and steelhead recovery plans,[160] which lists improving degraded

[160] NMFS 2017 - ESA Recovery Plan for Snake River Spring/Summer Chinook Salmon & Snake River Basin Steelhead.

water quality and maintaining unimpaired water quality as a strategy to address factors limiting recovery of Chinook salmon and steelhead populations.

14. Work windows are inadequate to prevent adverse impacts to salmonid fishes

A substantial length of both perennial and non-perennial streams is listed to be impacted in both the focus and off-site focus areas. Work windows are listed to avoid individual species, but when species are considered together, there is no time of the year when some non-mobile salmonid life form is not present in mining area streams where adverse effects are predicted. In addition, Proposed work 300 feet upstream from redds is inadequate to protect redds from impacts of turbidity generated from that distance.

15. Current baseline conditions are insufficiently and inaccurately characterized, rendering predictions of impact unreliable

With the exception of descriptions of proposed mitigation methods, physical habitat characteristics — past or present — are virtually ignored in the SDEIS despite their fundamental role in fish population productivity. Gradient, stream flow, substrate, off-channel habitat, floodplain connectivity, and other habitat elements known to influence salmonid productivity receive little consideration regarding fish resources and habitat. Degradation of those habitats from decreased flows, road crossings, increased sediment loads, spills, and other activities associated with mine development will inevitably impact salmonid populations.

Salmonid distribution, abundance, and density estimates use flawed methodology and interpretation and lack the spatial and temporal resolution to characterize baseline variability. Consequently, adequate characterization of existing, listed salmon and trout populations are lacking. The SDEIS concludes that population-level effects are not expected from construction, but after reclamation, the net effect would be: a loss of habitat quality for Chinook salmon, bull trout, and cutthroat trout, a net gain of habitat quality and quantity for steelhead trout, and water quality improvements from the removal of legacy mine materials that would partially, but not completely, offset geochemical impacts associated with the SGP (U.S. Forest Service 2020).

Because an adequate characterization of existing listed salmon and trout populations are lacking, population level impacts to salmonids from the Stibnite Gold Project cannot be evaluated from the information provided in the SDEIS.[161] The SDEIS states that the percentage of populations affected by impacts described in Chapter 4.12 is expected to be

[161] *See* O'neal 2020 and Gregory 2022

small and population-level impacts are not expected. This statement is flawed because of the lack of adequate baseline characterization of salmon populations.[162]

16. The SDEIS makes unjustified conclusions about spill risk

The SDEIS states: "It is expected the risk associated with a spill large enough to negatively affect fish or aquatic habitat would generally be low." (SDEIS at 4-333). This unjustified conclusion overlooks inevitable cumulative, chronic, and potentially additive effects of multiple spills over time.[163] It underestimates effects on fish habitats because assessments were based on measuring the amount of stream that is a 91 meter distance from the roadway centerline, which is less than half the published distance for a 200-meter impact zone around rural roadways.[164] The conclusion also estimates spill risk rates that are two orders of magnitude lower than rates cited in other large mine DEIS's.[165]

According to the SDEIS, "the magnitude of impacts could be major to individuals exposed to harmful concentrations of hazardous materials" (SDEIS 4-348). A large diesel spill could kill 100 percent of the Chinook salmon juveniles, adults, alevins, and eggs for a considerable distance (several miles) downstream of the accident (National Marine Fisheries Service [NMFS] 1995). In terms of toxicity to water-column organisms, diesel is one of the most acutely toxic oil types. Fish, invertebrates, and aquatic vegetation that come in direct contact with a diesel spill may be killed (U.S. Environmental Protection Agency [EPA] 2019). Thus, a large spill could potentially kill a substantial number of adult salmon depending on various factors (NMFS 1995). A spill in the fall could kill all the 1-year old juveniles and zero age eggs/alevins, thus eliminating 2 years of Chinook salmon progeny. Diesel from a spill could mix with spawning gravels and sand and be retained in the stream substrate for a year or more, and thereby negatively affect salmon eggs, alevins, and juveniles for several years."[166]

17. Impacts to salmonids from project-related groundwater changes are ignored in the SDEIS

Groundwater and hyporheic inputs increase salmonid incubation and emergence success, and often support higher densities of fish due to their temperature and oxygen profiles relative to surface waters. Not only are groundwater flows poorly predicted in the SDEIS, their role in salmonid survival and resulting impacts to it from changing groundwater levels is unaddressed**.**

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[162] *Id.*
[163] *O'Neal 2020*
[164] *See* Lubetkin 2020, 2022 and section J of this document
[165] *Id.*
[166] Korn and Rice 1981; Moles et al. 1981

18. Effects of the East Fork Fish Tunnel inadequately characterize impacts and improvements

The East Fork Fish Tunnel is described in Brown and Caldwell et al. 2021: Fishway Operations and Management Plan. Claims of the success of this tunnel are assumed in the body of the SDEIS. However, "There is some question regarding the effectiveness and efficacy of the EFSFSR tunnel to pass fish.[167] The U.S. Fish and Wildlife Service (USFWS) notes, in a letter to Midas Gold dated October 3, 2019, "[E]ven after close consultation and collaboration with NMFS, meeting applicable NMFS passage criteria and guidelines, and executing all potential adaptive management measures, there exists a reasonable probability that the project will not be able to volitionally pass fish safely, timely, or effectively." Results are presented, with the assumption that the tunnel would allow volitional passage (SDEIS 2-60).

There is little rationale to support the proven success of such a tunnel in the SDEIS. Of the three references cited, none analyzed Chinook salmon, bull trout or steelhead, or sites with characteristics similar to Stibnite (i.e., from an accessible river to an inaccessible channel upstream). Gowans et al. 2003 tracked Atlantic salmon in Scotland on a river system from a reservoir through four fish passes including fish ladders, fish lifts, and a tunnel. Only 4 out of 54 tagged adults made it to spawning grounds. Wollenbaek et al. (2011) examined genetic connectivity of lake-dwelling Arctic char in Norway across a dam through a subterranean tunnel and spill gates. The char were represented by two genetically distinct lake populations, and connectivity was demonstrated, but it was questioned to what extent char utilized the tunnel for upstream migration. Rogers and Cane (1979) indicated "numbers of fish succeeding the tunnel and weir" for Atlantic salmon from a pumped storage reservoir to upstream spawning grounds in New Wales, but the complete study was unavailable.

The backup plan, should the tunnel not work, would be to trap and haul fish up and downstream of the Yellow Pine Pit until the reconstructed East Fork is completed. This relies on the assumption that the constructed and enhanced stream reaches would perform as described in the Stream Design Report. According to the DEIS, about 100,000 fish are modeled to be "affected" (injured/killed) from 1.6 km of stream removals and diversions in the East Fork (Table 4.12-2b, and p. 4.12-17) due to dewatering, fish salvage, and relocation. (From DEIS Table 4.12-2b: 84,066 Chinook salmon + 1,009 steelhead + 620 bull trout + 10,647 cutthroat = 96,342 fish potentially affected). While this analysis was included in the DEIS and these components of the plan have not changed, this information is not included in the SDEIS. This discrepancy must be explained.

[167] USFWS 2019 - Tunnel Design, Operation, and Management Memo

19. Fisheries Mitigation for the proposed Stibnite Gold Project

A multitude of well-intentioned fisheries mitigation measures are included in the SDEIS Action Alternatives. These measures were designed to avoid and minimize potential impacts to aquatic organisms, federally listed fish species, and USFS designated sensitive species during SGP operations and closure. Despite inclusion of these mitigation measures into the proposed actions, the SDEIS clearly confirms that irreversible and irretrievable impacts will occur. These include but are not limited to: direct mortality, incidental injury, temporal (more than 100 years in certain stream reaches) and permanent (upper Meadow Creek) loss of critical habitat, decreased suitable and Critical habitat, blockage of fish passage, decrease in thermally suitable habitat, permanent displacement of individuals, and net decrease in productivity. Many of these detrimental impacts cannot be mitigated and represent substantial, and long-term to permanent degradation and fish population declines in project area streams and downstream. These impacts are unacceptable.

Gregory (2022) states that: 1-proposed mitigations in the SDEIS are not sufficient to reliably reverse impacts, much less improve existing, impaired habitat during or after additional mining occurs; 2- "even modern fish passage design simply cannot account for spatial and temporal variability of historic baseline conditions, current conditions, and future conditions that will result from mining and associated development activity in addition to climate change;" and 3- "already threatened salmonid populations will not be restored by (and may not survive) newly proposed mining activity and the mitigation methods proposed in the SDEIS".

Perpetua and the U.S. Forest Service provided mitigation measures that are thorough, expensive, engineered, and optimistic, perhaps pushing the limits of what is feasible given their mining goals. The SDEIS and fisheries experts have responded that those measures will not be effective in mitigating serious impacts to already-imperiled Chinook salmon, steelhead, bull trout, and westslope cutthroat trout. The impacts to ESA-listed salmon, steelhead, bull trout and other native fishes, even with well-intended, although inadequate mitigation, are unacceptable.

The following mitigations should be incorporated:

- Obliterate and hydrologically restore all unneeded roads in the South Fork Salmon River watershed,
- Gravel road surfaces and develop maintenance agreements for all roads in the South Fork Salmon River watershed,

- Implement Aquatic Organism Passage at all stream crossings in the South Fork Salmon River watershed that are not AOP.

E. Perpetual water treatment

The assumption for the SDEIS appears to be that there will be no seepage, or de minimis seepage, from the tailings after initial seepage drain down. Until an actual post-closure seepage rate can be established, for both tailings drain down and buttress seepage, it is not reasonable to assume seepage from the waste rock in the buttress will be low enough so that long-term water treatment will not be required. Given the uncertainties in the water quality modeling, the SDEIS should assume that perpetual water treatment will be required, and calculate financial assurance to cover long-term water treatment costs, until post-closure monitoring proves otherwise.

F. Mining engineering (for additional details, see Chambers (2022))

1. **The lack of technical information and supporting data on the design of the proposed construction approach of the tailings dam precludes review of its adequacy (citing David Chambers technical report)**

The design, construction, operation, and closure of a tailings facility, primarily the tailings dam itself, is the most important mine-related structure to be analyzed in an EIS because of the potential environmental,economic, and public safety liabilities associated with a structure that must function properly for millennia"… "Normally the references for an EIS would include a technical report from an engineering company experienced in the design, construction, operation, and closure of tailings dams. The SDEIS references do not include such a report. The SDEIS refers to the Feasibility Study (M3 2021) for many of its technically related comments on the tailings storage facility, but the feasibility study itself does not contain technical information on the tailings dam. The figures presented in the SDEIS, Figures 2.4-10 and 2.4-11, suggest that at least some preliminary engineering work has been performed, but there is no reference given for the source of these figures,which by themselves are wholly inadequate to permit the construction of a tailings dam.

Technical information and supporting data on the design and construction of the tailings dam are particularly important for review in the SDEIS because recent research examining all serious tailing failures since 1915 demonstrates that the rate of serious and very serious tailings dam failures has increased globally:

> [T]he 100 years of TSF failures shows an emerging and pronounced trend since 1960 toward a higher incidence of "Serious" and "Very Serious" failures. That is, the

consequence of loss is becoming increasingly greater. 49% (33/67) of all recorded Serious and Very Serious failures from 1940-2010 have occurred since 1990. Of all 52 recorded incidents cited, 1990-2010, 17 (33%) were Serious failures, i.e. large enough to cause significant impacts or involved loss of life. Another 16 (31%), were Very Serious failures, i.e. catastrophic dam failures that released more than 1 million cubic meters of tailings and in some instances resulted in multiple loss of life. 63% of all incidents and failures since 1990 were Serious or Very Serious. The total costs for just 7 of these 16 large failures was $3.8 billion, at an average cost of $543 million per failure. These losses, according to dam committee reports and government accounts, are almost all the result of failure to follow accepted practice.[168]

2. Water treatment in perpetuity will likely be needed unless proven otherwise

As noted elsewhere, the Forest Service should assume that long-term water treatment will be needed beyond Mine Year 40 unless the actual post-closure seepage rates for both tailings drain down and buttress seepage are low enough and/or contain only low levels of contaminants that there is no possibility it will require long-term treatment. See technical reports from Dr. David Chambers of CSP2 and Dr. Ann Maest of Buka Environmental.

We note that the Forest Service required a bond for 100+ years of water treatment for the Idaho Cobalt Project out of an abundance of caution even though the mine was designed to avoid the need for water treatment in perpetuity. The Boise National Forest erroneously assumed that the expansion of the Level 900 adit near Atlanta would be managed without long term water treatment. Now we have a situation where elevated arsenic levels require water treatment in perpetuity but the operator has been unable to comply with their Plan of Operations and NPDES permit and there is no bonding for water treatment in place. The Forest Service must avoid a similar situation here.

3. Reclamation cover materials are insufficient

As noted elsewhere, we are concerned that the amount of cover/growth material available for reclamation is only 48% of the amount of material that will be needed (p. 4-87), assuming that the identified material will function as intended. As part of this analysis, a source for the additional required growth material is required. Delaying this commitment until a later time may result in a failure to find this material and a lowering of reclamation standards.

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[168]Bowker & Chambers, *The Risk, Public Liability, & Economics of Tailings Storage Facility Failures* (2015), https://www.researchgate.net/publication/283321865_The_Risk_Public_Liability_Economics_of_Tailings_Facility_ Failures.; see also WORD MINE TAILINGS FAILURES, *State of World Mine Tailings Portfolio 2020*, https://worldminetailingsfailures.org (last visited July 15, 2022).

4. Autoclave details are lacking

As noted in Chambers (2022), the Forest Service needs to describe autoclave operation in more detail than it presently receives in the SDEIS, and a thorough discussion of the monitoring for air emissions from the autoclave, mercury and any other potential contaminants, needs to be provided. Mercury emission control systems must operate at a very high efficiency in order to conform to air quality requirements but there is no discussion of the efficiency at which these control systems must operate, or how and when they will be monitored.

G. Mine closure, reclamation and financial assurance

1. The SDEIS lacks detailed information about the reclamation and closure plan to analyze impacts

According to Reclamation and Closure Plan (RCP) submitted by Tetra Tech (2021(b)) on behalf of Perpetua Resources "mining and reclamation plans are *approximately 10 to 40 percent complete* and have been established based on reasonable assumptions of technical, engineering, legal, operating, economic, social, and environmental factors." (p. 1-23, emphasis added).

The SDEIS must include a detailed reclamation and closure plan to demonstrate compliance with state and federal regulations and to provide sufficient information for decision-makers and the public to understand the potential impacts of the proposed project. This must include detailed engineering plans to describe all elements of reclamation and closure, rather than deferring this until some future time.

2. The SDEIS identifies a vast deficiency in available reclamation materials and fails to demonstrate that timely reclamation can be achieved

The discussion in section 4.5.2.2 (SDEIS, p. 4-87) notes that the amount of cover/ growth material available for reclamation is only 48% of the amount of material that will be needed. Pages 4-85 identify the three primary challenges associated with the quality and suitability of available Reclamation Cover Materials (RCM) for the SGP: (1) the overall relatively poor existing quality of the upland soils that make up approximately 62 percent of the salvageable volume at the SGP and Burntlog Route; (2) the long-term stockpiling of material; and (3) the high background concentrations of metals in the soil.

The SDEIS, on pages 4-85 notes that "options are being considered" to locate a source for the deficient material, yet no specific requirements have been incorporated in the SDEIS. Further, the Soils and Reclamation Cover Materials Specialist Report (p. 74) states

that coarse woody debris would be scattered over reclaimed land, but offers no estimate of the total volume required or where it would be sourced.

To address the deficit in reclamation materials, Perpetua proposes a number of potential options. Perpetua Resources anticipates that compost (and potentially other soil amendments) will be imported to the project site and applied to GM and YPP Till to improve their suitability. It proposes to import 13,850 tons of compost (RCP, p. 352) from dairy or feedlot operations (composted manure), which would be temporarily placed in stockpiles around the facility. The SDEIS fails to analyze the potential impacts of transporting and introducing large volumes of manure to the site, including the potential for the proliferation of weeds, and increases of nitrates and other nutrients in surface or groundwater. Further, the Soils and Reclamation Cover Materials Specialist Report (p. 74) dismisses the viability of this idea, stating:

> "The RCP identifies 10 tons per acre of compost would be incorporated into the top 3 to 6 inches of GM; however, the volume specified is minimal, translating to less than 0.25 inch of compost to be mixed into 6 inches of GM. ***This small amount of compost is not expected to provide sufficient long-term benefits to the GM that would be important for revegetation*.**" (Emphasis added)

Similarly, Perpetua proposes to address the deficit of salvageable soil by bulking up the salvaged soils with wood chips to create "growth media" (GM). Depending upon a multitude of factors, the incorporation of wood chips into soil (particularly in the volumes proposed) can deplete plant-available nitrogen. The effects of anaerobic conditions expected in stockpiled GM (SDEIS, p. 46) on nitrogen cycling, microbial activity, and overall soil health should be evaluated in the context of wood chip addition.

Even after the potential addition of wood chips, a GM deficit of roughly 800,000 cubic yards remains. The Reclamation Closure Plan (TetraTech, 2021a) proposes to use glacial till and colluvium/alluvium from the Yellow Pine pit to make up the deficit. This solution does not appear to be analyzed in either the SDEIS or the Soils and Reclamation Cover Materials Specialist Report (U.S. Forest Service, 2022c). The Reclamation Closure Plan asserts that this material will be non-PAG/ML, but only provides average concentrations for arsenic, neglecting to mention antimony or mercury. Although the chemical suitability of this material is partially addressed, there is no mention of the other suitability criteria which likely rate it as fair to poor. This material would be stored separately from the other growth media, but it is unclear how it will be used. If it is blended with the other growth media when applied, this is likely to result in further decline in the suitability of already questionable quality growth media. There is no explanation why 1.5 million BCY would be stored in the Fiddle Growth Media stockpile when only 797,000 BCY are needed.

To compound the soil quality and quantity deficits, the SDEIS identifies substantive impacts to soil viability from stockpiling soils for lengthy periods. According to the SDEIS (p. 4-86), these stockpiles would be up to 200 feet tall, and the time between GM salvage and placement would vary greatly between different SGP facilities but could remain in stockpiles for up to 42 years. The RCP (P. 3-55) states that soil productivity within the majority of the GM/SBM mass stored with stockpiles is expected to decline during the time of residence within stockpiles because, "Anaerobic conditions approximately 2 to 3 feet below the surface of the GMSs are anticipated to predominate and will likely lead to a decline in microbial respiration and a shift from an aerobic respiration endpoint of carbon dioxide to an anaerobic endpoint of anhydrous ammonia (NH3) or, depending on the soil moisture content, nitrogen gas or nitrous oxide." The RCP proposes various mitigation measures to offset those impacts, but fails to demonstrate that these will be viable. In fact, the SDEIS (p. 4-87) concludes that,

> "Despite these measures, the storage of GM within deep stockpiles for years ***would still result in the loss of soil productivity***, which would affect the overall quality of this material at the time of placement." (emphasis added)

The SDEIS must take a hard look at the potential impacts of stockpiling these materials and quantify the potential loss of viable soils for reclamation purposes and the adverse effects on reclamation efforts.

The Executive Summary of the SDEIS (p. ES 11-12) identifies the uncertainty associated with sufficient quality and quantity of materials necessary for reclamation.

> "The overall relatively poor quality of the soils at the SGP mine site (outside of valley bottom soils), the long-term stockpiling of growth media (GM) or soil bank material, and the high background concentrations of metals in soils would affect the quality and suitability of available reclamation cover materials. GM used for upland reclamation sites would mostly come from relatively poor upland soils. Overall, the majority of GM used would rate as poor or fair (per suitability criteria), due primarily to texture and coarse fragment content (Tetra Tech 2019). These challenges, coupled with the harsh winter climate (short growing season) and generally steep slopes of the area, would compound the present difficulties in growing and/or maintaining persistent vegetation cover over reclaimed areas. This is consistent with the mixed vegetative cover success of nearby reclaimed mining areas and the previous efforts by Perpetua and others at the mine site to establish self-sustaining cover on previously mined lands that have had some limited success. Additionally, there would be a 797,702 bank cubic yards GM deficit at the mine site according to the balance calculations in the Reclamation Closure Plan. This deficit may be partially met with the

> surplus of material obtained from the Burntlog Route or could be met through additional composting of both on- and off-site soil amendments. ***Thus, there is presently some uncertainty regarding the specific source of material to meet the identified GM deficits under either action alternative.*** (SDEIS, p. ES-11)(emphasis added).

Although the SDEIS states that Perpetua has committed to salvage the appropriate volume of GM and to create the volume of compost necessary as an amendment to provide suitable quality and quantity of the GM to cover the areas to be reclaimed, there is no data or analysis to demonstrate that this will be achieved. As noted in this and other sections, the proposed plan does not demonstrate that suitable soils will be available, mitigation measures will successfully offset the impacts of stockpiling soils, or that measures are in place to adequately address the high metal concentrations in soils. Furthermore, the SDEIS fails to take a hard look at the potential impacts to soils from climate change.

The SDEIS (p. 4-79-80) highlights the long-term harm to soil resources, stating that "this analysis assumes recovery of greater than 40 percent soil productivity of natural background within a 50-year timeframe ***would not occur*** (due to the nature of disturbance and the conditions at the site) and, therefore, the duration of impacts would be longer-term, well beyond the 50-year threshold." And "For the TSF and TSF Buttress, where selected development rock would serve as the rooting zone for reclamation-related planting instead of native regolith, recovery of soil productivity to 40 percent of natural background would be on a much longer timescale (e.g., ***likely centuries to millennia***) such that they would be considered permanent TSRC." (emphasis added).

According to the SDEIS (p. ES-11) Total Soil Resource Commitment (TSRC) is the conversion of a productive site to an essentially non-productive site for a period of more than 50 years. Productivity of these areas range from 0 to 40 percent of natural background.

According to the SDEIS (p. 4-78-79), "Reclamation challenges associated with mine facilities are consistent with observations of nearby, previously reclaimed mining areas having mixed vegetative cover success (e.g., Dewey Mine/Thunder Mountain Mining District), as well as previous efforts by Perpetua and others at the SGP to establish a self-sustaining cover of vegetation on previously mined lands that ***were met with limited success*** (Greystone 1994). To conservatively address uncertainty in reclamation success, this analysis of Total Soils Resource Commitment (TSRC) assumes that ***all SGP-related disturbances in the PNF activity area would be considered TSRC due to the site-specific challenges and the duration and nature of soil disturbance to support the mining activities***." (Emphasis added)

Section 4.5.2.2 identifies that the TSRC guidelines in the Payette National Forest Plan to limit TSRC to 5% of the activity area will be violated with the project-related impacts leading to a TSRC of 17% (approximately 1,457 acres). (SDEIS Table 4.5-1 and Figure 4.5-1). Rather than requiring the project to comply with the Forest Plan, the Forest Service is proposing a Forest Plan Amendment (FPA) which would waive the TSRC guidelines. By waiving the TSRC guidelines, and thereby authorizing a 17% loss of TSRC, approximately 1,457 acres of the project area will be converted from a productive site to an essentially non-productive site for more than 50 years. The SDEIS must specify how the loss of 17% of TSRC in the project area (approximately 1,457 acres) - resulting in the conversion from a productive site to an essentially non-productive site for more than 50 years — is consistent with reclamation goals, objectives, and requirements. The proposed plan, which includes a predicted 17% loss of TSRC, appears to treat the area as a sacrifice zone, without regard for reclamation requirements. Further, the SDEIS fails to take a hard look at the direct, indirect, and cumulative effects of the 17% TSRC loss on revegetation efforts, erosion, and other potential impacts. It also fails to consider the cumulative effects of these impacts, coupled with climate change.

The proposed mine plan fails to demonstrate that available RCM will be of sufficient quantity or quality to achieve the reclamation objectives defined in the Reclamation and Closure Plan (Tetra Tech 2021a, p.1-1) of returning disturbed areas to productive conditions that sustain long-term wildlife, fisheries, land, and water resources.

The proposed mine plan must demonstrate that suitable materials are available to complete reclamation. The SDEIS must specify where the reclamation materials will be sourced, including the quantity and quality of additional materials necessary for reclamation, and it must demonstrate that these soils can be stored and managed to meet reclamation requirements. The SDEIS must demonstrate that the proposed mine plan will comply with applicable state and federal requirements for reclamation and adequate protections of public health and environmental resources.

3. The SDEIS fails to take a hard look at the consequences of inadequate soil covers and reclamation materials, and provides inappropriate references to support cover depths

The SDEIS fails to demonstrate that the proposed cover depths are adequate for reclamation purposes. The Reclamation and Closure Plan (p. 3-33) references a 2018 database of cover depths at Montana mines from the Montana Department of Environmental Quality to support potential soil depths for reclamation at SGP. However, two of the mines cited (Rock Creek and Montanore) have not been constructed, so reclamation success cannot be determined. Hecla withdrew its plan of operations for those two proposed mines. The Montana Tunnels Mine, which is also cited, has not been successfully reclaimed. The mining

company filed for bankruptcy in 2022, with substantive reclamation obligations unfulfilled and extensive erosion issues.[169] The Graymont Mine is a limestone quarry, not a hardrock mine. These cited mines should not be considered suitable references for reclamation purposes at SGP.

One consequence of the shortfall in growth media (GM) and seed bank material (SBM) volume is that the reclaimed areas have much less depth of GM spread over them than the depth of native material that is salvaged. For example, comparing numbers in Tables 3-5 and 3-7 in the Reclamation Closure Plan one can note that although salvageable SBM in wetlands extends to depths of up to two feet with another foot of suitable GM below that, the proposed application depth in all but one constructed wetland is a mere 2 inches of SBM over 4 inches of GM. It seems likely that the productivity and functionality of these thinly veneered wetlands would be significantly reduced from the existing areas, yet no analysis of the influence of soil depth on wetlands function is included.

4. The SDEIS lacks adequate suitability criteria for growth media

Sustainable revegetation success depends on the quality of growth media (GM) and subjacent material that comprises the vegetation zone with regard to a number of physical, chemical and nutrient factors. According to the Soils Specialist Report (p. 13), when excavating and storing materials for growth media, "Tailings and contaminated soil and fill material from historical mining activities would be identified through testing and visual observation and separated from suitable soils prior to and during soil excavation activities. Testing for contamination *would focus on the presence and leachability of metals* from these materials (e.g., arsenic, antimony, and mercury) (emphasis added). When encountered during GM/SBM salvage, these materials would be excavated separately and reprocessed, repurposed for construction purposes (if suitable), and/or disposed of into the TSF." However, the suitability criteria for growth media (Soils Specialist Report, Table 2-3) doesn't specify leachability criteria. What leachability criteria will be used, and how will it be applied?

The SDEIS also lacks phytotoxicity suitability criteria and public health criteria for growth media. The Reclamation and Closure Plan does not include trace metal concentrations as part of the growth media suitability guidelines for plant growth. According to the Soils Specialist Report (p. 76), "Metal concentrations in growth media would be screened for comparison to baseline soil concentrations pre-reclamation per Forest Service

[169] https://news.mt.gov/Department-of-Environmental-Quality/DEQ-Officially-Considers-Montana-Tunnels-Mine-Abandoned-or-Complete,-Urges-Reclamation; https://mtstandard.com/news/local/montana-tunnels-mine-seeks-bankruptcy-protection/article_286326f8-2a59-5889-84be-6b645307408f.html#:~:text=In%20July%202021%2C%20DEQ%20noted,Monday's%20bankruptcy%20filing%20is%20ominous.

requirements." However, the specific baseline concentrations that would apply are not specified.

The SDEIS must specify the baseline concentrations that would be used as suitability criteria for growth media, and whether that may affect the amount of available growth material, and not defer this information and analysis to another time.

5. The use of fertilizers may result in arsenic solubility in soils, and has not been adequately analyzed

Fertilizer is considered another option for improving GM quality. However, there is disagreement as to how the addition of phosphate fertilizer might affect plant uptake of phytotoxic arsenic. The Reclamation Closure Plan (p. 3-57) suggests bioavailable arsenic could be reduced, while the Soils and Reclamation Cover Materials Specialist Report (p. 77) states that arsenic solubility could be increased. The SDEIS must address this inconsistency. Statistically robust greenhouse testing of the performance of the main reclamation plant species in phosphate amended GM should be required prior to field application of these fertilizers.

As noted above, the Specialist Report (p. 77) finds that the use of chemical fertilizers is known to induce arsenic solubility in soils, and points to the use of fertilizers as one of the potential options identified by Perpetua in its RCP. The Specialist Report states that "Perpetua has identified some measures to limit the transport and exposure to soil-borne arsenic (e.g., surface water runoff routed to sediment basins, erosion-, sediment-, and dust-control best management practices, etc.)." However, there is no analysis to demonstrate that these measures would adequately limit the transport of soil-borne arsenic. The SDEIS must analyze the potential impacts of increased solubility, soil-borne arsenic, the potential mitigation measures, and the viability of these mitigation measures.

6. The suitability criteria for root zone materials fail to demonstrate that reclamation can be successfully completed or that public and ecological health will be protected

It appears from the SDEIS (p. 87-88), that the reclamation plan proposes to use soils with up to 3,000 ppm arsenic as suitable root zone material (RTZ) for reclamation, and apply more restrictive, but not yet specified, criteria for growth media.

The proposed concentrations for RTZ of up to 3,000 ppm are much higher than the existing concentrations for mercury within the project area that will be salvaged for reclamation (442 ppm arsenic, 0.82 ppm mercury, and 137 ppm antimony) or those from the SMUs (651 ppm arsenic, 0.96 and 379). (RCP p. 3-27 to 3-28). Thus, the SDEIS appears to

authorize the use of soils for reclamation materials that will increase arsenic levels in soils within the area (i.e., worsen soil conditions).

The Reclamation and Closure Plan (Tetratech 2021) justifies the use of much higher arsenic concentration for Perpetua's proposed suitability criteria based on Hecla reclamation effort from 1992. However, Hecla's reclamation effort, analyzed in Appendix B, should not be used as the basis for developing suitability criteria because:

- It relies on uncertain and unsubstantiated information: "Records, descriptions, or as-builts of the Hecla Reclamation *are not available*; however, based on communications with the exploration manager for Perpetua Resources, waste rock was nominally covered with one to two feet of "soil" *of unknown origin and properties*. Following this, seed was sown that included alfalfa (*Medicago sativa*), and two-to three-year old tree seedlings were planted. It is not known if amendments, fertilizers, or other cultural practices were applied to the site." (RCP p. B-20)
- The conclusions of the HECLA Reclamation Area analysis concede that "In addition, *intervening variables that were not quantified nor analyzed during this study may strongly influence or constitute the underlying causes for the correlations presented below* and therefore the analysis should be understood as limited in these terms." (p. B 3-5)
- It has not been peer-reviewed.
- It doesn't provide data, or analyze potential public or ecological health issues associated with elevated arsenic concentrations.

Furthermore, the conclusions rest on the data from just three soil pits located in one of the oldest reclamation sites in the project area. Why weren't any of the other previously reclaimed sites such as the Spent Ore Disposal Area, the Garnet Pit, or any of the exploration phase test plots analyzed as well? Most of these sites are not doing very well as far as vegetation establishment (Soils and Reclamation Cover Materials Specialist Report, p. 77) Absent any rationale for site choice, this approach suggests a strong bias in site selection and sample number.

The RCP describes the soils, with concentrations from 1,000-3,000 ppm arsenic as "poor," with "severe limitations that make use questionable." however it indicates that these soils could still be used in reclamation efforts. (RCP p. 3-25)

Suitability criteria for reclamation cover material should be established, and identified in the SDEIS, including phytotoxicity concentrations that are based on well-established and conservative scientific analysis. These criteria should be focused on concentrations that facilitate reclamation objectives (e.g., prompt revegetation), not the upper bounds of what a plant might be able to tolerate. The suitability criteria must also take into account

concentrations that are safe for public and ecological health. As stated in the EPA comments on the DEIS,

> "we are concerned that these values may not be protective of risks to surface waters and ecological receptors. The risk-based screening level (RBSL) values for mercury are 240 mg/kg. While this value was developed for soil ingestion RBSLs, impacts to proximate waterbodies at concentrations in this general range could be a significant issue. A mercury concentration of 240 mg/kg in reclamation cover material would be similar to the average concentration of mercury in tailings at the Cinnabar Mercury Mine (259 ±101 mg/kg), which is a significant source of mercury to downstream waterbodies. In addition, surface emissions to the air at concentrations in this range could become a significant source to the atmosphere that would need to be included in the emission estimates. The proposed cover material concentration of 240 mg/kg is three to four orders of magnitude above typical background soil concentrations presented in the draft EIS, which identifies a mean mercury concentration in soil samples collected from undisturbed areas surrounding the mine site of 0.94 mg/kg."

According to the SDEIS (p. 4-523), "Soils used for reclamation would be screened based on their concentrations of arsenic, antimony, and mercury to exclude materials with metal concentrations outside the range of natural baseline conditions or *with metal leaching potential*." However, it doesn't specify the concentrations that will be applied, and there doesn't appear to be any metal leaching potential included in the SDEIS to support the criteria. The SDEIS should provide the metals leaching analysis, and demonstrate how this analysis is incorporated into the screening criteria.

According to the SDEIS (P. 4-522), Idaho Department of Health and Welfare (IDHW) reviewed available information from the proposed Reclamation and Closure Plan for the SGP to consider whether potential health risks from metals in soils exist for future site users. The IDHW letter points to the suitability criteria proposed in the RCP, and finds that this range of arsenic concentrations exceeds human health screening values for metals in soils (Table 1). (IDHW, p. 2) It also finds that "Information on distribution of expected concentrations in metals or metal bioavailability across the reclaimed site is not provided."

According to the SDEIS, "The IDHW included recommendations for additional characterization to adequately assess risks to public health and recommended that potential human exposure following closure and reclamation should be considered when identifying RCM to ensure protection of recreational receptors (IDHW 2019)." However, the SDEIS doesn't indicate whether or how these recommendations will be included in the suitability assessment, or how they would be applied.

The SDEIS fails to demonstrate that reclamation can be successfully achieved. The proposed suitability criteria are not supported by scientific literature, with arsenic concentrations that far surpass other phytotoxicity criteria established by the EPA, USGS and other governmental agencies. It proposes to use soils characterized under the suitability criteria as “poor” quality, without analyzing the effects on reclamation viability, and fails to consider the potential impacts to surface water or groundwater due to metals leaching.

7. Cumulative effects analysis of soils and reclamation is inadequate

The cumulative effects analysis missed the following potential cumulative effects on soils and reclamation. It is reasonable to expect further soil disturbance from exploration activities subsequent to those permitted under the current Golden Meadows Exploration Project. Perpetua has stated their intent to continue exploration activities throughout the life of the mine and perhaps beyond. Once large mining projects are initiated, there is usually further development of ore targets (e.g., new or expanded pits and underground mining) identified through ongoing exploration activities. This would lead to further soil disturbance. One example of this is the fact that there is a high-grade ore target located below the currently proposed depth of the Hanger Flats pit (M3, 2021). If the price of gold increases, there are likely to be proposals to increase the pit size in order to access this ore. This would certainly cause further TSRC and DD impacts.

Additional loss of soil will occur over the coming decades as the tops of the slopes above Blowout Creek (East Fork Meadow Creek) continue to erode backward. These slopes are currently at or beyond the angle of repose. Perpetua's planned treatment would not include laying them back to a stable angle, so the brows of the slope will continue to recede as erosion decreases the oversteepened slopes below.

Further impacts to soil resources are reasonably foreseeable as a result of landslides and debris torrents. These disturbances are often triggered by rain-on-snow events which are expected to become more common as climate change increases the frequency and intensity of atmospheric river events (Espinoza et. al., 2018)

The increased regulatory control on soil erosion cited as a mitigating factor (SDEIS 5.5.2) seems questionable given the possibility of reclamation failure due to the numerous post-closure revegetation challenges detailed above.

Climate change presents yet another challenge to successful reestablishment of vegetation, and is only addressed in passing in the Climate Change Specialist Report (U.S. Forest Service (Forest Service), 2022b). Soil moisture and carbon content are expected to decline (p. 19). More frequent rain-on-snow events would increase erosion. Changes in precipitation, evaporation, and streamflow will affect vegetation growth. There is no discussion concerning the choice of revegetation species that could be more resilient to

climate change. The SDEIS fails to take a hard look at the potential cumulative effects of climate change on revegetation success, soils and reclamation.

8. The SDEIS lacks any discussion about financial assurance

The SDEIS fails to include an analysis of the financial surety associated with reclamation and closure. The public is ultimately liable for this cost if the company cannot pay it, and it is liable for any difference between the amount established by the Forest Service for the financial assurance, and cost overruns of reclamation and closure that may occur. Cost estimates must be made conservatively in order to protect the public.

In the 2019 Prefeasibility Analysis, the cost estimate for the financial surety was $66.5 million. In the 2021 Feasibility Study that cost estimate increased to $100 million. This cost calculation is not included in the EIS analysis, only in the feasibility analyses, but it has potential significant financial impact on taxpayers and the public. There is no technical justification for delaying the analysis of these calculations, since the calculations have already been done. The public deserves to be able to comment on these calculations as a part of the EIS.

9. The SDEIS should provide a detailed plan for temporary closure

The SDEIS states that the Cyanidation Facility Permanent Closure Plan will provide details on how water will be managed during a temporary closure (RCP, p. 5-1), but that plan is not provided in the SDEIS. Without that plan, the SDEIS fails to provide adequate information to demonstrate that plans and mitigation measures are in place to prevent significant harm during a period of temporary closure.

H. Water rights and consumptive uses

Perpetua has four existing water rights for the project, and has applied to the Idaho Department of Water Resources for four new water rights and four water right transfers. The largest water right that Perpetua seeks would divert up to 9.6 cubic feet per second (CFS) of surface or groundwater from the East Fork South Fork Salmon River (EFSFSR). Additionally, Perepetua proposes to divert rain and snowmelt to use for ore processing. Under Idaho law, a water right is not required if the water is diverted prior to entering a "natural channel" or "watercourse." That is the case even where the rain or snowmelt would otherwise flow into the EFSFSR or contribute to groundwater recharge.

As disclosed in the SDEIS, there are at least two minimum instream water rights that exist downstream of the proposed project: an instream minimum flow water right held by the

state of Idaho to preserve fish and wildlife, scenic and recreational values, and to protect and enhance water quality; and and a federal-reserved Wild & Scenic water right on the main Salmon River. However, the impact to these surface water rights were not sufficiently analyzed in the SDEIS.

First, with respect to the state's instream minimum flow rights, the SDEIS discussed the potentially impacted minimum stream flows are subordinate to domestic, commercial, municipal, and industrial (DCMI) uses, and up to 8.2 cfs of new non-DCMI uses. SDEIS at 4-174. The SDEIS also discloses that the maximum diversion rate under existing and proposed surface water rights is approximately 20 percent of the base flow in the EFSFSR. *Id.* However, this section does not provide any flow data for either the state or federal minimum streamflow water right, nor does it provide usage periods and affiliated diversion rates for the EFSFSR. All this information is necessary for a realistic analysis of whether the minimum streamflow water rights are likely to be negatively impacted and, if so, what the impact to their values will be.

Second, the Forest Service has an obligation under the Wild & Scenic River Act to protect outstanding remarkable values (ORVs) of the Wild & Scenic stretch of the Salmon River. There is no analysis of the potential impact Perpetua's proposed water rights applications might have on the federal reserved water right, and thus impacts to the ORVs on this stretch of the Salmon River, specifically between the South Fork Salmon/Main Salmon confluence and Long Tom Bar. Perpetua's own water right application indicates that mitigation may be required to protect such values. But the SDEIS leaves the analysis to the Idaho Department of Water Resources to do despite the fact that the state law's subordination provisions subordinate the federal water right to industrial uses such as mining. *Id.* at 4-175.

Third, the National Forest Management Act requires that the Forest Service manage rivers found eligible for designation to protect the values that provide the basis for their suitability for inclusion in the system. The South Fork Salmon River was identified as a suitable river. The SDEIS failed to analyze the potential impacts of the water right applications on the management and ultimately suitability for inclusion in the Wild & Rivers Act system.

Fourth, there is no analysis of the impact to the minimum streamflow water rights due to the combination of the proposed water rights and the capture and diversion of contact water to ore processing that does not require a water right under state law, but that the SDEIS admits would otherwise flow into the EFSFSR. *See id.* at 4-150 ("Capture of contact water for consumptive use would reduce the volume of runoff and hence, stream flow . . ."). In fact, the SDEIS incorrectly assumes that the diversion, storage, and beneficial use of contact water requires a water rights permit from the Idaho Department of Water Resources (IDWR) prior

to use. *See* SDEIS at 2-66 ("Any contact water beneficially used in the ore processing or for dust control or stored for more than 24 hours then treated and discharged would require water rights permitting through the IDWR prior to use."). IDWR, however, has recently determined--specifically in the context of Perpetua's water right application--that it does not have jurisdiction to review or issue a water right for the diversion of the contact water (or what IDWR has termed "diffuse water") because Perpetua has claimed that the contact water will not enter a "watercourse" prior to its diversion. *See In the Matter of Application for Permit No. 77-14378 in the Name of Perpetua Resources Idaho, Inc.*, Interlocutory Order Deciding Questions of Law at pg. 12 (Aug. 19, 2022). IDWR's stated lack of jurisdiction to issue a water right permit for the diversion of contact water is regardless of whether or not the contact water would have, if not otherwise diverted, entered the EFSFSR or become part of groundwater resources.

It is unclear, based on this false assumption, how much the SDEIS analysis relies on the state water right permitting process to ensure that the use of water resources are accounted for in the impacts analysis. This issue needs to be clarified in the SDEIS.

Finally, the SDEIS water rights section fails to mention the potential impact the water diversions might have on federally protected treaty fishing rights to the Nez Perce Tribe, rights that may not be protected or even considered through the process of securing water rights under the state's water right permitting process.

Because of the missing information and incorrect assumptions, the SDEIS lacks a true analysis of the water rights, and thus does not and cannot propose mitigation to lessen potential impacts. Further analysis of the impacts to other water rights–including those held by the United States–and natural resources are the responsibility of the Forest Service and should be disclosed in this environmental analysis during the NEPA process.

I. Wetlands and riparian resources

According to the Wetlands Specialist Report (p. 76), losses under the 2021 MMP would be approximately 28 percent of the 428.8 acres of wetlands identified in the mine site focus area, 23 percent of the 2,655 acres of RCAs, 24 percent of the 208,302 linear feet of perennial streams, and 18 percent of the 110,224 linear feet of non-perennial streams.

Based on an estimate, the proposed mine will directly fill at least 76 acres of diverse wetlands and streams. Also, at least 300 acres of riparian habitat would be directly filled. This acreage figure does not account for full range and extent of indirect (secondary) impacts downstream of the mine facilities, e.g., riparian wetlands along the East Fork of the South

Fork of the Salmon River (EFSFSR), as well as several smaller streams that would be affected by the proposed SGP.

- There are significant information gaps for the SGP regarding alternatives, adverse impacts, and compensatory mitigation.
- The alternatives analysis under both NEPA and CWA Section 404 is inadequate. Besides the SGP, no other alternatives have been proposed and described.
- The likely direct, indirect (secondary), and cumulative adverse impacts must be more fully described and analyzed.
- It is premature to address compensatory mitigation in a meaningful and definitive manner. Until the least environmentally damaging practicable alternative (LEDPA) has been identified, all appropriate and practicable compensatory mitigation cannot be determined.

1. Function and Value Assessment

It is clear that a great deal of effort went into this report, and it contains much useful information for understanding the ecological functions provided by the wetland systems identified in the study area. The report helps view wetlands at the landscape ("30,000 feet") level, which is fine for getting "the big picture." However, reducing ecology to a collection of acreages and subjective rating numbers does not provide adequate context for understanding both landscape and ecological functions of the wetlands in question, and what types, extents, ranges, and degree of function would be lost and disturbed and how best those functions might be compensated (whether permittee responsible or mitigation bank).[170] The mitigation rule notwithstanding, some adverse impacts to extensive and complex wetland systems can be uncompensable, which may be the case here.

2. Clean Water Act Regulatory Evaluation

The proposed mine would fill and disturb wetlands and streams, all Waters of the United States, including many wetlands.[171] Currently, the Army Corps and U.S. EPA interpret Waters of the United States as consistent with the pre-2015 regulatory regime until further notice. Under Section 404 of the federal Clean Water Act (CWA), there are two types of authorizations — general permits, and standard or individual permits. In the case of this proposed mine, an individual permit would be the applicable type of authorization. An individual permit can be issued only if the proposed discharge complies with the

[170] More often for large projects with extensive impacts, a combination of both permittee responsible and mitigation bank is most appropriate and effective.
[171] *See* https://www.epa.gov/wotus/current-implementation-waters-united-states for current definition of Waters of the U.S., and https://www.epa.gov/report-environment/wetlands for the definition of wetlands.

environmental standards under Section 404(b)(1), also known as the 404(b)(1) Guidelines (the Guidelines),[172] which are binding regulations. The Guidelines set out four independent tests for permit issuance, described below.

a. Section 230.10(a): Except as provided under section 404(b)(2), no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. (This standard is referred to as the LEDPA, or least environmentally damaging practicable alternative.)
b. Section 230.10(b): No discharge of dredged or fill material shall be permitted if it [among other things], (1) Causes or contributes, after consideration of disposal site dilution and dispersion, to violations of any applicable State [or approved Tribal] water quality standard; …
c. Section 230.10(c): Except as provided under section 404(b)(2), no discharge of dredged or fill material shall be permitted which will cause or contribute to significant degradation of the waters of the United States. …
d. Section 230.10(d): Except as provided under section 404(b)(2), no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem.

If a proposed discharge is found to comply with the Guidelines, the Army Corps then must make a determination of whether the proposed project would be contrary to the public interest.[173]

3. Section 230.10(a): Alternatives

An alternatives analysis under NEPA is separate and distinct from what is required under the 404(b)(1) Guidelines. The standards are not identical: for example, NEPA is non-regulatory and requires disclosure and evaluation of a reasonable range of alternatives; Section 404 is regulatory and the Guidelines allow only the least environmentally damaging practicable alternative (LEDPA) to be authorized under the CWA. While this might lead to some differences in the NEPA and 404 analyses, the Corps and federal and state resource agencies typically work to integrate the information requirements under both processes to the extent appropriate and feasible.

[172] *See* 40 CFR Part 230, especially 230.10.
[173] https://www.govinfo.gov/content/pkg/CFR-2011-title33-vol 9 3/pdf/CFR-2011-title33-vol3-sec320-4.pdf

Key to evaluating alternatives under CWA Section 404 is determining the Basic Project Purpose and the Overall Project Purpose of the proposed mine. In this case, the Forest Service determined that the Basic Project Purpose is to extract gold, silver, and antimony from ore. The SDEIS states that the Overall Project Purpose is to mine, gold, silver, and antimony from ore deposits *associated with SGP's mining claims and rights in Valley County, Idaho*." (emphasis added). Though the first part of the Project Purpose is fine, the emphasized portion is where the Service erred. Fastening the analysis of alternatives to the SGP in a specific location automatically constrains that analysis to that location and renders the alternatives analysis meaningless.

An overall project purpose will normally describe the proposed activity in order to characterize the applicant's fundamental objectives. Practicable alternatives (see discussion below) are examined in light of overall project purposes. An overall project purpose defined too generally could theoretically require examination of countless potential alternatives; conversely an overall project purpose framed too specifically could automatically eliminate everything but the applicant's proposed alternative from consideration; this appears to be the case here. In most cases, the project purpose is framed so that it is neither so broad (e.g., "to operate a profitable business") as to involve consideration of an unwieldy number of alternatives nor so narrow as to constrain the analysis unreasonably, as was done by the Forest Service for this proposed mine project.

While determining the overall project purpose is necessarily somewhat case-specific, the intent is to capture the fundamental objectives of a project (i.e., mining for the ore bodies described). Doing so enables an evaluation of potentially practicable and less environmentally damaging alternatives during the permit review process while also bounding the analysis to avoid spending time on alternatives that simply could not meet the project's purpose. Potentially practicable and less environmentally damaging alternatives include existing or previously closed mining operations or alternative ore deposits that are or were available to the applicant when it entered the market. By improperly defining the overall project purpose too narrowly, the Service's analysis fails to assess the possibility that less environmentally damaging practicable alternatives may, in fact, exist.

Applicants, particularly those well along in project planning or who already invested time and resources in a particular proposal (as is the case here), may naturally desire an overall project purpose statement that contains a number of specifics aimed at increasing the likelihood that the alternatives analysis will lead to the project they already have in mind. However, the regulations require a credible alternatives analysis be performed, one that aims to identify the LEDPA rather than a proposed project "justification" analysis that steers toward a predetermined outcome.

Finally, the 404(b)(1) regulations place the burden of proof squarely on the applicant to prove that its proposal is the least damaging alternative if the applicant's project would discharge dredged or fill material in "special aquatic sites"[174] for purposes that are not water-dependent.[175] The level of documentation should reflect the significance and complexity of the discharge activity.[176] Therefore, the applicant is required under the regulations to "clearly demonstrate" that less environmentally damaging alternatives do not exist. In the absence of such a clear showing, the Corps is required to deny the application for a permit.[177]

Section 230.10(a) of the Guidelines requires that;

> (a) Except as provided under section 404(b)(2), no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.
>
> (1) For the purpose of this requirement, practicable alternatives include, but are not limited to:
>
> (i) Activities which do not involve a discharge of dredged or fill material into the waters of the United States or ocean waters;
>
> (ii) Discharges of dredged or fill material at other locations in waters of the United States or ocean waters;
>
> (2) An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. *If it is otherwise a practicable alternative, an area not presently owned by the applicant which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity may be considered.*

Neither the SDEIS, the Clean Water Act Section 404 (b) (1) Evaluation Framework for the Stibnite Gold Project (Appendix B to the DEIS),[178] nor any of the related documents discuss a thorough evaluation of alternatives, especially other locations for the mine project.

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[174] Wetlands are one type of special aquatic site. See 40 CFR §230.3(q-1)

[175] *See* 40 CFR§230.10(a).

[176] *See* 40 CFR §230.6(b)

[177] *See* 40 CFR§230.12(a)(3)(iv).

[178] This document is a framework for evaluation of compliance with the Guidelines. This document was developed by Midas Gold (now Perpetua Resources), and is a Midas Gold document, however this document incorporates comments and feedback from the USACE regarding the process and analysis necessary to support the USACE's future decision. It will be revised and updated following the publication of the Draft environmental impact statement (EIS) and after Midas Gold submits a complete DA permit application package. I hope that remains the intent.

Despite how Perpetua presents the proposed project in the SDEIS, it has proposed only one mine site location, with two potential access routes (Johnson Creek Route and Burntlog Route). Though the SDEIS describes a few variations regarding where to locate some facilities for the SGP, e.g., the TSF, most of the variations are simply approaches to minimize adverse impacts to aquatic resources[179] and not substantive alternatives for the mine project. The approaches to minimize impacts are welcome, but those approaches are required for any alternative under both NEPA and CWA Section 404. Perpetua has not identified any alternative sites for the proposed mine itself. Under NEPA, and especially under CWA Section 404, that does not constitute "a range of reasonable alternatives."

As described in the SDEIS, as part of the NEPA process, the USFS conducted an extensive alternatives development, screening, and evaluation process with the participation of the USACE. In the documents reviewed, there is little evidence that the USFS or the USACE "conducted an extensive alternatives development, screening, and evaluation process." Missing from the alternatives discussion in the SDEIS and its related documents is a discussion of:

- other sites for the mine and its attendant facilities that were evaluated (not access route variations);
- their location, owners, availability;
- the aquatic resources present at those other sites;
- the anticipated adverse impacts to those aquatic resources that would occur at those sites were a mine to be developed;
- conceptually how those adverse impacts could be compensated; and,
- for other sites that were evaluated and rejected, the reasons for rejection.

4. Section 230.10 (c): Adverse Impacts

Adverse impacts to wetlands and other waters are described in Section 4.1.1 of the SDEIS. Under both NEPA and CWA Section 230.10(c) of the Guidelines, all direct, indirect (secondary), and cumulative adverse impacts must be described and accounted for. For instance, Table 7-2, Wetland and Riparian Area Function/Value and Qualitative Corresponding Potential Impacts and Consequences, explains that for habitat for general wildlife species, there would be loss, alteration, or degradation (e.g., invasive species encroachment, loss of standing surface water, temperature, fragmentation) of wetland and riparian areas that could result in a loss of habitat suitability for wildlife. Though helpful to understand the broad types of impacts that would occur, the narrative descriptions are only moderately useful in understanding the extent and range of those impacts. Tables 7-3 to 7-5

[179] Minimizing adverse impacts to aquatic resources is a required consideration in the evaluation of practicable alternatives. Variations of a single alternative do not constitute different alternatives.

provide acreage and linear feet impacts to wetlands and streams, respectively, however, the acreage amounts appear too precise for how those amounts were derived. Nevertheless, the acreage and length numbers in the three tables still give one a "ballpark" idea of the scope and range of impacts.

According to these tables, direct loss of wetlands and riparian resources in the mine site focus area would be approximately 120 acres and more than 70,000 linear feet of perennial and nonperennial streams. For the off-site focus area, wetland and riparian loss would exceed 75 acres, while more than 38,000 linear feet of perennial and non-perennial streams would be disturbed and degraded.[180]

Indirect (NEPA) and secondary (Guidelines)[181] adverse impacts can be challenging to account for and quantify (as mentioned in Section 7.2.1.1 of the Stibnite Gold Project, Wetlands and Riparian Resources Specialist Report ("the Report"). Because of these challenges, indirect impacts are often underestimated. For instance, indirect effects of roads (big and small) are discussed in Road Ecology. Several types of indirect effects (e.g., noise and lights, rainfall/snow meltwater runoff, air pollution deposition, habitat fragmentation) of roads can be felt as much as several hundred feet from the edge of some roads.[182] This extent depends, among other things, upon,

- the volume of traffic;
- time of day when road is commonly used;
- types of vehicles using the road; and,
- terrain and adjacent habitat.

Constructing a road in an expansive and mostly roadless area can be likened to the impact of a small stone on the windshield of an automobile. The first road is like the small dimple or dent caused by the small stone. A small crack first appears, growing out from the dent. Over time, the one small crack begins to extend and branch out. With more time, the branch cracks extend and branch out too. Weeks or months later, much of the windshield has suffered this fate to the point where, when viewed from several feet back, the original dent and the myriad branching cracks resemble a large spider web. The entire windshield has become compromised and at risk of shattering. The roadless expanse would likely undergo a similar progression of insults to a point where its ecological integrity and value are considerably degraded.

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[180] Section 7.2.3.1 of the Wetland and Riparian Area Function/Value and Qualitative Corresponding Potential Impacts and Consequences report acknowledges that most indirect effects have not been quantified and it is acknowledged that indirect effects due to changes in hydrology and water quality may lead to wetland and riparian losses well beyond estimates in Tables 7-4 and 7-5 (italics added).

[181] For this discussion, the NEPA and Guidelines terms are comparable and interchangeable.

[182] Road Ecology, 2003.

Groundwater drawdown is another indirect adverse impact that must be accounted for and described. According to the SDEIS, approximately an additional 47 acres of wetlands could be altered and degraded from the maximum drawdown area under the 2021 MMP. (SDEIS 7.2.3.4 and Table 7-7). Again, this figure may be underestimating the extent of the impact. Most indirect effects have not been quantified.

According to the Wetlands Specialist Report (p. 71), "The full extent of indirect effects due to dust and/or mercury deposition, hydrology changes, and water quality changes ***have not been quantified***. (Tetra Tech 2021a)." (emphasis added). The Wetlands Specialist Report (p. 74) also states that "In the off-site focus area, roads are the primary feature that may result in hydrologic alterations, directly and/or indirectly. These alterations could affect the ability of portions of impacted wetlands outside the disturbance footprint to persist into the future due to changes (either reductions or increases) in seasonal water input frequency and duration for on-site and off-site, downstream wetlands. Potential impacts to wetlands from alterations ***such as roads are not quantified***; however, examples of potential impacts and consequences are summarized in **Table 7-2**." (emphasis added).

The SDEIS acknowledges that indirect effects due to changes in hydrology and water quality may lead to wetland and riparian losses beyond estimates in Tables 7-4 and 7-5 if these indirect impacts do occur.

Another key concern in assessing indirect impacts upon wildlife is habitat fragmentation from the roads and the mine features, which can be especially harmful for wetland dependent wildlife. Habitat fragmentation can create movement barriers[183] for less mobile wildlife, e.g., amphibians, some reptiles, and many mammals. It also can isolate populations of less mobile wildlife and harm long-term survivability.

Section 5.0 of the SDEIS and Section 7.0 of the Wetland and Riparian Resources Specialist Report, address cumulative adverse impacts in very general fashion. There is little actual detail regarding anticipated cumulative adverse impacts. Table 7-2 of the Specialist Report provides a brief summary of cumulative impacts, however, there is no real discussion of those anticipated impacts other than general types (e.g., "loss, alteration, or degradation"). Overall, most of the sections dealing with adverse impacts to wetlands are focused upon acreage numbers. As with other sections dealing with impacts, here is a lack of narrative discussion that describes indirect and cumulative impacts in a meaningful way.

[183] Wildlife species that depend upon wetland habitat for one or more life stages or life needs, e.g., feeding, nesting, mating, resting, cover.

The Wetlands Specialist Report (p. 72) states that "For the SGP, the potential for indirect impacts to wetlands and riparian functions from dust deposition, soil erosion and hydrology alternation are likely to be higher in the immediate areas of roads and other surface-disturbance actions, but would diminish with distance from these actions. However, implementation of regulatory and Forest Plan Requirements plus project engineering design features would avoid and/or minimize these potential indirect impacts." Yet, the report provides no data or analysis to support this assertion. Similarly, the Report states that "Although the impact of dust deposition has not been quantified, effect magnitude would most likely be minor (small but measurable change) and long-term, limited to the life of the SGP." Yet, once again, there is no data or analysis to demonstrate that the effects of dust deposition on wetlands would be minor.

The SDEIS must take a hard look at the potential direct, indirect and cumulative effects to wetlands.

5. Section 230.10(d): Compensatory Mitigation

Section 7.0 of the Wetland and Riparian Resources Specialist Report briefly addresses compensatory mitigation. Again, this discussion is reduced primarily to acreage numbers. Admittedly, until a thorough and complete alternatives analysis is performed and documented, no determination can be made regarding unavoidable adverse impacts that then could be used to properly address potential compensatory mitigation.

Purchasing credits in a mitigation bank is allowed under current federal regulation. However, purchasing bank credits does not adequately compensate for the full range, scope, and severity of adverse impacts to wetlands, rivers and streams described above, particularly when no determination has been made on unavoidable impacts to wetlands and streams. The bank described in the SDEIS is roughly 25 to 30 miles downstream from the mine site. How this approach would adequately compensate for the extent and diversity of adverse impacts at the project area is difficult to comprehend. For example, the adverse impacts to water quality in particular to the wetlands and waters cannot be adequately compensated by this approach. Impacts of this type must be avoided or reduced to the greatest extent practicable to be able to comply with Section 230.10(b) of the Guidelines. Also, purchasing wetland bank credits does not in any manner compensate for adverse impacts to creeks, streams and rivers. Though the bank is located within the same watershed, purchasing credits also will not likely address cumulative adverse impacts. Perpetua must come up with other potential ways to provide suitable compensation.

J. Transportation and hazardous spill risk

The following is the Executive Summary from Susan Lubetkin's 2022 analysis of spill risks related to the Stibnite Gold Project SDEIS (included in the attachments):

> If approved, the Stibnite Gold Project (SGP) will require large quantities of hazardous materials to be transported to and from and used at the mine site during the 15 years of mining operations (Table ES-1) and, to a more limited extent, for as long as water treatment is necessary. In total, more than 3,000 loads of hazardous materials would be transported to or from the mine every year during operations (Table ES-1). The loads would include more than 8,300,000 gallons of flammable materials (diesel, propane, gasoline) as part of more than 9,400,000 gallons of hazardous bulk liquids to be brought to the mine site annually. In addition, more than 46,000 tons of hazardous bulk solids would be transported to or from the mine site (Table ES-1). This includes the annual use of 4,000 tons of sodium cyanide, which would be delivered in 167 trips carrying 24 tons each, or roughly one trip every other day.
>
> The Supplemental Draft Environmental Impact Statement (SDEIS) acknowledged the spills can be harmful and that a Spill Prevention Control and Countermeasures Plan (SPCC) would be developed for the proposed SGP (USFS 2022).The discussion of spill risk was largely limited to the transportation corridor, specifically from the junction of SH-55 with Warm Lake Road to the proposed mine site 70 miles away along two different Action Alternative routes, the Burntlog Route and the Johnson Creek Route. The metrics the SDEIS used for assessing spill risk along the transportation corridor were the quantities of hazardous materials to be transported, used, and stored, and the amount of traffic, as well as descriptions of storage practices and a comparison of the characteristics of the two proposed routes (USFS 2022, p. 4-119). Overall, the assessment of spill risks in the SDEIS suffered from several flaws and presented an incomplete picture of the potential impacts from spills.
>
> First, Perpetua held up their current track record on the mine access roads as an indication that spills will not be an issue in the future. The SDEIS reported that in 288 trips with fuel tankers carrying 4,000 to 4,500 gallons in the last 11 years, there have been no spills (USFS 2022, p. 3-99). Those 288 trips over more than a decade are roughly the same number of trips that would be needed to transport hazardous materials into and out of the mine site every month during 15 years of operations (3,337 trips per year/12 months per year = 278 trips per month).
>
> Second, no quantitative estimates of the numbers of spills that might occur during the lifetime of the SGP were included in the SDEIS, from transportation or from any other causes. Transporting hazardous materials in trucks is a common occurrence in the United States, and there are several governmental agencies that track what is shipped, how far hazardous materials move, and the safety associated with those shipments. In addition, quantitative risk assessment for the transportation of

hazardous materials is an active area of study in the operations research branch of applied mathematics. EISs for other mines and resource extraction projects have included calculations for the expected numbers of hazardous materials spills and the probability of at least one spill. The simple model most often used in other EISs is $N = RT$, where

N = the expected number of releases of hazardous materials,

R = the release rate per mile traveled by a truck carrying hazardous materials,

T = the total number of miles traveled by trucks carrying hazardous materials.

This model has precedent of being used in other mining EISs and is intuitive: The more miles traveled by trucks carrying hazardous materials, the higher the expected number of spills.

Third, the estimated spill rate per truck mile in the SGP SDEIS was 100 times lower than it should have been. The SGP SDEIS calculated (but did not use) their own estimate of R (USFS 2022). The SGP misused Federal Motor Carrier Safety Administration (FMCSA) data to estimate hazardous material spill rates of 1.4×10^{-9} spills per truck-mile in 2013 and 1.9×10^{-9} spills per truck-mile in 2016. Due to a fundamental math error, these estimates are two orders of magnitude too low. By recreating the math performed in the SGP SDEIS and correcting it, an average spill rate of $R_{spill} = 1.814 \times 10^{-7}$ spills per truck-mile for the period of 2009-2019 based on data from the FMCSA is found. Using the same principles and data, one can also calculate the rate of accidents for trucks carrying hazardous materials as $R_{accident} = 1.34 \times 10^{-6}$ accidents per truck-mile. In doing so, the value of R_{spill} calculated is closer to rates cited in other EISs, including for Pogo Mine, which used an estimate of 1.9×10^{-7} spills per truck-mile, and Pebble Mine, which used an estimate of 2.0×10^{-7} spills per truck-mile for diesel spills >3,000 gallons and 7.8×10^{-7} spills per truck-mile for ore concentrate. This adjusted R_{spill} estimate is lower than the rate from the Pipeline and Hazardous Materials Safety Administration, which estimated that there were an average 3.2×10^{-7} spills of hazardous material per truck-mile (Battelle 2001). (Due to underreporting, it is likely that all these estimated rates are too low, perhaps by as much as a factor of ten (PHMSA 2010).)

Fourth, Cascade, Idaho, is not a hub of industrial chemical manufacturing and storage. Therefore, the mine supplies would have to come from other locations. Examining potential distributor locations nearest to Cascade for 22 supplies that would be used at SGP (Lubetkin 2022 Table ES-2). Only six supplies (propane, gasoline, nitric acid, sulfuric acid, hydrogen peroxide, and liquid carbon dioxide) were available in the quantities needed for industrial uses within 100 miles of

Cascade. Diesel fuel was available inside a 250-mile radius. For the remaining reagents, distributors were only available from cities that were up 500 or 1,000 miles away. Supplies would travel on SH-55 both north and south of Cascade and could potentially impact any of the communities and environments they pass through.

Instead of only considering the transportation corridor from SH-55 at Cascade to the mine site, the true measure of the communities and environment at risk will extend to the distribution points of the reagents brought to the mine and the destinations of the ore concentrate and wastes taken from it (Lubetkin 2022 Table ES-2). The overall exposure will depend on the distances the reagents, products, and wastes need to travel and the number of trips that are necessary for the respective quantities of the hazardous materials. The estimated total miles per year using an average value for the road miles for the two action alternatives from Cascade to the mine site and an educated approximation of the minimum distances for sourcing the reagents. For simplicity, one can use the distance to Boise, Idaho, for all the supplies. This set of origin and destination cities is only an example and likely underestimates the total truck-mile exposure per year because both the number of trips and the number of miles to travel used may be lower than the actual values.

Using the total number of heavy vehicles trips with hazardous materials, the expected number of spills and crashes along the SH-55 to mine site portion of the transportation corridor (3,503,850 miles over 15 years) and the full distribution points to mine site distance (at least 14,678,325 miles over 15 years) based on the $N = RT$ model and the probabilities of spills and crashes using a Poisson distribution (Table ES-3). Based on that model, there is a 47% chance of at least one spill from a heavy vehicle loaded with hazardous materials between SH-55 at Cascade and the SGP mine site, and a 93% chance of at least one such incident over the full transportation corridor length. Similarly, there are 4-5 accidents involving heavy vehicles laden with hazardous materials expected along the transportation corridor length considered in the SGP SDEIS and 19-20 accidents along the full transportation corridor. The calculations shown here serve as examples of the general process for estimating spill and crash numbers and likely underestimate the risks. Still, these numbers indicate that the impacts that spills and accidents may have on the environment and human safety along the transportation corridor should be seriously and thoroughly considered.

Table ES-3. Expected numbers and probabilities of at least one hazardous materials-laden trucking accident spill or crash expected in 15 years of mine operations from SH55 at Cascade to the SGP and for the estimated full transportation corridor. based on the N = RT model with R_{spill} = 1.814 x 10^{-7} spills per truck-mile and $R_{accident}$ = 1.34 x 10^{-6} accidents per truck mile based on FMCSA data from 2009-2019.

	SH55 to SGP (70 miles)	Full corridor
T = miles per trip x number of trips per year x years of operation	3,503,850	14,678,325
Expected number of hazardous materials spills from heavy vehicles	0.64	2.7
Probability of at least one hazardous material spill from a heavy vehicle (Poisson model)	47.0%	93.0%
Expected number of crashes involving a heavy vehicle loaded with hazardous materials	4.7	19.7
Probability of at least one crash involving a heavy vehicle loaded with hazardous materials (Poisson model)	99.1%	100%

According to Mary Faurot (personal communication), when asked at a December 6, 2022, community meeting why the SDEIS only considered the distance between SH-55 and the mine site, “Kevin Knesek (deputy Forest Supervisor) said that the research showed most spills happen on back country roads, so that's where they did their 'analysis’.” Terminating the consideration of spill risks at the junction of Warm Lake Road and SH-55 underestimates the risks of transportation spills in two ways: first, as shown above, it dramatically underestimates the length of the transportation corridor and thus the total number of miles over which hazardous materials would be trucked. Second, the R spill used in the calculations is based on national data, which do not capture the specific hazards associated with different portions of the full transportation corridor. Estimates of spill risk per truck-mile based on data collected nationwide are generalized and miss factors that may be relevant to individual hazardous material transportation scenarios. Some risks are dependent on the route chosen (road grade, number of lanes, weather, etc.) and some are route independent (driver experience level, material type, truck configuration, etc.). SGP would have some significant risks (road grade and quality, avalanche/landslide/rockfall, fires, etc.) that would be expected to increase the spill rate if a detailed model were used. While road improvement and speed limits might help abate some of the risks inherent in the analysis area, it is clear that developing a project-specific spill risk per truck-mile for one or more segments of the transportation corridor would likely result in an estimated rate that is higher than national average spill rate per truck-mile.

Both the road-specific spill rates and the lengths of the road associated with each rate are important. Consider an analogy: If a pulmonologist knew that a person smoked

both a relatively small number of unfiltered cigarettes (spill risk on back country roads) and a much higher number of filtered cigarettes (spill risk on highways), the doctor would not base their estimation of whether the person is likely to develop lung (or other) cancer only on the number of unfiltered cigarettes, much less by assessing the unfiltered cigarettes as having the same hazard level as filtered cigarettes and ignoring the additional risk posed by the filtered cigarettes. In the case of the SGP SDEIS, the R_{spill} from SH-55 to the mine site is likely much too low, and the value for T also underrepresented the true transportation corridor. The risk of hazardous material spills from truck traffic related to the proposed SGP is therefore dramatically underestimated.

The SGP SDEIS described some mitigating procedures to minimize spill risk associated with the transportation of hazardous materials, such as speed limits and having pilot vehicles accompany convoys of heavy trucks (USFS 2022), but questions remain. For example, what would the spacing of vehicles in convoys be? Would there be an upper limit to the number of vehicles in a convoy? If weather or other natural events make a given route impassable, where and how will vehicles with hazardous materials either wait out the event or temporarily store their cargo?

The SGP SDEIS's rudimentary attempt at describing the risk of hazardous materials spills was constrained to a limited analysis area and a single source (trucks) of potential spills. This narrow consideration of the possible impacts of the transportation corridor and hazardous materials misses other effects related both to the proposed routes and the possibility of spills from other sources. Transportation impacts extend beyond the risk of spills. The physical structure, use, and maintenance of roads may have effects on fish habitats within a 200 meter impact zone from the centerline of rural roadways (Kravitz and Blair 2019). Other environmental effects to consider are greenhouse gas emissions and dust generation, which will be dependent on the amount of traffic and application of chemicals to the roadway. Therefore, the conclusions in the SDEIS that construction of and/or use of the roadways will have limited if any impacts on fish and the aquatic environment are not justified. Safety is also a concern with accidents, injuries, and fatalities all possible along the SGP transportation corridor.

Similarly, conclusions that spills will be rare or small are also unjustified. Mine-related spills of hazardous materials can come from many processes besides transportation. The SDEIS did not examine the probability or potential sizes of spills of either tailings or contact water from pipelines or from mining equipment leaks or mechanical failures. Spills from SPCC facilities may be twice as likely as spills from vehicles (Etkin 2006), but the SGP SDEIS did not discuss the possibility of spills from storage facilities.Even if the modeling had been better done, it is likely that the

number of spills that would occur would be much higher than the predictions. As shown in a retrospective analysis comparing the spill risks considered in five Alaska mining EISs and their spill records after years of operations (ADEC 2021), the actual number of spills from trucking accidents is much larger than the $N = RT$ model would predict (Lubetkin 2022). (The five mines studied had shorter transportation corridors than described in the SGP SDEIS). The proposed SGP amounts of ore processed per day, annual trips hauling hazardous materials, years of operations,and total miles traveled with hazardous materials all fell within the bounds of the five mines' characteristics. For example, the SGP would be second only to Fort Knox/True North in its daily ore processing (20,000 to 25,000 tons per day at SGP compared to 36,000 tons per day at Fort Knox/True North). Further, the combined 114 spills resulting from truck accidents (rollovers and collisions) are only a small subset of the number of spills attributed to all transportation-related releases, such as leaks, unsecured cargo, overfilling, and human error (1,004 spills). Finally, transportation-related spills are in turn only a small subset of the total number of spills that occur associated with mine operations (8,157 spills recorded across the five mines from 1995-2020)(Table ES-4).

Spills are not only common but can also be quite large. Four of the five large mines studied had at least eight releases of more than 1,000 gallons or more than 1,000 pounds of hazardous materials (Lubetkin 2022 Table ES-5). Seventy-five percent of the spill incidents at all five large mines involved non-crude oil, but non-crude oil spills only accounted for 5.2% of the volume spilled (Lubetkin 2022). Most of the spill volume was from releases of hazardous substances (e.g. ore concentrate) and process water, which together represented 94.7% of the volume released, even if they were only 24% of the number of incidents (Lubetkin 2022).

Table ES-4. A comparison of mine characteristics for five large hardrock mines in Alaska with the characteristics of the proposed SGP and the spills records associated with the operational mines from 1995-2020 based on data from ADEC.

Pogo	Kensington	Greens Creek	Fort Knox/ True North	Red Dog	SGP (proposed)
Mine type					
Underground	Underground	Underground	Open pit	Open pit	Open pit
Product					
gold dore/bars	gold ore concentrate	silver and gold; lead and zinc ore concentrate	gold dore/bars	lead and zinc ore concentrate	dore/bars and ore concentrate
Total trips per year					
730	2,472	17,825	1,700	9,298	3,337
Transportation corridor length considered in the EIS					
50 miles	5 miles	8 miles	26 miles	52 miles	70 miles
Years of operations					
11	10	28	16	32	15
Total miles traveled with hazardous materials					
401,500	123,600	4,077,710	707,200	15,471,872	3,503,325 (mine site to Cascade only); 14,678,325 (full transportation corridor)
Tons of ore processed per day					
2,500 to 3,000	2,000	800 to 2,300	36,000	3,000 to 10,000	20,000 to 25,000

Table ES-4. (Cont'd.)

Pogo	Kensington	Greens Creek	Fort Knox/ True North	Red Dog	SGP (proposed)
Number of expected spills under the *N* = *RT* model					
0.10	0.035	0.76	0.21	3.2	0.64 (mine site to Cascade only); 2.7 (full transportation corridor)
Probability of at least one spill under the *N* = *RT* model (Poisson distribution, as %)					
9.7%	3.4%	53.2%	18.9%	95.8%	47.0% (mine site to Cascade only); 93.0% (full transportation corridor)
Hazardous materials spills from truck rollovers or collisions					
11	4	10	31	58	
All transportation spills					
65	34	123	301	481	
Volume spilled from all transportation spills (gallons)					
1,603	495	2,396	11,631	17,279	
Weight spilled from all transportation spills (lbs)					
0.5	2	0	10	1,771,064	
All spills					
1,503	308	1,515	1,949	2,882	
Total volume spilled (gallons)					
267,710	6,272	111,333	527,533	1,450,397	
Total weight spilled (lbs)					
29.5	4	13,899	5,024	1,919,563	

Table ES-5. Summary of the number and maximum size of large releases from the five mines considered in Lubetkin (2022).

Mine	Number of Spills ≥ 1,000 gallons or pounds	Largest release
Greens Creek	8	72,000 gallons process water
Pogo	17	135,000 gallons mine paste backfill
Kensington	0	800 gallons process water
Fort Knox/True North	28	305,370 gallons process water
Red Dog	128	250,000 pounds ore concentrate

Overall, the analysis of the potential impacts from hazardous materials in the SGP SDEIS is inadequate to make an informed decision because it is incomplete and does not offer a way to compare the Action Alternatives against the No Action Alternative. EISs for other mines include expected spill numbers and probabilities, the SGP

SDEIS did not. EISs for other mines include spill risk rates that are on the order of 2.0×10^{-7} spills per truck-mile, but the SGP SDEIS estimated a spill rate ranging from $1.4\text{-}1.9 \times 10^{-9}$ spills per truck-mile, which is two orders of magnitude lower than rates published in multiple sources. The transportation corridor analysis area did not consider any risks beyond Cascade, Idaho. Using a spill risk rate of 1.814×10^{-7} spills per truck-mile based on FMCSA data from 2009-2019, found the probabilities of spills and accidents for the Action Alternatives for the analysis area considered in the SGP SDEIS and the full length of the transportation corridor. The spill rate used is likely too small as it is an average based on national spill data that may suffer from substantial underreporting and the road characteristics near the proposed SGP would increase spill risks. Without an accurate characterization of the true exposure along the transportation corridor and the spill rate per truck-mile, it is impossible to then make informed statements about spill likelihood and the potential consequences to the environment and to public safety from truck accidents alone, much less any of the other potential sources and causes of spills. Data from five other large operational mines illustrate that hazardous materials spills are frequent, can be sizable, and that transportation spills are only a small fraction of mine-related spills.

In short, realistic approach to discussing spill risk would

- Include all the hazardous materials being transported (not just diesel or other individual hazardous materials)
- Represent the entire length of the transportation corridor
- Use the correct values for R_{spill}, possibly by including specific values for different stretches of road with different characteristics
- Recognize the $N = RT$ model is too simplistic and investigate the many models that are part of the operations research literature about optimizing the transportation of hazardous materials which would better the highlight the trade-offs in choosing between the Burntlog Route or Johnson Creek Route or the No Action Alternative
- Recognize that transportation spills do not just come from truck rollovers and collisions
- Recognize that transportation spills are only a small fraction of the total number of spills at mines; pipelines, storage facilities, and mining equipment can also fail, leak, or otherwise have accidental releases of hazardous materials
- Acknowledge that even if spills at mine sites and elsewhere are contained and cleaned up,that process can also create hazardous waste or other impacts that will then have to be dealt with. State quantitatively the minimum number and probabilities of expected spills from all mine-related sources, including any “over the fence” infrastructure, as well as explanation of why such an estimate

> is a lower boundary, for the Action Alternatives and the No Action Alternative.

> Finally, if the SGP does go forward, in the interest of keeping the communities informed, the USFS should consider requiring that all spills above a certain threshold be recorded in an up-to-date and publicly available database. The Alaska Department of Environmental Conservation Statewide oil and hazardous substance spills database[184] would serve as a good model.

As noted by Lubetkin's Executive Summary above, the Forest Service needs to do more to avoid, minimize and mitigate the risks of hazardous materials spills and to disclose these risks to the public. The environmental effects of a fuel spill on fisheries could be devastating:

> On September 6, 1989, fuel oil was spilled into Johnson Creek, a SFSR tributary downstream of the project area. Monitoring results indicate a significant reduction in macroinvertebrate populations for 5 miles downstream of the spill site (Newberry 1991). This illustrates that it is reasonable to assume there is a risk of toxic spills that may impact aquatic resources.[185]

It is our interpretation that the controlling document for fuel haul along the South Fork Salmon River is still the July 1990 South Fork Salmon River Road EIS (File Reference: EM.11.0006) which placed strict limits on fuel transportation down this road:

> Hauling of toxic materials, as defined in the Payette National Forest Plan, page IV-238, will be stringently restricted.[186]

and

> Protection of the South Fork from toxic spills will be accomplished by prohibiting hauling of toxic materials, by both commercial and noncommercial users on the South Fork Salmon River Road. Exception can be made for supply of the Reed Ranch and Krassel Guard Station, or emergency situations, with proper safeguards. Criteria for permitting exceptions are presented in Appendix E to the Final EIS.[187]

While fuel haul has not been totally banned, the restrictions are severe:

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[184] https://dec.alaska.gov/applications/spar/publicmvc/perp/spillsearch
[185] 1993 Biological Opinion on the South Fork Salmon River Road Project
[186] South Fork Salmon River Road EIS, p. 5
[187] Ibid. p. 18.

> No hazardous materials (refer to page IV-238 definition in the Payette National Forest Land and Resource Management Plan) except lime and petroleum products will be transported over the South Fork Road. The basic intent is to eliminate all fuel and other hazardous material haul on the South Fork road unless absolutely necessary.[188]

The Forest Service went on to define the requirements for fuel transportation, which include the following:

1. Provide for use on a case-by-case permitted basis (District Ranger authority).
2. Considerations in permit issuance are:
    a. For emergency use or to serve South Fork uses only
    b. Other routes available
    c. Weather
    d. Use levels by recreational traffic
3. Maximum fuel at one time is 500 gallons. Fuel must be carried in a DOT approved flammable fuel container.
4. A bond with a value commensurate to the risk involved will be required

-Salmon River Road EIS, p. E-2.

As such, the 1993 Biological Opinion for the South Fork Salmon River Road contains no provisions allowing for a fuel spill:

> "…For both short-term construction activities and long-term increase in vehicular traffic, the allowable incidental take due to toxic spills is set at zero."[189]

This Biological Opinion is still in effect as Payette Forest Plan Standard TEST02 states:

> For Forest-wide, watershed, or project-level Biological Opinions (BOs) and Biological Assessments (BAs) with letters of concurrence, requirements shall continue to apply until their expiration date unless these documents are specifically updated during further review with related regulatory agencies.

Following the South Fork Salmon River Road ROD, fuel transportation for mineral exploration and development activities in the general area was specifically restricted along the South Fork Salmon River Road. The Forest Plan was subsequently amended on August 2, 1995 and further fuel-related restrictions were implemented:

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[188] South Fork Salmon River Road EIS, Appendix E, p. E-1

[189] Biological Opinion for Reconstructing, Paving, and Snowplowing the South Fork Salmon River Road National Marine Fisheries (April 8, 1993), p. 20.

> The Payette National Forest Land and Resource Management Plan limits all hazardous material, except lime and petroleum products, from commercial transport over the SFSR road. **The intent is to limit the transport of all hazardous substances over the SFSR road except those that are absolutely necessary** (Payette National Forest 1990). Emphasis added.

Highlighting the sensitivity regarding fuel haul, the Forest Plan was subsequently amended on August 2, 1995 and further fuel-related restrictions were implemented:

> 1. Amend Appendix E of the FEIS for South. Fork Salmon River Road Project to include no non-commercial haul of petroleum products in excess of 60 gallons without a permit.
> 2. Implement a new road closure order that prohibits "Using the road with a vehicle that has a cargo containing more that 60 gallons of petroleum products without a road use permit".

Although the subsequent 2003 Forest Plan is silent on this issue, the project-level Biological Opinion for the South Fork Salmon River Road is still in effect and does not allow for any incidental takes for toxic spills into that waterway.

The South Fork Salmon River Road EIS also states the following: "Activities reasonably expected to occur within the next 10-15 years were identified and included in the cumulative effects analysis. **Unforeseen activities will be analyzed for Forest Plan compliance and cumulative effects when proposed."** (emphasis added). All other recent projects have been consistent with the 1990 South Fork Salmon River Road EIS, including the Hamilton Bar/Three Mile Road closure, the reconstruction of the Goat Creek culvert, the South Fork Restoration and Access Management Plan, and the Golden Meadows Exploration Project. The Decision Notice for the Golden Meadows Exploration Project at the Stibnite site specifically restricted commercial fuel haul to the Johnson Creek Road:

> Fuel haul associated with this project will <u>not</u> be allowed on the South Fork Salmon River road. Fuel haul, as described in the EA section 2.1.9 and Attachment A of this decision will occur only on Johnson Creek road.[190] Emphasis <u>not</u> added.
>
> Johnson Creek Road (FS 413) is the only authorized route for transporting fuel in large trucks during snow-free conditions for implementation of this project.[191]

[190] Golden Meadows Exploration Project Decision Notice, p. 3.
[191] Ibid. Attachment A, p. 18

The Stibnite Gold Project also represents an activity that is not covered by the South Fork Salmon River Road EIS or Biological Opinion and needs to be analyzed for Forest Plan compliance and cumulative effects. The Burntlog Route will likely be impassable for periods of time in winter. Such closures are reasonably foreseeable and should not constitute an emergency and allow for a time-critical, emergency, or weather-related excuses to haul hazardous chemicals down the South Fork Salmon River Road. Instead, the Forest Service should ensure that the Johnson Creek Route is available as an alternative. In addition, the SGP should be designed from the beginning to factor in extensive and multiple delays in transporting materials as a normal part of its winter operations. The Forest Service needs to verify that transportation of hazardous materials, including diesel fuel, will not be allowed at any time on the South Fork Salmon River Road.

K. Toxics Management

The SDEIS contains significant errors, omissions, and shortcomings with respect to analyzing toxics management. We highlight the major issues here, but for a full technical description of these issues, we direct the Forest Service to the SDEIS comments of von Lindern/TIFO, 2023.

1. Overall arsenic burden

An estimated 616,000 - 1,856,000 tons (average - 95th percentile) of arsenic will be mined in the SDEIS preferred alternative. Approximately 36% of site-wide arsenic (102,560 - 827,600 tons) is in Development Rock (DR) and historic overburden, and 64% (309,580 - 1,028,400 tons) in ore. Practically all of this arsenic will be disposed of on-site or released to the immediate environment. Three principal concerns associated with this disposal are arsenic in air from mining dust, impacts to groundwater and meteoric waters in locations where DR is disposed, and in ores disposed in the Tailings Storage Facility (TSF) after gold extraction. Over time, all three sources will inevitably release arsenic to the local environment (Table SD3 in SDEIS).

2. Airborne arsenic carcinogenic risks are underestimated[192]

Table SD10 in the SDEIS summarizes the appropriate correction factors for Haul Road emissions and includes combination factors for As concentration, silt content, and % Particulate Control adjustments. Applying any combination of adjustments >1.5 would result in excess cancer risk. Correcting for silt content, percent control, and pit-specific concentrations for all pits likely increases to concentrations >10^{-5} cancer risk levels.

[192] von Lindern/TIFO, 2023, pgs. 9-10

3. On-site carcinogenic exposures[193]

All of the arsenic-focused air quality analyses in the SDEIS and IDEQ permit to construct are limited to off-site ambient air. On-site workers and visitors will be exposed to concentrations, potentially, orders of magnitude greater than these criteria. Neither Perpetua, nor the Forest Service, nor IDEQ have publicly disclosed estimated on-site airborne arsenic concentrations. In the interest of worker, site resident and visitor health, the Forest Service should estimate on-site airborne arsenic levels and assess the risk of on-site exposures.

4. Arsenic in development rock[194]

Under the SDEIS preferred alternative, the TSF embankment and buttress will contain an estimated 115,317-425,957 tons of arsenic, 117-378 tons of mercury, and 13,145-17,566 tons of antimony (average - 95th percentile). Approximately 50% of DR arsenic will be disposed of in surface repositories and 50% in pits. Pit-disposed COCs will be exposed to groundwater wet/dry and redox cycles, and will release COCs to groundwater. Although additional protections will be afforded from meteoric waters, YPP disposal of COCs increases by 25% with similar increases in discharge to groundwater expected. Potential ***releases of COCs from DR to groundwater and consequent downstream effects should be re-evaluated*** by the Forest Service in a revised SDEIS.

5. Arsenic in ore[195]

The largest component of total on-site arsenic (64%) is in ore. Under the SDEIS preferred alternative, a projected 112 million tons of pit ore will be produced, containing 396,246 to 1,028,406 tons of arsenic (average - 95th percentile). Ores will be crushed and ground and subjected to flotation concentration. About 85% of arsenic in ore will go to concentrates and 15% to tailings. Neither the DEIS nor SDEIS addresses the arsenic content, geochemistry or chemical constituency in relation to these proposed metallurgic processes or waste characteristics. This omission is of considerable concern, as arsenic chemistry and toxicity are complex and species (valence) dependent. Solubility, bioavailability and toxicity are highly variable among mineral processing applications depending on other metal concentrations, pH, and oxidation-reduction status, among other factors. There are additional issues regarding the soluble arsenic in the TSF discharge, uncertainties and lack of reliability in arsenic stabilization, reliance on inappropriate leachate tests, and TSF leak detection and treatment (described further in von Lindern/TIFO, 2023). The Forest Service should not

[193] von Lindern/TIFO, 2023, pg. 10.
[194] *Id. at pg 11.*
[195] *Id. at pg 11-15.*

accept Perpetua's assertions that arsenic in the TSF discharges can be stabilized, and consider an Alternative that does not require on-site treatment and disposal of thermally treated arsenic.

In summary, the SDEIS does not do a sufficient job of characterizing how toxics such as arsenic will be managed under the preferred alternative and mitigating for the expected effects. We urge the Forest Service to rectify these issues in a revised SDEIS.

L. Avalanche and Avalanche Mitigation

Although the SDEIS addressed some of the previous comments regarding assessment and identification of avalanche terrain along the proposed access routes, there remain significant issues because the current analysis:

1. Mischaracterizes avalanche hazard between the proposed access routes and within the mine site;

2. Underestimates the frequency and extent of avalanche control work necessary to maintain safe ingress and egress during all phases of proposed mining operations;

3. Fails to address direct, indirect, and cumulative effects to forest resources resulting from avalanche mitigation measures and an avalanche control program; and

4. Underestimates annual winter precipitation along the proposed Burntlog Route.

To begin, the SDEIS is unclear about whether the Stibnite Road between Yellow Pine and the mine site will be maintained year-round as an alternative ingress/egress even if the Burntlog Route is chosen for primary mine site access. As discussed below, due to location and elevation, the Burntlog Route may be impassable for days to a week or more during winter/early spring. Indeed, the Burntlog Route would be the second highest road in the state of Idaho that is maintained year-round. And unlike Galena Summit on State Highway 75, the Burntlog Route travels for 30 miles over 7000 feet and 10 miles over 8000 feet in an area that receives twice the annual snow water equivalent as Galena.[196] Alternate access, such as the Johnson Creek Road from Warm Lake to Yellow Pine and the Stibnite

[196] *Compare* Deadwood Summit SNOTEL SITE (42.1" SWE-annual average), *with* Galena Summit SNOTEL SITE (20.8" SWE-annual average). See comments below regarding underestimation of annual winter precipitation along the Burntlog Route. Additionally, the Boise Forest Plan notes that "[p]recipitation ranges from 40 to 60 inches a year and falls mostly as snow from November to April. [Management Area 20] has one of the highest snow packs, and is also one of the coldest places in the state." Boise Forest Plan, at III-371.

Road between Yellow Pine and the mine site, to allow for emergency services or uninterrupted mining operations, may be necessary.[197]

Under no circumstances should hazardous materials or heavy truck loads be allowed on the South Fork Salmon River Road, even in the event that the Burntlog Route becomes impassable due to snow, weather conditions, or otherwise. The road bed for the South Fork Salmon River Road is not designed to withstand heavy truck traffic and the risk of spill risk is unacceptable. Instead, the Forest Service must consider keeping the Johnson Creek Road accessible year round. Similarly, the Forest Service should assess either how quickly the Johnson Creek road could be plowed or consider that both Burntlog Route and Johnson Creek could be maintained for year round mine site access. We are concerned that if Burntlog Route becomes impassable for days to weeks or longer, Perpetua would seek emergency permission to haul hazardous materials and fuel necessary for operating the mine along the SFSR Road if the Johnson Creek Road is not plowed. Indeed, the Biological Opinion for the SFSR road contains no provisions for a hazardous materials or fuel spill.[198] Moreover, it is our interpretation that the controlling document for fuel and hazardous material hauling along the South Fork Salmon River is the July 1990 South Fork Salmon River Road EIS (File Reference: EM.11.0006) which placed strict limits on fuel transportation down this road.[199] While fuel haul is not totally banned, the restrictions are severe.[200] The SDEIS erroneously assumes that access road choice for the proposed SGP is an either/or proposition. This assumption is misplaced because statements by Perpetua's

[197] *See* Dynamic Avalanche Consulting, Ltd, Stibnite Gold Access Roads: Snow Avalanche Assessment for Access Roads, at 1 (Aug. 23 2021) (hereinafter (DAC 2021)) ("Should the Burntlog Route be chosen as the primary access route, it may still be beneficial to maintain the Stibnite Road for emergency egress, or as an alternative route following a large snowfall or drifting event on the Burntlog alignment.").

[198] Biological Opinion for Reconstructing, Paving, and Snowplowing the South Fork Salmon River Road National Marine Fisheries, at 20 (April 8, 1993) ("For both short-term construction activities and long-term increase in vehicular traffic, the allowable incidental take due to toxic spills is set at zero.").

[199] South Fork Salmon River Road EIS, at 5 (1990) ("Hauling of toxic materials, as defined in the Payette National Forest Plan, page IV-238, will be stringently restricted."); Salmon Fork Salmon River Road EIS, at 18 (1990) ("Protection of the South Fork from toxic spills will be accomplished by prohibiting hauling of toxic materials, by both commercial and noncommercial users on the South Fork Salmon River Road. Exceptions can be made for supply of the Reed Ranch and Krassel Guard Station, or emergency situations, with proper safeguards. Criteria for permitting exceptions are presented in Appendix E to the Final EIS.").

[200] South Fork Salmon River Road EIS, Appendix E, at E-1 (1990) ("No hazardous materials (refer to page IV-238 definition in the Payette National Forest Land and Resource Management Plan) except lime and petroleum products will be transported over the South Fork Road. The basic intent is to eliminate all fuel and other hazardous material haul on the South Fork road unless absolutely necessary."); *see also id.* at ES-2 (listing requirements for fuel transportation). Notably, the Forest Plan was amended in 1995 that further restricted fuel hauling on the SFSR road and the implementation of these restrictions prohibited miners at Stibnite between 1980 and 1997 from hauling fuel down the SFSR road.

consultants recommend maintaining *both* roads due to the likelihood that Burntlog Route would become impassable during the winter months.[201]

Further, because road choice is not binary, there may be additional beneficial and adverse effects on forest resources. Beneficial effects may include reduced potential for destructive avalanches that could dam the EFSFSR, damage the Stibnite Road, and/or impact aquatic habitat if an avalanche control program is used to maintain wintertime access between Yellow Pine and the mine site. By contrast, adverse effects could be experienced due to the increased number of helicopter flights and explosives used for avalanche control along both the Burntlog Route and the Stibnite Road, impacting wildlife. These effects must be analyzed if the Forest Service is to take a hard look at mine site access.

Corrections to descriptions in SDEIS Chapter 3

The SDEIS should accurately describe the affected environment. Section 3.2.4.7 cites a document by the Idaho Office of Emergency Management to explain avalanche formation. This document contains misleading information regarding avalanche formation.[202] Rather, this section should cite sources widely accepted by the avalanche industry, such as documents produced by the Canadian Avalanche Association or the American Avalanche Association.

On page 3-27, the SDEIS says: "Avalanches occur on slopes averaging 25 to 50 degrees, with the majority on slopes between 30 and 40 degrees, and several avalanche hazard areas occur within the analysis area (Figure 3.2-5)." Instead, this should read: "Avalanches occur on slopes averaging 25-55 degrees, with most slab avalanches occurring on slopes between 30 and 45 degrees, and several avalanche hazard areas occur within the analysis area (Figure 3.2-5)."[203]

The next sentence and paragraph state: "Avalanches are triggered by natural seismic or climatic factors such as earthquakes, thermal changes, rainfall, and blizzards, or by human activities (Idaho Office of Emergency Management 2018). The most common types of avalanches are loose-snow and slab avalanches. A loose-snow avalanche is composed of dry, fresh snow deposits that accumulate as an unstable mass atop a stable snow and slick ice

[201] *See* DAC (2021), at 1 ("Should the Burntlog Route be chosen as the primary access route, it may still be beneficial to maintain the Stibnite Road for emergency egress, or as an alternative route following a large snowfall or drifting event on the Burntlog alignment.").
[202] The reference to "turbulence or impulse waves" as a trigger mechanism for slab avalanches is at least unclear or at most totally false because "noise does NOT trigger avalanches." Avalanche Encyclopedia, Trigger, Avalanche.org, https://avalanche.org/avalanche-encyclopedia/#trigger.
[203] *See, e.g.*, D.M. McClung & P. Schaerer, The Avalanche Handbook 75 (10th ed. 2005); R. Perla & M. Martinelli, Jr., Avalanche Handbook 71 (U.S.D.A. Forest Service, July 1976); Nat'l Snow and Ice Data Ctr., Avalanche Awareness 7, https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5444915.pdf ("Most avalanches occur on slopes between 30 and 45 degrees, but can occur on any slope angles given the right conditions.").

sublayer. A loose-snow avalanche releases when the sheer force of its mass overcomes the underlying resistant forces of the cohesive layer. A slab avalanche generally is composed of a thick, cohesive snowpack deposited or accumulated on top of a light, cohesion-less snow layer or slick ice sub-layer. At the starting surface or top of the slab, a deep fracture develops in the slab of well-bonded, cohesive snow. A slab avalanche release is usually triggered by turbulence or impulse waves." SDEIS at 3-17.

This section should be changed to read:

> A combination of variables, including weather, and snowpack and terrain characteristics, contribute to the formation of avalanche conditions. The most common types of avalanches are loose snow and slab avalanches. Loose snow avalanches occur when slope angle exceeds the sheer strength of surface snow to resist downslope motion. As the surface snow moves downslope it may entrain subsurface snow, increasing the mass and destructive potential of the loose snow avalanche. Wet loose snow avalanches triggered by melting due to warming by the sun or rainfall on the snowpack are generally more massive, and therefore have a greater destructive potential, than dry ones.
>
> Slab avalanches consist of a cohesive layer of snow (the slab) overlying a thinner, weaker layer of snow, sitting atop a bed surface (either the ground or another cohesive layer of snow). When the weight of the overlying cohesive layer of snow exceeds the shear strength of the weak layer, the weak layer will begin to fail. A slab avalanche is triggered when the rate of failure in the weak layer is fast enough for fracture to occur, causing the slab to move downslope. Slab avalanches can be triggered naturally by loading new snow, wind deposited snow, or rainfall to the snowpack, cornice fall, warming air temperatures, or earthquakes. Artificial triggers that affect the rate of failure in the weak layer, which can lead to fracture and release of a slab avalanche include skiers, snowmobilers, and explosives. Slab avalanches are typically more destructive than loose snow avalanches because they are more massive and thus result in larger,farther running avalanche events.[204]

Additionally, the sentence immediately following Table 4.6-1 (SDEIS 4-98) should be changed to read: "Avalanche risk abatement via explosive methods would be implemented

[204] *See* generally D.M. McClung & P. Schaerer, The Avalanche Handbook 75 (10th ed. 2005); see also DAC (2021) at 3–4.

for the SGP. Explosives would be used *at* higher elevations *in the starting zones* of the potential avalanche paths to *trigger* avalanches."

The "with minimum impact" phrase should be omitted because it is confusing and does not describe why explosives are delivered to the starting zones, which is because that is where avalanches can be initiated.[205]

1. The SDEIS mischaracterizes avalanche hazard between the proposed access routes

The SDEIS finds that because 38 avalanche paths exist along the Burntlog Route but 94 avalanche paths exist along the Johnson Creek Route, there is a reduced risk to "hazardous materials transport, and public health and safety transportation risks during operations" along the Burntlog Route.[206] However, the number and size of potential avalanche paths is not the sole basis to determine which route has "less susceptibility" to risks associated with avalanche hazard. Although Dynamic Avalanche Consulting, Stibnite Gold Access Roads: Snow Avalanche Hazard Assessment For Access Roads (Aug. 2021) (herein "DAC (2021)"), assesses the Avalanche Hazard Index (AHI) for each route, the SDEIS makes no reference to it—except in a table of acronyms at the end of the document. SDEIS at 7-55. This error should be corrected.

"The AHI is used *to determine how serious avalanche problems are to allow comparisons of the avalanche risk to different roads* to establish priority areas, to determine appropriate level of avalanche risk management, and to show where control measures have the greatest effect." DAC (2021), at 39. AHI is a risk assessment tool that considers both exposure and vulnerability of moving and waiting vehicles to avalanches. *Id.* This is a well-established industry metric to assess and quantify avalanche risk to roadways. *Id.* Unlike the SDEIS's conclusion that number and size of potential avalanche paths renders one route more hazardous than another, AHI takes into account a variety of variables, including frequency of avalanche occurrences, total length of highway exposed to avalanche terrain, traffic volume and speed, and type of vehicle traveling the road. *Id.*

Of the 38 avalanche paths identified along the Burntlog Route from Warm Lake to the mine site, 31 are high frequency paths capable of producing D2 and D3 avalanches with one-to three-year return intervals. SDEIS 3-26. Excluding the three paths capable of D3 avalanches every three years on the grade from Warm Lake to Landmark, one path (BLK-7) along the Burntlog Route is anticipated to produce D3 avalanches every three years. SDEIS

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[205] *See* D.M. McClung & P. Schaerer, The Avalanche Handbook 91 (10th ed. 2005).

[206] SDEIS at 2-133; 2-136; 2-140; 4-15 ("The Burntlog Route is viewed as having less susceptibility to avalanche hazards than the Johnson Creek Route . . . ."); SDEIS at 4-20 ("Potential avalanche paths crossed by the Johnson Creek Routh (94) are more numerous than the Burntlog Route (38) and are more significant in size (D2 to D4) than along the Burntlog Route (D2 to D3).").

4-15. Notably, there are no historical avalanche observations between Black Lake summit and the mine site. DAC (2021), at 6.

There are 94 avalanche paths identified along the Johnson Creek Route from Warm Lake to the mine site. SDEIS 3-27. Of these, 31—yes, the same number as the Burntlog Route—are high frequency paths capable of producing D2 and D3 avalanches with a one- to three-year return interval. DAC (2021), at 78. Five can produce D3 avalanches every three years, and four are capable of and have been observed to produce D4 avalanches. The estimated return interval for D4 avalanches is thirty years. *Id.* Although more confidence exists in the potential for these paths to produce D4 avalanches because of recent observations, these are low frequency occurrences.

Frequency is defined as the anticipated number of avalanches per year that will reach or exceed a particular location. As distance from the starting increases, frequency decreases. Thus, in valley-bottom locations like the Stibnite Road, D4 events occur less often. DAC (2021).

Comparing the two proposed access routes in this manner shows that the number of high frequency paths are equal. It also shows that of the identified avalanche paths, the Johnson Creek Route has four more avalanche paths capable of producing D3 avalanches every three years than the Burntlog Route. The AHI calculated for the routes captures this difference by concluding that each route is within the moderate hazard category and differs by less than a value of six on a hazard index that can range from 0 to well over 150. Even though there is little difference in risk to vehicles being struck between the two routes, the SDEIS considers only number and size, but not frequency or other variables that are critical to assessing potential risk that vehicles traveling these roads will be struck by an avalanche.

Moreover, several assumptions made for the Burntlog Route may increase the AHI. This makes that route equally or even more hazardous than the Johnson Creek Route. Because the Burntlog Route travels for 30 miles between 7000- and 8600-feet elevation, it "will be subject to more wind effects and wind-drift potential," DAC (2021), at 41, and higher snowfall amounts than the Johnson Creek Route, which travels mostly between 4800- and 6500-feet elevation. DAC (2021), at 13. The SDEIS fails to consider adverse road conditions that will result from managing a resource road above 7000 feet in this area. The significant elevation and steepness differences between the routes must be assessed because claiming the Johnson Creek Route has "higher potential for increased trucking accidents and greater spill risk," from avalanches fails to account for known terrain and weather characteristics adversely affecting driving conditions along a significant portion of the Burntlog Route. *See* SDEIS, at ES-13.

Putting aside Warm Lake Summit, which is common to both routes, the Burntlog Route includes at least three steep climbs (or descents depending on travel direction). In

particular, the section that switchbacks into the Black Lake cirque and then climbs toward the Old Thunder Mountain Road is not only above 8000 feet but also the section of road most exposed to avalanche hazard. Decreased traffic speed in this area, which is where 13 one-to-three-year D2 and D3 avalanche paths are located,[207] due to adverse winter travel conditions would increase Burntlog Route's AHI because traffic speed would necessarily decrease below the assumed 25 mph in DAC (2021).[208] It is also worth noting that an Environmental Design Feature proposed by the Forest Service to protect water resources, wetlands, and fish is to maintain an adequate snow floor over the gravel road surface. The effect on vehicle speed of this EDF must be evaluated with respect to the AHI to ensure that appropriate vehicle speed input variables are used in assessing AHI.

In addition, unlike the Johnson Creek Route, the frequency and size of the 13 one- to three-year D2 and D3 avalanche paths along the Burntlog Route have no history of observation. No road has ever been constructed across them, which would alter topography, potentially destabilize starting zones, and result in increased avalanche frequency. Any increase in frequency and/or size would result in an increase in AHI.[209] Indeed, even though DAC (2021) highlighted recently observed avalanche activity from four north facing paths along a 1.4-mile section of the Stibnite Road, its correlation with recent fire activity, and the "serious hazard" these paths present because of terrain characteristics, the AHI assessment found little hazard difference between the proposed routes. And none may exist with small changes in the assumptions relative to each route.[210] The SDEIS should not assume, without considering AHI, that the Burntlog Route is less safe with respect to avalanches than the Johnson Creek Route.

DAC (2021) notes that as the number of vehicles decreases, so does the relative difference in AHI between the two routes. DAC (2021), at 42. The SDEIS fails to consider reducing the overall number of vehicle trips to reduce AHI because the SDEIS fails to

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[207] DAC (2021), Stibnite Gold Project Avalanche Hazard Map Burntlog Route Detail Map 3 of 10 & Detail Map 4 of 10.

[208] DAC (2021), at 51 ("The Burntlog Route is likely more difficult to maintain during winter due to its higher elevation. Large storm events should be anticipated to make the route temporarily impassable until road maintenance has been completed – disruptive storm snow events are more likely to affect the Burntlog Route than the Yellow Pine Route. From that perspective, the Yellow Pine Route is more reliable due to its lower elevation and lower snowfall amounts (and related wind drifting of snow).").

[209] See P. Schaerer, The Avalanche-Hazard Index, 13 Annals of Glaciology 241, 242–43 (1989).

[210] DAC (2021), at 50 ("Although the number of avalanche paths and road miles exposed to an avalanche hazard halve when comparing the Burntlog to the Yellow Pine Route, the reduction in avalanche hazard is only approximately 20% when measured in terms of the Avalanche Hazard Index (AHI). This is because the Burntlog Route travels through the starting zone and track of a series of avalanche paths near Black Lake, which results in a high frequency of avalanches reaching the access road. This difference remains similar even when reducing the traffic volumes under the other phases of development. By comparison, avalanche terrain along the Stibnite Road portion of the Yellow Pine Route is capable of producing more destructive avalanches (up to Size D4, but typically Size D2 to D3), but these events are sufficiently infrequent to the road such that the overall AHI is rated as Moderate for both access routes.") (emphasis supplied).

include any discussion of AHI. The corollary is that an increase in vehicle traffic on a particular route increases the AHI, which increases the relative difference in AHI between the routes. The SDEIS fails to consider non-mine site traffic that may use or be allowed to use the Burntlog Route when access through the mine site is closed because of public safety hazards.[211] The SDEIS also fails to consider an increase in the number of vehicle trips for winter/early spring snow plowing and road maintenance. In fact, DAC (2021) states that "[w]ithout further detailed information on [Winter Average Daily Traffic] versus [Annual Average Daily Traffic] volumes, [the Specialist Report] default[s] to the equivalent [Annual Average Daily Traffic] volume for" all phases of mining operations. DAC (2021), at 41. This assumption fails to account for the increased traffic needed for snow plowing and maintenance/avalanche control work, which is especially problematic because these activities would occur when avalanche conditions are more likely to be present, i.e., during winter storms, wind events, and other-related phenomena like rain on snow events that cause deteriorated road conditions. To be very clear, again, adverse winter driving conditions decrease vehicle speed and therefore increase AHI. These unaccounted for variables not only increase the number of vehicles using the Burntlog Route but also may decrease vehicle speed at precisely the time when avalanche conditions are most prevalent. Consequently it seems likely that the AHI for the Burntlog Route is significantly underestimated.

The SDEIS is ambiguous about whether under the 2021 MMP the Stibnite Road between Yellow Pine and the mine site would be maintained year-round to ensure two means of access to the mine site.[212] If this is the case, re-assessing AHI to also include public use of this section of road is necessary. In fact, Perpetua's own avalanche consulting firm has recommended that both routes be available because of the potential that one or the other would be closed due to adverse weather/driving conditions and avalanche conditions.[213] In this case, avalanche mitigation would need to occur along both routes, not just the Burntlog Route, to maintain mine site access when the Burntlog Route is impassable or closed.[214] Winter weather conditions that close the Burntlog Route may necessitate maintaining the lower elevation Johnson Creek Route to achieve anticipated time frames of the various phases of mining activities and ensure ingress/egress to the mine site is available in case of

[211] SDEIS, at 2-18 ("[T]he Burntlog Route would serve as an alternative public access route to the Thunder Mountain area for the life of the mine until it is decommissioned following mine reclamation and closure."); SDEIS, at 4-533 to 534 ("Motorized public use (not including special use permit holders) of the Burntlog Route would be allowed when the public access route through the SGP is closed, which would occur during some mining activities that would be considered public safety hazards (e.g., high wall scaling, blasting).").
[212] Compare SDEIS, at 4-494, with SDEIS at 4-528 (concluding that the Johnson Creek Route would pose greater risk to public safety "compared to the 2021 MMP and its two access routes") (emphasis supplied).
[213] DAC (2021), at 1 ("[I]t may still be beneficial to maintain the Stibnite Road for emergency egress, or as an alternative route following a large snowfall or drifting event on the Burntlog alignment.").
[214] DAC (2021), at 51 ("It is anticipated that major storm events will likely require the closing of either access route until the avalanche hazard has been managed and the roads have been cleared of snow.").

emergencies during blizzards or other weather events that preclude use of aircraft. The SDEIS should address or at least clarify this issue.

Finally, the SDEIS fails to point out that the miles of road affected by high frequency avalanches for both routes are nearly identical (3.1 miles for the Burntlog Route and 3.0 miles for the Johnson Creek Route). Instead, the SDEIS highlights that 8.0 miles of the Johnson Creek Route have *some* potential to be impacted by avalanches as compared with 4.5 miles for the Burntlog Route. This comparison does not consider frequency or AHI.

In sum, the SDEIS should assess the AHI by including *all* traffic (mine and public) using *all* mine access routes to avoid erroneous conclusions, such as "[t]he Burntlog Route *would avoid* environmental and human health and safety risks associated with the Johnson Creek Road which passes through identified areas for avalanches, landslides, and floods."[215]

2. The SDEIS underestimates the frequency and extent of avalanche control work

DAC (2021) notes, "[r]egular avalanche control reducing the snow volume in [the largest avalanche paths affecting the Stibnite Road] would decrease the potential for large destructive avalanches to dam the "East Fork South Fork Salmon River. DAC (2021), at 24. This is because "frequent avalanche release prevents large unpredictable natural avalanches later, for example, with snowmelt."[216] "[W]here the reliability of road access is critical to mine operations and delays cannot be tolerated, permanent mitigation measures are applied at high frequency paths."[217]

However, Table 4.6-10, which analyzes noise impacts from use of explosives to mitigate avalanche hazard that "would be implemented for the SGP," is cut and pasted from DAC (2021)'s frequency of control of use of avalanche control for each access route. Specifically pertaining to the Yellow Pine Route, DAC (2021) qualifies its estimated control frequency (missions per year) by noting that this "control frequency *is an average of all paths,* with higher frequency paths needing more frequent control, potentially multiple times per winter for some paths." DAC (2021), at 36. This qualification is not mentioned in SDEIS and must be considered.

As will be the case for the five identified paths capable of producing D3 avalanches every 3 years and D4 avalanches every 30 years along the Stibnite Road, more frequent

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[215] SDEIS, at 4-487; see also 4-499 ("The Johnson Creek Route Alternative would have greater safety and emergency impacts than Burntlog Route due to additional safety considerations required to use the Johnson Creek Route exclusively, which is in steeper terrain than the Burntlog Route and subject to avalanches and landslides (DAC 2021).").

[216] D.M. McClung & P. Schaerer, The Avalanche Handbook 208 (10th ed. 2005).

[217] DAC (2021), at 28; see also D.M. McClung & P. Schaerer, The Avalanche Handbook 208 (10th ed. 2005).

control missions will be necessary to reduce snow volume in the starting zones to minimize the risk of large destructive avalanches. Despite uncertainty about vegetation growth on these paths in the long term, short term effects from "avalanche logging" in paths SR-S-6.6, SR-S-6.9, SR-S-7.3, SR-S-7.4, and SR-S-7.6 will most likely result in larger and more frequent avalanches. Hamre (2021), section 2.2. Therefore, assuming, as the noise analysis does, only one mission per year for avalanche paths affecting the Stibnite Road is an error. DAC (2021) assumes control frequency to be three times more frequent than the average natural return period of all avalanche paths capable of hitting the road. DAC (2021), at 36. Additionally, this assumption fails to account for a higher frequency of missions that would reduce potential for larger, more destructive avalanches, in some paths.

DAC (2021) notes that even though the Stibnite Road has more targets, *most* are low frequency (10- to 30-year return intervals), meaning that missions may occur once every few years or even less often than that. DAC (2021), at 35-36. Averaging the infrequency of these paths with the high frequency of the *few* paths artificially reduces the total number of required missions. DAC (2021) notes that Hamre (2021) estimated five missions would be required each year. Hamre (2021) also averaged weather events during the winter where more than 1-inch of precipitation fell at Big Creek SNOTEL site to conclude that such events occur approximately 15 times per winter (Hamre 2021, section 3.2). Generally, when more than 1-inch of precipitation falls within a twelve hour period, avalanche conditions are present because of the rapid increase in weight overlying any weak layers buried within the snowpack. Thus, Hamre (2021) may better-characterize the amount of control work required because DAC (2021) refined Hamre (2021)'s estimate based on "individual path characteristics and frequency estimates" and then proceeded to make control frequency an average of *all* paths along a given route .*See* DAC (2021), at 36. Because the SDEIS analyzes noise impacts by assuming one mission per year for the Stibnite Road, it underestimates (and fails to discuss) effects to humans, wildlife, and vegetation, beneficial or adverse, of more frequent control of higher frequency paths along the Stibnite Road.

Although at least one study has found that more frequent avalanche control "greases" the track and runout of a path, any increase of potential for farther running avalanches coexists with potential to alter the path or even inhibit longer running avalanches due to the existence of debris piles (avalanche-deposited snow) in the runout zones.[218] Moreover, other studies indicate that the reduced mass of available snow in the starting zone decreases avalanche destructive potential.[219] This latter point is common practice among highway control programs that seek to minimize snow removal time by quickly clearing smaller

[218] S. Margreth & U. Gruber, Winter 1999: A valuable test of the avalanche-hazard mapping procedure in Switzerland, 32 Annals of Glaciology 328 (2001).
[219] John Andrew Gleason, Terrain Parameters of Avalanche Starting Zones and Their Effect on Avalanche Frequency 35-44 (1996), https://scholarworks.montana.edu/xmlui/bitstream/handle/1/7490/31762102382320.pdf;sequence=1.

amounts of avalanche debris more frequently rather than one large deposit that may take days or weeks to clear.[220] It is notable that all recently observed avalanche events along the Stibnite Road (March 2014, April 2019, February 2021, and March 2022) were triggered by substantial loading to the snowpack during periods of rapid warming.[221] Regular control work in starting zones of these paths would reduce potential for climax avalanches that reach the road or dam the river. Even assuming the total number of annual charges estimated in DAC (2021) is accurate, assuming one mission per year between mile 6 and 8 of the Stibnite Road underestimates the number of missions necessary for effective avalanche control of the avalanche paths in this particular area.

If the Stibnite Road is maintained concurrently with the Burntlog Route during winter, the total number of charges per year is underestimated. DAC (2021) anticipates 71 charges per year for the Stibnite Road between Yellow Pine and the mine site. This would be in addition to 146 charges anticipated for the entire Burntlog Route (including the Warm Lake section), totaling 207 charges per year, which is a 50% increase than what is analyzed in the SDEIS. Because the SDEIS is unclear about whether the Stibnite Road would be maintained during the winter even if the Burntlog Route is selected, the amount of avalanche work necessary to maintain safe ingress/egress is uncertain. This should be clarified because it impacts analysis of direct, indirect, and cumulative effects of the Stibnite Gold Project.

3. The SDEIS fails to address any effects on wildlife and vegetation resulting from avalanche mitigation that "would be implemented" during mining operations

In the 2020 DEIS comment letter, we asked that impacts to wildlife and other sensitive species, including whitebark pine, be addressed. However, the SDEIS is silent on these impacts despite several recent and similar environmental analyses contemplating avalanche control programs, ranging from ski area programs, railroad corridors, and highway protection programs.[222] A body of scientific literature examines impacts that explosives used

[220] D.M. McClung & P. Schaerer, The Avalanche Handbook 208 (10th ed. 2005).
[221] Historical SNOTEL data is readily available for Big Creek and Deadwood SNOTEL SITES, which can show the temperature as well as total accumulated snow water equivalent and/or precipitation in the days and hours preceding these avalanche events.
[222] Little Cottonwood Canyon Draft Alternatives Development and Screening Report for LCC Environmental Impacts Statement, Utah Dep't of Transp. 2020, https://littlecottonwoodeis.udot.utah.gov/wp-content/uploads/2020/06/LCC-EIS-Alternative-Screening-Report-2020-05-21_Full.pdf; Avalanche Hazard Reduction By Burlington Northern Santa Fe Railway in Glacier National Park and Flathead National Forest, Montana, Final Environmental Impact Statement 2008, https://parkplanning.nps.gov/document.cfm?parkID=61&projectID=12355&documentID=24072; Silverton Guides Helicopter Ski Terrain Exchange 2017, https://eplanning.blm.gov/public_projects/nepa/67342/105809/129388/FinalEA_Silverton_Heli_Ski_Terrain_Environmental_Assessment_May2017.pdf; Juneau Access Improvement Projects Final Environmental Impact Statement 2017,

for avalanche hazard mitigation have on various ecosystems.[223] Even the USGS has recently studied explosives residue from avalanche control work that may pose risks to human health.[224] In fact, DAC (2021) states that an evaluation of impacts to, among other things, "wildlife and habitat disruption; and the potential for pollution" was outside the scope of the report. DAC (2021) did, however, provide "some specific guidance in relation to explosive noise levels"[225] that the SDEIS relied upon to "evaluate[] *only SGP noise impacts to humans*; [and did not address] noise impacts to . . . wildlife" from avalanche control work.[226] This is an error, and impacts to wildlife must be addressed.

With respect to wolverine, the SDEIS expects "noise due to operations and helicopter flights to assist with exploratory drilling . . . to contribute to increased levels of displacement of individual wolverines in the wildlife analysis area." SDEIS 4-400. The SDEIS acknowledges that wolverine denning habitat is mostly located "in areas with the highest consistent snow coverage." SDEIS 4-399. This seems to correspond closely with locations in the analysis area that are at highest elevation, such as 40 miles of the Burntlog Route between Landmark and the mine site. Along the Burntlog Route, most avalanche control work would be concentrated on high frequency paths located in the Black Lake cirque and along the ridge heading toward the old Thunder Mountain Road—all at elevations above 7500 feet. Notably, Black Lake cirque is modeled as the highest class of wolverine habitat with persistent spring snow cover for 7 of 7 years (SGP Wildlife Specialist Report 2022, at Figure 5-4).

Avalanche paths BKL-7, BKL-9, BKL-12, RC-1, and MCR-1 have anticipated explosive targets that are less than 1500 feet from the Frank Church River of No Return Wilderness boundary line.[227] Not only is noise from helicopter flights to deliver explosive charges to these paths a potential impact but noise from the charges themselves is more apt to travel down slope into the valleys in the east side of Meadow Ridge and into the top of the Indian Creek drainage.[228] As wolverines tend to avoid areas near roadways and individuals in the FCRNRW could be affected by traffic noise at 40 dBA, the proximity of these targets to

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http://dot.alaska.gov/sereg/projects/juneau_access/assets/2018_FSEIS_Appendices/Appendix_Z_Appendix_J_-_Avalanche_-_2017_Update-All.pdf.

[223] Hamre & Steiner, Environmental Implications for Explosives Based Risk Mitigation: A Case Study From the BNSF Railway Avalanche Safety Program Essex, Montana, USA 2004, https://arc.lib.montana.edu/snow-science/objects/issw-2006-747-756.pdf.

[224] David Naftz et al., USGS Water Resources Investigations Report 03-4007, Explosive-Residue Compounds Resulting From Avalanche Control Work in the Wasatch Mountains of Utah (2016), https://pubs.usgs.gov/wri/wrir03-4007/.

[225] DAC (2021), at 44.

[226] SDEIS, at 4-92. Notably, the SDEIS evaluated the effects of blasting on fish during road construction, mining operations within the mine site, but is silent on explosives use and impacts to wildlife from avalanche control work. See SDEIS Section 4.13.

[227] See DAC (2021), Stibnite Gold Mine: Avalanche Hazard Map Burntlog Route Detail Map 3 of 10.

[228] Bollard Acoustical Consultants, Inc., Noise and Vibration Assessment: Gazex Avalanche Mitigation System, at 8-9 (June 28, 2019).

the FCRNRW and the effect on wolverines in the FCRNRW should be assessed. At least one study has found noise levels above 100 dBA at 4,000 feet from Gazex explosions.[229]

Even if Gazex installations are not anticipated for the SGP, the SDEIS may underestimate the noise level attributed to avalanche control work. For instance, DAC (2021), while analyzing noise for case charging with 2 and 4 pounders, also assumes that charges delivered via helicopter will consist of "25 lbs of ammonium nitrate and 2 lbs booster per shot." DAC (2021), at 47. Although 25-pound sacks of ANFO lobbed out of the side door of a helicopter are an effective tool for triggering large deep slab avalanches, they create a much larger explosion–and therefore higher level of dBA–which may be similar to Gazex explosions. During control missions conducted via helicopter, ANFO may be the preferred charge. *Id.* at 47. Indeed, Perpetua's expert recommends "avalanche control via helicopter" *Id.* at 52. Yet, the SDEIS and Noise Specialist Report are silent on what is the dBA of 25 lbs of ammonium nitrate and 2 lbs booster. See SDEIS 4-114; Noise Specialist Report, at 33 (listing only three types of noise producing avalanche control tools). Nor does the SDEIS assert that such a charge is similar to a Gazex explosion. Because use of this avalanche control method appears likely based on DAC (2021)'s assessment, the SDEIS should quantify dBA for "avalanche control via helicopter" and assess those impacts. Moreover, given the complete silence on noise impacts to wildlife, the SDEIS should assess noise levels from avalanche control that extend into the FCRNRW. Importantly, as noted above, the underestimation of the frequency of control missions and that they are concentrated in specific areas should be considered when assessing the direct effects of noise from avalanche control work on wildlife. In sum, the Noise Specialist Report, which only analyzes impacts to humans, fails to address these points and any potential impacts to wildlife.

As noted elsewhere in this letter, the SDEIS omits any analysis of mountain goats as a wildlife species impacted by the SGP. This is problematic with respect to avalanche control along the proposed Burntlog Route because mountain goats are particularly susceptible to disturbance from mechanized devices like helicopters (Côté 1996, Hurley 2004, Goldstein et al. 2005, Côté et al. 2013, Richard and Côté 2016). Explosive use during avalanche control may only exacerbate impacts to mountain goats and therefore must be addressed in the SDEIS. Notably IDFG has observed goats nearby on Murphy Peak, which is connected via a ridgeline to the Meadow Creek Ridge. Additionally, these surveys could underestimate mountain goat populations in the area. IDFG does not perform regular surveys of goats because their populations do not support any type of managed hunt. Mountain goats have also been observed in the area of Pinnacles on the border of GMUs 25 and 26, along the upper ends of Big Creek, Monumental Creek, and in West Fork Monumental Creek in GMU 26 (IDFG Mountain Goat Management Plan, 2019). These areas are near or adjacent to

[229] SDEIS 4-399, 4-400; see also Bollard Acoustical Consultants, Inc., supra note 51, at appx. B and C.

potential avalanche control targets along the Stibnite Road. The SDEIS fails to take a hard look at the actual effects and impacts to wildlife, including mountain goats and wolverines due to avalanche control work that will be necessary to maintain safe access to and from the mine site.

Additionally, neither the SDEIS nor SGP Vegetation Specialist Report discusses the impacts of avalanche control on whitebark pine. Avalanche control work has the potential to artificially trigger avalanches that would not otherwise have occurred and therefore destroy or damage whitebark pine. It is not clear that whitebark pine surveys conducted by Perpetua included individuals living within avalanche starting zones, tracks, or runouts. The SDEIS should ensure that all species members impacted by SGP activities are accounted for in these surveys. Artificially triggering avalanches, while beneficial for decreasing risk that vehicles will be struck, may also incidentally take whitebark pine individuals. This impact should also be addressed.

4. DAC (2021) appears to underestimate annual winter precipitation for the Burntlog route

Results from the PRISM model used in DAC (2021) seem to conflict with the parameters used in the MODFLOW6 groundwater model. Inputs to that model assumed 33 inches of annual precipitation in Meadow Creek at 7762 feet.[230] However, DAC (2021) believed that areas adjacent to Meadow Creek between 7500 and 8600 feet would receive less than 8 inches of winter precipitation annually. DAC (2021), at 13. It is unclear how DAC (2021) arrived at this conclusion but it appears that it relied on 9 years of data from the late 1940's and early 1950's collected at the Stibnite mine site. DAC (2021), at 15. It also appears that DAC (2021) chose to exclude Deadwood Summit SNOTEL from station group 2, which is likely the most representative SNOTEL for high elevations areas to the south and west of the mine site. Concerningly, station group 2 includes "avalanche terrain between Landmark and Yellow Pine, as well as along the Stibnite Road portion of the Yellow Pine Route." DAC (2021), at 14. Yet, DAC (2021) estimates twice mean annual for station group 1 as opposed to station group 2. It is unclear whether this sleight of hand was intended to downplay the avalanche risk to the Burntlog Route in order to reach a *predetermined conclusion* that the Burntlog Route would be chosen for mine site access.

In any event, the PRISM precipitation assumption for groundwater modeling in the MODFLOW 6 model is much closer to the average annual precipitation totals for Deadwood and Big Creek SNOTEL sites, which are approximately 44.5" and 37.5" (1991-2020), respectively. This massive difference in assumed annual winter precipitation may affect frequency of avalanches estimated by DAC (2021) and should be verified to ensure that

[230] Brown & Caldwell, Hydrological Site Model Refined Proposed Action (ModPRO2) Report (2021), at 2-7.

erroneously low precipitation estimates have not erroneously reduced the extent of avalanche control work anticipated for the Burntlog Route.

M. Utilities, rights-of-way, roads, and routes

The construction and long-term operation associated with transmission line upgrades causes serious impacts, including direct damage to wildlands, wildlife habitat and cultural resources, interference with scenic vistas, habitat fragmentation, the introduction of invasive and noxious weeds through ground disturbing activities, and others. Much of the landscape in Idaho, even near streams, has been visually impacted by human features such as roads, structures, transmission lines, and other infrastructure. The SGP would require Idaho Power to build four new electrical substations (Scott Valley, Thunderbolt Tap, Johnson Creek, and Stibnite), remove the existing Scott Valley Substation, and provide upgrades to the Cascade Switching Station (SDEIS, p. 2-23). Direct and indirect impacts to the SGP-related transmission lines, related access roads, utilities and their infrastructures are represented as equitable between the 2021 MMP alternative and the Johnson Creek alternative, with 1012 acres of disturbed lands under the former and 1011 acres under the later alternative (SDEIS, Table ES-2).

Additional electrical changes include rerouting power to the village of Yellow Pine from the Warm Lake substation to the Johnson Creek substation, upgrading nearly 64 miles of existing transmission lines with higher towers, transformers and line, and constructing an additional 8.5 miles of new transmission line from the Johnson Creek substation to the mine site. Further, Perpetua Resources proposes to upgrade microwave relay towers and install radio repeaters and cell phone towers at existing and new communication sites on public and private lands. Transmission line right-of-way (ROW) widths would range from 50 to 100 feet, requiring significant additional initial vegetation removal, with continual vegetation removal as part of long-term maintenance of these clearings. Both the 2021 MMP alternative and the Johnson Creek Route alternative will result in 422 acres of impacts within the identified ROWs in previously undisturbed areas (SDEIS, Table ES-3, p. ES-22).

Approximately one-third of the transmission line ROW is found within forested areas, and the Forest Service estimates that, “SGP-related vegetation clearing could initially result in (Detrimental Disturbance) as high as 16 percent of the ROW,” and would likely impact somewhere between 8 and 15 percent (SDEIS, p. 4-83-84). These impacts, consisting primarily of vegetation clearing, but also including soil disturbance for access roads, line upgrades, and construction of new line pole foundations, will take place on an estimated 500 acres. The duration of these impacts are considered, “moderate, localized and long-term,” (SDEIS, p. 4-84), with disturbance beginning the first year of construction and continuing at least through Year 15. Furthermore, clearing activities would continue indefinitely on upgraded line corridors by Idaho Power Company after mining activities cease. The loss of

these vegetation communities and impacts associated with access roads for construction and subsequent maintenance represent irreplaceable and irretrievable impacts to natural resources found on public lands, and therefore neither the 2021 MMP, nor the Johnson Creek Route alternative are appropriate selections for the SGP.

On December 14, 2022, the US Fish and Wildlife Service announced its decision to list whitebark pine as a threatened species under the Endangered Species Act. This rule is to become effective starting January 17, 2023. The Forest Service will have to consult on expanding and constructing Rights-of-Way. Our specific comments pertaining to whitebark pine are found in Section R, Botanical Resources.

The most significant impact the transmission lines, associated ROWs, access roads, and additional utility infrastructure will have on the natural resources within the SGP physical Area of Potential Effect (APE) is the permanent loss and/or fragmentation of wildlife habitats and ecosystems. The upgrades to existing transmission lines and the construction of the additional proposed lines will disrupt migratory corridors, displace resident ungulates and potentially other species of conservation concern such as wolves, wolverines, lynx and their potential habitats, white-headed woodpeckers, and a variety of owl species, to name a few. Our specific concerns, comments, and recommendations regarding utility impacts to wildlife are found in our Wildlife comments section.

1. ROW impacts within Inventoried Roadless Areas

Several of these utilities upgrades will pass through and either directly or indirectly impact inventoried roadless areas (IRAs), diminishing the outstanding values and qualities associated with pristine wild lands including, but not limited to: visual resources; big game security; water quality; quiet/solitude; and intact habitat with limited fragmentation. We appreciate the Forest Service including the analysis of potential impacts to IRAs in this SDEIS as it was not included in the 2020 DEIS.

There are numerous impacts to fish and wildlife within the IRAs that are associated with ROWs, utilities, and facilities. The diversion of Meadow Creek into a channel and the construction of the TSF embankment will result in, “reduced aquatic habitat complexity and connectivity within Horse Heaven and Meadow Creek IRAs,” (Special Designations Specialists Report, p. 79). The bull trout, westslope cutthroat, steelhead, and Chinook salmon habitat that currently exists in Meadow Creek will be permanently lost and the Forest Service must classify these losses as irreversible and irretrievable.

Furthermore, wildlife habitat within proposed ROWs, utility, and facility locations will also be reduced within five IRAs in the APE. This is most significantly observed through

direct loss of habitat due to construction activities and habitat fragmentation attributed to transmission lines and access roads.

2. Impacts to water quality from ROW infrastructure

Numerous components compose the ROW infrastructure, including line towers, access roads and associated gates, and concrete tower support pads. While much of the transmission line construction will take place using helicopters to set the towers and string line, a significant amount of "on-the-ground" work is still required to update or construct the proposed transmission lines associated with the SGP. Further, the modification or construction of either proposed access route will require the use of heavy equipment. Many of the proposed construction activities will take place near surface water bodies.

Construction of the transmission lines will also contribute significant amounts of sediment to the waters of the United States, which will further impact fisheries habitat and directly impact sensitive fish eggs and reproductive success. This is particularly evident along the proposed new transmission line at the bottom of Riordan Creek where, based on our geologic analysis, there is a recent history of slope instability and sediment movement following wildfires. These potential impacts exponentially increase when one takes into consideration locations where transmission line rights-of-way intersect with access roads or routes associated with the SGP. Please see our Specialists comments on sedimentation and the impacts to the environment, which are included as an appendix to this document (Newberry 2022, Item #13, pp. 45-53) and are summarized in our Executive Summary.

Of the 37 streams within the APE, 11 are listed by the Idaho Department of Environmental Quality as impaired, primarily for phosphorus contamination, sedimentation, and water temperature. While the transmission towers themselves will not contribute to sedimentation and the transmission lines and associated activities will not likely affect phosphorus levels, the proposed activities will likely affect stream temperatures through vegetation removal and management at the crossing locations. Further, construction or line installation/upgrade equipment will likely cross streams at line access roads, between towers along the transmission line ROW, but the impacts remain unaddressed in the SDEIS. We are particularly concerned about impacts to Burntlog Creek and Johnson Creek, which are eligible Wild and Scenic Rivers. The SDEIS provides no mitigation measures designed to limit these potential impacts.

The Forest Service should minimize negative impacts of transmission line construction and maintenance by avoiding areas of important habitat for species of concern, establishing siting criteria to minimize soil disturbance and erosion on steep slopes, utilizing visual resource management guidelines, avoiding significant historic properties, and

minimizing conflicts with other uses of the public lands. See our comments on Sacajawea's bitterroot and transmission line impacts in Botanical Resources. Additional comments are summarized in our Executive Summary and included as appendices to this document (Maest 2022, Newberry 2022, Gregory 2022, Schlinger 2022, Egnew and Mack 2022, Lubetkin 2022, Chamber 2022, and Semmens 2022).

3. The SDEIS failed to sufficiently consider impacts from increased unauthorized motor vehicle use

New roads for construction and maintenance of transmission lines will provide more access for motorized recreation in areas without a current road system and more opportunities for illegal off-road riding. For example, Forest Trail (FT 233) will be upgraded for use as a transmission line route. The SDEIS states that trail improvements would make the trail passable for a wider range of vehicles and potentially new recreation opportunities. The problem is that FT 233 dead ends at the top of the ridge. With additional use and more capable vehicles in that location, there is a concern that drivers are going to travel cross-country along the Powerline ROW to the Stibnite site or along the ridgeline to the Meadow Creek lookout (the same route mentioned above).

The negative impacts of irresponsible use of off-road vehicles (ORV) on terrestrial ecosystems are well established.[231] Irresponsible ORV use degrades water quality, spreads noxious weeds, fragments habitat, disturbs wildlife, increases fire starts, and displaces non-motorized recreationists. The IRAs affected by the SGP were purposely set aside and are managed to fulfill goals and objectives in the Forest Plan that directly tie to each of these potentially affected resources. The SDEIS fails to analyze the impacts of ORV use within transmission corridors and neglects to describe the ability for the Forest Service to monitor and control ORV use as permitted by land management agencies. The creation of the transmission line ROW is also likely to lead to the establishment of an unofficial over-snow vehicle (OSV) route along this ROW with potential impacts to wildlife. Please see our related comments on OSVs. We recommend the Forest Service/Perpetua complete an analysis of OHV potential impacts and the measures needed to effectively manage them.

While the Forest Service/Perpetua are not designing the transmission line or other utility ROWs as trails for public motorized use, recreational motorized vehicle use will likely dramatically increase compared to the current administrative access. We are concerned that additional, unregulated motorized use could further impact wildlife such as elk, wolverines, deer, and migratory bird species, to name a few, and significantly degrade the experience and

[231] Arp, C.D., and T. Simmons. 2012. Analyzing the Impacts of Off-Road Vehicle (ORV) Trails on Watershed Processes in Wrangell-St. Elias National Park and Preserve, Alaska. In *Environmental Management* (2012) 49:751-766. DOI 10.1007/s00267-012-9811-z

opportunities for hunters and outfitters in the area. We are also concerned about increased sedimentation to streams, increased litter, loss of snags from firewood collectors, and spread additional noxious weeds. We point out that while Idaho Power has an enforceable requirement to clean vehicles of noxious weeds and seeds, the general public does not. Further, the increased unauthorized use of the ROW by the public following transmission line upgrades or new construction is directly related to the SGP. Therefore, Perpetua needs to incorporate a more thorough analysis of potential incidental impacts to wildlife and plant habitats and habitat fragmentation that resulted from increased ROW use. In addition, we are concerned about the proliferation of illegal motorized trails in inappropriate areas as a result of this conversion.

Encouraging public motorized use along these routes may also reduce the opportunities for non-motorized recreation in the area. As such, we recommend that these routes remain closed to public motorized vehicle access, and that Perpetua and the Forest Service provide a more thorough description of measures to prevent unauthorized use, with Perpetua committing to compensate Idaho Power for additional gates and outreach, education and enforcement costs related to restricting access to these routes.

The upgraded and newly constructed transmission lines may dramatically increase the amount of unauthorized motorized vehicle use and associated negative impacts, including human-caused wildfire ignitions. Additional outreach and education regarding travel management plans will help keep OHVs on designated routes and slow weed expansion. As part of this effort, we recommend partnering with user groups to help educate users on open routes. Signs and informational kiosks with maps should be placed at all trailheads and staging areas that communicate the Forest Service's policies and regulations regarding the use of motor vehicles on public lands. Printed materials in maps and at kiosks should include the following points: taking a map and knowing the trail system, keeping vehicles clean, using spark arrestors to avoid wildfires, staying on designated trails, and staying off muddy trails. Photos in outreach materials should display recreationists using proper trail etiquette. These resources should also be available online, and perhaps be accessible using a QR code incorporated into all signs and information kiosks.

The agency should indicate it reserves the right to close an area to motorized travel if recreationists do not follow the policies and regulations, or if recreationists participate in destructive riding practices on public lands. Outreach materials should include phone numbers for the relevant Forest Service or utility offices so that members of the public can report violations in a timely manner, thus increasing the capacity of user groups to encourage responsible use of the land.

We also recommend that all signs and trail markers should include an emblem of an American flag and the logo of local OHV groups that support the designated trail system in order to discourage theft and vandalism to help ensure that information remains readable and available. The Forest Service and Perpetua need to commit to additional trail rangers in the area for outreach, education, and enforcement actions.

Another utility associated with the Stibnite Gold Project are radio and cell phone communications towers. A new 60' cell tower, with a 30' x 60' base, would be located near the Meadow Creek lookout or on one of two sites within the operations area boundary: on a summit east of Blowout Creek drainage or near the proposed transmission line alignment upslope of the proposed Hangar Flats pit. The base would be 30' x 60'but the perimeter fencing, associated equipment and access routes would result in a greater area being disturbed. This tower should be located out of the line of sight from recreationists in the Frank Church River of No Return Wilderness. The SDEIS states that the two locations within the operations area boundary would not be visible from the Frank Church River of No Return Wilderness; however, these towers would be visible from the surrounding IRAs and the Meadow Creek tower would potential impact the NRHP eligibility criterion for the historic property (see our Heritage Resource comments) but does not confirm if the Meadows Creek location is within sight of the Frank Church, although it appears as though it would be. The Forest Service should conduct additional visual studies to confirm this. Towers and repeaters should be located consistently with existing recreational opportunity spectrum (ROS) designations.

The Meadow Creek Lookout already has an unresolved adverse effect due to the placement of a small utility building and supporting solar structure which obstructs the viewshed from the lookout. As partial mitigation for other structures, Perpetua should work with the Forest Service and SHPO on relocating these structures to reduce effects to visual resources.

4. Invasive grasses and noxious weeds

According to the Special Designations Specialists Report (SDSR) there will be 740 acres of vegetation removed within six IRAs to construct transmission lines, access roads, SGP facilities, and to construct the proposed Burntlog Route. This represents a significant opportunity for non-native plant species, particularly invasive plants and noxious weeds, to establish and create or expand unwanted vegetation populations. The SDSR supports this statement on page 78 where it states that, "Areas within IRAs where non-native plant species become established would alter vegetation composition and change the natural ecological processes." Mitigation includes BMPs for invasive plants and noxious weeds, with monitoring for 3 years following the reseeding and planting of disturbed areas. However, we

do not believe this is sufficient considering the decades worth of continued maintenance and use these ROWs and facility locations would require to establish and maintain protections against wildfire and access. In fact, the SDSR reinforces our concerns where it states that, "Maintaining the new transmission line, SGP facilities, and Burntlog Route during the 15 years of mine operation would increase the opportunities for non-native plant species distribution," (Special Designations Specialists Report, p. 78). We recommend that the Forest Service reexamine existing BMPs and Design Features and extend monitoring for noxious and invasive plant species throughout the life of the project *in all areas of disturbed soils and vegetation,* including closure and reclamation.

One of the most significant threats to any ecosystem remains the introduction of invasive grasses and noxious weeds associated with ground disturbing activities. We encourage the Forest Service/Perpetua to use integrated weed treatment methods. To the extent practical, herbicides should only be used as a last resort and avoided in sensitive areas such as riparian areas or areas with rare plant populations. Lands treated for noxious weeds should be restored to native plant species when possible. Preserving and restoring intact soil layers represents the best way to avoid invasive plant and noxious weed introduction. Therefore, we recommend disturbing as little soil as possible. This becomes especially poignant when the Forest Service takes into consideration the fact that very little topsoil, or growth media, is available within the project area and it is unlikely that enough can be preserved and stored to sufficiently facilitate the establishment of riparian areas during the reclamation period (SDEIS, Executive Summary, pp. 11-12).

We are concerned that soil disturbance can lead to the establishment of rush skeleton weed, spotted knapweed, dalmatian toadflax, and other noxious weeds. Newly constructed or modified rights-of-way associated with anthropogenic infrastructure also contribute to the spread of non-native plants.[232] The disturbance needed to upgrade existing transmission lines, construct new transmission line segments, to upgrade existing roads and to build new road segments like the proposed Burntlog Route provides an ideal vector for noxious weed expansion. The Forest Service/Perpetua needs to take far greater care to ensure that weed spread is minimized, particularly to special designations such as IRAs, the Chilcoot Peak Research Natural Area and the FCRNRW.

5. Transmission lines and wildfires

Numerous fires have started from transmission lines and the Forest Service needs to disclose those potential risks and ways to avoid, minimize, and mitigate these risks. Methods to minimize the risk of fires often involve establishing a wider ROW corridor, removing

[232] Gelbard, J.L., and J. Belnap. 2003. Roads as conduits for exotic plant invasions in a semiarid landscape. Conserv Biol 17:420-32

vegetation from a wider area, and conducting more frequent vegetation clearing. These fuel reduction measures will exacerbate the habitat fragmentation from ROW establishment and expansion. The Forest Service needs to evaluate the effects of both the transmission lines and maintenance activities and develop mitigation strategies.

Transmission lines can also be burned over in wildfires, leading to power failures. Because of the long distance of this transmission line, there will be numerous ways for power to be interrupted. In addition to wildfires, other mechanisms include vehicle crashes, avalanches, landslides, and wind storms. The Forest Service/Perpetua should also anticipate and have contingency plans at the mine site and at the water treatment facility if power is interrupted for long periods of time.

6. New road construction for the Burntlog Route violates Forest Service regulations regarding Forest Planning, access across National Forest lands, the Idaho Roadless Rule and Travel Management

New construction for the Burntlog Route would violate the Forest Plan. The newly constructed road would pass through Management Areas 20 and 21 which the Forest Service has prioritized for active and passive restoration and maintenance of aquatic, terrestrial, & hydrologic resources. Management actions may only degrade resource conditions for 15 years or less and must be designed to avoid degradation of existing conditions in the long-term:

> General Standard 2005 Management actions, including salvage harvest, may only degrade aquatic, terrestrial, and watershed resource conditions in the temporary time period (up to 3 years), and must be designed to avoid resource degradation in the short term (3-15 years) and long term (greater than 15 years). [233]

> General Standard 2010 Management actions, including salvage harvest, may only degrade aquatic, terrestrial, and watershed resource conditions in the temporary (up to 3 years) or short-term (3-15 years) time periods, and must be designed to avoid degradation of existing conditions in the long-term (greater than 15 years).[234]

[233] Boise Forest Plan III-375.
[234] Ibid. p. 376.

The Burntlog Route construction, operations and obliteration will result in over 20 years of negative impacts to aquatic, terrestrial, & hydrologic resources, in direct violation of the Forest Plan. Road construction is deemed so incompatible with protecting these resources that the Standards 2008, 2012 and 2015 have a prohibition on road construction not related to the identified exemptions:

> Road construction and reconstruction may only occur where needed: a) To provide access related to reserved or outstanding rights, or b) To respond to statute or treaty, or c) To address immediate response situations where, if the action is not taken, unacceptable impacts to hydrologic, aquatic, riparian or terrestrial resources, or health and safety, would result. [235][236]

And

> Standards 2050 and 2154: New roads shall not be built except to replace existing roads in RCAs or directly repair human-caused damage to TEPC fish habitat in streams unless it can be demonstrated through the project-level NEPA analysis and related Biological Assessment that adverse effects to TEPC species or their habitats are avoided unless outweighed by demonstrable short- or long-term benefits to those TEPC species or their habitats.[237]

New road construction for the Burntlog Route will also violate several Forest Plan objectives (Boise Forest Plan III-376):

> Objective 2014 Improve water quality by reducing road-related accelerated sediment delivery to upper Johnson Creek and its tributaries.
>
> Objective 2015 Assist in de-listing South Fork of Salmon River drainage, including upper Johnson Creek, from the State of Idaho's impaired water bodies list by applying appropriate and active watershed restoration to reduce sediment, which is the identified pollutant of concern.
>
> Objective 2016 Improve stream bank stability by reducing sediment delivery to Johnson Creek, and by revegetating banks with native plant species as needed.[238]

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[235] Ibid, p. III-375 and III-376.
[236] Ibid, p. III-388 and III-389
[237] Boise Forest Plan III-379.
[238] Boise Forest Plan III-376.

Perpetua is proposing construction and operations related to the Burntlog Route to provide access related to reserved or outstanding rights. However, as detailed above, there is already reasonable access to the Stibnite area by way of Forest Roads 412 and 375 as evident with the Forest Service's development of the Johnson Creek Alternative. These same roads previously supported decades of large scale mining activities, including open pit cyanide leach operations. There are also doubts about whether all of Perpetua's claims are valid, as detailed above. As such, we do not believe that any Forest Plan amendments to allow additional road construction are needed or legally supportable.

New construction for the Burntlog Route also violates National Forest travel regulations. Forest Service regulations provide that "Where there is existing access [...] that is adequate or that can be made adequate, there is no obligation to grant additional access through National Forest System lands." (36 C.F.R. 251.110(c) and (g)).

The Burntlog Route is also impermissible under the Idaho Roadless Rule (36 C.F.R. 294, Subpart C). The Idaho Roadless Rule generally prohibits road construction in Idaho Roadless Areas (IRA), including the Black Lake (5,335 ac.) and Burnt Log (23,699 ac.) roadless areas through which the proposed Burntlog Route would pass. The large majority of land in these two IRAs is classified by a "Backcountry/Restoration" management theme by the Idaho Roadless Rule. DEIS at 3.23-7. The Rule provides a limited exception for road construction to access valid existing claims when it is found to be needed: "Road construction is only permissible in Idaho Roadless Areas designated as Backcountry/Restoration when the Regional Forester determines … (iii) A road is *needed* pursuant to statute, treaty, reserved or outstanding rights, or other duty of the United States." 36 CFR § 294.22(b)(1) (emphasis added).

The inclusion of the word "needed" is significant in the consideration of the road construction associated with this project. It requires the Regional Forester to consider the necessity of the road construction in balancing the underlying intent and direction of the roadless rule (to protect roadless values and integrity) with any statutory and/or outstanding rights. In this instance there is no "outstanding right" because that right is currently satisfied by existing access along the Johnson Creek and up the East Fork South Fork Salmon River (identified as the Yellow Pine Alternative in the DEIS and the Johnson Creek Alternative in the SDEIS) which does not bisect roadless areas.

The limitation on the construction and use of temporary roads for administrative purposes is reiterated in the FEIS for the Idaho Roadless Rule, which states "Temporary roads are not intended for public use and are not subject to the Highway Safety Act of 1966."

. Public motorized use of the road would not be an administrative use, and therefore the proposal to authorize it is inconsistent with the Idaho Roadless Rule.

Allowing public motorized use on the new 15 miles of the Burntlog Route would violate the Travel Management Rule which limits motorized public access to roads, trails and areas designated for motor vehicle or over-snow vehicle use (36 C.F.R. 261.13). The Forest Service is classifying the 20-year+ Burntlog Route as a temporary road needed to provide access to mineral claims under the Mining Law of 1872. The Idaho Roadless Rule specifically incorporates definitions of Forest Roads and Temporary Roads from 36 CFR § 212.1. According to those definitions, a temporary road is "authorized by contract, permit, lease, or other written authorization that is not a forest road or trail and that is not included in a forest transportation atlas." The Idaho Roadless Rule goes on to clarify (36 CFR Part, Subpart C, § 294.21 Definitions) that "Temporary roads are available for administrative use until decommissioned."

Setting aside the issue that the Burntlog Route is not consistent with the Idaho Roadless Rule and Payette Forest Plan, the Burntlog Route should not be available for public motorized use as a Forest Road or Trail (some motorized trails overlap with Forest Service administrative roads on the Payette). The proposed new section of the Burntlog Route is not included in the Forest Transportation Atlas, is not considered a Forest Road, has not been designated for motor vehicle or OSV use (36 C.F.R. 261.13) and is therefore only available for administrative use and implementation of the Special Use Permit, and not public motorized travel.

However, the Forest Service is considering allowing public motorized use of the Burntlog Route during the approximate one year time in which the replacement Stibnite Gold public access road is being constructed from the north part of the Operations Area, through the mine site, and on to Thunder Mountain:

> The newly constructed Burntlog Route connecting to Thunder Mountain Road would be a temporary road necessary for mining purposes and would meet 36 CFR 228A requirements for environmental protection to assume that mine operations are conducted to minimize adverse environmental impacts to the extent feasible for roads. Accordingly, the road would not be designated for public motor vehicle use under 36 CFR 212.50 on the Motor Vehicle Use Map. Therefore, for public motor vehicle use to be allowed on the road when other public access roads are blocked by mine operations, one of the other exceptions from the prohibitions on motor vehicle use on NFS land at 36 CFR 261.13 must be met. The approved plan of operations would meet the exception for written Forest Service authorization under 36

> CFR 261.13(h) by including a provision in the mine plan for public use of the road when other public road access is blocked by mine operations. SDEIS 4-490.

The Forest Service is considering utilizing 36 CFR 261.13(h) which allows the Forest Service to authorize motor vehicle use under a written authorization:

> **(h)** Motor vehicle use that is specifically authorized under a written authorization issued under Federal law or regulations;

However, this exemption was never intended to be used so broadly. The Forest Service travel management directives state, "Examples of a written authorization include contracts, easements, and permits." (FSM 7716.2(1)(h)). Contracts, easements, and permits are not issued to the general public. They are issued to entities that have approved for special uses. Therefore, it is illegal to authorize public use of the Burntlog Route under this exemption. Even if the Forest Service were to authorize construction and public use of the Burntlog Route, the agency would have to properly adhere to Subparts B and C of its travel management regulations.

Such a federal action would still have to be consistent with NEPA and the NEPA analysis for such a proposal here is clearly lacking. Furthermore, 36 CFR 261.13(h) was never intended to open such a sensitive route for public access for that duration.

By setting this precedent, the Forest Service will open itself up to an expectation that the Forest Service will open the Burntlog Route whenever the Johnson Creek Route/Stibnite Road is closed for any length of time. The replacement public route through the Operation Area to Thunder Mountain will not be open for at least a year while it is being constructed and will also be closed for several days each year due to any number of reasons: mining sequencing such as blasting and hauling, avalanches along the Stibnite road, spill cleanups, or other issues. The Specialist Report appears to confirm this expectation:

> Burntlog Route, **which would be open to public use when other routes into the area are not available**, could increase disturbance to wildlife species as the public could use the road at any time of day.[239] (Emphasis added.)

Using 36 CFR 261.13(h) in this circumstance sets a bad precedent for other issues where the Forest Service has determined that increased motorized recreational activity will have negative environmental impacts.

[239] Stibnite Gold Special Designations Specialist Report p. 56.

Regardless of whether or not general or specific criteria apply, the agency must demonstrate how its "written authorization" complies with the Travel Management Rule, including how the environmental analysis in support of that authorization demonstrated the agency adequately considered the general effects, and the minimization criteria (if applicable). The Forest Service would need to demonstrate how it considered public motorized use of a new road within an IRA in its written authorization and would require supporting analysis that addresses impacts to roadless characteristics (i.e., natural resources), quiet recreational opportunities, and conflicts among uses of NFS lands, especially if those lands have a semi-primitive, non-motorized setting. Specifically, 36 CFR 212.55(a) states in part:

> "the responsible official shall consider effects on National Forest System natural and cultural resources, public safety, provision of recreational opportunities, access needs, conflicts among uses of National Forest System lands, the need for maintenance and administration of roads, trails, and areas that would arise if the uses under consideration are designated; and the availability of resources for that maintenance and administration."

We maintain that the road should not be open to public motorized use absent a travel management designation decision consistent with subpart B of the Travel Management Rule (and consistent with the Roadless Rule as well, given location through an IRA).

7. The SDEIS fails to clarify public access along the Burntlog Route

Adding to this confusion, the SDEIS is inconsistent regarding whether the new 15-mile section of the Burntlog Route will be open to the public or not. The SDEIS states that, “Approximately 13.5 miles of *new private* access roads would be created during the life of the mine,” (SDEIS, p. 4-490, emphasis added). This statement appears to align with the provisions of the Idaho Roadless Rule being cited for authorizing the extension of the Burntlog Route with new construction that will lead to the SGP mine site. Several Specialist Reports also say that the Burntlog Route will be closed to public access, whereas other documents inconsistently state that the route could be open,will be open when other access is closed or simply will be open. The analysis fails to describe how the Forest Service/Perpetua will ensure that the proposed new section of the Burntlog Route will remain “private” and only available for direct mine-related traffic. Because new road construction for public access is prohibited under the Idaho Roadless Rule, and the Forest Service has failed to identify potential methods enforcing this restriction, authorizing the construction of the route will represent a violation of the Roadless Rule and the Forest Plan. As it stands, increased traffic volumes associated with mine construction, operations, and closure activities will

result in decreased wildlife security and impacts to roadless and wilderness values (see below and our specific comments regarding Special Designations). Allowing public access on roads proposed for authorization specifically for mine access will increase impacts to the roadless areas through unauthorized trail creation, increased sediment delivery, and will significantly increase Perpetua's liability should a traffic accident occur between mine-associated trucks/equipment and a private citizen traveling within the mine site or along the Burntlog Route.

Further, traditional closure methods such as Kelly humps or large boulders are obviously inappropriate for this application. Therefore, we recommend the Forest Service require Perpetua to construct and staff an "access control booth" at the point where the existing Burnt Log Road ends and where the proposed new construction of the Burntlog Route would begin during summer operations when the Burnt Log road is open to wheeled vehicles. If mine operations are to extend to 24 hour shifts with traffic potentially moving through this corridor potentially at all times of the day and night, then the booth should be staffed 24 hours/day, seven days/week unless the mine and all associated operations and transportation is closed. During those periods, the road should be heavily gated with all potential "drive around" opportunities closed and/or removed.

The recommendation for a staffed access control point will adequately restrict summer traffic on the newly constructed portion of the Burnt Log Road; however, it does not address the increased traffic that will occur on the existing portion of the Burntlog Route during the winter when it is plowed and maintained for mine access. This portion is currently unavailable to the majority of summer motorized traffic (snowmobilers could use the unplowed surface and non-motorized backcountry travelers are known to use the route as well). Should the Forest Service allow public motorized access along the existing Burnt Log Road during winter months (due to increased access resulting from Perpetua's winter plowing and maintenance), the agency would be in violation of the Forest Plan unless this issue is addressed through Travel Management Planning or through a Forest Amendment. An alternative method would be to close the route from its current closure location near Landmark. The most consistent and protective approach would be to keep the current winter closures in place near Warm Lake and not allow new public motorized use on the newly plowed road to Landmark and the same on the Burntlog Route or Johnson Creek Route. As with the proposed Burntlog Route, this access control point should be staffed by Perpetua to ensure that mine-only traffic travels beyond these checkpoints.

8. **Increased traffic along the Burntlog Route will impact wildlife, roadless, and wilderness values**

The SDEIS analysis of traffic patterns and impacts indicate that traffic volumes along a reconstructed and newly constructed Burntlog Route will increase traffic volumes by over 71 percent under the 2021 MMP, "with 27.5 percent of the traffic comprised of heavy vehicles," (SDEIS, p. ES-23). This increase will result in significant impacts to wildlife through habitat fragmentation, interrupted wildlife migratory corridors, and loss of animal security. The SDEIS fails to analyze or report the potential impacts associated with the most common vehicle/wildlife collisions, which consists of vehicle strikes of ungulate species. The Wildlife Specialists Report does define "incidental take" as it relates to ESA-listed, proposed, or candidate species (p. 102), and rightfully attributes traffic collisions as a factor contributing to "incidental take." Furthermore, without defining migratory corridors within the SGP, the Forest Service cannot ascertain the true impacts the proposed Burntlog Route would have on wildlife, and specifically migratory ungulates.

The Wildlife Specialist Report does acknowledge that, "An increase in big or small game collision mortality along roadways would be likely as the Burntlog Route segment would be new to the area and would be plowed throughout the winter," (p. 114). However, this statement directly relates to the potential impacts and impacts regarding wolverine. The document fails to determine or report how much of an increase is expected, how those increases would affect populations, nor offer mitigation or Design Features beyond, "All staff and contractors would be trained to reduce wildlife collisions," (p. 114). Please see our wildlife comments section for more information on the impacts of the Burntlog Route on wolverine.

The Burntlog Route will alter the character and nature of roadless areas and wilderness values associated with the Black Lake, Burnt Log, and the FCRNRW. Increased traffic volumes will significantly increase noise levels and light pollution along the route and detract from the primitive and solitude values associated with the designated areas.

Regarding the Johnson Creek Road, the SDEIS claims in numerous locations (see table 4.16-3, p. 4-491 of the SDEIS as an example) that once the Burntlog Route is complete, no mine traffic, and particularly heavy vehicles, will use the Johnson Creek route. We believe it is unreasonable to expect that zero mine traffic will use this route given the SDEIS fails to offer mitigation or Design Features that will ensure all mine traffic will adhere to the Burntlog Route. Further, Perpetua has stated the value of having redundant routes available in case of an emergency (DAC, 2021 at 1). Construction of the SGP under the Johnson Creek Road alternative is anticipated to extend the life of the project by two years. However, by not having to completely reclaim the Burntlog Route and the additional associated access roads/routes following closure, Perpetua may be faced with a null benefits/loss statement that in effect balances itself regarding fiscal output and total commitment. We recommend that

the Forest Service complete a thorough cost/benefit analysis of these two alternatives to determine the true worth and value of each regarding potential impacts and adverse effects.

We also believe it is unreasonable to assume that traffic along the Burnt Log Road would not increase due to the newly created access attributed to Perpetua's winter maintenance and have adverse effects to wildlife, roadless, and wilderness values. The West Central Idaho mountains are a destination location for local snowmobile enthusiasts, as well as visitors from across the state and Pacific Northwest. Further, backcountry non-motorized recreationists will also take advantage of the newly created "access" and available terrain. Perpetua and the Forest Service offer no mitigation plans to handle this increased traffic volume or to mitigate the potential impacts.

9. **The SDEIS does not describe what specific substrate monitoring will be done to protect fisheries habitats**

In the DEIS, Perpetua Resources designated two aquatic monitoring methods — nephelometry and total suspended solids — as their monitoring tools. The Payette and Boise National Forests have for the past 35-50 years used, and are now required under ESA to use, stream substrate monitoring methods — modified McNeil core samples, cobble embeddedness, and free matrix. There are no known correlations between nephelometry, total suspended solids and the three stream substrate measurements. We pointed these discrepancies out in our comments on the DEIS. However, the SDEIS again fails to answer our questions regarding how the two proposed monitoring methods correlate with methodologies **required** by the Payette and Boise National Forests. Further, the SDEIS fails to describe which monitoring methodologies will be used in the replacement/new construction of culverts and bridge abutments on the Burnt Log and Johnson Creek/Stibnite roads. We question why these methods are not brought forward in the analysis or monitoring portions of the SDEIS.

10. **No current road sediment production data was gathered, and no project monitoring methods were described for road sediment generated during use by the mine**

Sediment generated from existing roads, from construction and reconstruction of roads, and use of roads has been a major problem for fish and fish habitat in granitic streams for over 50 years. Several methods to model this sediment exist and have been a mainstay in FS project documents. The SDEIS does not show the use of any modeled sediment for the reconstruction or use of Johnson Creek and Stibnite roads, or the use, reconstruction of 20 miles of the Burnt Log Road, and the new construction of 15-20 miles of the Burntlog Route. This should be used as a comparison between alternatives. No data collection over

time was shown in the SDEIS. Sediment changes in the substrate were not modeled or shown in the SDEIS as a monitoring tool to show changes in the fish habitat especially of Burntlog Creek, Trapper Creek, Riordan Creek, Johnson Creek and the East Fork South Fork Salmon River.

11. Up-to-date geologic hazard assessment not completed on existing Johnson Creek or Stibnite roads

Several major slides and debris falls have occurred recently on the Stibnite road, and several high hazard locations are known on the Johnson Creek (and at least one on the upper Warm Lake road near the summit). These roads will be used no less than two years during construction and potentially in the 2021 MMP alternative for the life of the project. Yet full reconstruction will not occur on these roads according to the current plan. The most recent geologic hazard assessment cited in the SDEIS is STRATA, 2016. It is unreasonable to assume that conditions remain the same six years after the most recent assessment. Further, we recommend that the Forest Service require a new geologic hazard assessment every two years at a minimum through the life of the project.

12. Use of an "upper slope" road is better than a "lower slope" road

The gist of the argument in the DEIS (2020) and SDEIS is that the Johnson Creek/Stibnite road access ("lower road") will be worse that the Burntlog Route ("upper "or "mid-slope "road) access primarily from the number of landslides/rockslides, the extra two years of construction required if the Stibnite road is to be the primary haul route during construction, and the longer lengths of roads parallel to a stream. Literature shows that the lower roads ``receive" the slides/rockfalls, but the upper/mid-slope roads generally "create" them. Many sediment creating and delivering functions exist in the literature on upper/mid-slope roads that have not been put into context to allow choices to be made between alternatives.

13. SDEIS fails to address "91-meter" buffer zones as described in the DEIS

Riparian habitat conservation areas (RHCAs) were developed to mitigate sediment migration to streams, stream temperatures, and to control the amount of harvest/management adjacent to streams. They can reduce harvest generated or road produced sediment depending on the amount of materials on the slope surface to trap sediment, the steepness of the slope, etc. 91 meters (300 ft) is a common distance for perennial streams. For road sediment, IF the roads were out-sloped (the road design for the DEIS is IN-sloped to a ditch line) the 300 ft distance generally would slow and possibly trap the sediment. What is not accounted for are the culverts, and ditch lines focusing the sediment to specific locations,

which can add sediment directly to streams, or create a stream channel (from water concentration) and start to erode the slope to the nearest stream and deliver sediment. There is no known use or promulgation of an RHCA as a "filter" or "buffer" for spills, especially for diesel and gasoline products.

The SDEIS instead relies on defining the number of stream crossings and miles of road, "within 0.5 miles of surface water resources," (SDEIS, p. 4-139). However, the SDEIS fails to justify the change in reference from a 91-meter buffer zone to how close a road segment is to surface water sources. If a hazardous materials spill is anywhere near a drainage, perennial or otherwise, the chances increase that the hazardous materials will reach a surface water source, particularly with nearly 40 miles of surface water/streams being identified within this 0.5 mile zone. The Forest Service/Perpetua need to describe how the "91 meter strip"buffer discussed in the DEIS was replaced by the "0.5 mile" value in the SDEIS, what the significance of the change is, and how the agency justifies the pivot.

14. Burntlog Route and associated roads and ROWs will contribute significant sediment to waterways

As is documented in the Fisheries, Recreation, Soils and Reclamation, and Water Quality Specialist Reports associated with the SGP and SDEIS, and further supported by our own analysis and comments (Newberry 2022), the Burntlog Route and the associated Thunder Mountain Connector Road will contribute a significant amount of sediment to Burntlog, Trapper, Trout, Cabin, and Riordan creeks. During the Burntlog Route construction, including bridge and culvert installations, the potential exists for increased runoff, erosion, and sedimentation resulting from localized vegetation removal and soil excavation which could result in increased sediment load in streams. Construction of and upgrades to access roads creates a potential for increased runoff, erosion, and sedimentation as a result of localized vegetation removal and excavation of soil, rock, and sediment, which could result in increased sediment load in streams. Expected permit stipulations from IDWR and IDEQ would ensure streambank vegetation would be protected except where its removal is necessary. New cut or fill slopes not protected with some form of stabilization measures would be seeded and planted with native vegetation to prevent erosion. Use of temporary erosion and sediment control BMPs also would be employed.

We are concerned that Perpetua has not proposed any fish habitat or sediment monitoring stations near the Burntlog Route extension. Further, there are no erosion monitoring sites for the proposed Trapper Creek and Riordan Creek headwater stream crossings, nor for for the Cabin/Trout (FR 467) road in Cabin Creek and Trout Creek when 1.6 miles of avalanche hazards were recognized (Fig. 3.2-6; p. 3-29) in the transmission line

and OSV reconstruction with bull trout and Chinook salmon and steelhead habitat downstream of this road.

We believe that without these critical monitoring site locations, neither the Forest Service nor Perpetua will be able to accurately assess the impacts to water quality and fisheries from sediment delivery. This becomes even more critical from the point the existing Burnt Log Road ends, and increases from that point towards the mine site. This is directly attributable to the region's erosive geology, which becomes more erosive nearer the SGP mine site. Further, the highly erosive local granite has yet to be tested and quantified for hardness, and is likely inappropriate for use during Burntlog or other road/route construction as it would contribute to sediment rather than contribute to sediment or dust control when placed on roadbeds.

Further, a bull trout assessment was completed for the streams in the physical APE of the mine site. However, the Forest Service/Perpetua have yet to complete a bull trout habitat assessment for the streams crossed by the existing and proposed Burnt Log (FR 447) road, which crosses many perennial and perennial fish bearing streams listed as critical habitat for bull trout. This represents a significant gap in baseline data and we recommend that the Forest Service reopen consultation with the USFWS and NOAA Fisheries to determine the existing assessment of bull trout critical habitat within the entire physical SGP APE and the impacts increased sediment delivery could have on these streams and the native fish they support.

The full extent of our comments regarding sediment and water quality along the proposed roads/routes, ROWs, and utility locations are attached to this report: Newberry (2022).

15. SDEIS contains two locations for the proposed Burntlog Maintenance Facility

Two sites appear in various SDEIS, DEIS and Specialist documents to be the location of the proposed Burntlog Maintenance Facility site. One is adjacent to Peanut Creek, and the other at "...approximately 4.4 miles east of the junction of Johnson Creek Road (CR 10-413) and Warm Lake Road (CR 10-579)." These two sites are 0.5 miles away from each other and are physically different locations. If the two locations are presented as a form of "alternative," it is not clear which location is preferred, nor is it clear why the Forest Service/Perpetua would propose alternative locations for the same facility. In any event, we recommend that the Forest Service determine which location is accurate and remove all references to the second locale and complete data analysis, particularly those associated with sediment deposition, impacts to IRAs and wilderness, fisheries, and wildlife. We pose

numerous questions and make recommendations regarding this specific topic in Newberry 2022 (Section 11.a.1, p. 19).

16. SDEIS uses outdated population growth data to assess impacts to access and transportation

The SDEIS states that the Forest Service/Perpetua used a static growth population rate to analyze the alternative impacts to access and transportation (SDEIS, p. 4-484), with Valley County assuming a four percent population growth throughout the county in the Master Transportation plan. Admitting that the area's population has grown rapidly and is predicted to continue at a "substantial rate," the agency and Perpetua refute these conclusions by saying that, "in general, rural areas have been static, and populations are predicted to remain the same or increase at a slower rate," (SDEIS, p. 4-484). All of Idaho's public lands have experienced exponential use increases throughout the past three years, in part due to the COVID-19 pandemic.

The pandemic ushered in a new era of public land recreation with people visiting public lands more often than in years past and with new recreationists discovering and then "loving to death" many of our iconic recreation areas. Further, remote working became more common during the pandemic and many rural towns were severely impacted by sudden growth bursts which have yet to significantly slow. The SDEIS fails to take these considerations into account, resulting in an undervalued analysis of population growth and traffic patterns. The Forest Service needs to update these data, apply more realistic population growth estimates, including data available from the 2020 census, to determine a realistic value, and therefore realistic impacts to access and transportation throughout the region.

17. The SDEIS includes weak recommendations for improvements to the Warm Lake Road/SH-55 intersection

Section 4.16.2.2 of the SDEIS describes the proposed improvements to the Warm Lake Road intersection with SH-55. The section also states that Perpetua "would" work with the ITD to improve the intersection to make it appropriate for high levels of heavy and light vehicle traffic. We believe that "would" represents weak language with room for Perpetua to move away from the proposed improvements. There are many instances of this passive language throughout the SDEIS and we recommend a global search and replace with more proactive language such as "will."

Regarding the improvements, the SDEIS indicates that they, "may include the addition of a northbound right turn lane, a southbound left turn lane, a new southbound

through lane or an acceleration lane on SH 55; modified striping to reduce the skew angle to better accommodate heavier vehicles without additional improvements; and relocation of the 35-mph to 50-mph increase in speed limit on SH 55 at Warm Lake Road farther north," SDEIS, p. 4-485). These proposed improvements are critical to making the intersection safe for increased traffic volumes, heavy vehicle traffic related to construction and supply chain fulfillment (including hazardous materials like fuel, potassium cyanide, and dynamite, to name a few), and transportation of processed materials to an off-site location. If these are the recommendations of IDT for increased safety, then the Forest Service *must require* Perpetua to complete all said improvements. Requiring these improvements is fully within the purview of the Forest Service being the project review and permitting authority for this project with a clear and undisputed federal nexus.

18. The SDEIS misrepresents maintenance agreements with Valley County

There are two locations within the SDEIS (pp. 2-17, 4-486) that indicate that "Perpetua has an existing agreement with Valley County for maintenance of Johnson Creek and Stibnite roads," (SDEIS, p. 2-17). This is partly accurate. Perpetua has an existing agreement for winter maintenance only of the Stibnite road; there is no existing agreement between Perpetua and Valley County for the maintenance (winter or otherwise) of the Johnson Creek Road. The actual agreement between Valley County and Perpetua is correctly referenced in other locations, including the Access and Transportation Specialist Report. We recommend that the Forest Service complete a global search and replace to correct this error.

19. SDEIS fails to analyze impacts and risks associated with the transportation system beyond the Warm Lake Road/SH-55 intersection

Transportation analysis for the SGP effectively ends at the intersection of Warm Lake Road and SH-55. Because this project represents a federal undertaking, the Forest Service and Perpetua are mandated to complete a transportation analysis of the full transportation route. This should include routes for fuel transportation, hazardous chemicals and reagents used in ore processing, and dynamite and ammonium nitrate used for breaking the bedrock matrix and ore deposit matrix. We understand that this could include several routes along SH-55, SH-95 and roads that connect these two primary transportation arteries in West Central Idaho.

This analysis should include potential risks associated with transporting materials through municipalities along those routes, assess vulnerabilities with each route, and develop mitigation measures and/or design features that would reduce or eliminate potential impacts from those risks or vulnerabilities.

N. New motorized vehicle routes

1. Baseline and projected recreation information missing

The SGP would result in dramatic changes to motorized access and recreation patterns. The additional roads and trails open for public motorized access include the following:

- Burntlog Route (at USFS discretion according to the 2021 MMP),
- OHV Connector Trail from Horse Heaven/Powerline to Meadow Creek Lookout Road FR 51290 (dropped from 2021 MMP but still is referenced in SDEIS),
- Johnson Creek Road temporary OSV route,
- Cabin Creek OSV route,
- Public access road through the SGP to connect Stibnite Road to Thunder Mountain Road.

It is unclear in the SDEIS if and how the Forest Service responded to our previous comments in the DEIS regarding OSV and OHV issues. There continue to be a number of substantive issues with these proposals. The SDEIS incorrectly describes the competing SGP activities and expanded motorized routes as "short term" which is misleading and inaccurate for a 20+ year mine life. The Forest Service has not done its due diligence regarding baseline recreational use in the area and cannot provide a quantitative estimate of impacts:

> Because there are no specific recreational use and demand estimates for the analysis area, the discussion of changes to recreational use is qualitative, and describes potential changes in recreational use due to displacement, increased access, reduced acreage for recreation, and changes in the recreation setting.[240]

Tools such as road counters, trail cameras, and public surveys could be used to obtain this data. Without a quantitative baseline of recreational use and demand estimates, the Forest Service will not be able to anticipate effects or know how to best avoid, minimize, or mitigate impacts. In addition, members of the public who value recreating in this area will not know how their recreational experiences will be affected if the project proceeds.

2. OSV Routes

The SGP proposes to convert two groomed OSV routes (Warm Lake to Landmark and Landmark to Wapiti Meadows Ranch) to year-round mine access routes. The SGP

[240] Recreational Special Uses Report, p. 13.

proposes to provide two new groomed routes as a form of mitigation for the loss of these motorized recreation opportunities during mining activities. The SGP proposes to end trail grooming on these routes following completion of mining activities.

The Forest Service's Over-Snow Vehicle (OSV) Rule[241] - Subpart C of the Travel Management Rule - provides a framework for winter travel planning efforts on all National Forest lands. The OSV Rule requires National Forests with adequate snowfall to designate and display on an "over-snow vehicle use map" a system of routes and areas where OSV use is permitted based on resource protection needs and other recreational uses. OSV use outside the designated system is prohibited. While the project in question here is not specific to winter travel management, it is still necessary that the Forest Service abide by the requirements of the OSV Rule in making any decisions concerning the designation – and grooming - of new OSV routes.

An important element of all Forest Service travel management planning is compliance with the "minimization criteria". These criteria were outlined in Executive Orders 11644 and 11989, issued by Presidents Nixon and Carter in 1972 and 1977, respectively. The criteria require federal land management agencies, when designating routes (and areas) open to motorized travel, to: 1) minimize damage to soil, watershed, vegetation, or other resources of the public lands; 2) minimize harassment of wildlife or significant disruption of wildlife habitats; 3) minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands; and 4) minimize conflicts among different classes of motor vehicle uses of National Forest System lands or neighboring Federal lands.[242] The Forest Service codified these "minimization criteria" in subparts B and C (the OSV Rule) of its travel management regulations.[243] When modifying the snowmobile trail system, designating new OHV routes, or making other determinations that affect motorized use of routes or areas the Forest Service is required to abide by the minimization criteria.

REST04 in the Payette Forest Plan states that "On all lands outside of designated travel ways, motorized use shall be prohibited unless otherwise authorized." Neither of the two proposed new OSV routes in the SDEIS alternatives are currently designated OSV routes on the Payette National Forest.

In order to designate these routes – even as temporary routes – the Forest Service must follow the requirements of the Travel Management Rule Rule and comply with the minimization criteria. The fact that the area through which the proposed OSV routes would

[241] 80 Fed. Reg. 4500 (Jan. 28, 2015), 36 C.F.R. part 212, subpart C.
[242] *Id.* § 3(a).
[243] 36 C.F.R. §§ 212.55, 212.81(d).

travel is not closed to OSV use does not affect the need to adhere to Travel Management regulations when designating these routes as groomed OSV routes. The Payette National Forest has not conducted Subpart C travel management planning, and thus has not gone through a process to determine where OSV use is appropriate. The forest is continuing to operate under a pre-Travel Management Rule paradigm of "open unless designated closed", which is incompatible with current agency policy. Committing to a 20-year groomed OSV trail in the absence of any travel management decisions contravenes agency policies and prejudices the future Subpart C process. Elsewhere in the Forest Service system the agency has acknowledged that grooming increases OSV use by over 50%[244] — thus, designating new groomed routes is likely to have significant impacts on wildlife, natural resources, and other uses.

In response to litigation from Winter Wildlands Alliance, The Wilderness Society, and WildEarth Guardians, the Payette National Forest clarified that it administers over-snow motor vehicle use in accordance with prior decisions and that the Forest Service needs to conduct winter travel planning.[245] Section 3.16.2.3 is the only part of the DEIS that addresses the Travel Management Rule. Although this section briefly describes the Rule, and states in that "The Forest Service issued orders including maps showing the areas where OSV use is allowed, prohibited, or restricted", this statement should be amended to clarify that these orders — and the forest — are not compliant with Subpart C of the Travel Management Rule. This section of the SDEIS should also state that any new ORV — including OSV — designations necessitate application of the Travel Management Rule. Specifically, if the Payette Forest wishes to designate new ORV routes (and parking areas) to offset routes lost to the Stibnite Gold Project, it must ensure that the new routes are located in a manner that minimizes damage to natural resources, minimizes harassment of wildlife or significant disruption of wildlife habitat, minimizes conflict between uses, and minimizes conflict between differing classes of motor vehicles. Of particular concern for our organizations, given the location of these proposed routes, is the impact that each route will have on wildlife populations and on roadless characteristics.

The SDEIS does not even mention that there are requirements the Forest Service must abide by when designating ORV routes, including groomed snowmobile trails, much less apply these requirements to the proposed new routes. The Forest Service must explain how taking actions that could dramatically increase OSV use on the Cabin Creek Road and along Johnson Creek will satisfy the requirement to minimize harassment of wildlife or significant

[244] See, for example, Lassen National Forest OSV Use Designation FEIS, available at https://www.fs.usda.gov/project/?project=45832

[245] *See* March 12, 2018 letter from the Payette National Forest to Lauren Rule, Senior Staff Attorney at Advocates for the West. File code 1570

disruption of their habitat. If these routes cannot be located in a manner that complies with the minimization criteria, they cannot be designated.

The Forest Service's assertion that these trails can be authorized under 36 CFR 228A as part of a plan of operations[246] is incorrect. Access and infrastructure for recreation is not necessary to conducting mine operations. Designating routes for recreational use and access falls squarely under the Travel Management Rule. While the Forest Service can certainly designate routes for this purpose as part of the Stibnite Gold Mine NEPA analysis, it must apply the requirements of the Travel Management Rule when doing so.

The Cabin Creek Route will consolidate recreational traffic into an area that is almost twice the AHI as the existing route up the Warm Lake Road, increasing a public safety risk. The SDEIS noted that the proposed Cabin Creek OSV route from Warm Lake to Trout Creek has a 40% higher avalanche potential than the Warm Lake to Landmark OSV route. (SDEIS p. 4-538).

Yet, DAC (2021) states that "[a]valanche control is not necessarily recommended for this route" because it increases risk to Perpetua in terms of decisions to open/close this terrain, and in the timing of temporary closure and avalanche control." DAC (2021), at 52. Moreover, DAC (2021) notes that "[a] control program along this route would also significantly increase the cost of [Perpetua's] avalanche safety program." *Id.* Thus, the direct and foreseeable cumulative impact of the Cabin Creek OSV route–that recreational use will be concentrated in an area that poses substantially increased risk to human health and safety–must be addressed, especially to resolve the apparent conflict between the recommendations in DAC (2021) and the SDEIS' proposal to shunt recreational traffic onto the Cabin Creek OSV route.

There will likely be avalanche control for mine traffic along the Warm Lake to Landmark Road and also along the Burntlog Route or the Johnson Creek Route if that alternative is selected. The SDEIS notes that avalanche control may attract skiers and OSV riders "due to the perception of low risk" and that this could add an "uncontrolled random factor into the highway safety zone. (SDEIS p. 4-535). If access to these areas is to be provided, Perpetua and the Forest Service should provide an avalanche forecasting program with information on road, groomed routes, mine traffic and snow conditions.

Another indirect effect of maintaining new winter access routes that the SDEIS fails to consider is the limited backcountry skiing access in the area that does not require an OSV. Big Creek Summit and the areas adjacent to the Warm Lake Road past where Valley County snow plowing currently stops are popular car-access backcountry skiing areas. An indirect

[246] DEIS at 4.16-4

effect of avalanche control in the Cabin Creek or Warm Lake area may be increased backcountry skier use concentrated in these areas. The ability to drive a car between Warm Lake and Landmark creates a host of new, highly accessible backcountry ski terrain that would be controlled for avalanche hazard. Perception that avalanche control makes steeper ski terrain safe is a documented heuristic trap for travelers in avalanche terrain. SDEIS 4-535 The SDEIS should consider the direct, indirect, and cumulative effects that the SGP will have in creating new easily accessible backcountry skiing areas, and it should consider whether measures should be implemented to restrict access to these areas.

In addition, the Cabin Creek route includes seven stream crossings. OSV use has the potential for releasing burned and unburned fuel and lubricants into the environment, which can result in adverse impacts to water quality and alter snowmelt patterns.[247] Research has shown that snowpack concentrations of ammonium, sulfate, toluene, xylene, and benzene are positively correlated with snowmobile traffic.[248] When the snow melts, these pollutants, which are stored in the snowpack throughout the winter, are released in a concentrated pulse. The new Johnson Creek OSV route would be created on the western side of Johnson Creek Road between the proposed Cabin Creek Road groomed OSV route and Landmark. This new OSV route may require removing vegetation from riparian areas and could require new stream crossing structures, all of which may affect water quality in streams occupied by threatened fish species. The Forest Service can minimize OSV impacts at these stream crossings by installing bridges or culverts, to reduce direct contact between OSVs and surface water (including when streams are frozen).

These routes will also impact wildlife. The SDEIS raises the possibility that both routes will impact wolverines, with the Cabin Creek route bringing additional use and impact above the existing condition.[249] Please see wildlife comments. Section 4.13 of the SDEIS also states that this route may disrupt a number of bird species, fishers, bighorn sheep, and other wildlife due to increased noise or vehicle collisions. However, the SDEIS does not delve into these impacts in any detail, nor does it explain how the Forest Service intends to minimize these impacts, or if it is even possible to do so. The SDEIS does not address other impacts this route may bring to wildlife – such as increasing human activity during the time of year when many species are most vulnerable to disturbance. It is important that the Forest Service fully analyze potential impacts associated with the new Cabin Creek Road OSV route, as this route would increase use into an area that currently does not see much, if any, recreation use in winter due to lack of access.

[247] Lassen National Forest OSV Use Designation Project Revised Final EIS, Volume II, page 575. Available at https://www.fs.usda.gov/project/?project=45832
[248] Ingersoll, G. 1998. Effects of snowmobile use on snowpack chemistry in Yellowstone National Park.
[249] SDEIS at 4.13-17

Furthermore, the SDEIS states that the Cabin Creek route will be in an area that the Forest Plan has designated as Semi-Primitive Motorized in the winter. Contrary to the statement on page 4.19-27[250], FSM 2300, Chapter 2310 - Sustainable Recreation Planning states that semi-primitive motorized settings have *ungroomed*, but marked, OSV routes. Thus, contrary to the SDEIS, the addition of this groomed route will alter the estimated ROS physical setting of the area in winter.

The SDEIS fails to discuss in any way what impact the proposed OSV route along Johnson Creek will have. Because the Payette National Forest has not conducted winter travel management planning in accordance with Subpart C of the Travel Management Rule, it cannot assume that its existing system of OSV routes and areas comply with this Rule. The forest *must* apply the OSV Rule when designating new OSV routes in association with this project, *even* if the new routes are temporary or are adjacent to an existing route. Therefore, even though the Johnson Creek route will parallel an existing OSV route (the Johnson Creek road), the Forest Service cannot assume that a) the impacts of this route are the same as the existing route or b) that the existing route complies with the Travel Management Rule.

3. OHV Connector Route

The MMP2021 states that the proposed new OHV connector trail from Horse Heaven/Powerline to Meadow Creek Lookout Road was dropped from consideration:

> No OHV Trail from Horse Heaven/Powerline to Meadow Creek Lookout Road (FR 51290) (see MMPA2021 p. A-2).

However, this new OHV connector trail still appears in the SDEIS as part of the proposed action:

> Public access would be expanded from baseline conditions temporarily to additional roads and trails including Burntlog Route, **the OHV Connector Trail,** Johnson Creek Road temporary OSV route, and the Cabin Creek OSV route; (emphasis added, SDEIS Section 4.16.5.2, p. 4-501)

> More specifically, SGP construction would affect access to the operating areas of three outfitters and guides as a result of the development of Burntlog Route and **the OHV Trail**, as well as the closure of Stibnite Road and the Operations Area Boundary, discussed further in Section 4.19 (emphasis added, SDEIS p. 4-613)

[250] "This groomed OSV route would be in an area currently designated as Semi-Primitive Motorized in the winter, which is typically what the area around a groomed OSV trails is designated."

The OHV connector trail also appears in the SDEIS on Figure 3.2-2. If the Forest Service is still considering this trail, please refer to our 2020 comments on why this route should not be constructed.

4. Burntlog Route public access unresolved

Perpetua has stated it is interested in opening the Burntlog Route as a motorized route to the public, particularly when public access through the Operations Area Boundary to Thunder Mountain is closed due to mine construction or operations. The SDEIS is inconsistent as to whether the 15 miles of new construction on the Burntlog Route will be open to the public. Perpetua appears to be deferring to the Forest Service regarding whether or not the Burntlog Route is open to the public:

> ModPRO21: Same public access on Burntlog Route as Alternative 1 **(at USFS discretion)**.(emphasis added, Refined Proposed Action, October 15, 2021, p. A-2).

However, the SDEIS states that, "Approximately 13.5 miles of *new private* access roads would be created during the life of the mine," (SDEIS, p. 4-490, emphasis added). This statement appears to align with the provisions of the Idaho Roadless Rule being cited for authorizing the extension of the Burntlog Road with new construction that will lead to the SGP mine site. Several Specialist Reports also say that the Burntlog road will be closed to public access, whereas other documents inconsistently state that the route, "could be open." For example, SDEIS (2-20) states "Public use of the Burntlog Route would provide motorized access to Meadow Creek Lookout Road (FR 51290) and Monumental Summit."

The analysis fails to describe how the Forest Service/Perpetua will manage public access or ensure that the proposed new section of the Burntlog Route will remain "private" and only available for direct mine-related traffic.

As it stands, increased traffic volumes associated with mine construction, operations, and closure activities will result in decreased wildlife security and impacts to roadless and wilderness values (see below and our specific comments regarding Special Designations). Allowing public access on roads will increase impacts to the roadless areas through unauthorized trail creation, increased sediment delivery, and will significantly increase Perpetua's liability should a traffic accident occur between mine-associated trucks/equipment and a private citizen traveling within the mine site or along the Burntlog Route.

The existing Burnt Log Road and numerous other roads and motorized trails on the Boise National Forest are open to dispersed camping in which the public can drive 300'off the trail to camp. The nearby Payette National Forest does not allow the same off trail motorized use due to fisheries and other resource concerns and members of the public are instead allowed to drive one vehicle length off the road to camp. Should the new section of the Burntlog Route be constructed, there would be strong interest in driving a motor vehicle away from the route to camp away from mine traffic. However, there are several desirable but sensitive camping areas within 300'of this route including Black Lake, Burnt Log Creek and the Chilcoot Peak Research Natural Area which could be severely degraded by motorized vehicles. See Special Designations below. If the Burntlog Route is selected and public access is permitted, the Forest Service should utilize the protocols of the Payette National Forest and not allow cross-country motorized travel for dispersed camping along the newly constructed route.

As recounted elsewhere, this violates the Idaho Roadless Rule and the Forest Plan. The added recreational pressures on this area are in no way related to mining activities and would make the mining impacts on ecological integrity even worse instead of mitigating them.As such, the Forest Service should make as few changes in existing recreational access as possible and not expand motorized use unless necessary. The Forest Service and Perpetua should continue to allow public access through the Stibnite Operational Area on to Thunder Mountain, with a new route sited through the project area to avoid mining operations. As noted elsewhere, we believe that this is a public road and that Perpetua and the Forest Service need to utilize the normal ambient air quality standards for members of the public on this route. To manage public expectations and avoid delays, we recommend that Perpetua and the Forest Service have a web page describing the estimated schedule and potential closure times for each day and week.

In the winter, non-OSV vehicles currently cannot go past the Warm Lake area. We recommend continuing this and stopping all road traffic at the normal winter turnaround point and not allowing non-OSV vehicles on the Landmark Road or the Burntlog Route in winter. OSV use could continue from Warm Lake as proposed in the SDEIS, following winter travel planning. Outside of winter, we recommend opening the Warm Lake to Landmark road and the Johnson Creek Roads and the normal section of the Burnt Log Road to public motorized vehicles on the usual schedule as conditions allow but keeping the new portion of the Burntlog Route closed to public motorized vehicle use.

If the Burntlog Route is selected, it will be an unreliable transportation corridor in the winter and the Forest Service should keep the Johnson Creek Route available as an alternative access for wheeled vehicles route all winter long. In addition, the SGP mine project should be designed from the beginning to factor in extensive and multiple delays in

transporting materials as a normal part of its winter operations. Burntlog Route or Johnson Creek Route closures should not be used as an excuse to haul hazardous chemicals down the South Fork Salmon River Road.

5. Closure of the 14,221-acre Operations Area to all access

We are concerned about proposals to both dramatically increase and decrease public access patterns in the area. These changes include the significant and unnecessary expansion of motorized use which will have deleterious impacts on a number of natural resource issues. We are also concerned about the complete elimination of all public access in the 14,221-acre Operations Area, including for dispersed activities such as hunting and berry picking. We note that several other large scale open pit mining projects in southeast Idaho have smaller closure areas. The Forest Service and Perpetua need to provide additional justification for eliminating all public access in such a large area and not just at the perimeter of likely disturbance (accommodating a safety margin for blasting, etc.).

O. Wilderness, Inventoried Roadless Areas and the Chilcoot Peak Research Natural Area

1. Wilderness

The 2.3 million-acre Frank Church - River of No Return Wilderness (FCRNRW) is the largest contiguous federally managed wilderness area in the lower 48 states. The Wilderness is a part of the Payette National Forest, Salmon-Challis National Forest, Boise National Forest, Bitterroot National Forest, and the Nez Perce National Forest. The Middle Fork and Main Salmon Rivers run through part of the Wilderness, providing multiple opportunities for whitewater rafting. The Middle Fork and Main Salmon Rivers are federally designated waterways through the Wild and Scenic Rivers Act, a law that U.S. Senator Frank Church helped to create.

The FCRNRW offers unparalleled opportunities for solitude, mixed with unique access through grandfathered airstrips and motorized river use on the Main Salmon River. It is a special area because of its sheer size; by and large these motorized activities don't intrude on the wild character of the wilderness due to the vast area of the Frank Church. Hikers have vast areas of wilderness, including trailless areas that offer unique access to solitude, away from other hikers.

Senator Frank Church of Idaho was a wilderness pioneer. He was a leading advocate for the original Wilderness Act of 1964, as well as the Wild and Scenic Rivers Act of 1968. In 1980, he capped his career by successfully designating the River of No Return as a federal

Wilderness area in the Central Idaho Wilderness Act. After Senator Church developed cancer, Congress renamed the Wilderness to include his name, now known as the Frank Church – River of No Return Wilderness. Congress renamed the Wilderness just four weeks before the late Senator passed.

The Stibnite Gold Project, especially the 5.3-mile segment of the Burntlog Route high up in the Riordan Creek drainage, will impact the Wilderness characteristics of the FCRNRW. Mining, road construction, and mine access will produce noise, light, visual impacts, and dust pollution that is likely to affect the Wilderness nearby through direct impacts and edge effects that will degrade the area's unique ecological values and reduce the solitude sought out by hikers in a wild, trailless area and the scenery sought by river runners.

Designated Wilderness is any area of land designated by Congress as part of the National Wilderness Preservation System that was established in the Wilderness Act of 1964. Wilderness is "an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." 16 U.S.C. § 1131(c). Wilderness is further defined in the Wilderness Act as an area that "has outstanding opportunities for solitude or primitive and unconfined type of recreation." 16 U.S.C. § 1131(c)(2) (emphasis added). The FCRNRW plan recognizes that "the FCRNRW is one of the last intact wild places in the lower 48 and it therefore managed to provide ... opportunity for solitude on its rivers and land."[251] Further, "[t]he FCRNRW is a place where visitors can escape the modernized, mechanized, populated society. It is a place that visitors can use as a refuge from noise and pollution, a place where visitors can experience the wild and free forces of nature at work."[252]

a. Both the DEIS and SDEIS fail to adequately consider multiple impacts to the Wilderness characteristics of the Frank Church – River of No Return Wilderness

Both documents fail to adequately assess the impacts that the Stibnite Gold Project will have on the FCRNRW and user experiences there. Activities adjacent to Wilderness areas must be scrutinized to address whether they will have a significant effect on the Wilderness characteristics that originally spurred Congress to designate an area as Wilderness. Wilderness is not just a designation that prevents development; it is a place where people can find solitude or experience primitive and unconfined recreation. 16 U.S.C. § 1131(c)(2). The analysis and disclosure of impacts to Wilderness from activities outside the

[251] *Frank Church – River of No Return Management Plan*, Chapter 2, Revised May 2009 at pg. 2-47, Goal 1 (emphasis added), available at: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5300747.pdf (Attached).
[252] *Id.* at Goal 3 (emphasis added).

Wilderness boundary are critical. The Central Idaho Wilderness Act of 1980 does not contain any "no buffer" language as other wilderness areas sometimes incorporate.

In describing the context for wilderness impacts, the Special Resources Specialist Report appears to excuse impacts to Wilderness by noting that none of these impacts are intentional:

> SGP activities undertaken outside of the wilderness boundary are not designed with the intention of influencing populations or ecological functions within the wilderness or recommended wilderness.[253]

However, the Forest Service notes that impacts will still occur:

> During construction, operations, and closure and reclamation there would be less area within the FCRNRW or recommended wilderness areas where solitude, remoteness, and primitive recreation opportunities quality of wilderness character would be available. SDEIS 4-633.

The Forest Service appropriately notes that many of these impacts would be long term, but inappropriately characterizes them as "negligible to moderate" in that same section, fails to develop additional alternatives or design features to avoid, minimize and mitigate these significant impacts.

The Forest Service has a legal duty to avoid activities outside the Wilderness area that degrade the area's Wilderness characteristics. Section 4(b) of the Wilderness Act of 1964 requires that "each agency administering an area designated as wilderness shall be responsible for preserving the wilderness character of an area and shall so administer such area for such other purposes for which it may have been established as also to preserve its wilderness character." 16 U.S.C. § 1133(b).

> According to legal scholars, preserving wilderness character is *the* primary legal requirement from the 1964 Wilderness Act and all subsequent wilderness legislation to the agencies that administer wilderness. If wilderness character is not being preserved, then the agencies are not fulfilling their legal mandate in their administration of wilderness. "Wilderness character" occurs four times in the Wilderness Act (once in Section 2(a), twice in Section 4(b), and once in Section 4(d)(3)) and all four times the Wilderness Act states that wilderness character "shall" be preserved or protected. While the Wilderness Act clearly allows a variety of uses

[253] Special Resources Specialist Report p. 51.

> in wilderness, the administering agencies are still legally required to preserve the wilderness character of the area.[254]
>
> An interagency team[255] identified the following five main wilderness characters:

- Untrammeled—wilderness ecological systems are unhindered and free from intentional actions of modern human control or manipulation,
- Natural—wilderness ecological systems are substantially free from the effects of modern civilization,
- Undeveloped—wilderness is essentially without structures or installations, the use of motors, or mechanical transport,
- Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation — wilderness provides outstanding opportunities for solitude or primitive and unconfined recreation,
- Other Features of Value—wilderness may have unique ecological, geological, cultural or other features of scientific, educational, scenic, or historical value.

According to the Special Designations Specialist Report, each of these characters could be impacted by mining activities:

> Potential effects on the five qualities of wilderness character could occur during all phases (construction, operations, closure and reclamation) of the SGP. The duration of effects on wilderness character considered includes temporary, short-term, or long-term.[256]

Federal courts have interpreted this requirement to maintain Wilderness characteristics to mean that an "agency's duty to preserve the wilderness … is wholly independent of the source or location of that activity."[257] In *Izaak Walton League*, the court found that the use of snowmobiles bordering the Boundary Water Canoe Area Wilderness was not a *per se* ban; however, if an activity results in noise that is louder, more constant, more frequent or of a different quality, the activity would likely degrade the Wilderness character and violate section 4(b) of the 1964 Wilderness Act.[258] Furthermore, the solitude characteristics must be

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[254] https://wilderness.net/practitioners/toolboxes/wilderness-character/default.php

[255] Keeping It Wild 2: An Updated Interagency Strategy to Monitor Trends in Wilderness Character Across the National Wilderness Preservation System. 2015. Landres P. et al. General Technical Report RMRS-GTR-340. USDA Forest Service, Rocky Mountain Research Station, Fort Collins, CO.

[256] Stibnite Gold Special Designations Specialist Report p. 51

[257] *Izaak Walton League of Am., Inc. v. Kimbell*, 516 F. Supp. 2d 982, 988 (D. Minn. 2007), *aff'd*, 558 F.3d 751 (8th Cir. 2009).

[258] *Id*.

maintained in Wilderness areas even if they are not used, as it is the opportunity for solitude that must be maintained under the Wilderness Act.[259]

In terms of impacts to the FCRNRW, active mining operations are proposed just 3.4 km (2.1 miles) from the nearest wilderness boundary, the Operations Area Boundary borders the FCRNRW for 1.3 miles along the Meadow Creek Lookout Road and the proposed Burntlog Route would be adjacent to the FCRNR Wilderness Boundary for 5.3 miles. The SDEIS describes several ways in which mining activities could impact Wilderness characteristics, including, but not limited to, the following effects:

- Clouds of dust, plume blight, plume visibility from mining operations,
- Noise from blasting and other operations,
- Light pollution from mining activities,
- Displaced wildlife due to mining activities in the larger area,
- Additional motorized incursions facilitated by the Burntlog Route,
- Increases in wilderness visitation in some areas and decreases in other areas
- Noxious weed introduction and expansion from mine related traffic and disturbance.

As noted elsewhere, some of these effects could be avoided and minimized through more careful planning and consideration of the Johnson Creek Route and underground operations instead of open pit mining. If the Burntlog Route is selected, this route should not be open to public motorized access as access to Thunder Mountain is already provided through the mine site.

b. The Wilderness Act and the Central Idaho Wilderness Act require the Forest Service to consider impacts to the FCRNRW from activities outside the Wilderness area boundary

Unlike many Wilderness bills, the Central Idaho Wilderness Act **does not** prohibit buffers next to Wilderness areas. The no buffer language commonly found in Wilderness legislation since the 1980s is intended to prevent Wilderness from expanding administratively, as Congress delineated the boundaries to preserve the most valuable Wilderness areas and avoid major conflicting uses. Congress intended the Central Idaho Wilderness Act (CIWA) to settle management disputes by providing a clear boundary. Lands outside of the Wilderness are to be managed in accordance with the purpose set out in section 2(b)(2) of the CIWA to "end the controversy over which lands within the central Idaho region will be designated wilderness—thereby assuring that certain adjacent lands better

[259] *Greater Yellowstone Coal. v. Timchak*, No. CV-06-04-E-BLW, 2006 WL 3386731 (D. Idaho Nov. 21, 2006) (where the court found that a ten-fold increase in heliskiing permits would diminish the wilderness characteristics under the Wyoming Wilderness Act even though the area was remote and inaccessible during the winter).

suited for multiple uses other than wilderness will be managed by the Forest Service under existing laws and applicable land management plans." Pub. L. 96–312 § 2(b)(2), 94 Stat 948. The disputes cited in congressional testimony focused primarily on the timber communities, where determination of the edge of the Wilderness would allow timber harvests to proceed without concern for violating Wilderness protection due to changing borders. H.R. Rep. No. 96-1126 at 10-12. However, as discussed above, any non-wilderness uses outside of the Wilderness borders must still comply with the Wilderness Act's requirement to preserve the wilderness character of the FCRNRW.

Even where special mining zones were created in the FCRNRW, courts have carefully balanced the validity of the mining claims against Wilderness protection, as in the case of the Golden Hand Mine.[260] Wilderness areas are special, and while the mining rights in the FCRNRW may be valid, the US District Court ruled that the Forest Service must analyze the minimum intrusion necessary to effectuate these rights.[261] Here, there is no evidence that Congress condoned impacts that would result from an open pit mine near the FCRNRW or a mining road directly adjacent to the FCRNRW.

The Inventoried Roadless Areas that adjoin the FCRNRW provide an important ecological buffer to be managed under the Forest Service mandate. While not a legally designated buffer zone itself, it still provides the benefit of a protective buffer zone that helps to preserve the Wilderness through mitigation of edge effects.

A recently published scientific article, Conservation Value of National Forest Roadless Areas, provides important and highly relevant insights into the importance of roadless areas that are adjacent to protected national parks and Wilderness areas.[262] Among other things, the study found that roadless areas adjacent to the FCRNRW increased the effective size of the protected core area by 38 percent.[263] The study concluded that "IRAs reduce the isolation of – and provide buffers for – national parks, wilderness areas, and other existing protected areas."[264] Furthermore, "[t]he role IRAs play in buffering protected areas from development may be even more critical in the future as developed areas continue to expand."[265] As such, activities that fragment the IRAs can have both direct and indirect effects on wilderness character.

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[260] *See Idaho Conservation League v. Lannom,* 200 F. Supp. 3d 1077 (D. Idaho 2016).
[261] *Id*.
[262] Talty, M.J., Mott Lacroix, K., Aplet, G.H., and Belote, R.T. 2020. Conservation value of national forest roadless areas. Conservation Science and Practice e288. https://doi.org/10.1111/csp2.288.
[263] *Id*. at 6.
[264] *Id*. at 9.
[265] *Id*. at 10.

For example, the construction of the Burntlog Route would fragment the roadless areas adjacent to the Wilderness. This new fragmentation will have edge effects on wildlife and the flora in both the IRAs and the FCRNRW. These edge effects due to the Burntlog Route will directly harm the Wilderness character of the FCRNRW and increase the ability for invasive plants to colonize the landscape due to a degraded ecosystem. In addition, activities outside the wilderness have the potential to change recreation and disturbance patterns in IRAs, the FCRNRW and even Recommended Wilderness Areas:

> The connection of Burntlog Route to Meadow Creek Lookout Road (FR 51290) could indirectly increase recreation use and duration of recreation activities within areas of the FCRNRW accessed from these roads. If recreation use increased, people and pack animals could compact soils, indirectly increasing erosion potential on portions of trails within the FCRNRW. The intensity of the effect on ecological processes from increased recreation use within the FCRNRW is influenced by site conditions, vegetation, and the duration of use at a specific site.
>
> The number and size of vehicles using Burntlog Route for mine operation and closure and reclamation could result in wilderness visitors avoiding areas of the FCRNRW and this avoidance could indirectly increase recreation use in recommended wilderness areas or other areas of the FCRNRW, such as Big Creek. The increase in recreation use could result in areas where human influence impedes the free play of natural forces or interferes with natural processes in localized areas of the FCRNRW and recommended wilderness areas. Depending upon the magnitude, there could be long-term local changes in ecological processes within the FCRNRW and recommended wilderness areas. The natural quality of wilderness character could be impacted where there are changes in ecological processes. SDEIS 4-632 to 4-633.

We recommend that the Forest Service further analyze these impacts and take additional measures to avoid, minimize and mitigate these impacts in a supplement to the SDEIS.

c. The SDEIS fails to properly evaluate impacts to Middle Fork Salmon River river users

Much of the recreational use in this area of the FCRNRW is concentrated along the Middle Fork Salmon River corridor. A Middle Fork permit is often considered to be the “Holy Grail" for whitewater boaters with over 17,000 applicants competing for just 387

permits in 2020.[266] While most river runners travel in outfitted or private groups, there is still the expectation of a primitive wilderness experience with no lights, sounds or impacts of civilization imposed on the group. The SDEIS fails to describe how a river trip and guiding services may be impacted by the Stibnite Gold Project. For example, the Supplemental SDEIS needs to analyze which camps along the Middle Fork Salmon are most likely to be affected by noise, light pollution and by plumes of pollution. There is also likely to be a compounding effect at night by which dust clouds exacerbate light pollution by reflecting the light back downward that warrants more discussion.

d. Models used to calculate impacts should also evaluate wilderness impacts at distances closer to mining activities

We are concerned that some of the models used to calculate potential impacts to Wilderness Characters and the experience of FCRNRW visitors used reference areas farther away than the closest Wilderness impacts that would actually occur:

> To account for dispersed emission sources, accepted modeling practice is to determine a theoretical single-point plume origin correction distance. The calculated distance in this case was 17.8 km. Subsequently, this distance was added to the hypothetical observer distance at the FCRNRW area boundary, and the combined observer distance was used in the VISCREEN inputs. SDEIS 4-29.

Three wilderness trails (Mule Hill Trail, Big Chief Trail and Indian Creek Trail) all drop into the FCRNRW from the wilderness boundary; the same boundary along which the Burntlog Route would be co-located. These wilderness trails have 0.5 km or less of distance from the Burntlog Route. Opportunities for solitude in these areas that would be shattered by the Stibnite Gold Project and Burntlog Route.

e. Models used to calculate visual effects need additional refinement and disclosure

Visual impacts to the wilderness are not sufficiently addressed in the SDEIS:

> Burntlog Route cut and fill slopes, repeater site access roads, and mine operation lighting could be visible to wilderness visitors within Big Chief drainage, Summit trail, and at higher elevations within the FCRNRW.[267]

[266] https://www.oars.com/blog/how-to-get-most-popular-private-river-permits-in-the-west/
[267] Stibnite Gold Project Special Designations Specialist Report, p. 59.

No alternative is presented that does not have viewsheds of the mine from within the FCRNRW trailless area. The mine is visible from areas within the Wilderness in all alternatives, but an underground mine would not be. This visual aesthetic is further harmed by the installation of transmission lines and future Burntlog road cuts that are significantly more visible from the interior of the Wilderness.

Regarding visual effects, the SDEIS attempts to calculate the visual effect of pollution plumes caused by "a source or combination of sources" (namely dust and emissions from from mining activities)on FCRNRW users:

> Plume visibility is a transient condition that is caused by a source or combination of sources and is the presence of a plume that is visible to an observer some distance from the source.
>
> Assessment of plume visibility is a means to quantify the ability of a viewer to discern a visible plume and is usually evaluated for an observer at the closest point on the boundary of a Class I area of concern. Plume blight occurs when a coherent plume from a source is perceptible against a viewing background (e.g., the sky, or a terrain feature such as a mountain) to a casual observer. The primary parameters of plume blight are the change in visible contrast and color contrast between a plume and background. SDEIS 3-42.

The SDEIS provided an estimate of the amount of time a pollution plume would be visible to a viewer:

> SGP sources may cause visible plumes at the closest Class II wilderness area (FCRNRW) for a small fraction of daylight hours (~0.02 hours). SDEIS 2-137.

The SDEIS dismisses the pollution plumes as being visible only for approximately just over one minute per day. It is unclear if this estimate really predicts less than two minutes of visual impacts every day, or if this is an average and most days there won't be any and others when impacts could last hours. Further discussions of the pollution plume in the Specialist Report are particularly unclear and unhelpful:

> Plumes from emissions sources during mine operation could be visible within the FCRNRW; however, when and where the plume is visible depends on topography, weather conditions, and time of day. The SGP

> emission sources would be in a valley, and the intervening topography would influence the plume's visibility within the FCRNRW. In the long-term, the natural quality of wilderness character within the FCRNRW would be impacted where and when plumes from emissions are visible likely to negligible to minor levels.[268]

The calculations used to estimate the 0.02 hours of pollution plume visibility are based on the assumption of 12 hours of daylight and 12 hours of nighttime:

> Following EPA's VISCREEN guidance, both daytime (6 a.m. to 6 p.m.) and nighttime (6 p.m. to 6 a.m.) are included in this analysis. Therefore, during the summer, the nighttime hours would include some hours when sunlight illuminates any plume and, conversely, during the shorter wintertime daylight hours, some hours analyzed as daytime would occur after the sun has set. SDEIS 4-48.

Instead of providing a conservative approach, this modeling used underestimated plume visibility to users. Summer is the most likely time of year when recreationists are going to be in the Middle Fork Salmon River corridor within the FCRNRW. During the summer solstice, there are an additional 3 hours and 35 minutes of daytime compared to the study's calculations. Nautical twilight is the period of time when the sun is 12 degrees or less below the horizon and when the horizon is still visible. During the summer solstice, nautical twilight begins at 4:28 a.m. before sunrise and ends at 10:56 p.m. after sunset. Adding nautical twilight extends the time at which a plume might be visible to 18 hours and 28 minutes. Civil twilight is the period of time when the sun is just 6 degrees below the horizon and no artificial light is needed for visibility. During the summer solstice, civil twilight begins at 5:17 a.m. before the sun rises and ends at 10:07 p.m. after the sun sets. Proper consideration of civil twilight extends the daylight impacts of a plume to 16 hours and 50 minutes of clear visibility. The Forest Service needs to disclose the actual amount of time a plume might be visible to visitors and outfitters.

Furthermore, the SDEIS discounts the negative effects of the plume on visitor experiences. Plumes are more likely to be visible when the sun is at a low angle such as 10 degrees rather than overhead. These time periods of sunrises and sunsets are times at which recreationists are most attuned to the sky in appreciation of the wilderness setting and this is also when a plume is most likely to occur and degrade the area's wilderness characteristics.

[268] Special Designations Specialist Report p. 57.

The Forest Service also needs to describe if the time a plume is visible is due to atmospheric conditions beyond the Forest Service's control or if it is related to mining activities at sunrise and sunset. The visual effects of a plume floating above the area of operations and being visible from the FCRNRW or even drifting into the FCRNRW will certainly degrade wilderness character. If the plume is indeed a short term impact lasting only a few minutes at sunrise and sunset, it would appear that the Forest Service could require a mitigating measure during those short time periods to avoid these adverse effects.

Mitigating features for the visual impacts such as the plume could include developing an underground mining alternative, curtailing activities that generate large amounts of dust (such as blasting) at sunrise and sunset or applying additional dust control measures at these times.

f. Effects on air traffic are not adequately considered

During periods of low water, many guided and private parties opt to fly in to Indian Creek. There is no analysis in the SDEIS about how the mine, dust cloud and traffic may be visible by air traffic and how that will affect visitor experiences. For many, the flight over the undeveloped wilderness in the FCRNRW is one of the highlights of the trip. The visibility of the mine project should be disclosed for flights coming from McCall, Cascade, Boise, Stanley, Challis, and Salmon.

Another issue is how helicopter traffic related to mining activities may affect aviation. The Middle Fork Salmon already receives a certain amount of air traffic and many visitors are not interested in seeing increased levels of air traffic. The Forest Service needs to disclose if and how mine-related helicopter traffic may affect wilderness visitors or commercial or private flights.

The SDEIS also does not consider the many backcountry airstrips that are grandfathered into the FCRNRW and that the flight paths to those airstrips may pass over the Stibnite Gold Project. This would provide a direct view of the open pit mine, which would greatly expand the current scar on the landscape. For this and many other reasons, an alternative of an underground mine should be considered, as an underground mine would also reduce the visual impact to tourists accessing the Wilderness through planes.

g. Effects on solitude are not fully disclosed or addressed

Outside of the river corridor, the FCRNRW provides remarkable opportunities for solitude. The Mule Hill Trail, Big Chief Trail and Indian Creek Trail all drop into the FCRNRW from the wilderness boundary; the same boundary along which the Burntlog

Route would be co-located. Opportunities for solitude in these areas would be lost due to the Stibnite Gold Project and the Burntlog Route in particular:

> The Burntlog Route would change motorized access to several trailheads/trails leading into the FCRNRW. Indirectly, the Burntlog Route could increase the number of wilderness visitors and the duration of recreation in the FCRNRW. The potential for recreation use to increase is unknown; however, once constructed, the public could use Burntlog Route for approximately 20 years. Visitor encounters at trailheads/trails within the analysis area of the FCRNRW wilderness could increase due to the widening of Burnt Log Road (FR 447) and Meadow Creek Lookout Road (FR 51290) as part of the Burntlog Route.
>
> The number and size of vehicles transporting supplies to the SGP on the Johnson Creek Road and the Burntlog Route could deter some visitors from the FCRNRW. The number of vehicles and delays due to construction and maintenance activities could indirectly increase recreation use in recommended wilderness areas or other areas of the FCRNRW. During construction, operations, and closure and reclamation, wilderness visitors would need to travel farther into the FCRNRW or recommended wilderness areas to attain solitude, remoteness, and primitive recreation opportunities. SDEIS 4-633.

This area has further characteristics that warrant added consideration that is missing in the SDEIS. The 2001 User guide lists the adjacent area as not only wilderness, but "trailless" as well.[269] The Forest Service values this particular type of wilderness highly, as it offers solitude above the traditional wilderness values.[270]

The ability for someone to seek solitude would be marred for the duration of the project through a combination of road noise, blasting, clearing snow through avalanche mitigation measures, winter access by snowmobiles/helicopters, nighttime light intrusion, and dust. Even if these noises may attenuate to levels below background noise levels, they will still be noticeable as a foreign, different quality indicating nearby commercial activity in an area prized for its escape from society.

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[269] *A User's Guide Frank Church – River of No Return Wilderness,* Revised December 2001, pg. 23-24 https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5300616.pdf (Attached) .

[270] *Middle Fork Ranger District Trails – USDA Forest Service* https://www.fs.usda.gov/detail/scnf/recreation/?cid=stelprdb5426120 ("The best opportunities for Solitude are in the trailless areas...") (Attached).

The development of the Burntlog Route along the FCRNRW will also increase motorized transport adjacent to the Wilderness, resulting in increases in dust, noise and the risk of hazardous material spills in Big Chief drainage which eventually flows into the Middle Fork Salmon River, among other effects:

> During construction, operation, and closure and reclamation of the Burntlog Route, vegetation removal and excavation of soil and rock could increase sediment load into Big Chief Creek tributaries and affect fish and aquatic habitat. Erosion control measures, such as sediment fencing, ditch checks, and other measures, would reduce erosion from the road into the tributaries. There could be a long-term risk to fish and aquatic habitats from the accidental spill of material, such as fuel or mine processing chemicals, where Burntlog Route crosses a Big Chief drainage tributary.[271]

These effects will be exacerbated by allowing motorized public access:

> Limiting mine traffic to a 25-mile per hour speed limit (Section 2.4), could reduce the amount of dust generated. However, recreation traffic may not follow posted speed limits and speeds could be higher, which is associated with a higher amount of fugitive dust generated. The extent of dust and sediment deposition is unknown; however, the changes in vegetation would result in a long-term impact on the natural quality of wilderness character within the FCRNRW.[272]

These noise impacts will persist through the duration of the project and ensuing reclamation. These roads, which will be present for a minimum of 15 years, may lead to the direct degradation of the trailless area by increasing foot traffic and developing new paths in the Wilderness through overuse. Preservation of trailless areas against overuse is a difficult balance, as wild areas become less wild with recreational use. However, the Forest Service has issued guidance that attempts to preserve areas as trailless by guiding people not to follow unmarked paths.[273] Increasing roadway access is likely to conflict with the mission of preserving trailless areas by increasing hiking traffic leading to user-created trails, further diminishing opportunities for solitude.

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[271] Stibnite Gold Special Designations Specialist Report, p. 55.
[272] Ibid, p. 54.
[273] *Low-Impact Recreational Practices for Wilderness and Backcountry*, USDA Forest Service General Technical Report INT-265, August 1989, pg. 37-39. https://www.fs.fed.us/rm/pubs_int/int_gtr265.pdf (Attached).

Furthermore, in the Salmon National Forest Plan (part of the FCRNRW adjacent to the Operations Area Boundary), management techniques are to "manage trails in dispersed areas not to exceed the established "Person At One Time Per Mile of Trail" guidelines."[274] In primitive areas such as the FCRNRW, on trails, persons present per mile ranges from 0.5 to 3 people per mile, and area-wide per acre ranges from 0.002 to 0.025. The Burntlog Route is likely to increase trail access in direct conflict with the Salmon Forest Plan for the FCRNRW. Visitation by mine workers is likely to exacerbate this:

> Some of the 500 mine workers could visit areas of the FCRNRW adjacent to the approximately 8,000-acre Operations Area Boundary shown on Figure 1.1.[275]

Similarly, the forest plan states that the Forest Service is to "provide for a quality wilderness experience for the Salmon National Forest portion of the FCRNRW."[276] One way to partially mitigate these and other impacts is for Perpetua Resources to limit or restrict what types of activities employees can do in the area. In addition, we recommend that Perpetua fund a year-round ranger patrol program to conduct outreach, education and enforcement activities along the Wilderness boundary and any other sensitive areas with increased recreational or mine staff pressure as one of several mitigation efforts. We note that the Boise Forest Plan already calls out for improved signing regarding wilderness boundary:

> Objective 2035 Enhance interpretive signing and information regarding the wilderness boundaries.[277]

h. Effects of noise are not examined thoroughly or mitigated

The SDEIS acknowledges that the Stibnite Gold Project will impact air quality and create noise impacts on the FCRNRW and nearby IRAs:

> Noise from mine related vehicles on the Johnson Creek Route during construction could decrease remoteness and increase the evidence of humans in Tamarack Creek drainage adjacent to the road. The Burntlog Route would decrease remoteness and increase the evidence of humans within Big Chief Creek drainage during construction, operation, and closure and reclamation. Burntlog Route cut and fill slopes, repeater site access roads, and mine operation lighting could be visible to wilderness visitors

[274] https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5310596.pdf at pg. IV-15 (Attached).
[275] Special Designations Specialist Report, p. 60.
[276] *Id.* at IV-1 (emphasis added).
[277] Boise Forest Plan III-378.

> within Big Chief drainage, Summit trail, and at higher elevations within the FCRNRW. Sounds from the construction, operation, and daily maintenance of Burntlog Route also could be audible in these areas. SDEIS 4-633.

The Forest Service's noise analysis failed to take into account topography or vegetation which can have significant effects on sound propagation:

> Sound from SGP activities at recreation sites/areas is based on estimated noise that does not consider the effects of topography or vegetation on noise propagation. Therefore, the noise impacts presented in the analysis may be more extensive than would actually occur given the topography and vegetation present in the analysis area. (Recreation Resource Specialist Report, p. 13).

Because these estimates did not consider topography or vegetation, the noise impacts presented in the analysis may also underestimate the actual effects, particularly in places where the topography may channel or concentrate sound or in areas with fewer trees and more grassy slopes or talus.

Avalanche paths BKL-7, BKL-9, BKL-12, RC-1, and MCR-1 have anticipated explosive targets that are less than 1500 feet from the FCRNRW boundary line. Not only is noise from helicopter flights to deliver explosive charges to these paths a potential impact but noise from the charges themselves is more apt to travel down slope into the valleys in the east side of Meadow Ridge and into the top of the Indian Creek drainage.

In terms of avoiding, minimizing or mitigating these effects, the Forest Service analysis essentially notes that the sound and light is going to go where it goes:

The extent where the SGP facilities and access roads could change soundscapes or natural dark sky conditions is influenced by topography and weather.[278] However, the Forest Service fails to note that the primary factor influencing these negative effects is the location of SGP facilities and access roads, which can be sited to reduce impacts.

Furthermore, while the Special Designations Specialist Report lists several design features to reduce these impacts, these are listed as discretionary and at the proponent's discretion:

> To minimize adverse effects of noise to TEPC, MIS, or Sensitive species, where necessary and in accordance with MSHA and OSHA, the proponent

[278] Stibnite Gold Project Special Designations Specialist Report, p. 51

could utilize actions in line with, but not limited to, the below:

- Construction equipment engines would be equipped with adequate mufflers, intake silencers, and engine enclosures when feasible.
- When practicable, pumps, generators, and engines would be turned off when not in use.
- Temporary wooden structure could be erected around portions of the drill, pumps, and heaters, with acoustic absorbent panels. These temporary structures would not be put in place if they created safety issues related to exhaust vapor build-up.
- When feasible, activities such as helicopter use and blasting, could be scheduled at the same time.[279]

These and other important design features should be required.

i. Effects on plants and animals in the Wilderness are not thoroughly examined

The Forest Service notes that wildlife and plants may be affected, but then fails to provide a meaningful analysis of these impacts or ways to mitigate them:

> In the long-term, vehicles on Burntlog Route would likely change the distribution of species in the FCRNRW.[280]

and

> Depending upon the magnitude, there could be long-term local changes in ecological processes within the FCRNRW and recommended wilderness areas. The natural quality of wilderness character could be impacted where there are changes in ecological processes. SDEIS 4-632 to 4-633.

However,

> The extent within the FCRNRW where wildlife could be disturbed or areas where wildlife would avoid is unknown.[281]

[279] Ibid. p. 15.
[280] Stibnite Gold Project Special Designation Specialist Report p. 56.
[281] Ibid.

The Forest Service should look at how other species of wildlife around other mining projects have either been displaced or become habituated. Please see additional wildlife comments.

2. Inventoried Roadless Areas

The ability of the Forest Service to manage inventoried roadless areas in a manner that maintains roadless characteristics and the outstanding remarkable values associated with them is a critical consideration for the SGP project. As documented in the Special Designations Specialists Report, "The new mining facilities, access routes, and the transmission line *would create substantially noticeable human development and structures* (emphasis added) within IRAs and would create isolated parcels that may be difficult to manage during construction and operation of the SGP," (p. 83). Further, the location of the Burntlog Route and the new transmission line segment and access roads would create isolated parcels within the Horse Heaven, Black Lake, Burnt Log, and Meadow Creek IRAs for the long term and could permanently alter wildlife corridors and habitats, as well as degrade the experience for hunters and outfitters in the area. These impacts would severely affect the quiet and solitude ORVs associated with IRAs and in essence would represent a form of breaking up the IRAs, rendering them obsolete. These actions could represent a failure to adhere to the Forest Plan and the Idaho Roadless Rule, opening the door for additional unauthorized trails, roads, or routes into the IRAs and the FCRNRW.

According to the above referenced Specialists Report, the SGP OAB includes roughly 15% of the total acres found in the Sugar Mountain, Horse Heaven, and Meadow Creek IRAs. The SGP would reduce the area available within these IRAs for outstanding opportunities for solitude and primitive recreation. The diversion of Meadow Creek into a channel and the construction of the TSF embankment will result in, "reduced aquatic habitat complexity and connectivity within Horse Heaven and Meadow Creek IRAs," (Special Designations Specialists Report, p. 79). The bull trout, westslope cutthroat, steelhead, and Chinook salmon habitat that currently exists in Meadow Creek will be permanently lost and the Forest Service must classify these losses as irreversible and irretrievable.

The SDEIS also fails to consider the impacts to the Contiguous Unroaded Lands between the southeast corner of the Black Lake IRA and the FCRNRW. The Forest Service's analysis needs to recognize that roadless or unroaded areas contain "(1) High quality or undisturbed soil, water and air; (2) Sources of public drinking water; (3) Diversity of plant and animal communities; (4) Habitat for threatened, endangered, proposed, candidate, and sensitive species, and for those species dependent on large, undisturbed areas of land; (5) Primitive, semi-primitive non-motorized, and semi-primitive motorized classes of dispersed recreation; (6) Reference landscapes; (7) Natural appearing landscapes with high scenic

quality; (8) Traditional cultural properties and sacred sites; and (9) Other locally identified unique characteristics."[282] The Forest Service needs to take additional steps to avoid, minimize and mitigate impacts to IRAs and unroaded areas.

3. Research Natural Areas

The Chilcoot Peak Research Natural Area was designated to provide unique opportunities for research and ist listed under Management Prescription Category 2.2:

> The 1,306-acre Chilcoot Peak Research Natural Area contains an undisturbed small alpine lake and pond, as well as climax lodgepole pine with an understory of Idaho fescue." Boise Forest Plan III-382.

> Chilcoot Peak RNA was established to preserve diverse subalpine forest habitats, including subalpine fir, Douglas-fir, and whitebark pine (Pinus albicaulis) habitat types. The glaciated basins below Chilcoot Peak support an unusually diverse assemblage of wetland and aquatic associations, including a high elevation lake, raised ponds with sphagnum, wet meadows, and gentle- to steep-gradient stream reaches. This RNA encompasses three subalpine, glaciated basins and intervening ridgeline habitats. The basins contain an unusually diverse assemblage of wetland and aquatic associations.[283]

Existing and proposed Research Natural Areas are managed to protect the unique values for which they were established. Under General Standard 2105, authorized activities must maintain the values for which the Research Natural area was established. Although the new road construction associated with the Burntlog Route is downstream of the RNA, the new road will still have impacts:

> As part of Burntlog Route, reconstruction of (i.e., widening, installing drainage features, etc.) approximately 3 miles of Burnt Log Road (FR 447) would remove vegetation and disturb soils located within 100 to 3,100 feet of the Chilcoot Peak RNA boundary…Non-native invasive plant species populations along Burnt Log Road, such as rush skeletonweed, spotted knapweed, and oxeye daisy, could become established in areas disturbed

[282] Final Idaho Roadless Rule, 36 CFR Part 294 – SPECIAL AREA, Subpart C __ Idaho Roadless Management.
[283] Stibnite Gold Project Special Designation Specialist Report p. 48-49

> during Burntlog Route construction (Milan et al. 2016; Forest Service 2019b).[284]

As noted earlier, logging activities along the Burntlog Route could also spread pathogens to the greater density of whitebark pine along this corridor and to the Chilcoot Peak RNA, where whitebark pine are one of the distinguishing features:

> Timber harvested at the SGP could be transported on Burntlog Route. Timber from the SGP could have conifer pathogens such as pathogenic bark beetle species (e.g., mountain pine beetle [Dendroctonus ponderosae]), and white pine blister rust, which is caused by the introduced pathogen Cronartium ribicola (Hinke et al. 2016; Keane et al. 2017)...Conifer pathogens could be distributed during the transport of timber on the Burntlog Route…Whitebark pine/subalpine fir habitat type is one of the distinguishing features of the Chilcoot Peak RNA, and conifer pathogens could cause mortality of whitebark pine and other conifers. If this occurs, changes in the composition and structure of existing vegetation communities and ecological succession would result in a localized, minor to major, long-term loss of the Chilcoot Peak RNA research value and ecological condition.[285]

The Forest Service is also not accounting for impacts of increased recreational pressure on this currently remote RNA, particularly dispersed camping. The Burntlog Route is not compatible with preservation of the Chilcoot Peak RNA and should not be allowed.

4. Conclusion

The SDEIS does not adequately address the potential impacts that the Stibnite Gold Project will have on the FCRNRW, IRAs, Recommended Wilderness Areas and the Chilcoot Peak RNA. Both mine-related use and public motorized access use of the newly constructed portion of the Burntlog Route will exacerbate the negative effects on these special areas and the Forest Service should drop this alternative. The Forest Service should prepare a supplemental SDEIS to re-assess the potential impacts the Stibnite Gold Project will have on these special areas and develop additional measures to avoid, minimize and mitigate the remaining impacts. .

P. Wild and Scenic Rivers

[284] Stibnite Gold Special Designations Specialist Report p. 88.
[285] Stibnite Gold Special Designations Specialist Report p. 89.

1. Impacts to eligible, suitable, and congressionally designated Wild & Scenic Rivers warrant additional analysis.

The Wild and Scenic Rivers Act (WSRA) seeks to protect and enhance a river's natural and cultural values and provide for public use consistent with its free flowing character, water quality, and preservation of its "outstandingly remarkable values" (ORVs). The WSRA is perhaps our most important tool to ensure that future generations experience the free-flowing and ecologically intact Idaho rivers that we cherish. Wild and Scenic River designations provide important benefits to aquatic habitat and species[286] and provide protection for the incredible recreational benefits of outstanding rivers. Wild and Scenic Rivers positively impact local communities and provide psychological, social, ecological, and economic benefits.[287]

2. U.S. Forest Service management responsibilities related to the Wild and Scenic Rivers Act

In accordance with Section 5(d)(1) of the Wild and Scenic Rivers Act (PL 90-542, 1968) and the USFS 2012 Planning Rule (36 CFR Part 219), the Forest Service is required to assess rivers under its management jurisdiction and determine whether these rivers are eligible for inclusion in the National Wild and Scenic Rivers System (NWSRS) by applying standardized criteria through a documented study and evaluation process. Rivers deemed "eligible" for inclusion must be "free-flowing" and possess at least one outstandingly remarkable value, which can be scenic, recreational, geological, fish, wildlife, historic, cultural, hydrological, paleontological, scientific, and other ORVs.

Rivers and streams on federal lands that are found to be eligible for inclusion in the National Wild and Scenic Rivers Act System must be preserved in their free-flowing state as well as have their water quality and ORVs protected until such a time as a "suitability" evaluation and subsequent decision is made.

From 1997-2003, the Forest Service inventoried all of the named streams on the Boise, Payette and Sawtooth National Forests and determined that three streams within the proposed SGP area are free-flowing and possess one or more outstanding remarkable values (ORVs) -- making them eligible for inclusion in the NWSRS and granting them protections to safeguard these characteristics. These three streams deemed to be eligible in this study process are Burntlog Creek (Boise National Forest), Johnson Creek (Boise National Forest),

[286] Rothlisberger, S. T. (2017). *The Role of Wild and Scenic Rivers in the Conservation of Aquatic Biodiversity.* International Journal of Wilderness.

[287] Smith and Moorre. (2011). *Perceptions of Community Benefits from Two Wild and Scenic Rivers.* Environmental Management (2011) 47:814-827

and the South Fork Salmon River (Boise and Payette National Forests). Subsequent to the aforementioned eligibility study process, the South Fork Salmon River was deemed to be suitable for inclusion in the NWSRS. The North Fork and Main Payette Rivers are also eligible for inclusion in the NWSRS, though these rivers were not considered within the scope of analysis in either the DEIS or SDEIS.

Burntlog Creek, Johnson Creek, and the South Fork of the Salmon River must be managed as if they are designated under the Wild and Scenic Rivers Act until a decision is made about their future status. The Wild and Scenic Rivers Act states:

> 82.5 –
> "Interim Management of 5(a) Study Rivers and 5(d)(1) Eligible or Suitable Study Rivers Rivers or river segments legislatively-mandated for study and other rivers determined by the Forest Service to be eligible or suitable for inclusion in the National System must have certain interim protection measures. These protection measures apply until a decision is made on the future use of the river and adjacent lands through an Act of Congress or a suitability decision. Along with the interim management direction provided here, additional statutory, regulatory, or policy requirements may also apply if the study river is located within a wilderness area or other designated area (FSM 2354.42e)."
>
> AND
>
> 82.52 –
> "During interim management of eligible or suitable rivers, the following management guidelines are to be used when planning and implementing projects and activities on the NFS for each of the river classifications in this section. A responsible official may authorize site-specific projects and activities on NFS lands within eligible or suitable river corridors only where the project and activities are consistent with all of the following: 1. The free-flowing character of the identified river is not modified by the construction or development of stream impoundments, diversions, or other water resources projects. 2. Outstandingly remarkable values of the identified river area are protected. 3. For all Forest Service identified study rivers, classification must be maintained as inventoried unless a suitability study is completed that recommends management at a

> less restrictive classification (such as from wild to scenic or scenic to recreational)"

Later sections in these comments will discuss the specific harmful impacts the project will have on these rivers' ORVs and free-flowing conditions.

Furthermore, Burntlog Creek, Johnson Creek, and the South Fork of the Salmon River are major tributaries for the congressionally designated Wild and Scenic Main Salmon River. As our comments pointed out previously in the DEIS, the SDEIS fails to acknowledge or adequately consider how impacts resulting from the SGP may significantly impact and impair congressionally designated Wild and Scenic Rivers outside of the immediate project area, including impacts to these rivers that may result from degradation of other rivers and streams in the immediate vicinity of the project are that are not deemed suitable or eligible for inclusion in the NWSRS. While the Forest Service has direct legal responsibilities to protect eligible and suitable rivers within the immediate vicinity of the project area, the agency must also adequately consider impacts to rivers and streams that are not suitable or eligible for inclusion in the NWSRS if the degradation of those waters may result in impairment to congressionally designated WSR outside of the project area.

Below, we outline areas of potential impairments to the aforementioned rivers and streams which are afforded legal protections derived from the WSRA.

3. Overview of impacts and insufficient analysis related to WSRA protected rivers and streams.

Both of the proposed action alternatives (Johnson Creek Alternative & the 2021 MMP Alternative) in the SDEIS will negatively impact rivers and streams deemed to be eligible or suitable for inclusion in the NWSRS in the immediate vicinity of the project area including Burtlog Creek, Johnson Creek, and the South Fork Salmon River. Action alternatives in the SDEIS may also result in negative impacts to eligible rivers outside of the immediate vicinity of the mine project area, including the North Fork Payette and the Main Payette River. Furthermore, the SGP may also harm congressionally designated Wild and Scenic Rivers including the Main Salmon and Middle Fork Salmon rivers which are also outside of the immediate project area.

Unfortunately, the SDEIS fails to adequately consider impacts and mitigation measures for eligible and suitable streams directly within the vicinity of the SGP area and in many instances fails entirely to address impacts to other eligible streams and congressionally designated WSRs outside of the immediate project area. This failure to take a "hard look" at the potential impacts to these resources warrants additional analysis.

4. The SDEIS fails to adequately characterize the designated, eligible, and suitable Wild and Scenic Rivers that would be affected by the Stibnite Gold Project.

a. The South Fork of the Salmon River

The South Fork of the Salmon River is one of our nation's premier multi-day whitewater rivers.[288] Paddlers typically spend 2-5 days descending the river's remote gorge. At low flows characteristic of early spring, late summer, and fall, the river provides a scenic and technical Class III (IV) paddling experience. Medium flows provide a delightful Class IV run. At high flows the South Fork offers some of the best big-water paddling on the continent, attracting paddlers from across the United States and beyond. No matter the flow, paddlers are treated to solitude, superb scenery, excellent fishing, backcountry camping, and an excellent whitewater paddling experience. The lack of a lottery-based permit system allows paddlers to opportunistically enjoy the South Fork with ease and predictability, while many other multi-day runs are off limits to paddlers because they were unsuccessful in lottery applications.

The Payette National Forest has rightly found 63 miles of the South Fork suitable for Wild and Scenic designation. The Forest has found "The 63 miles of the South Fork Salmon River within the administrative boundary of the Payette NF are worthy of recognition within the National Wild and Scenic River System. This river segment represents a premier example of a river with outstandingly remarkable values (FEIS, Appendix J). As a major tributary to the already designated Salmon River, the South Fork supports whitewater recreation opportunities, supports populations of anadromous fish, contains some of the most remarkable cultural and historic properties in Idaho, and has outstanding geological and botanical features through the river corridor."[289]

The Forest's Wild and Scenic Eligibility findings further bolster the river's unique values protected under the Forest Plan. "The SFSR has outstanding white-water boating and nationally recognized fishing opportunities during premier steelhead and Chinook salmon seasons. The river corridor also provides recreation opportunities that include hunting, hiking, camping, and snowmobiling. The many hot springs along the river corridor are beautiful and provide the visitor with a remote soaking experience."[290]

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[288] *See*: https://www.americanwhitewater.org/content/River/view/?#/river-detail/621/main
[289] 2003 Payette National Forest Land and Resource Management Plan, Record of Decision. ROD-12.
[290] Payette and Boise NF Wild and Scenic Suitability Report, J-34.

Beside the incredible recreation experience that the SFSR provides, it is also one of the most critical habitats remaining in the Columbia River Basin for summer Chinook salmon.[291] But, even here Chinook salmon numbers are dwindling, and one of the main causes is from habitat degradation.[292] The biggest culprit for habitat deterioration is from increased sedimentation, which causes a drastic decline in the rate of Chinook egg and juvenile survival.[293]

Goal WSGO01 in the Payette National Forest Plan requires the Forest to "Manage river segments that are eligible or suitable for potential addition to the National Wild and Scenic Rivers System to meet the requirement of the Wild and Scenic River Act," and Objective WSOB01 requires the Forest to "Emphasize the following in managing eligible and suitable Wild and Scenic Rivers: a) Maintaining or enhancing the outstandingly remarkable values; b) Maintaining the free-flowing character; c) Maintaining or enhancing values compatible with the assigned classification; and d) Accommodating public use and enjoyment consistent with retaining the river's natural values."[294] These plan components stem from Sections 5, 7, and 10 of the Wild and Scenic Rivers Act.

The SDEIS admits at 3.23.4.2 that "detailed baseline data for existing water quality where the SGP components intersect the SFSR at Warm Lake Road have not been compiled." But, the SDEIS makes a premature conclusion that the water quality in the South Fork of the Salmon River would "likely be too small to measure" (p. 4-638). In order to provide an accurate assessment of water quality, baseline conditions need to be obtained.

The East Fork South Fork of the Salmon River (EFSFSR) is a major tributary of the SFSR. In both action alternatives, the EFSFSR would be negatively impacted by the proposed Plan of Operations. The SDEIS does not fully analyze how sedimentation, pollution, and increased water temperatures in the EFSFSR would impact the SFSR. The SDEIS states especially how the Proposed Action would have "direct permanent impacts on water quality, as it would contribute new sources of mine waste material to the East Fork SFSR drainage" (p. ES-16). The scope of analysis on the SFSR is too narrow and should include the effects of its tributaries on the main waterway.

All action alternatives in the SDEIS would impact and risk the Wild and Scenic values of the South Fork Salmon River that the Forest Service is required to protect based in large part on the Forest Plan. The proposed mine threatens to severely impact the

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[291] South Fork Salmon River Information accessed at https://www.fs.usda.gov/detail/payette/home?cid=STELPRDB5160141
[292] Ibid
[293] Ibid
[294] Payette National Forest Management Area Description and Direction (2003), Pg. III-75

recreational[295] and fisheries[296] outstanding remarkable values of the river, in direct contravention of WSOB01.

b. Middle Fork Salmon River

The Middle Fork Salmon River is world renowned for its wilderness character, scenery, wildlife, fisheries, whitewater, and more. Congressionally designated in 1968 under the Wild and Scenic Rivers Act as a Wild River, it runs 103 miles from the confluence of Marsh Creek and Bear Valley Creek to the Main Salmon River, almost entirely within the Frank Church River of No Return Wilderness. ORVs include Scenery, Recreation, Geology, Fish, Water Quality, Wildlife, Vegetation/Botany, Prehistory, History, and Traditional Use/Cultural.

The immense scale of the Stibnite Gold Project, including access roads, will likely cause far-reaching impacts to Wild and Scenic values beyond the area of analysis provided in the SDEIS. The Preferred Alternative will rely on the newly developed Burntlog Road for access to the mine site, with significant portions of the road on the high divide that separates the South Fork Salmon and Middle Fork Salmon River watersheds. The Middle Fork of the Salmon River, one of the original eight designated Wild and Scenic Rivers, will potentially be affected by activities conducted by the Stibnite Gold Project. Light, visual, water, and dust pollution are direct effects that could harm ORVs on the Middle Fork Salmon. Portions of the Burntlog Route lie within the watershed of the Middle Fork Salmon River, so any potential spill of hazardous materials could potentially enter a tributary stream[297]. This potential project related impact to a tributary of the Middle Fork Salmon River calls for a Section 7 Study under the Wild and Scenic Rivers Act. In addition, wildlife is an ORV that could be affected by the mine project's activities along Burntlog Route, as many of the animals that characterize this ORV are migratory and populations are likely to travel near or across Burntlog Road. Even considering that the project activities will occur outside of the quarter mile protected buffer along the Middle Fork Salmon, the SDEIS must acknowledge and analyze the potential impacts to ORV's and describe mitigation plans.

c. Main Salmon River

In July of 1980, the Main Salmon River was designated by congress as a component of the Wild and Scenic Rivers System. The 46 mile segment from North Fork to Corn Creek is designated as recreational, while the 79 mile stretch from Corn Creek to Long Tom Bar is designated as a wild river. The Main Salmon River has numerous outstandingly remarkable

[295] *See* Recreation Resources comments in this document
[296] *See* O'Neal (2020) and Gregory (2022) fisheries report
[297] *See* Lubetkin (2022) report on transportation spill risks

values including Scenery, Recreation, Geology, Fish, Water Quality, Wildlife, Vegetation/Botany, Prehistory, History, and Traditional Use/Cultural. Recreation opportunities on the Wild segment of the river are so highly sought after that the summer rafting season has a permit lottery system. There are 32 commercially permitted outfitters who take thousands of guests down this stretch of river each year[298]. The Main Salmon River is a major economic driver for the region, and visitors to the Main Salmon alone spend $13.5 million annually in the local area, supporting 95 jobs and $2.4 million in annual labor income. [299]

The South Fork of the Salmon, a major tributary, joins the Wild and Scenic Main Salmon River near Mackay Bar, and contributes to the hydrologic regime for the remaining 20 miles the boundary of the designated segment of wild river. There are several migratory fish species that utilize both the Main Salmon and South Fork Salmon Rivers as migration corridors and habitat, including Pacific lamprey, white sturgeon, Chinook salmon, steelhead, and bull trout. These rivers are ecologically connected. To protect and enhance the Fish ORV on the Main Salmon River, considering the migratory nature of these species, headwaters streams such as the South Fork Salmon River watershed must be considered.

The Stibnite Gold Project will directly affect multiple tributaries to the South Fork Salmon River, which feeds into the WSR Main Salmon. The DEIS had previously stated at 3.23-14 that a WSRA Section 7 study is required to analyze impacts to the designated WSR Salmon River. Still, the DEIS & SDEIS failed to recognize the Wild and Scenic Main Salmon as a potentially affected resource by the Stibnite Gold Project. The Johnson Creek Route and the mine site occur on the East Fork South Fork Salmon River, which feeds into the South Fork Salmon and into the Main Salmon River at the confluence at Mackay Bar. Any spill of contaminants and other impacts to water quality have the potential to adversely affect Wild and Scenic values of the Main Salmon River. In addition, the Main Salmon has an ORV for fish because of the four ESA-listed species that rely on the Main for habitat and migration. The SDEIS recognizes in the Fisheries Specialist Report that ESA-listed Chinook salmon, steelhead, and bull trout will be adversely affected by the project. These are migratory fish species that utilize the Main Salmon river corridor as a migration route, and contribute to this identified ORV. Any negative impacts to water quality, habitat, and fish passage has the potential to negatively impact the fish ORV for the WSR Salmon River. As pointed out in previous comments on the DEIS, the SDEIS should have analyzed the impacts that the Stibnite Gold Project's alternatives will have upon Wild and Scenic values on the Main Salmon River, specifically from the confluence with the South Fork Salmon and downstream to Long Tom Bar.

[298] 2022 Salmon River Outfitter and Guide List.
[299] Salmon Challis National Forest Assessment Report 2018, p. 26

> In comparison to other rivers in the region, the water quality of the Salmon River is exceptional. The river provides exceptionally high water quality for a variety of beneficial uses including resident and anadromous fish habitat and exceptional recreation opportunities for thousands of people who come to float the Salmon River every year to enjoy its clean, clear water. Water quality is an outstandingly remarkable value.[300]

d. Burntlog Creek

Burntlog Creek was deemed to be eligible for inclusion in the NWSRS for having an outstandingly remarkable value for fish: "This is a Pacfish/Infish priority watershed that supports spawning and rearing habitat for wild native Chinook salmon and steelhead, cutthroat, redband, and bull trout." (Appendix D, WSR Eligibility Report). The river segment from headwaters to junction with FR447 (Sec 27 T 16N R8E) is an eligible Recreational segment. The river segment from the junction with FR447 (Sec 27 T16N R8E) to the confluence with Johnson Creek is an eligible Wild segment.

As readily acknowledged in the SDEIS, road construction and project developments associated with the SGP may negatively impact water quality and consequently harm Burntlog Creek's ORV for fish. Burntlog Creek would be crossed by all project-related traffic that travels the Burntlog Route in the Preferred Alternative. The SDEIS states that the Preferred Alternative may impact water quality and adversely affect ORVs. Yet the SDEIS does not adequately quantify impacts or explain how these impacts will be mitigated so that Burtlog Creek's eligibility for inclusion in the NWSRS is not impaired.

Construction and bridge replacement activities on Burntlog Route are said to result in "short-term, negligible, and localized impacts to the free-flowing condition" under the Preferred Alternative. In addition, the SDEIS plans to place a borrow pit within the WSR corridor of Burntlog Creek (p. 4-640). As stated before, Goal WSGO01, sections 82.5 and 82.52 of the WSRA requires the Forest Service to manage eligible and suitable to meet the requirements of the Wild and Scenic Rivers Act. Therefore, any construction in the WSR corridor and impacts to the free-flowing for any amount of time would violate the management requirements for eligible rivers under the Wild and Scenic Rivers Act and the Boise National Forest Management Plan. These actions could destroy the opportunity for this river segment to be found suitable for designation.

Additionally, the SDEIS notes that "detailed baseline information on existing water quality in Burtlog Creek has not been compiled for the SGP" (p.3-488). Absent water quality baselines being established, it will not be possible for the Forest Service to know whether

[300] USFS. . Middle Fork of the Salmon River Resource Assessment (2000) D-8.

potential impacts from project development may violate the Forest Service's responsibility to protect Burtlog Creek's eligibility status.

i. Forest Plan Inconsistencies

In addition to the above comments regarding the impact that the proposed MMP will have on Burntlog Creek in regards to the WSRA, this action is contradictory to the amended 2010 Boise National Forest Plan specific to Management area 20. As described in the Plan, "the Lower Burntlog Creek and Upper Burntlog Creek subwatersheds have been identified as important to the recovery of listed fish species, and as high-priority areas for restoration."[301] While being identified as priority areas for restoration, new road construction and associated impacts fall woefully short of this goal.

Based on the MMP, the following General Standards and Objectives will not be followed:

> General Standard 2001: Manage the Burntlog Creek eligible river corridor to its assigned classification standards, and preserve its outstandingly remarkable values and free-flowing status until the river undergoes a suitability study and the study finds it suitable for designation by Congress, or releases it from further consideration as a Wild and Scenic River.[302]
>
> Objective 2014: Improve water quality by reducing road-related accelerated sediment delivery to upper Johnson Creek and its tributaries.[303]
>
> Objective 2015: Assist in de-listing South Fork of Salmon River drainage, including upper Johnson Creek, from the State of Idaho's impaired water bodies list by applying appropriate and active watershed restoration to reduce sediment, which is the identified pollutant of concern. [304]
>
> Objective 2016: Improve stream bank stability by reducing sediment delivery to Johnson Creek, and by revegetating banks with native plant species as needed. [305]

[301] Boise Forest Plan - Management Area 20 III-372
[302] *Id. p.374*
[303] *Id. p.376*
[304] *Id.*
[305] *Id.*

> Objective 2017: Restore aquatic and riparian habitats in Johnson Creek and its tributaries by reducing bank instability and accelerated sediment from existing roads and other disturbances. [306]
>
> Objective 2018: Prioritize restoration to improve or maintain Chinook salmon, steelhead, and bull trout spawning and rearing habitats. Allow some temporary impacts in order to achieve short-term and long-term benefits to water quality and fish habitat as long as those impacts do not threaten the viability of local fish populations. [307]
>
> Objective 2019: Restore instream fish habitat in the Upper Burntlog and Lower Burntlog subwatersheds so that it is not a limiting factor in listed fish species and native cutthroat population recovery.[308]
>
> Objective 2020: Identify fish passage barriers and sediment delivery sources in the Burntlog drainage, and design and implement corrective actions to reduce impacts to native fish and their habitat.[309]

With even a cursory review of the above objections and general standards it becomes clear that road building and the associated increased likely sedimentation of Burnt Log Creek are contradictory to the BNF Forest Plan.

e. Johnson Creek

Johnson Creek was determined to have an ORV of heritage and is deemed as an eligible Recreational segment from Bear Creek to Hansen Creek: "There are twelve to fourteen historic sites and ten prehistoric sites on Johnson Creek that are eligible for listing on the National Register. They consist primarily of homesteads and sites associated with the Thunder Mountain gold rush, circa 1900-1904. Two of these sites are Forest Service administered compounds: Johnson Creek Guard Station, built in the 1920s and Landmark Ranger Station, built in the 1930s by the Civilian Conservation Corps. One of the Forest's most spectacular sites, a biface cache 4,000 to 6,000 years old, is located in this area." (Appendix D, WSR Eligibility Report).

The SDEIS also states, "Any historic properties located within the 2.9-mile eligible corridor would contribute to its Heritage ORV (Forest Service 10a, such as the existing Idaho

[306] *Id. p.377*
[307] *Id.*
[308] *Id.*
[309] *Id.*

Power Company Line 328 (transmission line) that is recognized as a contributing Heritage resource and would be replaced with a higher-capacity line as part of the SGP" (p. 3-488).

With Johnson Creek being eligible for designation as a Wild and Scenic River, the Forest Service is required to manage its ORVs and free-flowing state for preservation. In the SDEIS, it admits that "construction activities could result in short-term impacts to the free-flowing condition of Johnson Creek as a result of culvert replacement on Johnson Creek Road" (p.4-657). The definition of "free-flowing" under the Wild and Scenic Rivers act is as follows:

> 'Free-flowing,' as applied to any river or section of a river, means existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modifi-cation of the waterway. The existence, however, of low dams, diversion works, and other minor structures at the time any river is proposed for inclusion in the national wild and scenic rivers system shall not automatically bar its consideration for such inclusion: Provided, That this shall not be construed to authorize, intend, or encourage future construction of such structures within components of the national wild and scenic rivers System. [310]

Temporary barriers to free-flowing rivers and modification to flow should be prohibited from the eligible and suitable rivers. Therefore, any construction activities that impede the free-flowing state of any eligible or suitable river violate the protections under the Wild and Scenic River Act.

i. Forest Plan inconsistencies

Similar to the Forest Plan issues identified with Burnt Log Creek, either action alternative will result in similar inconsistencies in regards to general standards and objectives outlined in the Boise Forest Plan for Managment Area 21 - Lower Johnson Creek.

> General Standard 2101: Manage the Johnson Creek eligible river corridor to its assigned Recreational classification standards, and preserve its ORVs and freeflowing status until the river undergoes a suitability study and the study finds it suitable for designation by Congress, or releases it from further consideration as a Wild and Scenic River.[311]

[310] https://www.rivers.gov/documents/wsr-act.pdf
[311] Boise Forest Plan - Management Area 20 III - 387

Objective 2123: Improve water quality by reducing road-related accelerated sediment delivery to lower Johnson Creek and its tributaries.[312]

Objective 2124: Assist in de-listing South Fork of Salmon River drainage, including lower Johnson Creek, from the State of Idaho's impaired water bodies list, by applying appropriate and active watershed restoration to reduce sediment, which is the identified pollutant source. [313]

Objective 2125: Improve streambank stability by reducing sediment delivery to Johnson Creek, and by revegetating banks with native plant species as needed. [314]

Objective 2126: Restore aquatic and riparian habitats in Johnson Creek and its tributaries by reducing streambank instability and accelerated sediment resulting from existing roads and other disturbances. [315]

Objective 2127: Evaluate Riordan and Trapper Creek drainages to determine management actions needed to move toward desired conditions, with emphasis on improving riparian areas.[316]

5. The SDEIS does not include a sufficient scope of analysis for access routes in connection with operations, and the relationship to WSR values along access routes.

a. North Fork Payette River and Main Payette River

The North Fork Payette River and Main Payette River were found eligible for Wild and Scenic designation. These roadside river segments essentially parallel SH-55, the Payette National Wild and Scenic Byway[317], providing easy access and high quality on-river recreation experiences close to both Valley County and the Treasure Valley. Both river segments have a preliminary classification as Recreational rivers, and are managed to protect recreation ORVs. The Boise National Forest Plan describes the North Fork Payette's ORV classification.

[312] *Id. at 392*
[313] *Id.*
[314] *Id.*
[315] *Id.*
[316] *Id.*
[317] http://payetteriverscenicbyway.org/

The Boise Forest Plan calls for maintaining or enhancing river-related recreational experiences when possible. This direction is particularly relevant in this eligible Wild and Scenic River corridor:

> Manage the North Fork Payette River and Payette eligible corridors to their assigned Recreational classification standards, and preserve their ORVs and free-flowing status until the rivers undergo a suitability study and the study finds them suitable for designation by Congress, or releases them from further consideration as Wild and Scenic Rivers. General Standard 0901.

The North Fork Payette, along the segment managed as an eligible Wild and Scenic River, has annually hosted the North Fork Championship[318] since 2012, an elite level whitewater kayaking competition that attracts professional athletes from throughout the world.

The eligible segments of the North Fork of the Payette and Main Payette Rivers flow adjacent to a planned travel corridor for the Stibnite Gold Project, and thus must be included in the scope of analysis in the SDEIS. According to the SDEIS on page 2-22, two-thirds of mine related traffic will travel to Warm Lake Road via SH-55 from south to north, adjacent to the Main and North Fork Payette Rivers, both eligible Wild and Scenic Rivers. Therefore, impacts to WSR values to these rivers must be included and analyzed in the SDEIS. SH-55 (a National Scenic Byway) lies within the management area to protect the NF Payette's Wild and Scenic values. The North Fork Payette River is in the Boise National Forest. The North Fork of the Payette is listed both in the Nationwide Rivers Inventory and the Boise National Forest Plan as an eligible Wild and Scenic River. Boise National Forest manages the Main and North Fork Payette Rivers to protect water quality, Wild and Scenic recreational river classification, and ORVs. Additional analysis must be completed to assess the impacts of mining related traffic adjacent to the North Fork Payette River. For example, how will this additional heavy vehicle traffic affect the recreational experience? How might the risk of hazardous material spills on transportation routes along this river segment impact ORVs?

Payette National Forest Management Direction

- General Standard 0901 Manage the North Fork Payette River and Payette eligible corridors to their assigned Recreational classification standards, and preserve their ORVs (outstandingly remarkable values) and free-flowing status until the rivers undergo a suitability study and the study finds them suitable for designation by Congress, or releases them from further consideration as Wild and Scenic Rivers.

[318] *see* https://northforkchampionship.com/

- Emphasize the following in managing eligible and suitable Wild and Scenic Rivers:
  a) Maintaining or enhancing the outstandingly remarkable values,
  b) Maintaining the free-flowing character,
  c)Maintaining or enhancing values compatible with the assigned classification,
  d)Accommodating public use and enjoyment consistent with retaining the river's natural values. Objective WSOB01.

6. The SDEIS must include Wild and Scenic Suitability Studies of Johnson Creek and Burntlog Creek as reasonably foreseeable future actions in the discussion of cumulative impacts in the Special Designations Specialist Report

Both action alternatives would impact WSR values of Johnson Creek, and the Proposed Action would impact WSR values of Burntlog Creek. These action alternatives cannot be approved without causing harm to WSR values. The DEIS had stated that this would trigger a suitability study of these rivers, and Appendix D included the a suitability study of Johnson Creek as a planned mitigation measure. However, suitability studies for either Johnson Creek or Burntlog Creek have not been noted as a planned mitigation measure in the SDEIS. Therefore, in order to address these issues, the Forest Service must complete a separate NEPA analysis to fully consider the the suitability of Burntlog Creek and Johnson Creek, both Forest Service identified eligible Wild and Scenic Rivers, or include such an analysis in a revised Supplemental DEIS for the Stibnite Gold Project. This must occur prior to the FEIS and ROD to allow for public scoping and a comment opportunity, and sufficient analysis under NEPA.

- 40 CFR § 1508.7 Cumulative impact.
  - *"Cumulative impact* is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."
- 36 CFR § 220.4 - General requirements.
  - "The final analysis documents an agency assessment of the cumulative effects of the actions considered (including past, present, and reasonable foreseeable future actions) on the affected environment."

7. The SDEIS inaccurately states the fish ORVs will likely improve as a result from the RFFAs (Reasonably Foreseeable Future Actions)

On page 114 of the Special Designations Specialist Report, the SDEIS states that there would be possible degradation of the fish ORV for Burntlog Creek with the Proposed Action (2021 MMP) and for Johnson Creek under the Johnson Creek Route Alternative. It is contradictory to claim that RFFAs will improve fish ORVs when the SDEIS also clearly states that degradation to fish and their habitat will occur.

8. The SDEIS should include an action alternative that minimizes impacts eligible, suitable, and designated WSR values

All action alternatives in the SDEIS may harm WSR values besides the No Action Alternative. Another action alternative should be included in the FEIS and before the ROD that eliminates harm to the eligible, suitable, and designated WSR values in case the project moves forward.

9. The SDEIS lacks mitigation measures to address potential impacts to water quality, ORVs, and classification of eligible, suitable, and designated Wild and Scenic Rivers

The Specialist Report for Special Designation does not target specific courses of action for mitigation measures. The Mitigation and Monitoring Section of the report is too vague and does not properly discuss the steps the SGP would make to mitigate harm to eligible, suitable, and designated Wild and Scenic Rivers. No opportunities are listed for the negative impacts to be avoided or lessened to these protected waterways. The Forest Service needs to address mitigation measures that are available to protect water quality, ORVs, and classification of eligible, suitable, and designated Wild and Scenic Rivers.

10. Suitability studies of affected potential Wild and Scenic Rivers needed to be conducted and included in a supplemental DEIS or another NEPA analysis. The study must be conducted prior to the completion of the Final EIS and Record of Decision for the Stibnite Gold Project to allow for public scoping and comments, following NEPA requirements and Forest Service directives for a suitability report

This comment was previously brought up during the comment period for the DEIS, but was ignored with the production of the SDEIS. Due to the adverse impacts of the SGP upon WSR ORVs, the DEIS proposed that the Forest Service would conduct a WSR suitability study for affected streams and make suitability determinations prior to SGP

implementation. This is simply not feasible, and it contradicts interagency guidelines for Wild and Scenic study processes. Furthermore, suitability studies must be conducted through a NEPA process prior to analyzing a proposed project that would affect WSR values, not the other way around. WSR Suitability Studies require a separate NEPA process, and the SGP project is expected to have a ROD by 2023. It is a standard for the Payette and Boise National Forest management plans (WSST01) to conduct a suitability study for any affected eligible WSR rivers prior to initiating action. If any action alternative in the SDEIS is approved, this would violate the Wild and Scenic Rivers Act, Forest Service Directives, and established interagency guidelines.

In the 1999 technical report "The Wild and Scenic River Study Process" by the Interagency Wild and Scenic Coordinating Council, it concludes that the suitability study must be conducted as part of the NEPA process for the proposed project, or in a separate study prior to the NEPA analysis for the proposed project.

> For agencies where WSR evaluation was not completed in the land use plan, or through separate analysis, individual river(s) must be evaluated in site-specific (project-level) planning if the project might jeopardize the river's eligibility for WSR designation. The river is assessed as a part of the NEPA analysis for the site-specific project, or through a separate study conducted as a precursor to analysis of the proposed activity.[319]

This same report also states that "the time frame for completion of a river study conducted in a site-specific plan is also typically two to three years."[320] Both the Interagency Wild and Scenic Coordinating Council, and Forest Service directives, describe that a suitability study, conducted under Section 5(d) of the WRSA, requires a separate NEPA analysis. This analysis will require a scoping period, regardless of the analysis document.[321] The Interagency Wild and Scenic Coordinating Council also notes that this suitability study "is typically accompanied by an environmental document, normally an environmental impact statement (EIS), which describes the ORVs and identifies significant issues, public concerns, tentative boundaries and classifications, alternatives and impacts, and appropriate protective management prescriptions and mitigation measures."[322]

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[319] Interagency Wild and Scenic Rivers Coordinating Council. (1999). The Wild and Scenic River Study Process; A technical report of the Interagency Wild and Scenic Rivers Coordinating Council.
[320] Ibid
[321] 36 CFR 220.4(e)(1)
[322] Interagency Wild and Scenic Rivers Coordinating Council. (2018). A Compendium of Questions and Answers Relating to Wild and Scenic Rivers.

In order to address these issues, the Forest Service must complete a separate NEPA analysis to fully consider the the suitability of Burntlog Creek and Johnson Creek, both Forest Service identified eligible Wild and Scenic Rivers, or include such an analysis in a Supplemental DEIS for the Stibnite Gold Project. This must occur prior to the FEIS and ROD to allow for public scoping and a comment opportunity, and sufficient analysis under NEPA.

Q. Cultural Resources

The SDEIS and Heritage Resources Specialists Report both make reference to the fact that for the purposes of this analysis and respective associated documents, the term "Heritage Resources" is used in the same context as "Cultural Resources." While this is based on findings in the 2003 Payette Forest Plan, and the desire to create a more inclusive environment, the term "Heritage Resources" is not recognized or present in Section 106 language nor is it found in other regulatory documents, rules, or codified law. Therefore, for consistency with NEPA, the National Historic Preservation Act of 1966 (as amended through 1992), the Archaeological Resources Protection Act of 1979, and the Native American Graves Protection and Repatriation Act of 1995, we continue to refer to archaeological, prehistoric, protohistoric, and historic-period historic properties as "Cultural Resources" or "Historic Properties."

According to the SDEIS, 53 archaeological investigations, consisting primarily of Class III pedestrian surveys, were completed prior to 2012 (approximately 5,400 acres were subjected to intensive survey, while approximately 2,400 acres received reconnaissance-level surveys due to steep slopes, unsafe terrain, or extensive previous disturbance attributable to wildfire and past mining activities; SDEIS at 3.17-17). Additional archaeological investigations were conducted by AECOM Technical Services, Inc., and include a re-evaluation of the Stibnite Historic District, an intensive 38.2 mile survey of the proposed Burntlog Road, and another intensive 5.3 mile survey of the Riordan Creek Alternative alignment.

AECOM also conducted limited testing of a precontact archaeological site to determine the presence or absence of artifacts and define an accurate site boundary (AECOM 2020). Finally, PNF staff requested a records search from the Idaho SHPO, which resulted in the identification of an additional 48 previous archaeological surveys. In total, 101 surveys have been conducted in the analysis area, resulting in a total of 147 previously recorded archaeological sites and 95 historic sites including buildings, roads, and above-ground resources (Specialists Report, p. 27). Hauer (2021) conducted an archaeological survey of 124.6 acres associated with the CERCLA 2021 ASAOC for the mine site; three new sites and five previously recorded sites were identified.

Following a reevaluation of the Stibnite/Meadow Creek Historic District (10VY262/85-335; NR Inventory #87001186) by PNF staff and the Idaho SHPO, the agencies determined that the Historic District no longer meets the criteria for eligibility for inclusion in the National Register of Historic Places (NRHP). Therefore, the proposed actions and the associated potential impacts from the SGP will have no effect on the District's cultural resources. However, one site (10VY1488, the Stibnite Lithics Site) is located within the physical proposed mine operation area and, "could be adversely affected by the mine construction and operations," (Specialists Report, p. 40). We discuss recommendations for this, and other NRHP-eligible or potentially eligible historic properties later in these comments.

The Operations Area Boundary (OAB, defined as the area in which Perpetua would control public access) consists of 14,227 acres, of which over 12,000 acres have been inventoried for cultural resources, resulting in over 80 percent of the OEB has been inventoried (Specialists Report, p. 27). However, this leaves roughly 2,000 acres which have not been adequately inventoried either through intensive or reconnaissance survey methods. Even though the project proponent, the Forest Service, potentially impacted and affected tribal nations, and the Idaho SHPO are currently working to develop a Programmatic Agreement which will provide provisions for ensuring compliance with Section 106 of the NHPA and for identifying TCPs and CLs prior to ground disturbance activities associated with the SGP (SDEIS, p. ES-26, Specialists Report, Table 2-2, p. 11), this should not preclude Perpetua Resources and the Forest Service from completing Section 106 compliance surveys.

The Forest Service and Perpetua Resources are obligated to complete surveys of *all* the potentially affected areas, and include those results in the project's EIS. Since this has not been completed, we recommend that the Forest Service and Perpetua Resources conduct Class III pedestrian surveys in the remaining 2,000 acres that have yet to be surveyed and document the results of those investigations in a Supplemental EIS. While current Section 106 compliance allows for the completion of phased resource identification and mitigation, pushing resource identification and evaluation out to an unknown future date strips the public of the ability to make informed recommendations and suggestions based on potential impacts to said resources. Further, the Forest Service and Idaho SHPO cannot make reasonable assessments regarding the project's cumulative impacts to cultural resources without knowing what resources are located within the physical APE, including transmission lines, roads, OSV routes, and off-site maintenance buildings.

The forthcoming Programmatic Agreement should focus on newly discovered historic properties inadvertently uncovered or identified as a result of ground-disturbing activities, vegetation clearing or infrastructure build out, and on the process for protecting traditional

cultural resources. The DEIS states that "a Stibnite Gold Project-specific Programmatic Agreement (PA) is being developed, and that legally-binding NHPA Section 106 document would include language that specifies how the United States Forest Service (Forest Service) will complete identification of the cultural resources Area of Potential Effects (APE), what the level of effort for identification of historic properties will be, how effects to historic properties will be assessed, and how specific effects will be resolved in consultation with SHPO, the Advisory Council on Historic Preservation, tribes and other consulting parties. Additionally, it will identify mitigation measures and how the Forest Service will ensure that they are carried out," (DEIS at 4.17-2, 4.17-3). The SDEIS indicates that the Forest Service and Perpetua Resources have yet to fully develop the PA, which is unreasonable. This critical document should be finalized and include any forthcoming environmental analysis documents, including but not limited to the final EIS or any additional supplemental documents.

The SDEIS cannot be considered complete and accurate without the inclusion of these important data and information. While the Forest Service and Perpetua Resources do proclaim that the information will be included prior to the record of decision, this does not allow for the affected tribes nor the general public to adequately understand the potential impacts to these finite, yet long-protected and highly valued cultural resources. We recommend that the Forest Service withhold a determination until the full value of, and potential impacts to the Stibnite Gold Project cultural resources is known and documented in a supplemental or final EIS.

The DEIS identified four measures to mitigate adverse impacts to cultural resources in the Stibnite Gold Project analysis area. DEIS Appx. D at D-2 (Table D-1; FS-2,3,3 and 5). Of the four measures, only FS-1 offered any true mitigation value, providing for work stoppage if any previously undiscovered cultural resources are identified during project operations. The SDEIS provides a revised version of the Design Features, now referring to "environmental design features….proposed and committed to by Perpetua," (Specialists Report, p. 11). Sadly, these "design features" developed by Perpetua are hardly representative of true avoidance and mitigation protocols (Specialists Report, Table 2-3, p. 12). While we concur that Perpetua employees and contractors gain knowledge regarding relevant regulations, and that this knowledge could contribute to lessening potential impacts to cultural resources, neither of the two identified measures detail how known resources will be avoided, how the Forest Service and Perpetua Resources will reduce or avoid indirect impacts such as increased visitation and exposure to nearby or newly accessible cultural resources, or how impacts to culturally significant plants will be mitigated. The first offers a partial answer to our question, but the second, which refers to the yet undeveloped Historic Property Management Plan (HPMP) is simply a restatement of *actions required by law*. The presented measures simply offer plans that, "will be completed," or "will be developed."

The purpose of presenting mitigation measures is to demonstrate a readiness to avoid and minimize potential impacts, which was lacking in the previous DEIS and are now absent in the SDEIS. This indicates that neither Perpetua nor the Forest Service are adequately prepared to address potential impacts to cultural resources through the proposed actions related to the SGP. The "design features" are wholly inadequate and we believe it is not Perpetua's role to propose or adopt these mitigation and avoidance strategies. Rather, this is the role of the Payette National Forest and we recommend that the Forest Service develop true design features that provide clear "if, then" scenarios with identified "trigger" points that would initiate design feature implementation.

A second example of this rather weak language is found in the Mitigation and Monitoring section (7-3) of the Heritage Resources Specialists Report (p. 54). When discussing the HPMP in the second paragraph, there are three instances of passive language used to describe the HPMP that is aspirational rather than actively required by law. The HPMP, "would also address," in the second sentence, "This HPMP attempts to protect resources…," in the next to last sentence. The HPMP should or *will* address the process used to evaluate inventoried areas, and the yet-to-be-developed document *should or will* protect resources rather than attempt to protect said properties. There is no room for "attempting" with historic properties, as once impacts are incurred and integrity lost there is no going back to reconstruct context or data once associated with the resource.

The SDEIS also makes reference to best management practices (BMPs) that will be implemented when and where appropriate and applicable (Specialists Report, p. 11). However, the BMPs referred to are the Best Management Practices for Mining in Idaho (Idaho Department of Lands, 1992). We are astounded that in the 30 years since the publication of this document that more updated and relevant information regarding mining BMPs, available technologies, and standards are not available to the Forest Service. In fact, we refer the agency and Perpetua to additional resources that should be considered and incorporated into the BMPs for the SGP.[323]

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[323] Environmental Protection Agency, 2012. *Green Remediation Best Management Practices: Mining Sites*. EPA 542-F-12-028 September 2012.
Moody, R., D. Pigott, and M. Keefer, 2018. *Best Management Practices for Whitebark Pine Management Mining and Mineral Exploration*. British Columbia Mine Reclamation Symposium, University of British Columbia, Vancouver.
Norman, D.K., P.J. Wampler, A.H. Throop, E.F. Schnitzer, and J.M. Roloff, 1997. *Best Management Practices for Reclaiming Surface Mines in Washington and Oregon*. Oregon Department of Geology and Mineral Industries, Open-File Report O-96-2
V. Rajaram, S. Dutta, and K. Parameswaran, 2005. *Sustainable mining practices - a global perspective*. A.A. Balkema Publishers, New York.
Singh, G., 2013. *Environmental issues with best management practices of responsible mining*. Journal of Mines, Metals, and Fuels, 61(7):152-162.

As of January 2022, 240 historic properties, including archaeological sites and above-ground resources, have been identified in the APEs. Of those 240 historic properties, 97 are determined ineligible for inclusion to the NRHP, 61 are documented as eligible for listing, three are National Register-listed properties, and 79 are unevaluated for eligibility for inclusion to the NRHP (Specialists Report, p. 27-28). While the forthcoming PA will provide guidance for the future management, avoidance, or mitigation of these resources, the Forest Service must determine the eligibility of these historic properties prior to issuing a Record of Decision and Final EIS for the SGP. This includes full documentation of unevaluated resources, consultation with affected tribes (if applicable), and consultation *and concurrence* with and from Idaho SHPO.

Of the currently listed historic properties, one (10VY1488, the Stibnite Lithics Site), located within the physical APE for mine construction, is likely to be impacted by construction and operation of the SGP. While the Specialists Report refers to avoidance (p. 40), we do not believe that either direct or indirect impacts can be avoided due to the site's location and the likelihood of loss of eligibility criteria or indirect impacts through site visitation. We recommend that this historic property be fully mitigated prior to any ground-disturbing activities associated with mine construction. Additionally, the Meadow Creek Lookout Site (10VY365) may be physically or visually impacted by components associated with communications and the transmission line. Moving or relocating the lookout would remove context that informs the historic property's eligibility for the NRHP. Therefore, the Forest Service must mitigate these potential impacts by rerouting and/or relocating infrastructure components that may impact the site in a physical manner. The Forest Service should also explore ways to mitigate visual impacts to the Meadow Creek Lookout by requiring communication towers to "blend" into the surrounding environment.

On page 45 of the Specialists Report, the Forest Service writes that, "care should be taken to avoid impacts to these resources." The Forest Service must amend this language, and all other references, from "should" to "will." The Forest Service and Perpetua Resources are required to either avoid or mitigate potential impacts. The current language presents these mandates as optional, which is wholly unacceptable. There are other references to an optional "should", and we recommend that the Forest Service do a complete word search of the entire SDEIS and related specialist reports and make the appropriate changes from passive to active language, indicating that proposed actions *will* take place, rather than aspirationally *should* take place.

Regarding restricted or altered access to the mine site during construction and operations, these closures would affect tribal access to important sites, including those potentially identified as TCPs and CLs (Specialists Report, p. 45). Restricted or denied access would violate agreements between the Nez Perce Tribe and potentially other tribes

with cultural associations to the project area. We reference cultural comments provided by the Nez Perce Tribe and we stand by the assertions made in those comments.

The proposed groomed OSV route would require tree removal, which could potentially adversely affect culturally modified trees (arborglyphs), as well as impact surface or subsurface resources in the OSV ROW. As of November, 2022, this proposed route has yet to be subjected to Class III pedestrian surveys and resource inventory, which prevents the public, the Forest Service, and the Idaho SHPO from fully accessing the potential impacts of this proposed action. The Forest Service should require Perpetua Resources to complete Class III inventories for all proposed actions in the physical APE and access the NRHP eligibility for any identified resources. This includes roads slated for upgrades (such as major improvements proposed for the Horse Heaven Road, Trail 233, and approximately four miles of new spur roads proposed for construction), construction, or maintenance, and locations for infrastructure construction or installation. Further, these resources should be evaluated for potential impacts from visual, audio, or vibratory impacts related to mine construction, operation, or closure.

In the 2021 MMP Summary (Specialists Report, p. 48), the Forest Service Reports that there are 143 NRHP-eligible, listed, or unevaluated historic properties in both the physical and VAV APEs. While the breakdown of 46 sites within the physical APE and another 97 historic properties within the VAV matches the total of 143, the further sorting of properties into categories based on potential effects does not match the 143 site total. The Specialists Report states that, "19 (would) have physical impacts, 68 could experience visual effects, 15 may be susceptible to vibratory effects, and 16 whose integrity could be affected by noise," (p. 48). This latter string of numbers totals 118, 25 fewer than the reported 143 listed historic properties. This inconsistency could be explained by a property being potentially impacted by more than one source (physical, vibratory, auditory, or visual). Conversely, the incongruity could result from a typographical error or miscalculation. We identified a similar inconsistency in the Johnson Creek Road Summary (Specialists Report, p. 53). The Forest Service and Perpetua Resources needs to rectify these statistics and provide a corrected number of known eligible, potentially eligible, and ineligible properties within the Stibnite Gold Project analysis area.

The cumulative effects to cultural resources associated with the SGP exponentially increase the impacts to historic properties within the physical and VAV APEs when the potential impacts associated with transportation projects on the National Forest and within Valley County, the upkeep and maintenance of three airstrips located on NFS land, infrastructure development, vegetation treatments, water diversion and hydro power projects, and especially the potential exploration of the Horse Heaven area by Stallion Gold. The

Forest Service must take into consideration the full impact of all these projects on historic properties in the area.

We are wholly disappointed that the three documents that form the basis for the protection and mitigation of cultural resources within the SGP are yet to be completed and shared with the public for review, consideration, and understanding. The absence of a Programmatic Agreement (PA), a Historic Properties Management Plan (HPMP), and Historic Properties Treatment Plans (HPTP) precludes the public from fully assessing the potential impacts and adverse effects of the proposed actions on historic properties within the physical and VAV APEs. These documents must be in place, approved by all respective parties, and shared with the public for consideration prior to the signing of a ROD or issuance of a final or additional supplemental EIS.

These comments clearly demonstrate that the SDEIS inadequately documents the potential impacts and adverse effects to cultural resources in the Stibnite Gold Project analysis area. Most significantly, neither the Forest Service nor Perpetua Resources have completed intensive Class III pedestrian or Class II reconnaissance surveys for cultural resources in *all* the areas potentially adversely affected by project actions and undertakings, as described for *each* of the presented alternatives. The Forest Service/Perpetua Resources need to complete intensive pedestrian surveys of the acknowledged unsurveyed areas in the remaining 2,000 uninvestigated acres within the Physical APE, report the findings to the Forest Service and Idaho SHPO, and determine NRHP eligibility for any identified cultural properties. Only then can the potential impacts to cultural resources in the Stibnite Gold Project analysis area be fully reviewed and determined.

R. Botanical Resources

1. Sensitive and Forest Watch Plant Species

While the SDEIS provides a largely accurate description of the botanical resources in the analysis area, some of the surveys are out of date and do not represent an accurate baseline survey. In addition, the SDEIS falls short in describing both the direct and indirect impacts to these botanical resources and does not take the requisite "hard look" at impacts to these species. The SDEIS quantifies how many acres will be disturbed, but it does not go into sufficient detail on what the impact of these disturbances will be for each sensitive species or its ecology. For most sensitive plants, any disturbance is a negative impact. There are a large number of habitat disturbing, degrading, and destroying activities proposed as part of this project, including road construction, drainage construction, ROW expansion, additional exploration activities, dust generation, and extensive earth moving within the mine footprint. Roads and other habitat clearing activities can cause a direct loss of individual plants. Roads

and ditches can alter groundwater and surface water flows and affect surrounding vegetation communities accordingly.

Roads also lead to increased wind speed and drying effects from vegetation removal and are also associated with an increased risk of human-caused wildfires. Roads can also increase dust which may reduce photosynthesis rates for remaining vegetation. Roadside spills of hazardous chemicals can affect soils and vegetation. In addition, there may be increased contaminants of concern in dust from mine traffic which may in turn affect soils, plants, animals and human health. Increased salt levels in the soil from magnesium chloride application that can negatively affect vegetation.

In addition to direct habitat loss from project activities, roads and traffic can serve as vectors for the introduction of non-native plant species that may outcompete native species. The SDEIS makes a nod toward this with the following statement:

> However, even with strict adherence to noxious weed and non-native plant species control measures, some colonization, and spread of noxious weeds and non-native species in and adjacent to the Stibnite Gold Project area is possible.[324]

This above statement is a major understatement. It is beyond "possible." It is extremely likely that exotic plants will dominate the disturbed sites.

Areas with roads and transmission lines are known vectors for noxious weed infestations that can threaten native plants. The Forest Service needs to conduct a detailed analysis in the Supplemental SDEIS of specific exotic species that may become established in the project area and describe the potential direct and indirect effects to native species. Based on the habitat types and history of disturbance in a similar roadbed area, the Forest Service could predict the species of exotic plant that might dominate and how that might impact the overall ecology of these ecosystems. Yet, the Forest Service has not surveyed or mapped these infested areas in the detail proscribed in the Forest Plan:

> Objective BTOB08 During fine- and site/project-scale-analyses, identify and map areas of non-native plant invasions within rare plant habitat.

In addition to impacts related directly to the Stibnite Gold Project, additional exploration activities in the project area will also have impacts. From the SDEIS:

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[324] Stibnite Gold Project, Vegetation Communities, Botanical Resources, and Non-Native Plants Specialist Report, p. 58.

> These approved activities include construction of several temporary roads (approximately 0.32 mile of temporary roads) to access drill sites (total of 28 drill sites), drill pad construction (total of 182 drill pads) and drilling on both NFS and private lands at and in the vicinity of the SGP. SDEIS p. 4-33.

These temporary roads do not appear to be accounted for in the acres of disturbance. These exploration roads are part of the cumulative effect to this project and should be included in the Supplemental SDEIS. Backfilling sites with disturbed soils and recontouring are likely to result in these areas turning into weed patches. The Forest Service should create plans and funding sources to replant disturbed areas with native plants and have contingency plans and funds until native vegetation has recovered. The Forest Service should also establish a long term monitoring program for the twenty years following mine closure along with funding to replant areas as needed.

The project's impacts on botanical resources are anticipated to be regional in scale, as opposed to localized due in large part to the large amount of disturbance and increased potential for non-native plant expansion of both alternatives. Each alternative would impact botanical resources, with the 2021 MMP impacting a larger amount of occupied and potential habitat:

> The 2021 MMP would impact known occurrences of bent-flowered milkvetch, least moonwort, Sacajawea's bitterroot, Blandow's helodium, sweetgrass, and Rannoch-rush, while the Johnson Creek Route Alternative would impact known occurrences of bent-flowered milkvetch, least moonwort, and Sacajawea's bitterroot. Additionally, the 2021 MMP would impact a greater amount of modeled potential habitat (3,991 acres) for sensitive and forest watch plant species than the Johnson Creek Route Alternative (3,204 acres). (ES-16).

A species-specific impact analysis does not seem to exist. The Forest Service merely provides a table comparing the number of acres disturbed. Table 4.10-9 "Acres of Modeled Potential Habitat for Special Status Plants Directly Impacted under All Action Alternatives" provides a good comparison to the extent of disturbance between alternatives but there is no analysis of what those impacts are to the vegetation types or to the individual sensitive plant species.

The Forest Service did not appear to have prioritized efforts to avoid, minimize and mitigate for impacts to botanical resources and mostly minimized the importance of any rare plant subpopulations that could be impacted or extirpated:

> There are no known plant-based subsistence resources located exclusively within the Operations Area Boundary that are not available on the remaining portions of the PNF. (SDEIS 4-673).

However, this dismissive approach contradicts several Forest Plan goals, guidelines, objectives and standards as detailed below. Both Sacajawea's bitterroot and least moonwort are Forest Service sensitive species, which are supposed to be managed so that there is no population trend that could lead to a listing decision: "may impact individuals, but would not likely contribute to a trend toward federal listing or loss of viability of populations or species." SDEIS 4-301. Forest Watch species are species of concern that need to be monitored and include bent-flowered milkvetch, Blandow's helodium, sweetgrass and Rannoch-rush. All six species occur within or adjacent to the area of analysis.

a. Sacajawea's bitterroot (Sensitive Species)

Sacajawea's bitterroot (Lewisia sacajaweana or "LESA") is "the highest priority rare plant species managed by the Boise National Forest." CU084004. In 2011, the Forest Service designated Sacajawea's bitterroot as a "Priority Forest Watch Species." The Forest Service has since reclassified this plant as a sensitive species. There are only 30 known occurrences of subpopulations with most populations numbering less than 2,000 individual plants. The Boise National Forest hosts approximately eighty percent of the entire population.

There is an isolated occurrence of Sacajawea's bitterroot in the project analysis area along Warm Lake Road:

> One occurrence of Sacajawea's bitterroot, a Forest Service sensitive species on both the PNF and BNF, occurs approximately 300 feet above Warm Lake Road (CR 10-579) and the existing transmission line corridor near the intersection of Warm Lake Road with Curtis Creek Road (IFWIS 2017) in the BNF. This occurrence is on a hillside above a portion of Warm Lake Road, and the polygon for this occurrence overlaps a transmission line access road that would be used during transmission line reconstruction and SGP operation. Spur road construction and use of this dirt road during transmission line reconstruction and SGP operation would create dust that could negatively impact this occurrence of Sacajawea's bitterroot. Impacts of dust on this species could range from mild metabolic inhibition to mortality of individuals.

> The combination of these potential impacts would result primarily in localized, long-term and permanent, moderate impacts to the Sacajawea's bitterroot. Therefore, the 2021 MMP may indirectly impact Sacajawea's bitterroot individuals (one out of approximately 157,023 individuals in 27 populations on the PNF) and habitat but would not likely contribute to a trend towards ESA listing or loss of viability of the species within the planning area (i.e., BNF-administered lands).(SDEIS p. 4-293-294).

The SDEIS refers to direct impacts on one individual out of an estimated 157,023 individuals in 27 populations. The cited number appears to be an overestimation of the population. The SDEIS mentions one individual plant when the Forest Service may have meant one population. There are also cultural implications:

> While offsite presence of plants means the impact to overall access to a specific type of plant would be negligible to minor, this would still constitute a localized, long-term, and moderate to major impact to tribal treaty rights specific to those resources in their specific locations including those associated with potential historic properties, sacred sites or places, TCPs, and CLs. (SDEIS 4-680).

The largest Sacajawea's bitterroot population is found in the Boise National Forest within the project area of the CuMo Mine Exploration Project, approximately 50 miles to the south of the Warm Lake population. When permitting mine exploration for the CuMo Project, the Boise National Forest took some additional steps to protect the plant population by designating a Plant Conservation Areas around occupied habitat. The Forest Service also determined that protecting pollinator habitat within and adjacent to occupied habitat was "essential to the long-term persistence of the species" and included a 300-meter buffer intended to include pollinator habitat. CU084021. 12.

The Boise National Forest acknowledged that road and drill pad construction, road maintenance and other ground disturbing activities can "further destroy and degrade habitat and plants by crushing or uprooting plants, depositing slash or debris on plants, spreading exotic weeds, changing hydrology and exposure, causing mortality from soil disturbance and compaction, and depositing dust on plants and pollinator habitat." CU084020.

As part of the CuMo Mine Environmental Assessment, the Boise National Forest determined that most of Sacajawea's bitterroot habitat at the CuMo Project site was "highly susceptible" to invasion by noxious weeds. CU084014. Furthermore, the Boise National Forest determined that the species is highly vulnerable to climate change as "any future rise in snowline could impact the viability of this population" (CU084013). This population's

small relative size and lack of genetic diversity limited its ability to adapt and respond to disturbance. CU084010–11. The Boise National Forest determined that the limited genetic diversity "further underscore the need to protect potential and occupied LESA habitat to the greatest degree possible." CU084011. 14. Such small populations are at risk of extirpation from stochastic events including human disturbance.

The Boise National Forest attempted mitigation efforts to avoid and reduce impacts to the greatest extent practicable. (CU045833, 0457880.) For example, where new infrastructure such as road or drill pads was proposed near plants, there would be an effort to relocate these structures and also schedule activities to avoid the main period of growth and reproduction for the plant.

There are a number of places where the SDEIS deviates from the Boise and Payette Forest Plans[325] with regard to these botanical resources.

For example, no recent surveys have been conducted for this population of Sacajawea's bitterroot:

> This occurrence was last observed in 1999 and has an unknown number of individuals (IFWIS 2017). This occurrence was not documented by surveyors in 2014 although this species was targeted during surveys that year (HDR 2017g).(SDEIS 3-229)

This lack of analysis is inconsistent with Boise National Forest Plan Objectives BTOB01 and BTOB02:

> Objective BTOB01: Continue to map locations of suitable occupied habitat for Region 4 Sensitive plant species, Forest Watch plants, and globally rare plant communities. Incorporate information into a GIS database and coordinate with the Idaho Conservation Data Center.
>
> Objective BTOB02: During fine-scale analyses in areas containing sensitive species habitat, identify and prioritize opportunities for restoring degraded Sensitive species habitat.

There are likely to be adverse permanent effects to this population of Sacajawea's bitterroot from the transmission line upgrades, spur road construction, dust generation, and

[325] Chapter III-2003-2010 Integration Management Direction
https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5394129.pdf

noxious weed spraying along the ROW. This discretionary degradation of habitat is inconsistent with the Forest Plan Standards and Goals:

> Standard BTST01 Management actions that occur within occupied sensitive plant species habitat must incorporate measures to ensure habitat is maintained where it is within desired conditions, or restored where degraded.
>
> Goal BTGO03 Maintain or restore globally rare plants identified as the Natural Heritage Program G1, G2, and G3 and/or S1 and S2 species, and provide for their continued compositional and functional integrity for those species for which we have habitat (see Appendix C).

The Forest Service needs to consider an alternate alignment of the transmission line in this location as well as location of the spur roads to make sure that Sacajawea's bitterroot and its habitat is made more secure.

The transmission line is being presented as a component of the mine facility, but there are no proposals to mitigate the effects:

> Objective MIOB08 During fine-scale analyses in areas where mine facilities are identified as a potential concern or problem contributing to degradation of water quality, aquatic species or occupied sensitive or Watch plant habitat, evaluate and document where the contributing mine facilities are and prioritize opportunities to mitigate effects.

While noxious weed spraying should be considered along roads and rights of way, noxious weed spraying efforts should be modified in the transmission line corridor near the population of Sacajawea's bitterroot, per Forest Plan standards and guidelines:

> Standard BTST04 For projects or activities that include application of insecticides, herbicides, fungicides, or rodenticides, degrading effects on sensitive plant species will be mitigated.
>
> Guideline BTGU02 During site/project-scale analysis and review, a Forest botanist should review insecticide or herbicide spray plans and prescribed burning plans to determine whether degrading effects to Sensitive and Forest Watch plants and their pollinators should be mitigated.

We recommend that the Forest Service resurvey Sacajawea's bitterroot during the appropriate time of the next field season, reestablish the baseline, and adopt additional design features to avoid, minimize and mitigate impacts to this species.

b. Bent-flowered milkvetch (Forest Watch Species)

Although bent-flowered milkvetch is ranked as globally secure, it is extremely uncommon in Idaho where it receives a ranking of S1: 1 = Critically imperiled — Typically having five or fewer occurrences, or 1,000 or fewer individuals.

The largest population in the entire state of Idaho is located approximately 300-1,500 feet west of the West End Creek diversion:

> Five subpopulations of a single occurrence (the Cinnabar Peak occurrence) of this species were documented during surveys in 2012, 2013 (HDR 2017g), and 2016 (Mancuso 2016, IFWIS 2017). The nearest subpopulation of the Cinnabar Peak occurrence extends from about 300 feet to one-quarter mile upslope from and to the east of the West End Creek diversion. This subpopulation, which consists of an estimated total of 7,000 to 10,000 plants, is about 25 acres in size and is located in a relatively undisturbed area. (SDEIS 3-228).

In addition, 122 acres of potential habitat has been modeled near the Operations Area Boundary, transmission line and Meadow Creek Lookout Road. It is unclear if these areas have been surveyed.

This subpopulation is the largest contiguous area of occupied habitat for this species in Idaho and is considered to be critical to the long-term viability of this species, as it could serve as seed sources for future conservation efforts.

Although the bent-flowered milkvetch has been found in historically disturbed sites, a recent report on the species notes the importance of undisturbed areas:

> Although present in disturbed locations, the long-term persistence of bent-flowered milkvetch near Cinnabar Peak may depend on plants located in areas of intact, minimally disturbed-undisturbed habitat that can serve as seed source reserves. Depending on the location and scale of future ground disturbances associated with the Stibnite Gold Project in the area, seeds from these reserves may be critical for post-disturbance re-establishment of bent-flower milkvetch into formerly occupied areas. (Field Survey for Bent-

Flowered Milkvetch in the Stibnite Gold Project Area, Valley County, ID Michael Mancuso 2016).

The SDEIS highlights the impacts of dust generation on bent-flowered milkvetch which are located downwind of project activities:

> The 2021 MMP could impact the Cinnabar Peak subpopulation due to its proximity to the West End Creek diversion. The most likely impact of the SGP on this subpopulation would be dust associated with construction of the West End Creek diversion, which could travel upslope and impact this subpopulation or its pollinators. Impacts of dust on the Cinnabar Peak subpopulation could range from mild metabolic inhibition or inhibition of pollination to mortality of individuals; dust also could inhibit pollination success. These impacts may result in reduced ability of this subpopulation to serve as a seed source for future conservation efforts for this species.
>
> The area of potential exploratory drilling overlaps with subpopulations of this species. Exploratory drilling within this area has the potential to impact this species directly through removal or crushing and/or via dust deposition or impacts to pollinators.
>
> The combination of these potential impacts would result primarily in localized, long-term and permanent, moderate impacts to the bent-flowered milkvetch. Therefore, the 2021 MMP may indirectly impact bent-flowered milkvetch individuals (one out of a total of approximately 653 individuals within 10 populations identified on the PNF) and habitat but would not likely contribute to a loss of viability of the species within the planning area (i.e., PNF-administered lands).(SDEIS 4-292).

Again the SDEIS appears to state that mining activities may affect one individual plant instead of disclosing that the entire subpopulation in that location may be extirpated. The assessment of impacts from dust on bent-flowered milkvetch appears to be focused on how layers of dust can negatively affect photosynthesis. The SDEIS overlooks the fact that this dust will likely contain toxic levels of arsenic that could have direct impacts on the physiology of the plants, its pollinators, and seed dispersers.

The SDEIS states that there may be localized, long-term and permanent, moderate impacts to this species, but the term localized is undefined. The distribution of the Cinnabar Peak population is patchy so the localized effects may not impact plants in certain areas but

could impact a large number of plants in other areas. The Forest Service should clarify the term "localized" and discuss the actual effect in more detail.

Under the Payette Forest Plan, bent-flowered milkvetch is a designated Forest Watch species, which calls for conducting additional baseline surveys, maintaining existing habitat, and prioritizing opportunities for mitigating effects and not accepting extirpation:

> Objective BTOB01: Continue to map locations of suitable occupied habitat for Region 4 Sensitive plant species, Forest Watch plants, and globally rare plant communities. Incorporate information into a GIS database and coordinate with the Idaho Conservation Data Center.
>
> Goal BTGO03 Maintain or restore globally rare plants identified as the Natural Heritage Program G1, G2, and G3 and/or S1 and S2 species, and provide for their continued compositional and functional integrity for those species for which we have habitat (see Appendix C).
>
> Objective MIOB08 During fine-scale analyses in areas where mine facilities are identified as a potential concern or problem contributing to degradation of water quality, aquatic species or occupied sensitive or Watch plant habitat, evaluate and document where the contributing mine facilities are and prioritize opportunities to mitigate effects.

Following these measures does not necessarily interfere with mining activities but does require additional surveys, the adoption of additional safeguards regarding dust monitoring and management. and the development of species-specific design features to protect this subpopulation and its pollinators from additional disturbance. such as the creation of a Plant Conservation Area.

c. Least moonwort (Payette National Forest and Region 4 Sensitive Species and Forest Watch Species)

Least moonwort is a Payette National Forest and Region 4 sensitive species. Two subpopulations were observed near Johnson Creek Road in 2004. The most recent survey for them was conducted in 2005 and failed to detect any. No subsequent surveys have been done for least moonwort related to the Stibnite Gold Project or other projects in the intervening 17 years, in contradiction of the following Forest Plan objectives, standards and goals:

> Objective BTOB01: Continue to map locations of suitable occupied habitat for Region 4 Sensitive plant species, Forest Watch plants, and globally rare

> plant communities. Incorporate information into a GIS database and coordinate with the Idaho Conservation Data Center.
>
> Objective BTOB02: During fine-scale analyses in areas containing sensitive species habitat, identify and prioritize opportunities for restoring degraded Sensitive species habitat.
>
> Standard BTST01 Management actions that occur within occupied sensitive plant species habitat must incorporate measures to ensure habitat is maintained where it is within desired conditions, or restored where degraded.
>
> Goal BTGO03 Maintain or restore globally rare plants identified as the Natural Heritage Program G1, G2, and G3 and/or S1 and S2 species, and provide for their continued compositional and functional integrity for those species for which we have habitat (see Appendix C).

The Forest Service needs to conduct new surveys for this species to establish a proper baseline and to inform the NEPA process.

d. Blandow's helodium (Boise and Payette Forest Watch Species)

Construction of the Burntlog Route could impact the hydrology of the wetland that supports a nearby occurrence of Blandow's helodium, a Forest Watch species. Dust from construction and transportation activities could also negatively affect or extirpate this population. It is unclear if there are other occurrences of this species on the Boise National Forest and within the planning area. The SDEIS appears willing to accept the loss of this population instead of providing for continued compositional and functional integrity for this S2 species, as per the Forest Plan:

> Goal BTGO03 Maintain or restore globally rare plants identified as the Natural Heritage Program G1, G2, and G3 and/or S1 and S2 species, and provide for their continued compositional and functional integrity for those species for which we have habitat (see Appendix C).

We recommend that the Forest Service integrate additional design features to minimize disruption of the hydrology of wetlands along the Burntlog Route if it is constructed. This may include using additional and/or larger culverts and adjusting the location of the route.

e. Sweetgrass, Boise National Forest Forest Watch Species

Burntlog Route construction also threatens two subpopulations of sweetgrass, a Forest Watch species, near Trapper Creek by altering the hydrology of the wetland that supports this species. It is unclear if there are other occurrences of this species on the Boise National Forest and within the planning area.The SDEIS appears willing to accept the loss of this population instead of providing for continued compositional and functional integrity for this S1 species, as per the Forest Plan:

> Goal BTGO03 Maintain or restore globally rare plants identified as the Natural Heritage Program G1, G2, and G3 and/or S1 and S2 species, and provide for their continued compositional and functional integrity for those species for which we have habitat (see Appendix C).

As mentioned above, we recommend that the Forest Service integrate additional design features to minimize disruption of the hydrology of wetlands along the Burntlog Route if it is constructed. This may include using additional and/or larger culverts and adjusting the location of the route.

f. Rannoch-rush (Forest Watch Species)

This occurrence is located within 300 feet of an existing section of the Burnt Log Road. The main issues here are impacts of dust from road widening and transportation. Again, the SDEIS appears willing to accept the loss of this population instead of providing for continued compositional and functional integrity for this S2 species, as per the Forest Plan:

> Goal BTGO03 Maintain or restore globally rare plants identified as the Natural Heritage Program G1, G2, and G3 and/or S1 and S2 species, and provide for their continued compositional and functional integrity for those species for which we have habitat (see Appendix C).

g. Additional Mitigation measures

In addition to the mitigation measures suggested above, the Forest Service should require multiple weed surveys and appropriate treatments for each year in areas along all transportation routes, beginning before construction starts. Treating existing noxious weed occurrences along the transportation route will help prevent traffic from transporting seeds to other locations.

The Forest Service could also collect seed from these subpopulations or nearby subpopulations before they are impacted by nearby mining activities. This seed stock should be properly labeled and stored in a way that maintains viability and used for future reseeding at the subpopulation site as conditions allow.

There are a number of unaddressed threats for other subpopulations of Forest Watch and Sensitive species in other locations on the Boise and Payette National Forests. These threats include nearby noxious weeds or unauthorized recreational trails among others. The Forest Service and Perpetua Resources could undertake additional surveys so that the Forest Plan requirements are being met and take additional measures to address these threats. As a result, there could be a net increase in the number of individuals and the resilience of these other subpopulations.

2. Whitebark pine, Listed as Threatened under the ESA

Whitebark pine is a critical subalpine species found in the analysis area along the proposed transmission line between Johnson Creek road and the mine site, and along the proposed Burntlog Road. Whitebark pine is also found along additional roads in the general project area, including the Riordan Lake and Meadow Creek Lookout roads, the old Thunder Mountain road, and Warm Lake Road.

On December 14, 2022, the US Fish and Wildlife Service announced its decision to list whitebark pine as a threatened species under the Endangered Species Act. This rule is to become effective starting January 17, 2023. Threatened species are likely to become endangered within the foreseeable future throughout all or a significant portion of its range. The primary threat to this species is disease from white pine blister rust, with other threats including mountain pine beetle, altered wildfire patterns and climate change. USFWS determined that these threats are not related to habitat loss, and that habitat is not a limiting factor for the species, and therefore did not designate any critical habitat for the species. The USFWS can authorize forest management and other activities that benefit and conserve the species and certain activities, such as forest management and maintenance of existing rights-of-ways is allowed under the 4(d) rule.

Due to the listing, there are now additional restrictions regarding the removal of whitebark pine: “The protections for whitebark pine also make it illegal to remove, possess, or damage the tree on federal lands.”[326] Federal actions that may impact whitebark pine must now go through section 7 consultation:

[326]https://www.fws.gov/press-release/2022-12/whitebark-pine-receives-esa-protection-threatened-species

> The conference process helps determine the likely effect of the proposed action and any alternatives to avoid jeopardy to a proposed species or destruction or adverse modification of proposed critical habitat.[327]

If the USFWS determines that project will result in incidental take, the USFWS must issue an incidental take permit with specific terms and conditions that are non-discretionary. The Forest Service must comply with the reasonable and prudent measures and agree to implement the terms and conditions in the USFWS's incidental take statement to avoid potential liability.

If the USFWS biological opinion finds that a jeopardy or adverse modification to habitat will occur, the Forest Service may adopt one of the reasonable and prudent alternatives for eliminating the jeopardy or adverse modification of habitat, offer a reasonable and prudent alternative not yet considered, or take additional other actions.

The Federal Register specifically mentioned the Stibnite Gold Project with regard to the listing decision:

> *Comment 25:* The Nez Perce Tribe expressed concern that there is currently inconsistency in the regulatory measures and management for whitebark pine both across and within Federal land management agencies. The Tribe expressed concern about the continued persistence of whitebark pine without "standardized and adequate protection and conservation measures." They specifically expressed concern about how the Stibnite Gold Mine Project in Idaho could affect whitebark pine if the species lacks Federal protection because that project has the potential to remove up to 1,027 whitebark pine trees and impact up to 258 ac (104 ha) of occupied habitat. https://www.federalregister.gov/d/2022-27087/p-156

The USFWS provided the following response:

> As a result of these provisions in the Act, if a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must initiate consultation with the Service. Thus, because we are listing whitebark pine as a threatened species under the Act, before Federal agencies can authorize development projects on Federal land, action agencies will need to consider whether these projects may affect whitebark pine (in addition to any other listed species in the action area). If the activities may affect any listed species, the Federal agency must initiate

[327]https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

> consultation with the Service. Therefore, section 7 consultation processes will ensure that development and extractive activities on Federal lands do not jeopardize the continued existence of whitebark pine, or any other listed species. We have not yet received a biological assessment for the Stibnite Gold Mine project, a proposed mining operation on Federal public land (namely USFS land) and private land in Idaho, and thus section 7 consultation has not yet occurred for the project; when it does occur, this consultation process will consider effects to whitebark pine, and any other listed species, as described above. https://www.federalregister.gov/d/2022-27087/p-157

Consultation regarding the maintenance of existing transmission lines is covered under the 4(d) rule and may be relatively straightforward, but we maintain that new transmission lines or expansion of transmission lines as proposed in the Stibnite Gold Project, will require additional consultation:

> We recognize that relevant Federal agencies have already completed section 7 consultations to analyze the effects of construction and maintenance of utility lines in Federal rights-of-way on currently listed species. However, if these existing consultations do not consider the effects of these actions on whitebark pine, Federal agencies will need to reinitiate consultation on these ongoing vegetation-management activities if they may affect whitebark pine. Federal agencies are obligated to ensure that the activities that they authorize, such as maintenance of a utility line, do not jeopardize listed species, so they must reinitiate consultation if these existing consultations do not adequately examine whether these activities could jeopardize whitebark pine. However, as we discuss in our responses to *Comment 18* and *Comment 50,* above, these vegetation-management activities are excepted in the 4(d) rule because they do not present a threat to whitebark pine at the species level and may reduce the risk of high-severity fire, which would benefit the species. Thus, given that we find these types of activities would not present a species-level threat and may be beneficial, reinitiated consultation on the basis that these activities may affect the newly listed whitebark pine would likely be straightforward. https://www.federalregister.gov/d/2022-27087/p-234

The Forest Service has preliminarily determined that neither the Johnson Creek Route Alternative nor the Burntlog Route Alternative would impact whitebark pine individuals but

would not jeopardize the continued existence of this species.[328] However, consultation will still be required:

> However, while the 4(d) rule excepts forest-management activities because they do not present a species-level threat, section 7 concurrence or consultation will still be required if a forest-management activity with a Federal nexus may affect whitebark pine, **even if this activity would only affect individual trees or populations.** (Emphasis added).
> https://www.federalregister.gov/d/2022-27087/p-237

> We added vegetation management of existing utility rights-of-way as an example of forest-management activities covered under the 4(d) rule in Provisions of the Final 4(d) Rule, below. Importantly, **construction of new utility lines on Federal lands is not an excepted activity under the 4(d) rule** (*i.e.*, it is not forest management); if that construction could result in prohibited removal or damage of whitebark pine, Federal agencies and associated utility companies would need to pursue appropriate permitting and consultation processes. (Emphasis added.)
> https://www.federalregister.gov/d/2022-27087/p-232

According to the SDEIS, the analysis area contains approximately 2,069 acres occupied by whitebark pine. Even though the Forest Service has preliminarily determined that neither alternative would jeopardize the species, the SDEIS notes that activities related to the Stibnite Gold Project would negatively affect both whitebark pine habitat and individuals:

> The SGP would remove whitebark pine individuals, and habitat conversion associated with the SGP would impact seed production, dispersal, and establishment of this species. SDEIS 2-144.

The Vegetation Communities, Botanical Resources, and Non-Native Plants Specialist Report highlights the potential impacts to known locations of whitebark pine".

> 7.2.1.6 Issue: Impacts to Known Locations of Whitebark Pine
>
> Construction would require removal of known whitebark pine individuals. Direct impacts to whitebark pine individuals would occur during the construction and operation phases. Removal of whitebark pine individuals, particularly mature, cone-bearing individuals, would reduce the population

[328] Stibnite Gold Project, Vegetation Communities, Botanical Resources, and Non-Native Plants Specialist Report, p. 71.

size of this species in the Forests and potentially have long-term consequences for this species in the analysis area.

Loss of whitebark pine individuals would result in reductions in seed production and dispersal, which would result in reduced establishment of this species in and adjacent to the analysis area.

Transport of whitebark pine individuals that are cut down for SGP construction outside the SGP area also has the potential to spread bark beetle species (e.g., mountain pine beetle [Dendroctonus ponderosae]), which are a main cause of tree mortality in the coniferous forests of the western U.S. in recent years (Hinke et al. 2016). White pine blister rust disease, which is caused by the introduced pathogen Cronartium ribicola, is a conifer pathogen (Keane et al. 2017) that has the potential to spread if infected trees are transported outside the SGP area. This pathogen and bark beetles are a threat to whitebark pine in the PNF and BNF, and their potential spread as a result of SGP actions could detrimentally impact whitebark pine and other conifers within and outside the analysis area.[329]

The botanical surveys are intended to cover both direct impacts and indirect impacts up to 300 feet to factor in effects to pollinators and from dust. However, we are concerned that even this broader analysis misses several potential impacts from dust suppressant, soil contamination, recreationalists, and climate change, among other impacts.

a. The SDEIS failed to analyze the potential impacts of soil contamination on whitebark pine.

In addition to interfering with photosynthesis, dust contaminated with heavy metals can affect soils and harm plant physiology. We are concerned that the SDEIS fails to consider impacts to whitebark pine and other botanical resources within and adjacent to the Operations Area Boundary from air quality/pollution and mercury or other heavy metal contamination stemming from onsite ore processing.

We are also concerned about the physical and chemical effects of fugitive dust to botanical resources along the transportation route. IDEQ itself states on page 22 of the final SOB that "it may prove challenging to consistently and continuously achieve the targeted level of fugitive dust control for emissions from traffic on unpaved roadways, with over 55 miles of haul truck routes within the mining operations boundary, a fleet of 32 haul trucks

[329] The Stibnite Gold Project, Vegetation Communities, Botanical Resources, and Non-Native Plants Specialist Report, p. 56.

weighing between 37 and 357 tons, and a targeted dust control efficiency of 93.3% accomplished by application of both dust suppressant and water controls." The Forest Service needs to take a closer look at these potential impacts.

b. The SDEIS failed to analyze the impacts of dust suppressants on whitebark pine.

As noted above, dust control measures are critically important but they have to be applied carefully to avoid unintended effects. Magnesium chloride is a now commonly used liquid chemical mix applied to unpaved roads as a dust suppressant and to both paved and unpaved roads as a deicing agent. Numerous studies demonstrate that the use of magnesium chloride on road surfaces results in adverse conditions affecting the health of roadside vegetation, including aspen, Engelmann spruce, and lodgepole and ponderosa pine. Each of these studies found that exposure to commercial deicers and dust suppressing agents using magnesium chloride as a base adversely affects these four tree's life cycles, reducing or inhibiting foliage growth, depressing leaf photosynthesis rates, and increasing sapling mortality.

The adverse impacts associated with the use of magnesium chloride are not restricted to vegetation immediately adjacent to the roadside. Researchers have documented foliage loss and mortality and high sodium concentrations up to 93 meters downslope of the application area. While none of the cited studies document whitebark pine impacts, it is worth noting that few, if any, studies on the effects of magnesium chloride incorporate alpine or subalpine environs. Considering the adverse effects magnesium chloride has on Engelmann spruce, as well as lodgepole and ponderosa pine, it is not unreasonable to project potential impacts to whitebark pine and other species if magnesium chloride solutions are used for dust suppression or as a de-icing agent. The Forest Service needs to determine if magnesium chloride will play a role in dust abatement and winter road maintenance, and if so, fully analyze and disclose the potential impacts to whitebark pine in the analysis area. We recommend that the Forest Service provide the results of this analysis in a supplemental SDEIS.

c. The SDEIS fails to consider long-term impacts of climate change.

Known effects of climate change include rising temperatures, decreased snowpack, and increased rain-associated precipitation. These factors could affect the resilience of whitebark pine over the next two decades, and the SDEIS fails to consider the potential impacts to the long-term success of whitebark pine should the analysis area population suffer additional losses. As recounted elsewhere in these comments, we recommend the Forest Service analyze the findings of climate change cumulative impacts in a supplemental SDEIS.

d. The SDEIS fails to consider the effects of motorized public recreational use of the Burntlog Route on whitebark pine.

Motorized access through whitebark pine habitat will be greatly expanded if public use of the Burntlog Route is allowed. While recreational activity is not a threat to whitebark pine populations, additional recreational activities in this subalpine area could affect individual whitebark pine and increase the cumulative effects of the predicted impacts. Members of the public who do not follow the Motor Vehicle Use Map can drive vehicles off designated routes and run over whitebark pine seedlings. Campers may also cut down whitebark pine for firewood or to enlarge campsites and parking areas at dispersed camping areas. The SDEIS also notes the possibility of motorized wilderness incursions into the FCRNRW, which would further increase the potential impacts on whitebark pine. In addition, the majority of fires in Idaho are human-caused. While certain fires can be beneficial to whitebark pine by reducing surface fuel loads and competition, uncharacteristic wildfires can be detrimental, as highlighted in the SSA:

> Although some experts have suggested that whitebark pine is phenotypically adapted to survive low-intensity fire, Stevens et al. (2020, p. 948) found that whitebark pine had relatively thin bark compared to other conifer species and, based on a systematic ranking of numerous traits associated with fire resistance in western conifers, whitebark pine was found to have one of the lowest fire resistance scores of the 29 conifers examined in the study. Others have also observed that whitebark pine trees can be sensitive to bole (main steam of the tree) scorching, resulting in cambium injury or death, even from low-intensity fire (Hood et al. 2008, p. 66). Keane et al. (2020, p. 7) noted several recent reports of prescribed fire and low-intensity fire killing whitebark pine trees, despite pre-fire site preparation activities implemented to reduce or modify surface and ladder fuels and protect the residual whitebark pine trees. Keane and Parsons (2010, p. 63) studied the effects of seven different fuel treatment combinations on whitebark pine at five treatment sites in Montana and Idaho and found that whitebark pine mortality from low-intensity fire was comparable to subalpine fir under all treatment combinations. As a result, empirical evidence shows that low-intensity fire in whitebark pine can result in higher-severity fire effects.[330]
>
> And

[330] Whitebark pine SSA 2021 37, https://ecos.fws.gov/ServCat/DownloadFile/225615

> Despite adaptations that allow whitebark pine to recolonize areas that experience high-severity fire effects, the ability of whitebark pine to regenerate and reestablish following high-severity fire has been disrupted by white pine blister rust in many areas. This novel stressor makes the species more vulnerable to the impacts of fire (see Chapter 4: Analysis of Current Conditions). Blister rust has killed many mature whitebark pine trees, effectively reducing or eliminating whitebark pine seed sources. The presence of blister rust also reduces whitebark pine seedling survival, which significantly reduces the species' ability to regenerate in fire-created openings that are typically ideal for seedling establishment.[331]

Wildfires are also expected to become more severe due to climate change and mountain pine beetle activity. Human-caused wildfires in areas made accessible to the general public by the Burntlog Route are reasonably foreseeable. These impacts would be from activities completely unrelated to mining activities and would be largely preventable if the Forest Service decides to not allow public motorized access along the Burntlog Route or selects the Johnson Creek alternative.

e. Indicators used to assess impacts to whitebark pine are incomplete.

The SDEIS uses two indicators to estimate impacts on whitebark pine. The first indicator is the SDEIS used to estimate impacts on whitebark pine is the acres of habitat affected:

> The 2021 MMP would remove an estimated 259.4 acres of occupied whitebark pine habitat (12.5% of occupied habitat in the analysis area).
>
> The Johnson Creek Route Alternative would remove an estimated 108.4 acres of occupied whitebark pine habitat (5.2% of occupied habitat in the analysis area). SDEIS 2-144.

The second indicator of impacts to whitebark pine is the estimated number of mature whitebark pine trees to be cut during construction activities. The SDEIS also includes an estimate on the number of individual trees which will be cut, which is critically important for distinguishing between alternatives and should be ranked as a third indicator:

> An estimated 1,236 individual trees, 23 of which would be cone-bearing trees, would be removed under the 2021 MMP. SDEIS 2-144.[332]

[331] Ibid. p. 40.
[332] Appendix F, Whitebark Pine Impacts states this will be 24 trees.

> An estimated 767 individual trees, 23 of which would be mature, cone-bearing trees, would be removed under the Johnson Creek Route Alternative. SDEIS 2-144

Consideration of mature trees is important and appropriate as it may take 40-80 years for a whitebark pine to reach reproductive age:

> Mature tree life stage: Some whitebark pine individuals are capable of producing limited amounts of seed cones at 20– 30 years of age, although large cone crops usually are not produced until 60–80 years (Krugman and Jenkinson 1974, as cited in McCaughey and Tomback 2001, p. 109), with average earliest first cone production at 40 years (Tomback and Pansing 2018, p. 7). Therefore, the generation time of whitebark pine is approximately 40 to 60 years (Tomback and Pansing 2018, p. 7; COSEWIC 2010, p. v). Mature whitebark pine trees require two summers of suitable temperatures and precipitation for fertilized cones to mature (Rapp et al. 2013, p. 2).[333]

The impacts to the total number of whitebark pine should be included as an equally important third indicator. There are many more younger whitebark pine trees that may be removed by mining activities. While they may not have reached reproductive age yet, these smaller and younger trees are more resistant to mountain pine beetles than mature trees and are important to retain as well.

f. Baseline surveys on whitebark pine are insufficient.

We have concerns about the methodologies used to complete some baseline surveys. Regarding the acreage of occupied habitat, Forest Service is appropriately basing this information on modeled suitable habitat and field surveys[334] for whitebark pine. Field surveys were conducted on 89% of the areas that are modeled as suitable habitat and that are associated with the disturbance footprint of the mine and associated roads, transmission line corridors and OSV routes. Surveys found whitebark pine occupying 42% of the surveyed area:

[333] Species Status Assessment Report for the Whitebark Pine, Pinus albicaulis, p. 27. https://ecos.fws.gov/ServCat/DownloadFile/225615

[334] (2019 Whitebark Pine Survey Report [Tetra Tech 2020b]

> Surveys in 2012, 2013, 2014, and 2019 documented whitebark pine at the proposed mine site and along Burntlog Road and several existing roads, including Riordan Lake Road and Meadow Creek Lookout Road, and along the existing Old Thunder Mountain Road, and within the proposed power line corridor, especially between Johnson Creek Road and the mine site (HDR 2013, 2014, 2017; Tetra Tech 2019). Stibnite Gold Project, Vegetation Communities, Botanical Resources, and Non-Native Plants Specialist Report, D-10.

We are concerned that surveys for whitebark pine did not go into sufficient detail to establish the needed baseline information or to provide the public with sufficient information to make meaningful comments. The Forest Service does not have an accurate count of the live and cone-producing trees in a polygon. Instead, the numbers the SDEIS used for mature trees and total trees removed are estimated based on a formula with various inputs. This formula takes the acres directly impacted by proposed mining activities, divides them by the total acres in the polygon and multiplies this by the **approximate** live trees in the polygon. The problem with this approach is that for some polygons, there was an incredibly wide range of trees, ranging from 150-500 or 500-1000 or 1000+. The Forest Service just selected a "midpoint" number in that range and plugged it into the formula which may be prone to over or underestimations of whitebark pine.

As shown in Table F-1, the Forest Service estimated the number of whitebark pine trees in occupied habitat polygons #15, 71, 84 and 85 ranged anywhere between 150 to 500 individuals and came up with a midpoint amount that was entered into the formula.[335] The Forest Service then estimated that 67, 11, 35 and 33 trees would be removed respectively from each polygon. However, if the input ranges from 150-500 individuals, this could lead to a 300% or greater discrepancy in the results. No sorts of error bars or degree of certainty accompanies the estimate of trees to be removed, which makes it difficult for the public and decision makers to understand the potential impacts.

While some passages in the SDEIS clarify that the number of individual whitebark pine trees that could be affected are estimates, other passages do not:

> The 2021 MMP would remove an estimated 259 acres of occupied whitebark pine habitat (12.5% of occupied habitat in the analysis area), **totaling 1,236 trees (23 would be mature, cone-bearing)**. SDEIS ES-16. Emphasis added.

[335] The Stibnite Gold Project, Vegetation Communities, Botanical Resources, and Non-Native Plants Specialist Report, Table F-1.

The level of specificity used implies that this is an exact count with a high degree of accuracy instead of the output of a formula that may be off by several hundred percent in some polygons.

Another example is occupied habitat polygon #105 which appears to be in the proposed footprint of the West End pit. The Forest Service estimated that this polygon has anywhere between 500-1000 trees, out of which the Forest Service used the formula based on a midpoint to estimate that there were 17 mature whitebark pine trees that would be removed. The margin for error for this important calculation is undisclosed and unacceptable.

With this margin of error, it is difficult to make an informed decision about the impacts of Stibnite Gold Project, real differences regarding the Burntlog Route and the Johnson Creek Route Alternatives and how to develop design features to avoid, minimize and mitigate impacts. This is a significant problem regarding a listed species. We note that the lack of a sufficient baseline study for Sacajawea's bitterroot for the CuMo Mine Exploration Project was sufficient for the court to remand the decision.

While the formula used may be appropriate for coarse surveys for relative abundance of whitebark pine and in areas with numerous seedlings and saplings, the Forest Service should follow up with additional field surveys for accurate counts of mature trees where they occur. This should not be an undue burden as the area directly affected by mine operations in polygon #105 is less than 5 acres and is warranted as whitebark pine is a listed species.

While we appreciate the Forest Service posting the whitebark pine survey on the web page, it was not posted until Dec. 29, 2022. The survey report contained graphics showing the estimated range of the number of whitebark pine in the different polygons as well as the area of disturbance of the mine. However, the area of disturbance depicted is based on the 2019 Mine Plan, which differs from the 2021 MMP. As such, it is very difficult for the public to ascertain if a whitebark pine polygon really is going to be consumed in a mine pit or not. For example, polygons 105, 106 and 112 contain mature whitebark pine which would appear to be consumed by the West End pit (see Map 1 in the Whitebark Pine Survey). However, the West End pit boundary in the 2021 MMP appears to have a different location and shape (see Figure 2.4-2 in the SDEIS). The Whitebark Pine Survey needs to be updated so the actual proposed layer of disturbance appears along with the verified mature trees in the polygons and then made available for public comment in a Supplemental SDEIS.

g. Avalanche control on whitebark pine not properly assessed.

As mentioned previously, avalanche control work has the potential to artificially trigger avalanches that would not otherwise have occurred and therefore destroy or damage whitebark pine. It is not clear that whitebark pine surveys conducted by Perpetua included

individuals living within avalanche starting zones, tracks, or runouts. The SDEIS should ensure that all species members impacted by SGP activities are accounted for in these surveys. Artificially triggering avalanches, while beneficial for decreasing risk that vehicles will be struck, may also incidentally take whitebark pine individuals. This impact should also be addressed.

h. The 2021 MMP/Burntlog Route appears to have significantly greater impacts on whitebark pine than the Johnson Creek alternative.

Based on the incomplete information provided so far, the Burntlog Route appears to be the worst alternative for whitebark pine for both direct and cumulative effects:

> The preferred alternative would remove approximately 12.5% of occupied whitebark pine habitat in the project's analysis area covering 259.4 acres and remove a (greatly) estimated 1,236 trees, 24 of which would be cone-bearing trees. The Johnson Creek alternative would remove whitebark pine from 5.2% of occupied habitat in the same area covering 108.4 acres and remove a (greatly) estimated 767 trees, 23 of which would be cone-bearing trees.
>
> For whitebark pine, the potential for cumulative impacts would be lowest under the Johnson Creek Route Alternative and highest under the 2021 MMP based on disturbance acreage and estimated number of trees removed. The Stibnite Gold Project, Vegetation Communities, Botanical Resources, and Non-Native Plants Specialist Report, p. 82.

These impacts would be irretrievable:

> 7.6.2.2 Irretrievable
> Whitebark pine individuals removed for construction of the SGP would be irretrievable. Vegetation impacts also would be greater under the 2021 MMP in the area of the Meadow Creek Lookout Road (Forest Road 51290) from the Burntlog Route at the upper portion of Blowout Creek drainage to Monumental Summit, which would be improved for public access to connect with Thunder Mountain Road under this alternative. [336]

[336] The Stibnite Gold Project, Vegetation Communities, Botanical Resources, and Non-Native Plants Specialist Report, p. 84.

The Burntlog Route could also spread pathogens to the greater density of whitebark pine along this corridor and to the Chilcoot Peak RNA, where whitebark pine are one of the distinguishing features of the RNA.

> Timber harvested at the SGP could be transported on Burntlog Route. Timber from the SGP could have conifer pathogens such as pathogenic bark beetle species (e.g., mountain pine beetle [Dendroctonus ponderosae]), and white pine blister rust, which is caused by the introduced pathogen Cronartium ribicola (Hinke et al. 2016; Keane et al. 2017)...Conifer pathogens could be distributed during the transport of timber on the Burntlog Route…Whitebark pine/subalpine fir habitat type is one of the distinguishing features of the Chilcoot Peak RNA, and conifer pathogens could cause mortality of whitebark pine and other conifers. If this occurs, changes in the composition and structure of existing vegetation communities and ecological succession would result in a localized, minor to major, long-term loss of the Chilcoot Peak RNA research value and ecological condition. Stibnite Gold Special Designations Specialist Report p. 89.

i. The Environmental Design Features for whitebark pine proposed thus far are inadequate:

The Environmental Design Features include a requirement for flagging trees in advance of construction:

> Prior to construction disturbance, all known populations and/or individuals of whitebark pine within 300 feet of the SGP area would be flagged by the qualified environmental professional (QEP). Any anticipated impacts would be reported to the Forest Service. [337]

Instead of having the proponent identify all known populations of whitebark pine and reporting anticipated impacts to the Forest Service prior to construction, the Forest Service needs to conduct proper baseline surveys and disclose the anticipated effects as part of the NEPA process in a Supplemental SDEIS.

The whitebark pine survey[338] shows several locations where a slight realignment of the road or or transmission corridor would appear to avoid impacting a large number of whitebark pine trees. For example, polygon number 97 in map 11 shows the new proposed

[337] Ibid. p. 16.
[338] Tetra Tech 2020b whitebark pine survey

mine road branching off to the northeast from the Meadow Creek lookout road and down to the mine site. This intersection contains 1,000+ whitebark pine, which highlights the problems of the Burntlog Route. Just a few hundred feet north of this intersection, there are no identified whitebark pine within the surveyed polygon. At one point, Midas Gold/Perpetua had considered an alternate route going due north of this intersection which is marked as suitable but unsurveyed habitat. If the Burntlog Route is selected, one way to reduce impacts on whitebark pine is to move the intersection slightly to the north to use the first part of the original proposed route.

Similarly, polygon number 18 in map 3 shows that whitebark pine occurs in the northern half of the proposed transmission line corridor and not in the southern half. A slight adjustment to the south of this corridor could reduce impacts.

While most of the whitebark pines were in the seedling and sapling stages, the Whitebark Pine Survey made note of particular polygons where live mature trees were seen. We recommend prioritizing the mature trees in these polygons for retention and adjusting the footprint of disturbance accordingly:

> Many large snags were observed, but fewer live mature trees were seen. Some notable exceptions are polygon 87 (Appendix A, Map 13) near Meadow Creek Lookout, polygon 84 (Appendix A, Map 14, Figure 3-5) along Meadow Ridge, and in polygon 106 (Appendix A, Map 1) in the upper north facing reaches of West End Creek. These ridgetop locations have mature live trees, and large old snags…Additional polygons where mature whitebark pines were noted included polygon 34 (Appendix A, Map 25), polygon 54 (Appendix A, Map 18), polygon 66 Appendix A, Maps 18-19), polygon 96 (Appendix A, Map 10), polygon 98 (Appendix A, Map 10), polygon 105 (Appendix A, Map 1), polygon 107 (Appendix A, Map 1).[339]

It appears that both alternatives propose removing an estimated 23-24 mature, cone-bearing whitebark pine trees because this location would be consumed by the West End pit. This polygon contains a relatively large amount of mature trees with less than 5% blister rust of pine beetle markings. The mine footprint would completely eliminate the western third of this 3.63 acre polygon. We recommend investigating whether an engineering adjustment of the West End pit could be made that avoids or reduces the impacts on this stand of whitebark pine. One would hope that the engineering design for this pit contains an extra margin of safety and perhaps this does not require extending the pit wall as far to the east. Another option might be to see if a small peninsula could be retained that supports these mature trees and can be offset by a modified bench beneath it.

[339] Tetra Tech 2020b whitebark pine survey

j. Mitigation measures are inadequate.

Despite the significant adverse effects to whitebark pine associated with mine and transportation route construction and the proposed upgrades to transmission lines, Perpetua proposes few reclamation options and puts forth no mitigation efforts or proposals. The sole mention of whitebark pine mitigation/reclamation we have found is in Chapter 2 of the 2020 DEIS (Section 2.8.10, p. 146), which calls for collecting whitebark pine cones along transmission line upgrades and extensions, and planting two-year-old seedlings during mine and infrastructure reclamation. The paucity of reclamation proposals and the complete absence of an integrated mitigation strategy for whitebark pine is wholly unacceptable considering the anticipated mine life and the shifting habitat requirements that may be affected by climate change. In addition, the Boise Forest Plan specifically calls for whitebark pine restoration:

> Objective 2021 - Restore whitebark pine in PVG11 (High Elevation Subalpine Fir) vegetation group as described in Appendix A in all watersheds in the management area.[340]

We recommend the Forest Service and Perpetua reexamine reclamation opportunities, and implement a proactive mitigation strategy throughout the life of the project. First, the mature, cone-producing trees proposed to be removed should be assessed to see if they are "plus" trees that demonstrate resistance to white pine blister rust and could be of special importance to research and reproductive efforts in nurseries. If so, efforts should be made to collect seeds from cones. While surveys found few trees with cones, between 25-50% of the trees in Polygon 112 in Map 1 had female cones with an average of 26-50 cones per tree. Fewer than 5% of the trees in this stand showed evidence of white pine blister rust or mountain pine beetles. Over 90% of this stand would be consumed by the development of the West End pit. Other efforts should include cone collection from whitebark pine in and around the project area, planting seedlings in nearby suitable areas, supporting other efforts to improve whitebark pine habitat restoration projects on the Boise and Payette National Forests and funding white pine blister rust research.

Several recent publications highlight the best opportunities for promoting whitebark pine recovery, and we recommend the Forest Service andPerpetua use the findings of this research to reexamine the project proposal and identify proactive, concurrent mitigation strategies. For example, the Whitebark Ecosystem Foundation, American Forests, Forest Service, and other partners will be releasing a National Whitebark Pine Restoration Plan in 2023.

[340] Boise National Forest Plan p. III-377.

S. Terrestrial Wildlife

1. The Forest Service (FS) did not provide a useful summary of the changes between DEIS and SDEIS in relation to wildlife (or most every other resource) which impeded our review of the effects to wildlife

The project was originally analyzed in a DEIS in 2020. In response to the FS request for public comments, ICL and others provided an extensive analysis of project effects. In October 2022, the FS released a SDEIS. The FS made little effort to provide a comparison of changes between the draft and supplement EIS. The FS did not acknowledge ICL's original concerns, and did not show how the concerns were addressed. This lack of information and transparency does not meet the intent of the NEPA.

2. The FS incorrectly refers to state and county agencies as cooperating agencies; the definition of which pertains only to federal agencies (see 40 CFR sec. 1501.6 Cooperating agencies). The FS does not include important federal agencies such as the NOAA - Fisheries and the US Fish and Wildlife Service (USFWS) in its list of cooperating agencies

As stated in the SDEIS Executive Summary (ES-1):

> The Forest Service, specifically the Payette National Forest, is the lead agency in the preparation of this SDEIS (40 CFR 1501.5). The Boise National Forest is participating, as well as cooperating agencies including the U.S. Army Corps of Engineers (USACE), U.S. Environmental Protection Agency (EPA), Idaho Governor's Office of Energy and Mineral Resources (OEMR), Idaho Department of Lands (IDL), Idaho Department of Environmental Quality (IDEQ), and Valley County, Idaho. (ES-1)"

In addition to listing state and local agencies as "cooperating agencies," which is incorrect under 40 CFR sec. 1501.6, the SDEIS discusses how these agencies played a role in the development of alternatives (pp. 1-18, 2-1, 2-127). Unfortunately, despite the assertion that this project is designed to benefit threatened fish species, the FS does not include the federal agencies responsible for threatened and endangered fish and wildlife (NOAA - Fisheries and USFWS) as cooperating agencies.

3. The FS provides little information on the important role of consultation with the U.S. Fish and Wildlife Service (USFWS) and the NOAA - Fisheries, despite the anticipated effects to ESA-listed wildlife (and fish and plant) species

The FS makes little mention of Endangered Species Act (ESA) consultation with NOAA - Fisheries and the USFWS. Consultation is an essential element in the analysis of effects to species listed under the ESA. In the project area, the wolverine is proposed for listing, lynx and the northern Idaho ground squirrel (NIDGS) are listed as threatened. The monarch butterfly is a candidate species. There are also threatened fish and plant species as described above. On page 3-263, the SDEIS describes the requirements of consultation.

Chapter 6.2.2 6.2.2 Endangered Species Act Section 7 Consultation, makes reference to a "collaboration memo in the Administrative Record". This memo was requested and received, and showed that no documented consultation had occurred on the project since 2020.

> **6.2.2.2 Informal Consultation History**
> Informal consultation on the Project began in 2017 and is ongoing. The pertinent letters, emails, meetings, and conference calls are summarized in a **collaboration memo** in the Administrative Record. Formal consultation will commence once the final BA is deemed complete and accepted by USFWS and NOAA/NMFS.

4. Effects to wildlife were not identified as a significant issue even though some project activities (such as new access routes) may have significant effects to listed wildlife species, as described in section 4.13.2.2 2021 MMP (p. 4-393):

The analysis of direct effects includes the potential take of ESA-listed species. Pursuant to the ESA, take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." (16 USC 35.1531 et seq.). Take of an individual or population could occur for various reasons such as traffic collisions, change in an individual or population's habitat use due to noise, other disturbance, or contamination of food or water sources. Direct effects also would include loss of habitat or the encroachments into wildlife migration or travel areas, although no defined corridors have been identified. For all species, habitat loss could be temporary (0 to 3 years); short-term (3 to 15 years); long-term (more than15 years); or permanent for land use changes (i.e., pit lakes, TSF, TSF buttress, transmission line upgrades). The analysis of potential indirect effects on threatened, endangered, proposed, and candidate species includes fragmentation of habitat; increased competition for resources or habitat due to displacement of individuals from the affected area into the territory of other animals; or other effects, such as increased human presence in the species-specific analysis areas (e.g., hunters, trappers, and recreationists) that can cause mortality (i.e., illegal hunting or trapping) or reduced breeding and recruitment in the future population.

Canada Lynx (p. 4-395)

Therefore, based on the impact analysis for the Canada lynx and its habitat, the 2021 MMP would result primarily in localized, long-term, and permanent, minor impacts to the Canada lynx.
…..Disturbance impacts to Canada lynx along roadways due to noise and light would be long-term.

Wolverine (p. 4-399)
.....Therefore, based on the impact analysis for the wolverine and its habitat, the 2021 MMP would result in localized and long-term impacts to the wolverine, particularly the local population (part of larger Central Idaho sub-populations). …

5. The SGP would have impacts on many wildlife species. While the primary difference between the effects of the two action alternatives (2021 MMP and Johnson Creek) on wildlife are the access roads, there are other impacts to key habitats and species at specific time periods. The SDEIS admits that effects will be "long-term and permanent" to many species. Impacts to wildlife are not adequately analyzed based on the metric of "acres disturbed." In addition, impacts to mountain goats were not analyzed

a. The SDEIS compares acres of habitat disturbed under each alternative for a number of species (p. ES- 19). However, many other impacts also are described in the SDEIS but not fully analyzed. These effects are summarized in pages ES-19 through ES-20:

2021 MMP and Johnson Creek Route Alternative would remove an estimated 3,266 acres and 3,096 acres, respectively, of wildlife habitat, including habitat for Canada lynx (194 and 175 acres, respectively), wolverine (2,342 and 2,005 acres, respectively), northern Idaho ground squirrel (63 acres), Monarch butterfly, Region 4 sensitive species and management indicator species, Idaho species of greatest conservation concern, general wildlife species, big game species, and migratory bird species and bald and golden eagles.

However, many other impacts also are described in the SDEIS but not fully analyzed. These effects are summarized in pages ES-19 through ES-20:

Direct impacts to wildlife species may include direct mortality (i.e., wildlife-vehicle collisions, removal of nest or roost trees, etc.) or loss of habitat due to land clearing activities and land use changes. Indirect impacts could include reduced use of foraging or breeding habitat or reduced prey resources in the analysis area.

…..**Light, noise, and fugitive dust** impacts associated with mine site activities are likely to disturb or displace wildlife species. …..

As a result of new access roads, …. direct effects on wildlife species would primarily be due to loss and fragmentation of habitat; direct mortality through vehicle-wildlife collisions; and disturbance from light, noise, fugitive dust, and increased human activity. Construction of 15 miles of new road for the Burntlog Route would likely fragment habitat for general wildlife species and may act as a barrier to movement for some species. The intensity of this impact could range from minor displacement to mortality……

The important differences among the alternatives lie in the acres of habitat loss, the amount and **location of the disturbance from noise and human activity**, new access roads, and the location of the facilities. Th**e** Johnson Creek Route Alternative would have 170 fewer acres than the 2021 MMP due to the elimination of the Burntlog Route which also would reduce the magnitude and extent of impacts on most wildlife, especially wolverine, big game, and migratory birds. However, under both alternatives, greater impacts would occur for several groups of wildlife (e.g., big game [moderate impacts] and wolverine **[major impacts])** due the species' known occurrences and location and amount of habitat disturbance associated with the SGP. (ES 19-20) (Emphasis added.)

b. The SDEIS admits that effects to many wildlife species will be "long-term and permanent." Impacts to wildlife are not adequately analyzed based on the metric of "acres disturbed."

The SDEIS admits that effects to some wildlife species will be "long-term and permanent". As examples, the following species all had a determination of "localized, long-term, and permanent, minor impacts": Canada lynx (SDEIS p. 4-395), wolverine (p. 4-399), dusky grouse (p. 4-410), boreal owl (p. 4-412), fisher (p. 4-415), flammulated owl (p. 4-417), northern goshawk (p. 4-422), pileated woodpecker (p. 4-425), peregrine falcon (4-431), bighorn sheep (4-432), Townsend's big-eared bat (p. 4-434), and bald eagle (p. 4-435). See also the following excerpts.

Fisher *(p. 4-415)*
The 2021 MMP may directly and indirectly impact fisher individuals and habitat but would not likely contribute to a trend towards ESA listing or loss

of viability of the species within the planning area. Therefore, based on the impact analysis for the fisher and its habitat, the 2021 MMP would result primarily in localized, long-term and permanent, minor impacts to the fisher.

Northern Goshawk (p. 4-422)

…..The 2021 MMP may directly and indirectly impact northern goshawk individuals and habitat but would not likely contribute to a trend towards ESA listing or loss of viability of the species within the planning area. Based on the impact analysis for the northern goshawk and its habitat, the 2021 MMP would result primarily in localized, long-term and permanent, minor impacts to the northern goshawk.

In addition, the impact of roads is not adequately analyzed or displayed based on "acres disturbed."

Canada Lynx

Access Roads (pp. 4-395, 4-396)

…..Construction and the year-round operation (and plowing in winter) of the Burntlog Route could be a potential source of mortality for transient Canada lynx.

……Indirect impacts could occur in the form of increased competition for resources, including the competition created by plowing the Burntlog Route, which is currently not plowed for winter use. Currently, access in this area during the winter is limited to predators suited for over-snow travel (i.e., lynx and wolverine). Construction and operation of the Burntlog Route would open new corridors for predators and recreational activities. This could increase the predation on snowshoe hares by other predators (e.g., coyotes) or become a source of mortality for prey species (e.g., snowshoe hare, squirrels, etc.), which could affect food availability for transient Canada lynx. The increased human access and potential increase in hunting and trapping pressure for lynx and prey species in previously undisturbed areas also would be indirect effects.

Northern Idaho Ground Squirrel (NIDGS)

Off-site Facilities (p. 4-398)

Vehicle traffic associated with the proposed off-site facilities could impact individual NIDGS where the 2021 MMP components cross modeled habitat known to support populations. Surveys of modeled habitat would be

required before construction activities occur. All staff and contractors would be trained to reduce wildlife collisions.

We note that these surveys were not listed as an Environmental Design Feature (see also #9,ii).

> ***Idaho Species of Greatest Conservation Concern***
> **Access Roads** (p. 4-441)
> Direct effects on general habitat for SGCN would primarily be due to loss and fragmentation of habitat, and disturbance from light, noise, fugitive dust, and increased human activity under the 2021 MMP. Construction of 15 miles of new road for the Burntlog Route would likely fragment habitat for SGCN and may act as a barrier to movement for some species. The new 15-mile-long section of Burntlog Route would be constructed and plowed year-round and have an AADT level of 50 during operations, which could disturb the bird and bat SGCN. The intensity of this impact could range from minor displacement to mortality. The duration ranges from temporary road construction to short-term. It is not expected that the increased risk of injury or mortality would become permanent, because the new segment of the Burntlog Route would be reclaimed upon closure, and traffic levels on the existing roads would return to current levels. The geographic extent of these impacts would be limited to the vicinity of the access road. Restricting public access on the Burntlog Route would likely reduce impacts due to mortality.

We note that the group of species above is technically called "Species of Greatest Conservation **Need**" (SGCN) (emphasis added). The summary of effects to this group from the Burntlog Route is inconsistent with the "long-term and permanent" effects from roads described for other wildlife species.

c. Impacts to mountain goats were not analyzed

Impacts to mountain goats were not analyzed. The FS's omission of mountain goats is a significant oversight, as the species has been observed in IDFG's "Upper South Fork" Population Management Unit (PMU) as recently as 2016 on Big Baldy Ridge, Murphy Peak, Red Peak, and Red Ridge in Game Management Unit (GMU) 27 - all adjacent to or within the SGP wildlife analysis area. Murphy Peak, in particular, lies on the easternmost side of the area of analysis.

Mountain goats are listed in Idaho's State Wildlife Action Plan[341] as SGCN (Tier 3). SWAP is the "guiding document for managing and conserving species before they become too rare and costly to protect." IDFG's 2022 Draft SWAP indicates that mountain goats are a high-profile Alpine Tundra and Forest & Woodland species potentially impacted by outdoor recreation, forestry management, development, invasive species and climate-related stressors.

IDFG's SWAP notes that "conservation of existing quality mountain goat habitat should be one of the highest priorities for managers. Specifically, proactively managing access and travel will be critical to protecting mountain goat populations." Likewise, IDFG's management plan for mountain goat[342] identifies a number of considerations for proposed activities, including avoidance of activities that can pose direct or indirect threats affecting the use of habitat such as "road construction, timber harvest, mining, power infrastructure, oil and gas extraction, climate change, wildfires, and fire suppression". Those threats could also disrupt mountain goat behavior by triggering alarm responses, lowering foraging and resting rates, and reducing productivity. For example, Joslin[343] determined kid production and survival were negatively correlated with seismic surveys in Montana.

Some of the most negative human-induced effects on mountain goats originate from mechanized devices. The impacts of helicopters, in particular, are well documented.[344] The potential for disturbance to mountain goats, within and adjacent to the Upper South Fork PMU, would come from not just avalanche control activities, but from construction, operations and closure actions associated with SGP. In addition, a new source of human-caused disturbances would be introduced by increased road access — possibly during all four seasons of the mountain goat's life cycle. The Forest Service must account for these activities in the wildlife impacts analysis.

6. The analysis of effects to migratory bird species admits the project could include direct mortality of migratory birds, and does not meet the requirements of the Migratory Bird Treaty Act

The analysis of Migratory Bird Species and Bald and Golden Eagles (p. 4-448) shows the project fails to meet the requirements of the MBTA:

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[341] IDFG. 2017. *Idaho State Wildlife Action Plan, 2015*. Boise (ID): Idaho Department of Fish and Game. Grant No.: F14AF01068 Amendment #1. Available from: http://fishandgame.idaho.gov/

[342] IDFG. 2019. *Idaho Mountain Goat Management Plan 2019-2024*. Idaho Department of Fish and Game, Boise, USA.

[343] Joslin, G. 1986. *Mountain goat population changes in relation to energy exploration along Montana's Rocky Mountain Front*. Proc. Fifth Bienn. Symp. North. Wild Sheep and Goat Council.

[344] IDFG 2019.

Direct impacts on migratory bird species and bald and golden eagles could include direct mortality (i.e., collisions with vehicles, structures, removal of nest trees, etc.) or loss of habitat due to land clearing activities and land use changes. Indirect impacts on these species could include reduced use of foraging or nesting habitat; reduced prey resources (insects and pollinators) in the analysis areas; or disturbance from noise, light, and emissions Effects on migratory birds under the 2021 MMP are similar in nature to the effects discussed for general wildlife. Therefore, this section focuses only on the differences for migratory bird species.

The 2021 MMP may directly and indirectly impact migratory bird species, individuals and habitat. Therefore, based on the impact analysis for migratory bird species and their habitat, the 2021 MMP would result primarily in localized, short-term, long-term, and permanent, minor impacts to migratory bird species. …..

Cutting of trees for 2021 MMP activities and removal of snags would avoid avian tree nests, where feasible; and a Forest Service wildlife biologist would be notified of any occupied sensitive species nests or dens encountered. Although design features would reduce impacts, there would still be a decrease in habitat.

7. The SDEIS further admits that some effects to wildlife will be Irreversible and Irretrievable Commitments

Irreversible and Irretrievable Commitments for wildlife include habitats that require long time periods to reestablish, recovery of species such as Canada lynx or wolverine that occur in low numbers, or direct mortality. The SDEIS describes these commitments on p. 4-459 to 4-460**:**

4.13.4 Irreversible and Irretrievable Commitments of Public Resources
4.13.4.2 Action Alternatives
Although most wildlife species are considered renewable, certain biological resources that would be affected by the 2021 MMP and Johnson Creek Route Alternative are renewable only over long-time spans,... Loss of these resources would be considered irreversible. Reclamation of high-value habitats for wildlife species such as Canada lynx, wolverines and migratory bird species may require long periods of time (decades). Impacts to populations of threatened or endangered species, or species with low populations, such as Canada lynx or wolverine, would be considered

irreversible, because recovery may take a long period of time or not occur at all. The direct mortality of wildlife also would be an irreversible impact.

Irretrievable commitments include biological resources that are renewable over a short time such as vegetation, wetlands, and streams. Although the loss of the resource itself is reversible, the temporal loss of the use of the resource is irretrievable. The 2021 MMP and Johnson Creek Route Alternative activities would cause a temporal loss of habitat for a number of species; both from direct removal of vegetation, and indirectly through avoidance due to human presence. Some species sensitive to human presence, such as Canada lynx and wolverine, may not return to the area for years after the mine is closed.

Injury or mortality of individuals, such as burrow-dwelling species and slow-moving species that are unable to relocate when ground-disturbance activities begin, or through vehicle or transmission line collisions, would result in an irretrievable commitment of these resources. Although most animals displaced from the affected areas are expected to survive relocation, some displaced animals may not survive due to the associated dangers of migration and competition for resources; their loss also would be irretrievable.

Any reduction in habitat functions also would be irretrievable. Once the habitat is reclaimed to its full function, the irretrievable loss would only be the temporal loss of habitat during the period before it was reclaimed. Some vegetation and soil habitats would be lost for future use by wildlife until reclamation could be successfully implemented. Wildlife displaced from the affected habitat may relocate throughout the region, changing the availability of game for hunters and predators. The change could increase or decrease hunting success, but any reduction in game availability would represent an irretrievable loss of opportunity.

8. The NEPA requires that an EIS describes the environmental baseline of the areas to be analyzed (40 C.F.R.§ 1502.15), noting that an accurate baseline is "essential" to an informed analysis (40 C.F.R.§ 1502.22). The current condition of wildlife habitat was not updated with the effects of recent fires, hence the analysis is inaccurate. Further, an agency cannot rely on post-approval surveys, studies, or mitigation as a substitute for suitable baseline information

In our comment letter on the 2020 DEIS, we repeatedly noted areas where wildlife data should be updated. The 2022 SDEIS made little effort to address these concerns. For example, the habitat layer for lynx was not updated to reflect changes from recent fires. As identified in our wolverine comments (below) the Forest Service did not utilize adequate baseline data. The Environmental Design Features (EDFs) for the project include EDFs that commit to future survey work, hence important wildlife data would not be obtained or available to inform the current analysis in the SDEIS.

9. The Wildlife Environmental Design Features (EDFs) are not consistent between the analyses in the wildlife specialist report and the SDEIS. For example, the analysis is predicated on certain surveys to be conducted; but these surveys are not included in the EDFs

a. Wildlife EDFs are not consistent between the analyses in the wildlife specialist report and the SDEIS

The Wildlife Specialist Report (WSR) lists design features to address regulatory and Forest Plan requirements, see WSR, **Table 2-2 Prominent Regulatory and Forest Plan Requirements for Wildlife and Wildlife Habita**t. Some of the EDFs are worded differently and so might cancel one another (see below, specifically bolded text). Following each EDF listed below, we identify if the EDF was included in the SDEIS.

Some measures would be designed during project implementation. As noted in our comment #8, this is a violation of the NEPA: **an agency cannot rely on post-approval surveys, studies, or mitigation as a substitute for suitable baseline information.**

> Impacts to known nests, denning sites, winter roosting sites, and hibernacula (bats) of TEPC and Sensitive wildlife species will be avoided during the nesting or denning period whenever possible. **If impacts cannot be avoided, specific mitigation measures would be developed to minimize impacts, maintain key features of habitat, or to avoid disruption on a case-by-case basis through coordination with Forest Service wildlife biologists.** BNF and PNF: TEST12, WIST03
>
> **(not in SDEIS)**

> The Forest Service wildlife biologist would be notified of any sightings of TEPC or Sensitive wildlife species, including occupied sensitive species nests or dens encountered during implementation. **If necessary to maintain key features of nesting/denning habitat or to avoid disruption of**

nesting/denning activities, prescribed activities would be modified in accordance with the Forest Service wildlife biologist. Design Feature developed for compliance with BNF and PNF: WIST03, TEST12

(same in SDEIS)

Mitigate management actions within known winter roosting sites or hibernacula (bats) of Sensitive species if those actions would measurably reduce the survival of wintering or roosting populations. Sites, periods, and mitigation measures will be determined during project planning. FP Component BNF and PNF: WIST04

(same in SDEIS)

The proponent **will coordinate with Forest biologists to consider TEPC habitat needs when designing and implementing** facilities and management activities that may affect TEPC species and their habitats BNF and PNF: Developed in response to BTGU02, BTGU05, TEGU06, TEGU07, TEST09, TEST10, TEST13, BTST01,BTST02, WIST03

(not in SDEIS)

To prevent inadvertent entrapment of common and special-status wildlife during construction, all excavated, steep-walled holes or trenches more than two feet deep will be covered with tarp, plywood, or similar materials at the close of each working day to prevent animals from being trapped. Ramps may be constructed of earth fill or wooden planks within deep walled trenches to allow for animals to escape, if necessary. Before such holes or trenches are backfilled, they would be thoroughly inspected for trapped animals. If trapped wildlife are observed, escape ramps or structures will be installed immediately to allow escape. WIST06

(not in SDEIS)

To mitigate impacts to known nesting or denning sites of MIS or Sensitive species, land clearing activities in areas where complete vegetation removal is necessary greater than 0.5 acres would not occur, to the extent possible, until after the bird breeding season (April 1 through July 30th) for migratory and resident birds. **This design feature does not apply to the mine site, road construction or maintenance, hazard tree felling, or the power line upgrades and construction. Design Feature developed for compliance with BNF and PNF: WIST03**.

(same in SDEIS)

The last EDF listed above, is one of the most problematic, as it removes timing restrictions for most of the major activities and impacts associated with the project. Timing restrictions are one of the most commonly used methods (through EDFs or project design) to mitigate impacts to species during key time periods, such as nesting and calving. This not only limits the ability to meet the other EDFs listed above, but was found inconsistent with text in the SDEIS. One example is provided here (emphasis added):

> ***Boreal Owl***
> **Access Roads** (p. 4-414)
> The 2021 MMP could disturb individual boreal owls in the wildlife analysis area through direct habitat loss (9 acres) due to tree clearing, road construction, and increased human activity along the access roads (**Table 4.13-8**). Direct take of adult birds due to these activities is possible, but unlikely, because most individuals are expected to avoid areas of activity. However, it is possible that nests, eggs, and young could be directly disturbed by vegetation removal, including cutting of trees if it occurs during the nesting season. **Timing restrictions described for the mine site would be used to reduce impacts.**

ii. The analysis is predicated on certain surveys to be conducted; but these surveys are not included in the EDFs.

As an example, the SDEIS states that, for the preferred alternative, site checks and formal surveys would be conducted for the federally threatened northern Idaho ground squirrel (NIDGS hereafter), as needed, prior to ground-disturbing activities in suitable habitat (SDEIS at p. 3-343 and 4-398). It also states that surveys would be required before construction activities occur at off-site facilities (SDEIS at p. 4-398). However, there is no survey-related item listed in either Table 2.4-12 (regulatory and Forest Plan requirements) or in Table 2.4-13 (proponent proposed design features). In addition, no mitigation measures were identified for any wildlife species or wildlife habitat (SDEIS at p. 4-459). Given that the SDEIS said such surveys would be conducted, surveys must either be formally recognized as a design feature or identified as mitigation.

The NIDGS is not known to occur currently in the project area, but there are two historical, assumed extirpated, locations adjacent to the project area.[345] NIDGS are dynamic

[345] Yensen, E. 1991. *Taxonomy and distribution of the Idaho Ground Squirrel, Spermophilus brunneus.* Journal of Mammalogy 72(3):583-600.

on the landscape and have reappeared in or near places presumed to be extirpated (IDFG data). The most extensive modeled habitat in the project area is along the east side of Cascade Reservoir, including the transmission line corridor that will be upgraded from Lake Fork to Cascade (Figure 3.13-3). As described in the SDEIS, contractors conducting surveys for NIDGS in 2018 and 2019 also identified suitable habitat around, east of, and north of, the proposed Cascade switching station and near the Scott Valley Substation (SDEIS at p. 3-343). Surveys are important prior to ground-disturbing and excavating activities because these activities have the potential to destroy burrows, remove vegetation needed for food, and cause direct mortality from large machinery. Appropriate survey methods are detailed in the Terrestrial Wildlife Technical Report[346] submitted as a reference document with this letter.

10. The analysis of effects to Canada lynx is insufficient

The Canada lynx is a mid-sized forest carnivore that occurs across mountainous areas of northern North America. The lynx is highly adapted to hunting its primary prey, the snowshoe hare, in deep, powdery snow. Canada lynx were listed as threatened under the Endangered Species Act (ESA) for the contiguous U.S. in March of 2000. The USFWS designated critical habitat for Canada lynx in 2006, revising the designation in 2009, and finalizing critical habitat designations and what constitutes the range in which lynx are protected by the ESA in 2014. None of the designated critical habitat is located in the SGP analysis area.

The Forest Service modeled lynx habitat across 656,493 acres of the Boise and Payette National Forests, subdividing the area into seven Lynx Analysis Units (LAUs). No critical habitat has been designated on the forests, with project area lands described as secondary habitat. The SDEIS states that, "Although there is suitable habitat for the Canada lynx…there have been no verified sightings since 1978." The SDEIS further states that, "wildfires account for the majority of unsuitable habitat in these LAUs." We recommend the Forest Service provide a current (2022) map of fire activity in the SGP area that includes an overlay of suitable lynx habitat. This is necessary for the Forest Service to disclose the most likely areas for transient lynx movements to help avoid unintentional and indirect impacts to this threatened species.

As some habitats are made temporarily unsuitable for lynx, the importance of remaining habitat increases. While a broad swath of marginal habitat for lynx may see lynx utilizing any portion of it as transitional habitat, if this habitat is reduced, lynx may restrict

[346] Dronkert Egnew, A. and D. Evans Mack. 2023. Terrestrial Wildlife Report to ICL, et al., in review of Stibnite Gold SDEIS.

their travels to the remaining corridor of functional habitat, such as the ridgeline that would be impacted by construction and use of the Burntlog Route.

As forest succession proceeds, some areas will become suitable foraging habitat for snowshoe hare and subsequently suitable denning habitat for lynx. Because of the long duration of mining activities, the Forest Service needs to describe how habitat within the LAUs is expected to change over time.

Access roads threaten remaining suitable habitat for lynx in the SGP analysis area. The mine site and associated infrastructure may displace transient Canada lynx as they move between occupied habitats. Based on the Forest Service's assessment that wildfire accounts for the majority of unsuitable habitat in the LAUs, any remaining intact habitat becomes even more important to lynx for movement across the landscape. Access roads stand out as the primary threat to Canada lynx and the remaining intact suitable habitat in the analysis area.

The Burntlog Route is a potential source of mortality for transient lynx, as well as fragmenting habitat and acting as a barrier to movement. Further, increased traffic on Warm Lake Road, Johnson Creek Road, and the Stibnite portion of the McCall-Stibnite Road would also discourage lynx from crossing or using these areas. The Forest Service needs to examine the cumulative impacts to Canada lynx by providing map overlays of habitat in the Stibnite and Burntlog LAUs with impact overlays to determine the full impacts mine development and infrastructure will have on fragmenting transient and migration corridors. Adverse effects to these areas would reduce the chances of Canada lynx reestablishment or migration/movement.

Because Canada lynx depend on snowshoe hares as their primary prey, additional impacts to transient habitat will stem from winter snow plowing, particularly along the 38-mile Burntlog Route and from the proposed construction of a new 10.4-mile groomed OSV trail. Winter recreation is known to impact the effectiveness and success rate of Canada lynx hunting strategies, based on their ability to travel in deep snows with large paws. The proposed new OSV trail to offset recreation impacts will introduce additional sources of snow compaction, reducing hunting success rates and potentially allowing for other apex predators to take advantage of the fragmented and compacted snow conditions.

It is due to the potential effects of winter recreation on lynx that the Lynx Conservation Strategy (LCAS) and Forest Plan direction (TEST34) state:

> Allow no net increase in groomed or designated over-the-snow routes or play areas, outside of baseline areas of consistent snow compaction, by LAU or in combination with immediately adjacent LAUs unless the

> Biological Assessment demonstrates the grooming or designation serves to consolidate use and improve lynx habitat. This does not apply within permitted ski area boundaries, to winter logging, and access to private inholdings. Permits, authorizations, or agreements could expand into baseline routes or areas of existing snow compaction, and grooming could expand to routes of existing snow compaction and routes that have been designated but not groomed in the past and still comply with this standard.

The Forest Service needs to examine the full impacts of winter recreation to Canada lynx, comparing the existing conditions to those anticipated and potential conditions and how winter recreation and access potentially affects any transitory and migrating lynx. The FS also needs to address consistency with FP direction, or provide rationale for not meeting that direction (see SDEIS, App. A).

The SDEIS fails to provide any Environmental Design Features (EDFs) and/or mitigation measures that would reduce the impacts to suitable Canada lynx habitat, particularly the potential adverse effects associated with increased winter recreation and access and increased fragmentation associated with access roads and recreation opportunities. We suggest EDFs and mitigation measures for wolverine that would also benefit lynx (see #11 below). Due to the potential adverse impacts to the ESA-listed lynx, we expect that the Biological Assessment (unavailable to date), and the subsequent results of consultation with the USFWS, will result in additional mitigation measures or modifications to the project alternatives.

11. The analysis of effects to wolverine is insufficient

The Forest Service used the most current ruling on the wolverine's status under ESA (U.S. District Court May 2022) to appropriately analyze this species as "proposed threatened". As such, the FS has direction to prioritize conservation and recovery of endangered, threatened, and proposed species and their habitats (Forest Service Manual 2670.31).

The SDEIS recognized that the wolverine naturally occurs at low densities on the landscape due to low reproductive rates and large home ranges that exclude other individuals of the same sex. However, the SDEIS failed to connect that the spatial separation and low fecundity determined by life history, combined with specialized habitat requirements (persistent snow cover, cool temperatures), magnify this species' vulnerability to threats such as climate change, habitat fragmentation, backcountry winter recreation, and other factors. Thus, the SDEIS did not fully capture the importance of the project area for wolverine or the difference between alternatives using acres of habitat as the metric. We detail these shortcomings as follows.

a. Summary of wolverine occurrence is not complete

The SDEIS carried forward, from the DEIS, a summary of wolverine occurrence in and near the wolverine analysis area (SDEIS Table 3.13-3). These data are (1) incomplete and (2) fail to integrate the relationships among the occurrences listed in Table 3.13-3. In total, 14 individuals were identified during the life of the wolverine–winter recreation study from the Payette and northern Boise study areas.[347] In addition, the wolverines documented from Midas Gold's (now Perpetua Resources) remote camera study, listed in Table 3.13-3 from surveys conducted by Garcia and Associates 2013 and 2014, were identified as only male or female, when in fact genetics data and physical characteristics observable in remote camera photos of those individuals identified at least two different males and one female. One of the males was known from the winter recreation study. Thus, at least 16 individual wolverines were identified in or adjacent to the SDEIS wolverine analysis area during 2010–2015. More importantly, four of these were documented within the Stibnite Gold Project area, including a resident reproductive female.

In addition, the Forest Service did not take the opportunity in the interval between DEIS and SDEIS to update occurrences beyond 2014, despite subsequent data available to them within a reasonable time frame. A four-state camera survey conducted in the winter of 2016–17 included the Stibnite Gold Project area.[348] Notable results from this survey were (1) the continued documentation of a male and female wolverine from the winter recreation study within and adjacent to the SDEIS wolverine analysis area, and (2) detection of a female offspring of that resident male.[349]

A complete and accurate synthesis of sightings is important to establish a baseline for analysis. Resident, reproductive individuals maintain established territories and exhibit high fidelity to their territories.[350] Venturing outside a territory boundary incurs some level of risk due to neighboring territorial wolverines. The SDEIS recognized this:

> This is important because territoriality constraints define how wolverines can react to changes in habitat quality or displacement from occupied habitat.(SDEIS p. 3-345).

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[347] Heinemeyer, K., and J. Squires. 2012. *Idaho wolverine - winter recreation research project: investigating the interactions between wolverines and winter recreation. 2011-2012 Progress Report.* Available at https://www.roundriver.org. Also Heinemeyer, K., and J. Squires. 2014. *2014 Progress Report*.

[348] Lukacs, P. M., D. Evans Mack, R. Inman et al. 2020. *Wolverine occupancy, spatial distribution, and monitoring design*. Journal of Wildlife Management 84(5):841-851.

[349] Evans Mack, D. 2018. *Western states wolverine conservation project baseline camera survey 2016-2017, Idaho results.* Idaho Department of Fish and Game, Boise, Idaho, USA.

[350] Aronsson, M., and J. Persson. 2018. *Female breeding dispersal in wolverines, a solitary carnivore with high territorial fidelity*. European Journal of Wildlife Research https://doi.org/10.1007/s10344-018-1164-3.

Thus, analysis of the potential impacts of new roads and increased human-related activities should be put in the context of potential loss of quality habitat within individuals' home ranges, yet the Forest Service failed to do so.

b. Importance of wolverine habitat is not adequately portrayed and the potential for habitat fragmentation and barriers to movement is not adequately addressed

The project area supports high-quality wolverine habitat that is part of an interconnected landscape across south-central Idaho, which is also near the southern extent of wolverine occurrence in the continental U.S.[351] Wolverines at the southern extent of their range, specifically the Rocky Mountains, exist as small and semi-isolated subpopulations within a larger metapopulation.[352] Research has demonstrated the importance of habitat connectivity to demographic connectivity of wolverines, and that wolverine persistence depends on regular dispersal of individuals among blocks of habitat.[353]

The habitat in the project analysis area provides a stepping stone between important breeding concentrations of wolverine to the north (Salmon River Mountains north and east of McCall) and to the south (Sawtooth Mountains). In fact, two long-distance wolverine dispersal events have been documented between the Sawtooth and White Cloud Mountains, respectively, to the Salmon River Mountains.[354] Habitat within and surrounding the Stibnite Gold project area could have provided a corridor for dispersal. In addition, a male wolverine resident in the project analysis area is linked genetically (parent-offspring relationship) to the McCall area, demonstrating demographic connectivity.[355]

Thus, although the SDEIS noted that the Stibnite Gold Project area supports resident wolverines that are part of a subpopulation occupying Central Idaho (SDEIS p. 4-399), the SDEIS did not emphasize the depth or significance of this connection and makes no assessment of the importance of habitat in the project area to wolverine persistence in Idaho.

The SDEIS did not adequately address the potential impact of habitat fragmentation and potential barriers to movement that proposed roads and other activities could pose to

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[351] Aubrey, K. B., K. S. McKelvey, and J. P. Copeland. 2007. *Distribution and broadscale habitat relations of the wolverine in the contiguous United States*. Journal of Wildlife Management 71(7):2147-2158.
Also IDFG. 2014. *Management plan for the conservation of wolverines in Idaho*. Idaho Department of Fish and Game, Boise, USA.

[352] Inman, R. M., B. L. Brock, et al. 2013. *Developing priorities for metapopulation conservation at the landscape scale: wolverines in the western United States*. Biological Conservation 166:276-286.

[353] Aubrey et al. 2007.

[354] Copeland, J. P. 1996. M.S. *Biology of the wolverine in central Idaho*. University of Idaho, Moscow, USA. Also Heinemeyer and Squires 2014.

[355] Pilgrim, K. and M. K. Schwartz. 2013. *Idaho winter recreation research project wolverine (Gulo gulo) study animals 2012-2013*. USFS Rocky Mountain Research Station Conservation Genetics, Missoula, Montana, USA.

forest carnivores in general and the wolverine in particular. The proposed increase in infrastructure, new travel corridors in both summer and winter, increased road widths, higher traffic volumes, and increased frequency and duration of use could impede wolverine movement, resulting in a functional loss of habitat and potential reduction in genetic exchange. The Forest Service should analyze the two action alternatives in terms of how much wolverine habitat remains connected and contiguous rather than simply a count of acres affected. Specifically, the preferred alternative changes the character of the existing Burnt Log Road (FR #447) and the adjacent unroaded area, by creating the Burntlog Route; a corridor of year-round traffic and access that bisects wolverine habitat adjacent to the FCRNRW. In contrast, the Johnson Creek Road Alternative, by concentrating activity west of the Burntlog drainage, keeps more habitat intact and does not impinge on the refugia represented by the FCRNR Wilderness.

The proposed Burntlog Route is of particular concern for wolverines because it is adjacent to, and occasionally directly crosses, some of the highest-quality habitat in the analysis area based on the number of years with persistent snow cover (SDEIS Figure 3.13-4). The SDEIS attempts to downplay the impact the Burntlog Route would have on wolverines by implying that any road with ROW less than 328 feet (citing Luensmann 2008) and traffic volumes less than 100 vehicles per day (citing Scrafford et al. 2018) is a non-issue for wolverines. However, we found different conclusions from these same publications, suggesting that wolverines avoided areas within 330 feet of some roads, actively preferred being at least 3,600 feet away from a road, and that wolverine avoidance of roads was constant regardless of traffic volume. In particular, Scrafford et al. (2018) stated:

> "Although we found that wolverines were displaced by higher traffic roads, our models also indicated that *roads scarcely used by vehicles were deleterious to wolverine habitat suitability*. This finding aligns with the prediction that wildlife species with low density and fecundity, such as wolverines, would be sensitive to roads even with low traffic volumes (Jacobson et al. 2016)."

We note that the Forest Service did not adjust their narrative of road impacts to wolverine in the SDEIS, despite having these inconsistencies pointed out in our. comment letter submitted in 2020 on the DEIS. The Forest Service must correct these errors, accurately disclose impacts to wolverine posed by access roads and other infrastructure, and develop design features to avoid, minimize, and mitigate impacts to wolverine.

c. SDEIS does not adequately address the potential for increased non-target trapping

The SDEIS does not adequately address the potential for increased non-target trapping incidents that could result from the anticipated increase in year-round access. While

there is no legal hunting or trapping season for wolverine in Idaho, the species' propensity for scavenging, particularly in winter, increases risk of injury or mortality in traps set legally for other species. Trapping contributed to the widespread decline and range contraction of wolverine in the lower 48 states in the 1900s.[356] IDFG collects information on non-target trapping incidents that are voluntarily reported to the Department, and Wildlife Services reports to the Forest Service incidents of non-target captures during their control actions on FS-managed land. These numbers were not disclosed in the SDEIS.

The SDEIS acknowledged indirect effects from trapping for listed species in general (SDEIS p. 4-393) and for two forest carnivore species specifically: Canada lynx (SDEIS p. 4-395), and fisher (SDEIS p. 4-416). In each case, the statement was similar to this for Canada lynx:

> The increased human access and potential increase in hunting and trapping pressure for lynx and prey species in previously undisturbed areas also would be indirect effects."

Such statements are not an analysis and totally insufficient.

Notably, there was no mention in the SDEIS of direct or indirect impacts to wolverine from trapping, despite the fact that the wolverine is relatively more numerous than lynx or fisher in the project area and that there are documented cases of wolverine incidentally trapped in the project area.

While it may be difficult to demonstrate a population effect of non-target trapping on wolverine in Idaho, the loss of a breeding-aged female from a small, semi-isolated subpopulation could be an additional factor that suppresses population stability or growth.[357] The Forest Service should conduct a more thorough analysis of potential effects from non-target trapping.

d. SDEIS does not adequately address the likely increase in winter travel and associated impacts

The SDEIS gave a vague and inconsistent description of how the Burntlog Route would be managed for public access. Thus, it is unclear how the FS could have completed a thorough analysis of impacts to any wildlife species, including wolverine, with regard to public access. Under either proposed alternative, there would be a change (increase) in winter travel for a 20+ year time frame. As described below under #12, " **motorized vehicle routes in winter",** the proposed new groomed permanent snow machine trail along Cabin Creek,

[356] Aubrey et al. 2007 and IDFG 2014.
[357] Mowat, G., A. P. Clevenger, A. D. Kortello et al. 2020. *The sustainability of wolverine trapping mortality in southern Canada*. Journal of Wildlife Management 84(2):213-22.

although described as a replacement for the current groomed route along Warm Lake Rd, would in fact be additive, because it would operate contemporaneously with proposed year-round travel on Warm Lake Road and proposed year-round travel on Burntlog Route (which currently is groomed for only a portion of its length and gets limited winter recreation use). For wolverine, the concern is the increased opportunity for over-snow recreational activity that the project directly and indirectly would provide. The proposed Cabin Creek OSV groomed route would give new, direct access to over-snow recreation in wolverine habitat. The Burntlog Route, if selected, would provide access to additional areas by virtue of a newly plowed road in winter. The SDEIS made no attempt to quantify the public's use of plowed roads for backcountry access in winter, and was unclear as to how far along the entire Burntlog Route access would be allowed. In addition, the Forest Service Recreation Specialist Report acknowledged the potential for unauthorized motorized use of the FCRNR Wilderness from the Burntlog Route (Stibnite Gold Project, Recreation Resource Specialist Report p. 67).

The SDEIS gives only a qualitative recognition that over-snow recreation can impact wolverines. Thus, the SDEIS does not adequately address the potential impact to wolverine from increased recreation resulting from increased access, particularly in winter. The potential effects of winter recreation on wolverine behavior and habitat use were the focus of a six-year research project in central Idaho and the western Yellowstone region during 2010–2015.[358] Findings from that rigorous study were that wolverines avoided areas of both motorized and non-motorized winter recreation, and off-road recreation elicited a stronger response than road-based recreation. Female wolverines exhibited strong avoidance of off-road motorized recreation and experienced higher indirect habitat loss than male wolverines. For example, on average 14% of habitat within female home ranges was reduced in quality due to winter recreation, with at least one individual experiencing a 70% degradation of habitat.[359] Similarly, wolverines used areas of recreation less as intensity of recreation increased. The research conclusions suggest indirect habitat loss, particularly to females, could be of concern in areas with higher recreation levels.

Results from Heinemeyer et al. (2019) were supported by a study in British Columbia that found that density of forestry roads was a strong negative predictor of wolverine distribution in winter, particularly of females.[360] They hypothesized that the negative relationship with roads was related to a high level of snow machine operation in their study area and reflected anthropogenic disturbance. Their model also found a positive relationship

[358] Heinemeyer, K. S., J. R. Squires, M. Hebblewhite et al. 2017. *Wolverine-winter recreation research project: investigating the interactions between wolverines and winter recreation*. *Final Report.* Available at https://www.roundriver.org. Also Heinemeyer, K., J. Squires, M. Hebblewhite et al. 2019. *Wolverines in winter: indirect habitat loss and functional responses to backcountry recreation*. Ecosphere 10(2). Article e02611.
[359] *Id*.
[360] Kortello, A., D. Hausleitner, and G. Mowat. 2019. *Mechanisms influencing the winter distribution of wolverine Gulo gulo luscus in the southern Columbia Mountains, Canada*. Wildlife Biology 2019:wlb.00480.

between wolverines and protected areas. The authors proposed a reduction in road density or mechanized use of roads in winter as a conservation tool for wolverine.

The Idaho Department of Fish and Game also recognized the importance of managing winter recreation to benefit wolverine in their draft management plan for Canada lynx, wolverine, and fisher.[361] The plan establishes a wolverine-specific priority action of "providing technical assistance for land managers and recreation planners related to intensity and distribution of winter recreation, and considerations for wolverine habitat or connectivity."

The SDEIS states, in the context of roads and increased recreational activity in winter, that wolverines would "avoid the areas by moving away from the activities…" (SDEIS at p. 4-401). This statement is overly simplistic and fails to consider wolverine social structure. As described above, resident wolverines, such as occur in the project area, maintain and defend territories. Both adult and subadult wolverines are killed by other wolverines in some instances.[362] As a consequence, venturing beyond one's territory has associated risk. For a wolverine to "avoid" activity, it would have to do so temporally or spatially, either of which could equate to a loss of access to resources within its territory and effectively reduce territory size.

In summary, the SDEIS assessment of impacts of winter recreation on wolverine was insufficient.

e. Cumulative impacts were not considered

The SDEIS failed to consider the cumulative impacts of the Stibnite Gold Project, increasing winter recreation, and climate change to wolverines. The SGP is not happening in a vacuum; any adverse impacts that this project will have on wolverines and wolverine habitat will be amplified and exacerbated by the pressures the species is already facing with declining spring snow cover and expanding winter recreational use. Access points to groomed trails and winter backcountry routes around McCall have continued to attract increased levels of visitation in the past decade. The wolverine–winter recreation study documented a steady increase of use during 2010–2015.[363] The groomed route along Warm Lake Road also has seen increased use in winter, in both the number of traditional over-snow vehicles and in hybrid users (snow machines carrying backcountry skiers; DEM personal observation). It is only logical to expect that recreationists will welcome the chance to move from the congested McCall area to new territory made available by the proposed Cabin Creek

[361] IDFG. 2023. *DRAFT management plan for the conservation of fisher, wolverine, and Canada lynx in Idaho 2023-2028.* Idaho Department of Fish and Game, Boise, USA.
[362] Aronsson and Persson 2018.
[363] Heinemeyer et al. 2019.

OSV groomed trail and the new and existing roads proposed to be open year-round. This use will almost certainly expand beyond the road/access corridors and infringe on wolverine habitat across the larger accessible landscape. Climate projections identify a change in the type and timing of precipitation in Idaho, creating a potential scenario where recreationists and snow-dependent wildlife become concentrated in a shrinking snowpack. These threats were not addressed in the SDEIS.

f. The SDEIS states the SGP would result in "localized and long-term impacts to the wolverine." Many other impacts are recognized, despite the insufficiency of the analysis. It is difficult to see how the FS makes a "not likely to jeopardize determination" for wolverine. In addition, the numerous effects to wolverine do not meet FP direction (TEST04). Given the numerous detrimental effects, additional Environmental Design Features (EDFs) and/or mitigation measures are necessary

The SGP area is important to wolverines, both in terms of the number of resident individuals and the amount of high-quality habitat. While wolverines may not be entirely extirpated from the larger area due from the expanded road network, it is likely that their utilization of this landscape and access to other areas will be diminished and connectivity with surrounding subpopulations will be negatively affected. We base this conclusion on the fact that wolverines occur at low density on the landscape; wolverines have been well-documented in the SGP area, which overlaps with two Tier 1 Wolverine Priority Conservation Areas; wolverines in the project area are linked demographically with breeding concentrations to the north and south; wolverines are already facing significant pressures from climate change, declining snow cover, winter recreation, and existing road networks; and the best available science shows that wolverines are sensitive to roads, regardless of their width or traffic levels, and both motorized and non-motorized winter recreation.

The Forest Service determined that the 2021 MMP would result in "localized and long-term impacts to the wolverine, particularly the local population (part of larger Central Idaho sub-populations)." (SDEIS p. 4-399).

> "The Forest Service has preliminarily determined that the 2021 MMP may directly and indirectly impact wolverine individuals and habitat resulting in adverse impacts but would not jeopardize the continued existence of the species. Informal Section 7 ESA consultation is ongoing with the USFWS. The 2021 MMP would impact the most habitat overall, reduce habitat connectivity, and result in the highest level of displacement (particularly from breeding and winter range), based on direct and indirect impacts. Therefore, based on the impact analysis for the wolverine and its habitat, the 2021 MMP would result in localized and long-term impacts to the

> wolverine, particularly the local population (part of larger Central Idaho sub-populations…)"

In addition, "Direct impacts on wolverines are likely along the access roads due to habitat loss by access road construction, year-round vehicle traffic causing disturbance and potential avoidance behavior, over-snow recreation in the winter and new construction and plowing of the Burntlog Route through potential suitable habitat." (SDEIS p. 4-400). "Vehicle-wildlife collisions and habitat fragmentation would likely be the largest impact on the wolverine related to the 2021 MMP." (SDEIS p. 4-401).

Given these effects disclosed in the SDEIS, and the many impacts not sufficiently addressed, it is difficult to see how the FS makes a "not likely to jeopardize determination" for wolverine.

The FS also provides no rationale for how these effects meet the following Forest Plan direction:

> Management actions that have adverse effects on Proposed or Candidate species or their habitats, shall not be allowed if the effects of those actions would contribute to listing of the species as Threatened or Endangered under the ESA (TEST04).

The FS needs to address consistency with FP direction, or provide justification for not meeting that direction (see SDEIS App. A).

Despite all of these acknowledged impacts, the only Environmental Design Feature (EDF) included in the SDEIS pertaining directly to wolverine is to monitor high elevation habitats "where practicable" (SDEIS p. 2-105).

As written, it is unclear what, if anything,would actually occur for monitoring, so we can not evaluate whether the data would be sufficient to assess impacts from project-related activities. A concerted monitoring effort will be needed for the Forest Service and Perpetua to determine the extent to which the SGP is adversely impacting wolverine.

We recommend the following EDFs or mitigation measures for wolverine:

1. If the Burntlog Route is approved and built, only mine traffic should be allowed for its entirety in winter. In summer, public use should occur only on the existing Burnt Log Road (FR #447).
2. No new OSV groomed route in Cabin Creek. Any changes to OSV grooming and routes must be informed by an analysis consistent with the Travel Management Rule,

Subpart C. This analysis must fully consider the recent research on the effects of winter recreation and travel on wolverines.

3. Remove roadkill as encountered.
4. Fund development of a model of winter recreation, such as was completed in Colorado,[364] based on terrain selection of motorized and non motorized winter recreationists. This will enable predictions of areas of potential conflict or disturbance to wildlife. For expediency and economy, coordinate and/or contract with Round River Conservation Studies and partners to use their extensive recreation dataset collected during the wolverine–winter recreation study.[365]
5. Fund development of a fine-scale denning habitat model (e.g., talus layer) for wolverine for the two Tier 1 Wolverine Priority Conservation Areas that include the project area. Framework and methods were established during the wolverine–winter recreation study.[366]
6. Conduct annual recreation monitoring of winter recreation for the first 5 years, beginning with the construction phase, then on adjusted schedule thereafter. A survey grid and methods were developed for the wolverine–winter recreation study that uses fixed wing aerial surveys and infra-red trail counters.[367] A baseline of recreation intensity and footprint was established for the SGP area from surveys in 2018,[368] hence data analysis should be coordinated and/or contracted with Round River Conservation Studies.
7. Using an independent contractor, monitor wolverine activity with remote cameras in winter on an established schedule (every 2 or 3 years) using a method that incorporates collecting genetic material (hair snagging with gun brushes) to identify and track individuals. The Western States wolverine conservation projects' camera survey provides a blueprint.[369]

12. New motorized vehicle routes and facilities in winter will adversely affect many wildlife species, particularly the wolverine. Significantly, the Forest Service failed to adhere to the requirements of Subpart C of Travel Management Rule when proposing to designate new over-snow vehicle (OSV) routes for the SGP

[364] Olson, L. E., J. R. Squires, E. K. Roberts et al. 2017. *Modeling large-scale recreation terrain selection with implications for recreation management and wildlife*. Applied Geography 86:66-91.
[365] Heinemeyer et al. 2019.
[366] *Id.*
[367] Heinemeyer et al. 2017. Also Heinemeyer, K., J. O'Keefe, and D. Evans Mack.. 2019b. *Use of aerial surveys to monitor backcountry winter recreation and predict associated wolverine habitat use*. Final report to Idaho Department of Fish and Game. Round River Conservation Studies, Salt Lake City, Utah, USA.
[368] *Id.*
[369] Lukacs et al. 2020.

This issue is discussed in depth in this comment letter in section **N. New Motorized Vehicle Routes** (references to orders, rules, and regulations are footnoted in section N).

Here, we address the most relevant aspects to wildlife. Subpart C of Travel Management Rule (TMR), also known as the OSV Rule, provides a framework for winter travel planning on National Forests. Forests, with adequate snowfall, are required to analyze, designate, and display on an "over-snow vehicle use map" a system of routes and areas where OSV use is permitted based on resource protection needs and other recreational uses. The SGP proposes changes and additions in winter travel, and OSV routes, that must be adequately addressed in the SDEIS to comply with the TMR and minimize effects to wildlife. Planning under the TMR, requires compliance with the "minimization criteria" outlined in Executive Orders 11644 and 11989 (issued in 1972, and 1977, respectively.) Two criteria are particularly important to wildlife: 1) minimize damage to soil, watershed, vegetation, or other resources of the public lands, and 2) minimize harassment of wildlife or significant disruption of wildlife habitats."

Neither of the two OSV routes proposed in the SDEIS are currently designated OSV routes. The 15 miles of new road proposed to link the existing Burnt Log Road with the SGP mine site would also be a new travelway, open year round. As noted previously , in order to designate these routes, the Forest Service must follow the requirements of the TMR and comply with the minimization criteria. Of particular concern is the impact that each route will have on wildlife, specifically wolverine, which are known to occur in the area and are currently proposed for listing under the Endangered Species Act.

While the SDEIS (4.13) raises the possibility that new routes in winter will impact wildlife, these effects are not addressed in any detail. The proposed Cabin Creek OSV route would bring additional use and impacts into an area that, while open to OSV use, has no groomed trail. It is important that the Forest Service fully analyze potential impacts to wildlife from the new OSV route, since grooming would increase use into an area that currently does not see much, if any, recreational use in winter due to lack of access.

Perhaps more important, because the Payette and Boise National Forests have not conducted winter travel management planning in accordance with Subpart C of the Travel Management Rule, it cannot assume that its existing system of OSV routes and areas comply with this Rule.

The Payette National Forest has long recognized the need to complete winter travel planning. In fact, previous environmental analyses of winter travel were put on hold to allow studies on the effects of winter recreation on wolverines. This became a multi-year, multi-forest study (including the Boise and Sawtooth National Forests, among others) that is

certainly one of the most extensive and rigorous to date. The results of this study showed that male and female wolverines avoided motorized and non motorized recreation to some degree, with females showing a stronger response. Both male and female wolverines responded more to dispersed recreation, motorized and non motorized, than linear travel. Increasing avoidance of areas as the amount of off-road winter recreation increased resulted in indirect habitat loss or degradation of moderate- or high-quality habitats.

Following this study, the IDFG continued to collect data on wolverines in the project area with remote cameras. A multi-state survey in the winter of 2016-17 encompassed the project area, and a follow-up, more intensive camera survey occurred during the winter of 2020-21. Wolverines were detected in the project area during both efforts (see above #11.i). More information on the potential effects to wolverine and lynx is provided above.

It is essential that the Forest Service makes use of this research and best available science, (conducted on and supported by the Payette and Boise national forests) to inform decisions regarding winter travel in the SGP area. Ideally, the Forest Service would meet the intent of the Travel Management Rule and conduct a comprehensive travel plan analysis across both national forests, before making any project specific decisions on winter travel. But certainly, any project-specific decisions must be informed by recent research and science.

13. Road construction and use are highly likely to affect wildlife species. The description of public road access is inconsistent in the SDEIS. In addition, the Forest Service appears to ignore the requirements of the Travel Management Rule when designating new motorized routes for the SGP. Hence, the analysis of effects to wildlife is also inconsistent and, therefore, flawed

The SDEIS inconsistently describes public access throughout the document. In some sections it is asserted that "After construction is completed, public use would be allowed on Burntlog Route when other public access roads are blocked by mine operations," while in other places it is assumed that the public may have unlimited access. Representatives for Stantec, the company that prepared the SDEIS, gave conflicting answers when asked; one said the analysis was supposed to assume the "worst case scenario" of unlimited public access, while the other individual said they assumed the road would only be used by the public when access was closed elsewhere. The portion of road to be closed to public use in winter was also unclear. See 2.4.4.3 Access Roads, Figure 2.4-5 (p. 2-18) and descriptions in ch. 4 under Access and Transportation (p. 4-486, 4-487, 4-490); Recreation (p. 4-533, 4-534). See Ch. 4 Recreation which initially says the road from Warm Lake to Landmark would be closed to the public in winter, and then states the opposite (p. 4-435, 4-454, 4-459).

Since this route will have a major impact on ESA-listed species, it is essential that the newly constructed portion of the route is permitted only as a temporary road used solely for mining purposes, with no public access and should not be part of the minimum road system as defined under the FS's Travel Management Rule as regulated by 36 CFR 212, 251, 261, and 295 – Travel Management; Designated Routes and Areas for Motor Vehicle Use; Final Rule.

Information provided in the SDEIS Access and Transportation section (p. 4-490) does not fully address the concerns expressed above - that the Burntlog Route be permitted only as a temporary road used solely for mining purpose with no public access (except "when other public road access is blocked by mine operations"). The SDEIS states:

> The newly constructed Burntlog Route connecting to Thunder Mountain Road would be a temporary road necessary for mining purposes and would meet 36 CFR 228A requirements for environmental protection to assume that mine operations are conducted to minimize adverse environmental impacts to the extent feasible for roads. Accordingly, the road would not be designated for public motor vehicle use under 36 CFR 212.50 on the Motor Vehicle Use Map. Therefore, for public motor vehicle use to be allowed on the road when other public access roads are blocked by mine operations, one of the other exceptions from the prohibitions on motor vehicle use on NFS land at 36 CFR 261.13 must be met. The approved plan of operations would meet the exception for written Forest Service authorization under 36 CFR 261.13(h) by including a provision in the mine plan for public use of the road when other public road access is blocked by mine operations. (p. 4-490).

14. Utilities and right-of-ways contribute to the effects on wildlife. Large portions of the proposed transmission corridors associated with the SGP are located in lands with few roads. The SDEIS does not adequately analyze the effects of these facilities on wildlife habitat; including habitat fragmentation and migration corridors

While the proposed alternatives do not appear to designate ROWs as trails for public motorized use, unauthorized recreational motorized vehicle use may increase on the ROWs used for the project. We are concerned that this use could increase in summer and (with OSV) in winter, resulting in additional impacts to wildlife beyond those addressed in the analysis. The SDEIS needs to incorporate a more thorough analysis of potential incidental impacts to wildlife, particularly increased habitat fragmentation and disturbance of migration corridors from both authorized and unauthorized use of ROWs.

15. Avalanche hazard mitigation activities will negatively affect wildlife, but the SDEIS failed to adequately analyze these effects

As discussed in section L**. Avalanche and Avalanche Mitigation**, of this comment letter, the analysis fails to address effects to wildlife resulting from avalanche mitigation measures and control on the proposed access roads and the Cabin Creek OSV route. This is of major concern to wildlife because, as noted in section L, the SDEIS underestimates the frequency and extent of the control work. The SDEIS, and the associated report (DAC 2021), provide some information used to evaluate avalanche control noise impacts to humans, but not to wildlife. The SDEIS also fails to acknowledge impacts to wildlife from any associated helicopter activity. Alternatively, automatic exploders might be installed in some problematic areas (i.e., high cirques and ridges), but impacts from the noise of the explosives would still occur.

Much of the control work is expected to occur along the Burntlog Route, but control work would likely be necessary along the Cabin Creek OSV route, if approved. As stated elsewhere in our letter, the Cabin Creek Route should not be considered a OSV recreation mitigation measure, as it only leads to the need for mitigation for wildlife, particularly wolverine. It will increase OSV use into an area with little use in the past, and also with a high avalanche hazard. This proposed route should be dropped to ensure human safety and wildlife habitat protection.

Many of our concerns about the insufficient analysis for wildlife are included in section L. As noted, wolverine and mountain goats are two important species that could be impacted. Increased activities in wolverine habitat, particularly occupied habitat, such as occurs in the analysis area, provide more rationale for ESA listing of the wolverine (currently proposed) as Threatened. Almost the entire length of the Burntlog Route occurs in modeled wolverine habitat, and much of the priority denning habitat occurs near to the route.

Helicopter flights and control work are also expected to occur in areas near to occupied mountain goat habitat. These activities have been documented to cause negative impacts to mountain goats, (see also our comments on mountain goats above.) The area also provides suitable habitat for the threatened lynx. Although lynx have not been documented in the analysis area, potential effects to the species must be addressed, including compliance with FP standards and guidelines for the species (see discussion in this section above).

Also, the SDEIS is unclear about whether under the 2021 MMP, the Stibnite Road would be maintained in winter, thereby adding to the effects identified for the Burntlog Route. If that is the case, then the total number of charges per year could increase 50% (an

estimated 146 charges on the entire Burntlog Route combined with 71 charges on Stibnite road) based on data in DAC 2021 (which is likely an underestimate).

If either action alternative is selected, and before any control activities commence, Perpetua should work with the FS and IDFG to conduct mountain goat surveys in the area to be affected by control activities (including noise). Additional wolverine surveys are recommended elsewhere in section S. The proposed OSV route on Cabin Creek should be dropped. Ultimately, the best option for wildlife protection and human safety would be to restrict mine access to snow-free months.

16. The effects to various wildlife species from climate change are addressed perfunctorily (see 3.4.4.11 Wildlife and Wildlife Habitat). The climate change analysis and the analysis of cumulative effects for wildlife fail to account for the cumulative impacts of habitat loss associated with the mine and with habitat loss from climate change to snow-dependent species such as the lynx and wolverine

The region is currently facing unprecedented rates of change in climatic conditions that may outpace the natural adaptive capacities of several native species (Halofsky et al. 2018). Increased climate variability and frequency of extreme conditions will favor species adapted to frequent disturbance, potentially increasing the abundance of invasive species. Impacts to terrestrial species as a result of climate change are already being experienced through habitat loss and fragmentation, physiological sensitivities, alterations in the timing of species life cycles (e.g., seasonal changes impacting migration, hibernation, and reproductive success), and indirect effects (e.g., disruption of species interaction across communities). Most species are expected to exhibit sensitivity to changes in the climate, especially those restricted to high elevations or surface water habitats. Of the special status wildlife species occurring in the analysis area, the flammulated owl (*Otus flammeolus*), wolverine (*Gulo gulo*), and Columbian spotted frog (*Rana luteiventris*) are expected to be the most vulnerable terrestrial populations in the region (Halofsky et al. 2018). Other special status species expected to be impacted include the Canada lynx (*Lynx canadensis*) and Rocky Mountain bighorn sheep (*Ovis canadensis*) (Halofsky et al. 2018).'

Climate Change Impacts to Analysis Area Resources (p. 4-64)
Wildlife and Wildlife Habitat
Climate change impacts to wildlife and wildlife habitat in the SGP area would include habitat loss and fragmentation, physiological sensitivities,

> and alterations in the timing of seasonal life cycles. Habitat loss and fragmentation may occur in the region and analysis area due to the increased potential for wildfire that is anticipated from changing climatic conditions (Halofsky et al. 2018). Construction and operation of the SGP, access roads, utilities, and off-site facilities would additionally impact wildlife from habitat loss and fragmentation. Reclamation activities are intended to achieve post-mining land use for wildlife habitat as reasonably possible, which would help to reclaim habitat connectivity. However, some displacement and habitat fragmentation would be a long-term effect. (p. 4-70).

The climate change analysis in the SDEIS and climate specialist report fail to consider long-term impacts of climate change in relation to wildlife. Known effects of climate change include rising temperatures, decreased snowpack, and increased rain-associated precipitation. These factors could affect many species including wolverine, lynx, and whitebark pine. Only one paragraph was dedicated to wildlife in the entire climate specialist report (see 6.2.9).

T. Climate Change

In addition to the comments below, the Forest Service must incorporate CEQ's recent interim guidance to assist federal agencies in analyzing greenhouse gas emissions and climate change effects of their proposed actions under NEPA.[370] As CEQ poignantly reminds all federal agencies:

> The United States faces a profound climate crisis and there is little time left to avoid a dangerous—potentially catastrophic—climate trajectory. Climate change is a fundamental environmental issue, and its effects on the human environment fall squarely within NEPA's purview. Major Federal actions may result in substantial GHG emissions or emissions reductions, so Federal leadership that is informed by sound analysis is crucial to addressing the climate crisis. Federal proposals may also be affected by climate change, so they should be designed in consideration of resilience and adaptation to a changing climate. Climate change is a particularly complex challenge given its global nature and the inherent interrelationships among its sources and effects. Further, climate change raises environmental justice concerns because it will disproportionately and adversely affect human health and the environment in some communities,

[370] Council on Environmental Quality,{CEQ-2022-0005], National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change , 88 Fed. Reg. 1196 (Jan. 9, 2023).

> including communities of color, low-income communities, and Tribal Nations and Indigenous communities. Given the urgency of the climate crisis and NEPA's important role in providing critical information to decision makers and the public, NEPA reviews should quantify proposed actions' GHG emissions, place GHG emissions in appropriate context and disclose relevant GHG emissions and relevant climate impacts, and identify alternatives and mitigation measures to avoid or reduce GHG emissions. CEQ encourages agencies to mitigate GHG emissions associated with their proposed actions to the greatest extent possible, consistent with national, science-based GHG reduction policies established to avoid the worst impacts of climate change.[371]

The Forest Service has obligated itself to comply with the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA. 36 C.F.R. 220.1(a). Thus, when analyzing the SGP the agency should consider "(1) the potential effects of a proposed action on climate change, including by assessing both GHG emissions and reductions from the proposed action; and (2) the effects of climate change on a proposed action and its environmental impacts."[372] In addition to quantifying *all* of a proposed action's projected GHG emissions or reductions for the expected lifetime of the action, CEQ recommends that agencies also "use the best available social cost of GHG estimates to translate climate impacts into the more accessible metric of dollars" thus allowing "decision makers and the public to make comparisons, help evaluate the significance of an action's climate change effects, and better understand the tradeoffs associated with an action and its alternatives."[373] As explained below, the SDEIS completely fails to follow any of CEQ's recommendations. Not analyzing these highly relevant aspects of the SGP fails to disclose vital information that the public and the decision maker need to ensure informed decision making.

1. The SDEIS fails to provide a comprehensive estimate of greenhouse gas (GHG) emissions for the proposed Stibnite Gold Project

The GHG emissions calculation is based on a mine life of 20 years, (p. 4-63), yet the SDEIS (p. 2-8) predicts that long-term water treatment will be required at SGP (mine year 16 through 40), Estimated emissions from these additional activities should be included in the calculation. The Reclamation and Closure Plan indicates that large volumes of compost will be transported to the mine from southeast Idaho for reclamation efforts. The transport of compost and other soil amendments should also be included in the calculations.

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[371] *Id.* at 1197.
[372] *Id.*
[373] *Id.* at 1198.

The SDEIS (p. 4-67) relies on estimates of GHG emissions for antimony refining, based on gold processing using electrolytic refining methods. However, most antimony sulfide concentrates are refined with pyrometallurgy smelting, relying on volatilization roasting in rotary kilns—reduction smelting, which uses much larger amounts of energy. If reduction smelting is anticipated, EISS (2022) estimates the total refining emissions at 24,300-24,600 metric tons CO_2 eq.[374] This is substantially larger than the estimated 4,055 MT in the SDEIS. Perpetua should disclose the expected refining method for the antimony sulfide concentrate, and the SDEIS should include GHG emissions relative to that processing method.

The SDEIS also fails to quantify the estimated GHG emissions for transporting antimony concentrate off-site for processing. The SDEIS (p. 4-66, 4-67) states that "Because it is unknown at this time where the concentrate from the mine would be processed, total GHG estimations associated with the transport of antimony concentrate would be speculative." However, there are reasonable assumptions that can be made about potential off-site processing facilities for antimony concentrate, and therefore a reasonable range of GHG emissions estimates can be calculated. Perpetua states in its materials that, "*The concentrate, when sold, would likely be shipped to facilities outside of the United States for smelting and refining because there are currently no such facilities operating in the United States with capacity for refining antimony sulfide concentrate."*[375] Perpetua should be required to provide a short list of off-site processing options for antimony to demonstrate that it can, as it claims, produce antimony for marketable use. This information is reasonably available, and should be used to estimate emissions in the SDEIS.

Table 4. Summary Of Total Emissions From Alternative Transport And Refining Scenarios For Total Proposed 44,000 Metric Tons Of Antimony.

	Total Transport Emissions	Total Refining Emissions	**Final Total Emissions**
SPMP	42,108 metric tons CO_2eq	24,600 metric tons CO_2eq	**66,708 metric tons CO_2eq**
USAMSA	6,494 metric tons CO_2eq	24,300 metric tons CO_2eq	**30,794 metric tons CO_2eq**

Based on an analysis of potential refining sites, ore grade, likely transport methods, and other factors, EISS (2022) completed a rough estimate of the total global warming potential (GWP) for antimony transport and refining from the SGP to two options: the

[374] Evergreen International Sustainability Solutions, LCA Report for Stibnite Mine, September 3, 2022.
[375] https://perpetuaresources.com/wp-content/uploads/2021/10/2021_10_15_-ModPRO2_Revision_clean.pdf

USAMSA refinery in Mexico and the SPMP refinery[376] in Oman. The analysis (outlined above in Table 4) estimates an additional 30,794 metric tons CO_2eq for transport and processing in Mexico and 66,708 metric tons of CO_2eq for Oman – a substantial increase in total emissions associated with processing antimony from SGP.

2. The SDEIS fails to take a hard look at the GHG emissions in the proposed alternative

According to the SDEIS, direct and indirect GHG emissions and their associated impacts would be the same under the Johnson Creek Route Alternative as those discussed under the 2021 MMP. (ES-10) The SDEIS says that the Johnson Creek Route Alternative would have the effect of decreasing overall construction phase GHG emissions; however, the construction activities to complete major improvements on the Johnson Creek Route would likely offset the decrease and would likely end up very similar to the 2021 MMP. (p. 4-72) However, the SDEIS provides no GHG emissions analysis to support this comparison. The SDEIS should calculate the GHG emissions for the 2021 MMP and the alternative, and provide an accurate comparison.

3. The SDEIS comes to unsupported conclusions about regional GHG emissions

The SDEIS downplays the potential regional increase in emissions from the SGP project by comparing the GHG emissions from the SGP project with all other emissions in the State of Idaho. According to the SDEIS (p. 4-63), "GHG emission inventory for the State of Idaho (represents a basis for comparison with action alternative GHG emission estimates)." It also finds that "Overall, the SGP direct and indirect GHG emissions would be a negligible and long-term increase in *regional GHG* emissions," and the "Effects of ongoing climate change in the SGP area following implementation of the 2021 MMP would be largely the same as those that would occur *regionally* and in Idaho without the SGP." (SDEIS, p. 4-67) emphasis added. Yet, the SDEIS has not compared the SGP emissions with other regional emissions. It has only compared the SGP emissions with those of the entire state. CEQ guidance to federal agencies directly discourages this type of approach, saying "CEQ recognizes that the totality of climate change impacts is not attributable to any single action, but are exacerbated by a series of actions including actions taken pursuant to decisions of the Federal Government. Therefore, a statement that emissions from a proposed Federal action represent only a small fraction of global emissions is essentially a statement about the nature of the climate change challenge, and is not an appropriate basis for deciding whether or to what extent to consider climate change impacts under NEPA." Similarly, comparing SGP emissions to that of the entire state of Idaho is inappropriate. The SDEIS

[376] Evergreen International Sustainability Solutions, LCA Report for Stibnite Mine, September 3, 2022.

must provide an accurate and reasonable assessment of the regional contributions of the proposed project by considering SGP's projected GHG emissions with regional emissions.

4. The SDEIS must take a hard look at the potential impacts to mine infrastructure related to the effects of climate change, and the potential environmental consequences.

There are an increasing number of reports from industry, regulatory agencies, and academia that identify the increased risks of climate change to the mining industry and the need to incorporate climate change predictions into mine plans and practices.[377] Recent experience shows that abnormally high levels of precipitation can destroy waste dumps, seepage capture systems, and mine access roads; cause impoundments to overflow and dams to be breached; and push water treatment costs over budget or cause releases of untreated water.[378] A recent report from the World Meteorological Organization has found that climate and weather related disasters have surged five-fold over the last 50 years.[379]

According to a technical presentation by a BLM geologist, who points to the failure of a seepage capture system that was designed for a 100-year, 24-hour storm event at the Zortman Landusky cyanide leach gold mine in Montana: "The reality is the industry is making closure, reclamation and drainage treatment predictions based on a historic climate that no longer exists."[380] These impacts underscore the need to analyze and plan for climate change throughout a project's design, construction, operation and closure. For example, a 500-year storm event at the Stillwater Mine in Montana in June 2022, resulted in severe

[377] R. D. Williams, BLM, Climate Change – Extreme Conditions: Do Plans of Operations Need to Include an Ark? (2012). Available at: https://www.mtech.edu/mwtp/presentations/2012_presentations/Dave%20Williams.pdf

[378] W. McCullough, W. Jepson & B. Maehl, Zortman: Dealing with Extreme Weather Events at 5, 9-11, 15-16, 19, 26-28 (2011); T. D. Pearce *et al.*, *Climate Change and Mining in Canada*, 16 Mitigation & Adaptation Strategies for Global Change 347, 357-58, 360 (2011).

[379] World Meteorological Organization, "WMO Atlas of Mortality and Economic Losses from Weather Climate and Water Extremes (1970-2019). WMO-No. 1267. 2021.

[380] R. D. Williams, BLM, Climate Change – Extreme Conditions: Do Plans of Operations Need to Include an Ark? (2012). Available at: https://www.mtech.edu/mwtp/presentations/2012_presentations/Dave%20Williams.pdf

damage to the access road, preventing access to the site for a number of weeks and causing severe erosion along the road. (See photo from Billings Gazette of mine and access road).[381]

The SDEIS should also include an emergency plan in the event of evacuation or damage from wildfires, as recently occurred at the Donlin Gold Mine in Alaska.[382] The SDEIS must analyze the potential impacts of climate change, including more frequent and

severe storm events, including those that exceed the design parameters for mine infrastructure, such as stormwater management infrastructure, resulting in more frequent untreated releases and potentially degrading water quality. The SDEIS must also take a hard look at the potential impacts of climate change on revegetation efforts associated with proposed reclamation, and increased erosion from all mine facilities.

The SDEIS comes to unsupported conclusions about climate change. According to the SDEIS (p. ES-10) "Closure and reclamation activities under the alternatives could reduce climate change impacts by improving soil quality and implementing best management practices during all phases of the SGP." Yet, the SDEIS proposes to authorize the use of soils with arsenic concentrations up to 3,000 ppm in root zone material used for reclamation, worsening metal concentrations in soil. There is no data or analysis to indicate that soil quality will be improved in such a way that it will reduce climate change impacts.

U. Air pollution and air quality

[381]https://billingsgazette.com/news/local/with-flooding-at-stillwater-mine-sibanye-us-production-down-23/article_2b322fb0-259a-11ed-bbc5-67ebb52d2434.html
[382] https://www.kyuk.org/environment/2019-07-26/donlin-gold-suspends-operations-as-smith-creek-fire-grows

1. General Comments

We have repeatedly raised concerns throughout the permitting of the SGP at both federal and state levels regarding the SGP's significant potential air quality impacts. The Idaho Conservation League, Save the South Fork Salmon, and the Nez Perce Tribe are currently engaged in an administrative appeal of the IDEQ PTC (IDEQ Case Docket No. 0101-22-02[383]). That state air process is important but does not replace the Forest Service's obligation to analyze and mitigate impacts to air quality in the NEPA process. We note that the Forest Service's mandate under NEPA when evaluating impacts to air quality is much broader than IDEQ's mandate in the PTC process under the Idaho Air Quality Rules.

Importantly, the Forest Service retains the authority to require certain conditions for the SGP that help minimize and/or mitigate the project's impacts to air quality. Thus, even if IDEQ did not or could not add certain conditions in their PTC for this project, the Forest Service can (and should) include appropriate conditions as part of the FEIS and ROD for the SGP in order to fulfill the agency's obligations under NEPA.

2. Ambient Air Monitoring

In order to ensure the SGP does not violate the NAAQS for PM and PM_{10}, the Forest Service should require Perpetua to install an arsenic and PM/PM_{10} monitoring system at the SGP's ambient air boundary to ensure that the arsenic AACC and the PM/PM_{10} NAAQS are not violated. This kind of monitoring is not a condition of the current PTC issued by IDEQ for the SGP, and therefore is unlikely to happen unless the Forest Service requires it.

This practical step is warranted considering the uncertainty surrounding dust control efficiency and emissions factors associated with this project and highlighted in the below comments. However, in summary, the SGP is anticipated to release tens of thousands of tons of harmful air pollutants into the ambient atmosphere. Both IDEQ and the Forest Service contend these pollutants will be released at quantities and concentrations that are below thresholds that are protective of public health and the environment. Yet, to reach this conclusion, a laundry list of critical technical assumptions have been made, including everything from the estimated amount of ore to be mined by Perpetua to the nature of the meteorological mechanisms. Regulation of air quality impacts, as compared to water quality impacts, can be particularly abstract given the nature of air over water, the number and nature of air pollution sources, and the ability to effectively and routinely quantify pollution concentrations. As such, air quality permitting requires careful risk analysis weighing the potential impact of air emissions versus the likelihood they will occur at a given level.

[383] https://www.deq.idaho.gov/public-information/laws-guidance-and-orders/petitions-for-review-and-precedential-orders/

Incorporated into this risk analysis is the qualification of sources of uncertainty and error, all driven by the previously noted plethora of assumptions required to estimate the quantity of air emissions. While IDEQ contents Perpetua has demonstrated the SGP will comply with all applicable regulations to the "satisfaction of the department" (IDAPA 58.01.01.203), an opinion disputed by the previously mentioned IDEQ PTC administrative appeal, there is a straightforward solution to ensuring this is the case: establishment of an ambient air boundary monitoring network.

While often prohibitive for facilities of smaller means and resources, to our knowledge, it is neither technologically or financially infeasible for Perpatua to implement this type of monitoring. A simple web search will show there is an entire sub-industry devoted to ambient air monitoring at mines. In addition, at least several surface mines in the western United States include ambient air boundary monitoring as conditions of state air quality permits including the Kennecott Bingham Canyon Mine[384] (Utah), the Cripple Creek and Victor Mine[385] (Colorado), and the Colowyo Mine[386] (Colorado) . The Forest Service should require Perpetua to submit an ambient air boundary monitoring plan ("AABMP"), including an opportunity for public comment on the AABMP, and to review and revise the AABMP. At a minimum, the AABMP should provide a strategy for monitoring the ambient air concentrations of PM_{total}, PM_{10}, $PM_{2.5}$ and arsenic at the SGP's ambient air boundary. The AABMP should be developed according to best industry and regulatory practices, consulting contemporary sources (e.g., IDEQ or EPA guidance, similarly established plans for other state permits, etc.).

The Forest Service should:

- Include requirements within the FEIS requiring Perpetua to install a comprehensive continuous arsenic and PM/PM_{10} monitoring system on site.
- Include requirements within the FEIS requiring Perpetua to submit a robust AABMP (subject to public review) to insure the proper installation, monitoring, maintenance, and reporting of any ambient air monitoring network.

a. Title V Applicability

Section 3.3.3, page 3-35 of the SDEIS states, "a determination was made by the IDEQ that the SGP would not require a Title V permit. This was based on the complete air emissions inventory for stationary sources submitted by Perpetua as part of its application for an air quality permit. On February 18, 2022, Perpetua submitted a PTC application and

[384] https://daqpermitting.utah.gov/DocViewer?IntDocID=123963&contentType=application/pdf
[385] https://oitco.hylandcloud.com/CDPHERMPublicAccess/api/Document/AafBz3E1PeyH0v%C3%81hkui4wMUPIqVZTa2Mp0Ei000bHCi3vk6DIKcOs8B%C3%89kRU38nlCoCWxr1ptW7FUu6qLMvEI1IE%3D/
[386] https://oitco.hylandcloud.com/CDPHERMPublicAccess/api/Document/AS%C3%81HRPOn4bq%C3%89By7w2gWaP5jx5lUMSjfrntJ5UeH3kfM63aspRK8Kgezvdzd1jwEqwo5zH2CTrWtnBqy30fNbBTg%3D/

emission inventory. On June 17, 2022, IDEQ issued a final PTC and Statement of Basis (SOB) stating that the SGP will not require a Title V permit."

However, this is demonstrably false. Page 32 for the June 17, 2022, SOB states, "Any source subject to 40 CFR 63, Subpart EEEEEEE is a Tier I source as defined in IDAPA 58.01.01.006.122.c" (in the state of Idaho, Title V sources are known as Tier I sources). The gold ore concentration and refining process equipment associated with the SGP is specifically applicable to 40 CFR 63, Subpart EEEEEEE. Accordingly, PTC permit condition 2.23 and 2.24 specifically requires Perpetua to submit a Tier I application to IDEQ within 12 months of start-up of the gold ore concentration and refining process equipment. Based on recent discussions with IDEQ, the agency has not yet determined whether the future Tier I permit will cover only the Tier I applicable equipment (gold ore concentration and refining process equipment) or all equipment/sources covered by the final PTC will be discussed as a matter of IDEQ discretion upon Perpetua's submittal of the Tier I application.

The Forest Service should correct the statement on page 3-35 of the SDEIS regarding Title V applicability

3. Dust Control Efficiency

Both the Forest Service's and IDEQ's fugitive dust analyses in the SDEIS and PTC, respectively, heavily rely on the assumption that Perpetua can achieve a dust control efficiency of at least 93.3% on the SGP haul roads in order to minimize PM_{10} emissions and achieve NAAQS compliance. However, neither the Forest Service nor IDEQ have provided sufficient evidence that such a high target is attainable or practically enforceable. In Appendix G of the Final IDEQ PTC Statement of Basis, IDEQ discusses the T-RACT Analysis, including dust control efficiency. We reviewed the references listed in Appendix G, Table 10 of other facilities with determinations of 90% or greater control efficiency for unpaved roads. Upon investigation of these references through the EPA's Clean Air Technology Center database,[387] ICL found that only 1 of the 10 facilities referenced actually has *verified* compliance of achieving at least 90% control efficiency. The other nine facilities listed in Table 10 had either unverified or unknown compliance with that permit condition. In addition, only one of these facilities is actually a gold mining operation and therefore most of these references should not be used as a point of comparison to the SGP.

Listed Facilities in Appendix G, Table 10
AK Donlin Gold Project AK-0084 water/chem 90% (unverified/unknown compliance)
AR Turk Power Plant AR-0094 water/chem 90% (unverified/unknown compliance)

[387] https://cfpub.epa.gov/rblc/index.cfm?action=Search.BasicSearch&lang=en

CO Rio Grande Portland Cement Corp. CO-0043 water/chem 90% (unverified/unknown compliance)
IN Nucor Steel IN-0034 chem 90% (unverified/unknown compliance)
LA Nucor Steel Louisiana LA-0239 water/chem 90% (unverified/unknown compliance)
MO Lafarge Corp. MO-0048 chem 90% (unverified/unknown compliance)
NV Sloan Quarry NV-0045 chem 98% (compliance verified, but not a gold mine)
NV Nellis Air Force Base NV-0047 water/chem 90% (unverified/unknown compliance)
OH Unlimited Concrete OH-0126 water/chem 90% (unverified/unknown compliance)
OH Unlimited Concrete OH-0131 water/chem 90% (unverified/unknown compliance)

The 93.3% level of control which the Forest Service and IDEQ assumed Perpetua could achieve is based on Perpetua's interpretation of EPA's AP-42 Chapter 13.2.2[2]. AP-42 Chapter 13.2.2 discusses the critically important variables surrounding control efficiencies (in particular to chemical suppressants, some of which can reasonably be assumed to apply to water too):

> "The control effectiveness of chemical dust suppressants appears to depend on (a) the dilution rate used in the mixture; (b) the application rate (volume of solution per unit road surface area); (c) the time between applications; (d) the size, speed and amount of traffic during the period between applications; and (e) meteorological conditions (rainfall, freeze/thaw cycles, etc.) during the period. Other factors that affect the performance of dust suppressants include other traffic characteristics (e.g., cornering, track-on from unpaved areas) and road characteristics (e.g., bearing strength, grade). The variabilities in the above factors and differences between individual dust control products make the control efficiencies of chemical dust suppressants difficult to estimate. Past field testing of emissions from controlled unpaved roads has shown that chemical dust suppressants provide a PM-10 control efficiency of about 80 percent when applied at regular intervals of 2 weeks to 1 month (emphasis added)."

None of the above variables, however, have any specific and enforceable permit conditions within the PTC to ensure a 93.3% control efficiency. Instead, the PTC has a permit condition (permit condition 2.6) only requiring the permittee to develop and submit a Fugitive Control Dust Plan (FCDP) and a Haul Road Capping Plan (HRCP), which merely describe how these variables will be addressed 30 days before start-up of the SGP. PTC permit condition 2.6 details what variables contributing to PM_{10} control effectiveness must be detailed in the FCDP, but the specific details that are so important to control efficiency (e.g., the amount of water or chemical suppressants applied and the frequency of application) are undetermined at present and are left to Perpetua to decide at a later date. A lesser control efficiency, even just

slightly lesser, could result in large enough PM_{10} emissions to violate the NAAQS. In fact, if the SGP were to instead achieve 80% control (as EPA found through past field testing of chemical dust suppressants), then the SGP's PM_{10} emissions could exceed the NAAQS.

Furthermore, IDEQ itself states on page 22 of the final SOB that "it may prove challenging to consistently and continuously achieve the targeted level of fugitive dust control for emissions from traffic on unpaved roadways, with over 55 miles of haul truck routes within the mining operations boundary, a fleet of 32 haul trucks weighing between 37 and 357 tons, and a targeted dust control efficiency of 93.3% accomplished by application of both dust suppressant and water controls."

The Forest Service should include specific provisions in a revised SDEIS designed to verify whether key dust control efficiency metrics are met during SGP construction, operation, and closure.

4. Haul Road Emissions Calculations

In the process of calculating fugitive dust emissions from ore road hauling, Perpetua has again relied on the EPA's AP-42 Chapter 13.2.2. Equation 1a of AP-42 Chapter 13.2.2 provides an equation that Perptua used to calculate a particulate matter size-specific emission factor (in pounds per vehicle mile traveled) that is in turn used to calculate total $PM_{2.5}$ and PM_{10} emissions that were evaluated in both the SDEIS and IDEQ PTC process. Equation 1a uses three empirical constants (with values provided by AP-42 Chapter 13.2.2) and two variables. These two variables are the silt content of the road traveled and the mean weight of the vehicles traveling the road. IDEQ final PTC permit condition 3.13 requires the SGP to use haul road capping material with a maximum silt content of 4%, thereby constraining the first of the two key variables used in Equation 1a. However, no such permit condition exists in the PTC or the SDEIS to constrain the second variable, mean vehicle weight. In calculating fugitive haul road emissions evaluated in both the SDEIS and IDEQ PTC process, Perpetua assumed an operating scenario using twenty larger CAT 789D and twelve smaller CAT 740D trucks for all ore hauling (see final SOB, Appendix A, Page 5 of 20 Mine sheet) each with a listed hauling capacity and empty weight that are used as inputs to equation 1a. However, if the ratio of larger to smaller CAT trucks is shifted in favor of additional smaller CAT 740D trucks, then calculations will show the particulate matter size-specific emission factor can dramatically increase thereby increasing overall $PM_{2.5}$ and PM_{10} emissions.

Instead of developing PTC conditions for this critical variable, IDEQ relied on a surrogate limit in the IDEQ PTC (total ore haulage per day, see PTC conditions 3.5) and on plans that have not yet been developed—the FDCP and the HRCP—to claim the PTC ensures enforceable compliance with 24-hour PM_{10} NAAQS. Without including an IDEQ PTC condition or a FEIS requirement that specifically constraints mean vehicle weight, the

SGP may use a combination and number of ore hauling trucks that drastically increases $PM_{2.5}$ and PM_{10} emissions, threaten compliance with the NAAQS and underestimate the environmental impacts within the SDEIS analysis.

The Forest Service should include requirements within a revised SDEIS stipulating the number and weight of ore haul trucks that may be used in SGP operations such that ore hauling emissions are consistent with the SDEIS assumptions and calculated emissions.

5. Operational Plans

As noted in previous comments, operational plans like the FDCP, HRCP, and the Operation and Maintenance manual (O&M) are a particular point of concern. IDEQ has required Perpatua to complete these plans as a condition of the IDEQ PTC for which the SDEIS bases its air quality impacts analysis on. However, despite the FDCP, HRCP and O&M clearly being central to the SGP's mitigation of air quality impacts, the public will not have the opportunity to review and comment on these plans. Without developing the FDCP, HRCP and O&M before start up of the SGP, and without including all important variables as enforceable IDEQ PTC permit conditions or FEIS requirements, there is no assurance the SGP will comply with the PM_{10} NAAQS, avoid additional environmental degradation and will not pose a risk to public health.

Given that the specifics of the FDCP, HRCP, and O&M are essential to ascertaining exactly how the applicant will achieve the lofty 93.3% dust control efficiency, the SGP should not be allowed to commence construction until a FDCP, HRCP and O&M are submitted to the Forest Service and IDEQ, reviewed by both the Forest Service, IDEQ, and the public, and approved or denied pending modifications. While the IDEQ PTC currently requires Perpetua to submit the FDCP, HRCP, and O&M for agency review 30 days prior to commencement of operations at the SGP, that process contains no public review process and essentially circumvents the public review process for which the rest of the PTC and its analysis are required to go through. Furthermore, holding agency review of these plans merely 30 days before commencement of operations could be considered little more than an afterthought process. Nearly all other operational aspects of SGP project operations will be finalized at that point, likely allowing for little modification should Perpetua's proposed FDCP, HRCP, and O&M prove inadequate.

The Forest Service should include requirements within a revised SDEIS stating a FDCP, HRCP, O&M must be submitted for Forest Service review and public comment prior to issuance of the FEIS.

6. Modeled Arsenic Emission Rate

Section 7.2.2.2 of SDEIS Air Specialist Report discusses the analysis of the modeled arsenic emission rate. Since there are no NAAQS-like equivalent concentrations for Hazardous Air Pollutants (HAPs), the SDEIS analysis of arsenic relies on IDEQ state regulations governing arsenic and their comparison to Idaho state ambient annual carcinogen concentrations (AACC). Due to different operating scenarios used to calculate emissions, modeled SGP arsenic emission concentrations between the IDEQ PTC process and SDEIS differ. However, both analyses average out their respective calculated arsenic emission concentrations over 70 years citing the fact that the annual averaging period AACCs provided in the Idaho rules (IDAPA 58.01.01.586[388]) were developed "based on the probability of developing excess cancers over a seventy (70) year lifetime exposure to one (1) microgram per cubic meter (1 ug/m3) of a given carcinogen and expressed in terms of a screening emission level or an acceptable ambient concentration for a carcinogenic toxic air pollutant." However, nothing in the Idaho Air Rules allows for ambient air concentration averaging over 70 years. Rather, the Idaho AACCs are deliberately set as annual averages. IDAPA 58.01.01.586 specifically states, "the screening emissions levels (EL) and acceptable ambient concentrations (AACC) for carcinogens are as provided in the following table. The AACC in this section are annual averages" (emphasis added). The AACC are not noted as being "lifetime" or 70-year averages. Furthermore, the Idaho rules addressed the question of short term sources in a specific but limited nature allowing sources who will operate for no more than five years to increase applicable AACCs by 10 fold (IDAPA 58.01.01.210.15).

The probability within the "based on the probability of developing excess cancers over a seventy year lifetime exposure." definition referenced above is defined by IDEQ as a 1 in 1,000,000 chance of developing cancer (see IDAPA 58.01.01.201.12.d). However, by averaging the SGP's lifetime arsenic emissions concentration over 70 years, IDEQ is allowing Perpetua to essentially elevate and condense the normally allowable arsenic emissions over 70 years in just 14 years (LOM 3 to 16). In this way, higher pollution exposure is traded for less exposure time. Yet, there is no evidence within Idaho air rules that states or suggests the biological mechanism of carcinogenic exposure translates in a similar way. The development of cancer from carcinogens is linked to several critical variables including concentration, duration, frequency, and at your age at time of exposure[389]. IDEQ is assuming the variables of concentration and duration are linearly related when they have presented no such proof this is the case. It is possible higher levels of arsenic exposure, although in shorter duration, have a greater impact on cancer development risk then lower level exposure for a proportionally longer duration. If the goal of the AACCs is to prevent the probability of developing cancer in excess of 1 in 1,000,000, there is no evidence to suggest IDEQ's approach is valid in achieving this goal.

[388] https://adminrules.idaho.gov/rules/current/58/580101.pdf
[389] https://www.atsdr.cdc.gov/emes/public/docs/Chemicals,%20Cancer,%20and%20You%20FS.pdf

The Idaho Conservation League, Save the South Fork Salmon, and the Nez Perce Tribe contend that this action is an abuse of IDEQ regulatory discretion and are currently engaged in an administrative appeal of the IDEQ PTC specifically challenging this issue (IDEQ Case Docket No. 0101-22-02[390]). To our knowledge, there is no IDEQ air permitting project or source for which IDEQ has applied the same ambient air concentration averaging over 70 years. The Forest Service should not rely on IDEQ's flawed analysis in evaluating the impact of arsenic emissions from the SGP.

The Forest Service should re-evaluate arsenic concentration against Idaho AACC removing the 70-year lifetime averaging.

7. Ambient Air Boundary Determination

We are concerned that the exclusion of the public access road between Stibnite Road at Sugar Creek and Thunder Mountain Road at Meadow Creek from the regulatory definition of ambient air is inconsistent with Clean Air Act's definition of ambient air,[391] EPA's long-standing policy that allows excluding certain areas of a source's property from ambient air,[392] and EPA's most recent revised policy for ambient air[393] (Revised Policy). Allowing the public to access this road, even under the conditions of the Stibnite Transportation Management Plan (SDEIS Air Quality Specialist Report, Appendix D), may result in acute exposure of the public to hazardous air conditions.

EPA's long-standing policy has been to exempt "the atmosphere over land owned or controlled by the source and to which public access is precluded by a fence or other physical barriers" from ambient air requirements.[394] In 2019 EPA's Revised Policy, recognizing advances in surveillance and monitoring capabilities, revised the "fence or other physical barriers element of this ambient air policy while maintaining public health protection" to allow stationary sources to use "other types of measures "to support exclusion of an area from ambient air."[395]

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390 https://www.deq.idaho.gov/public-information/laws-guidance-and-orders/petitions-for-review-and-precedential-orders/

391 40 C.F.R. 50.1(e).

392 Letter from EPA Administrator Douglas Costle to Hon. Jennings Randolph (Dec. 19, 1980), available at: https://19january2021snapshot.epa.gov/sites/static/files/2019-11/documents/1980_costle_letter_ambient_air.pdf.

393 EPA, *Revised Policy on Exclusions from "Ambient Air"* (Dec. 2, 2019) ("Revised Policy"), available at: http://www.epa.gov/sites/default/files/2019-12/documents/revised_policy_on_exclusions_from_ambient_air.pdf

394 Memorandum to Revised Policy.

395 Memorandum to Revised Policy; Revised Policy at 2.

It is important to note the Revised Policy specifically limited its scope stating, "... the sole change to the EPA's ambient air policy reflected in this attachment is that the EPA no longer considers 'a fence or other physical barriers' to be the only type of measure available to a source in order to preclude public access in a practical or physical sense."

Furthermore, the EPA Revised Policy also explains:

> The EPA's view is that the general public has legal access to areas that are owned and controlled by parties other than the owner or operator of a stationary source. The EPA continues to view the "general public" to include any person(s) other than those who are permitted access to the property as employees or business invitees of a specific stationary source (including trespassers).[396]

The Revised Policy also notes examples of "business invitees" such as "contractors or delivery persons." In other words, people who are traveling on the Stibnite Road through the mine site to access public (Forest Service) property and who otherwise have no business dealings with Perpetua are members of the general public. Perpetua's attempt to label the public as "guests of PRI" is disingenuous and should be considered, as stated in the Revised Policy, as an activity that "would expand the exclusion beyond reason and deny the protection of the NAAQS to large numbers of people."[397] Neither the EPA's original 1980 Memo on ambient air or the 2019 Revised Memo expound to include semi-restricted members of the public or persons admitted under certain pretexts as those who can be excluded from the general public as Perpetua is attempting to do.

The fact that these "guests" would apparently abide by access and safety procedures established by Perpetua is meaningless in terms of protecting the public from exposure to hazardous air conditions. In practical terms, there are no plans for air quality monitors on the road because it has been excluded from ambient air. Thus, it will not be known to those traveling on the road what type of acute exposure to air pollutants will result.

Moreover, IDEQ's own definition of "ambient air" is "[t]hat portion of the atmosphere, external to buildings, to which the general public has access."[398] The public access road through the project area fits that definition exactly. In addition, IDEQ's Modeling Guidelines[399] for determining the ambient air boundary demonstrate that this public road should <u>not</u> be excluded from the ambient air boundary:

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[396] Revised Policy at 6.
[397] Revised Policy at 6.
[398] IDAPA 58.01.01.006.10.
[399] IDEQ, *Guideline for Performing Air Quality Impact Analyses* (July 2021) at 37-38.

- It shall be assumed that the air within the facility boundaries is ambient air unless the facility can demonstrate that public access is precluded." Here, although public access might be controlled, it will not be precluded according to the SDEIS. Thus, the road should not be excluded from an ambient air analysis.

- For the purpose of defining ambient air, the 'general public' is considered anyone not directly associated with the facility. In general, if someone present at the site would not be subject to OSHA or other worker exposure regulations, then they are considered as the general public." People passing through the facility to access public land on the other side of the project area are not "directly associated with the facility" and would not be "subject to OSHA or other worker exposure regulations" and therefore are the general public.

- Is the general public allowed on site as a part of a right-of-way easement or a common service road? If "yes," then the right-of-way is determined to be ambient air." At this time, the public will be allowed access through the site.

Nevertheless, IDEQ appears to have contradicted their own rules and guidance and issued the IDEQ PTC excluding the Stibnite Road from ambient air controls. We contend that this action is an abuse of IDEQ regulatory discretion and this issue is currently being challenged in the aforementioned ICL/SSFS/NPT administrative appeal of the IDEQ PTC (IDEQ Case Docket No. 0101-22-02). While having agreement in analysis by all governing agencies regulating the permitting of the SGP is preferred, we do not believe IDEQ's analysis should preclude the Forest Service from making a different, and more prudent, judgment.

Finally, ICL acknowledges the feasibility analysis in which criteria pollutant modeling against the NAAQS was conducted for the Stibnite Road (SDEIS Air Specialist Report, page 80) and showed compliance. However, it is unclear why that SDEIS analysis made the conscious decisions to use the Qian and Venkatram modeling method while the NAAQS modeling analysis conducted for the rest of the SDEIS review used the BULKRN method and why HAP emissions (especially arsenic) were not considered in this analysis. Furthermore, considering the significant concerns associated with emissions calculations discussed above, the modeled impact of criteria pollutants within the Stibnite Road area may be flawed and under-representative of the true emissions.

The Forest Service should coordinate with EPA and IDEQ to reassess the ambient air boundary determination and model ambient air concentrations along public access routes for both NAAQS and HAPs.

V. Noise and light

1. Light Pollution

Eighty percent of the population of the United States cannot see the Milky Way due to the impact of artificial light. Central Idaho is renowned for its exceptionally dark night skies, and is one of the few large remaining areas in the country that remains relatively unaffected by light pollution. In 2017, the International Dark Sky Association designated the Central Idaho Dark Sky Reserve — the first dark sky reserve in North America and one of only a dozen worldwide. This internationally significant designation is only 45 miles from the Stibnite Gold Project site and is emblematic of the superb dark sky values of Central Idaho. The inappropriate or excessive use of artificial light can have serious consequences for human health, wildlife and our energy grid. For example, artificial light can disturb the sleep patterns and reproductive cycles of a variety of creatures ranging from large mammals to small insects.

Existing nighttime lighting in the analysis area is minimal so a large-scale mine development will naturally lead to a significant increase in light pollution unless substantial steps are taken to minimize the amount and type of artificial lighting. The SDEIS states that the SGP would "change the landscape character of the night sky by increasing sky glow or light pollution." (SDEIS, 4-532). Light pollution from activities at the SGP would be visible from several recreation areas, roads, and trails, including from portions of the Frank Church-River of No Return Wilderness.

a. Baseline Dark Sky Data

For the SDEIS to properly analyze the light pollution impacts of the project alternatives, that light pollution needs to be quantified in some measurable way. However, the SDEIS, like the DEIS before it, does not do so:

> The extent of change to natural dark skies from lights during mine operation and vehicle headlights on Burntlog Route is unknown.[400]

[400] Stibnite Gold Project Specialist Report p. 52.

If the extent of change is unknown, then how can the Forest Service properly evaluate the environmental effects of that change? The Forest Service has collected this kind of baseline data for noise pollution (natural decibel levels), but not for the similar phenomenon of light pollution (e.g., measurement of natural darkness).

To adequately evaluate the impact of the proposed project alternatives on nighttime lighting, the Forest Service and Perpetua Resources should collect baseline dark sky readings for a well-distributed suite of sites in the analysis area - similar to what was done for baseline ambient sound levels. The International Dark Sky Association has guidelines on how to obtain scientifically rigorous dark sky measurements through use of a Sky Quality Meter[401]. The process of obtaining baseline dark sky measurements is relatively simple, quick, and inexpensive.

Once the Forest Service and Perpetua Resources has collected that baseline dark sky data for a range of locations within the analysis area, modeling should be conducted (similar in concept to what is done for air quality) to determine how each of the proposed alternatives would affect the sky darkness in the project area compared to the pre-project dark sky baseline. Specifically quantifying the expected changes is crucial to understanding the resultant environmental effects of the mine construction and operation. This information would then lend itself to the development of more site-specific and nuanced mitigation measures.

i. How to Create Responsible Night Lighting at the Stibnite Gold Project & Mitigate Light Pollution

In 2018 Midas Gold (now Perpetua Resources) sponsored the creation of a unique industry guide to reducing light pollution and gave a presentation on this topic at the Idaho Mining Association conference. See attached report, "How to Create Responsible Night Lighting at the Stibnite Gold Project & Mitigate Light Pollution."[402] We would like to see a description of how the SGP is incorporating these measures from this guide, what are viewed as acceptable levels of light pollution, how the Forest Service will be monitoring light pollution throughout the mine life and how Perpetua will be using adaptive management with pre-set triggers to keep lighting below established amounts.

b. Mitigation Fund

[401] "Measuring Light Pollution." https://www.darksky.org/light-pollution/measuring-light-pollution/ (Accessed on 9/10/20).
[402] https://perpetuaresources.com/wp-content/uploads/2019/10/DarkSkiesReport-FINAL-small.pdf

In addition to incorporating industry best practices for minimizing light pollution (shielding, motion-activation, etc), we also recommend that Perpetua Resources and the Forest Service create a monetary mitigation fund to further address light and noise pollution impacts to wildlife and recreationists. The Forest Service has the authority to establish this type of mitigation fund in a project Record of Decision, assuming that the project proponent (in this case, Perpetua Resources) is supportive of the effort. Relevant examples of this authority include the 2012 Peak 6 Project ROD at Breckenridge Ski Resort on the White River National Forest[403] and the 2019 Village at Wolf Creek Access Project ROD at Wolf Creek Ski Resort on the Rio Grande National Forest[404]. This fund could be made possible by a monetary contribution by Perpetua Resources with funds administered by an organization such as the National Forest Foundation. We suggest that this fund be used for specific projects beyond the scope of the EIS mitigation measures that result in habitat improvements for wildlife and recreationists that might be affected and/or displaced by light and noise pollution from the mine site.

2. Noise Pollution

Increased noise pollution is an expected impact of the proposed Stibnite Gold Project, with both action alternatives creating some short-term periodic noise exceedance impacts at 4 to 5 of the defined noise sensitive receivers in the project area (SDEIS, ES-12). Based on this finding, a suite of mitigation measures should be put in place to minimize noise pollution from SGP activities, including mufflers on construction equipment and drill rigs, scheduling noisy activities concurrently, and turning off noisy equipment when not in use. Furthermore, noise reduction effectiveness monitoring should be implemented to assess if the relevant noise reduction equipment is being used properly and will monitor the effectiveness of the equipment in reducing light and noise levels. The true degree of sound reduction should first be measured with and without the sound baffles before the start of operations.

The Forest Service's noise analysis failed to take into account topography or vegetation which can have significant effects on sound propagation:

> Sound from SGP activities at recreation sites/areas is based on estimated noise that does not consider the effects of topography or vegetation on noise propagation. Therefore, the noise impacts presented in the analysis may be more extensive than would actually occur given the topography and

[403] Final ROD: Peak 6 Project FEIS. 2012. Accessed at: https://www.fs.usda.gov/nfs/11558/www/nepa/44729_FSPLT2_264392.pdf
[404] Final ROD: Village at Wolf Creek Access Project FEIS. 2019. Accessed at: https://law.indiana.edu/publicland/files/village-at-wolf-creek_final-rod-2019_5B2.pdf

vegetation present in the analysis area." (Recreation Resource Specialist Report, p. 13).

Because these estimates did not consider topography or vegetation, the noise impacts presented in the analysis may also underestimate the actual effects, particularly in places where the topography may channel or concentrate sound or in areas with fewer trees and more grassy slopes or talus. We point out that one of the key characteristics of the FCRNRW is "natural-wilderness ecological systems are substantially free from the effects of modern civilization."[405] The proximity of the FCRNW and the expectation of hearing only natural sounds highlights the importance of a complete analysis.

W. Socio-economics

1. The SDEIS must take a hard look at the potential socio-economic impacts from the proposed SGP, including potential adverse impacts to housing prices, housing availability, public services, community culture, long-term economic health, etc.

Projecting the fiscal impacts for locals as well as the state and nation, the direct and secondary jobs (local, state, and national), and the incredible wealth that Stibnite is projected to create, must, under NEPA, be balanced by a "hard look" at the potential costs.
While the SDEIS clearly took a hard look at the benefits, it failed to take the same *hard look* at the potential socioeconomic impacts, or costs. Significantly overlooked were cost increases to schools when miners' children move to Valley County, cost increases associated with the heavy truck traffic on roads, and the cost increases in housing associated with 200 highly paid miners moving to Valley County. A whole host of other things also include increased cost of EMS services (police, fire, hospital), strain on the cellular networks, and sewer system, detailed in the following sections.

The following section is excerpted from the Executive Summary of "An Evaluation of the Potential Socioeconomic Impacts of the Proposed Stibnite Mine on Valley County, Idaho". Prepared for the Idaho Headwaters Economic Study Group, by Power Consulting Inc., December 2022.[406] The study was independently commissioned to address the lack of information in the DEIS and SDEIS on the socioeconomic impacts to affected communities.

a. The existing Valley County economy

[405] https://wilderness.net/practitioners/toolboxes/wilderness-character/default.php
[406] Power Consulting Inc. 2022., "An Evaluation of the Potential Socioeconomic Impacts of the Proposed Stibnite Mine on Valley County, Idaho." Prepared for the Idaho Headwaters Economic Study Group.

In the last half century Valley County has tripled in population while jobs have nearly quadrupled. The Valley County economy outperformed the national economy across a broad range of indicators of local economic vitality: population, employment, and real personal income. In the last ten years or so, the combination of natural growth and net in-migration added about 2,500 new residents in Valley County, but 87 percent of that growth was due to net in-migration, i.e., people "voting with their feet". Many of the people that moved into Valley County, brought with them a significant amount of "non-labor" income. In 2020 the non-labor sources of personal income in Valley County totaled $355 million. In comparison, the labor earnings came to $261 million. That is, the non-labor personal income was 36 percent larger than the total labor earnings.

The historically important goods production in Valley County, timber and mining, have declined in the last several decades as a source of jobs. That is not a unique trend found only in Valley County. Rather, it is a state and national economic change. Jobs in goods production (Non-Services-Related), a category that includes timber and mining, were largely stagnant over the thirty-year period 1970 to 2000 relative to the growth in jobs in services sectors. During that 30-year period, jobs in Services Related industries rose steadily, almost quadrupling (3.9-fold) over that 30-year period.

b. Analyzing how the proposed mine's work force and supplies will be obtained and the reason this may limit the positive impacts on the local economy.

In this section, Power (2022) discusses the projected economic impacts associated with the Stibnite Gold Project (SGP). While Power Consulting was able to assess a variety of the local socio-economic impacts of SGP on Valley County, as presented in this study, we find it troubling that issues of SH-55 transportation, spill risk, local wage scale problems, housing availability/affordability, and general infrastructure concerns were not adequately examined in either the Draft Environmental Impact Statement (DEIS) or the Supplemental DEIS (SDEIS). Public officials, elected leaders, and concerned citizens should not be making decisions about the future of their communities without a full comprehensive impact analysis having been carried out to inform their decisions. Specifically, we find that the DEIS and the SDEIS socioeconomic sections presented a 'benefits only' analysis. We will spend much of this section and parts of the following sections describing and quantifying that shortcoming.

Knowing where a proposed mine will get its operating supplies and its workers will help to determine what the economic impacts of the mine will be on the local area. If the mine is in a relatively remote setting, as is the case with the proposed Stibnite mine, then it is quite likely that the positive local economic impacts of the mine will be muted on the local area. The reason for this is that there are fewer economic links between the mine and the

local towns that might otherwise provide the mine with the supplies that it needs to operate. Valley County may be the source of a lot of wealth being created, and the physical location of the mine, but it will not retain much of the wealth that is created. If we look at the construction phase of the proposed mine, for example, more than 91 percent of the spending will occur outside of the local area. If we look a little deeper, into the total spending that the local area is modeled to receive, we see that only 8 percent of it will be in the local area. Of that 8 percent, 64 percent of that spending will be on direct wages for the people who are modeled to live in the local area. Furthermore, we suspect most of the workers will not live in the local area, therefore, this relatively small percentage will shrink to a few percent since those "local" workers will no longer live in the local area and will no longer spend their direct wages in the local area.

A complicating factor in all of this is that even if the local area was able to provide the workers for the mine, the 100 in-migrants that are projected to work at the mine will have a hard time finding housing. That is because Valley County does not have a lot of idle houses that are available to rent or purchase. The Stibnite Supplemental DEIS specifically notes that the local rental market is becoming less affordable and the data that we have collected from the American Community Survey indicates that there are not enough vacant houses for sale for all the "local miners" to purchase one. What this adds up to is a housing market that is more expensive than the national average, more expensive than nearby Boise, and a market that will become increasingly less affordable for the locals if the mine is built and operated.

When we look at the potential fiscal impacts of the proposed mine on the local area, much of the same pattern holds. For the operations phase of the proposed mine, there will be $300,000 annually paid in property taxes which will go to Valley County during the operations phase, but all the other taxes are paid to state and federal governments. The $300,000 must then cover the cost increases that the mine puts on Valley County which include schools, roads, infrastructure, and emergency medical services. If we use the DEIS's methodology, then this increase in property taxes will not even cover the full costs of the miners' children attending school, while leaving no tax revenues for the other increases in demand for public services that the miners may put on Valley County.

With a well-paid, predominantly young, male workforce, with weeks at a time off, there are some social problems that can accompany this type of mining. Places like the Bakken in North Dakota and Montana and remote mining locations in Canada and Australia have been a natural research area to study the impact of this type of transient workforce. Since the miners will live at the mine site for two weeks while they work and then have two weeks off at a time, a separate culture will be created by the mine. Because of its structure, its pay, and the diverse cultures of its workforce, that separate mining culture may not fit well with the existing residents of the towns and cities that are closest to that mine.

c. Amenity values and community perception

People have chosen to move to Valley County because of its natural beauty and the outdoor recreational opportunities that surround them. Additionally, people have been moving in at rates higher than the national, state, or rural county average, and they have brought "non-labor" income with them. In the economic literature these attractive local characteristics are called "amenities" and treated as economic values that improve the well-being of residents — just as the purchase of a home in an attractive neighborhood would. Recognition of the existence of these environmental values at certain locations also warns us that if we are not careful about how we manage special attractive natural landscapes, we may degrade significant existing amenities of considerable value, potentially creating a "dis-amenity" that leaves many people worse off.

In one important sense, the proposed Stibnite Gold Project represents a gamble that puts at risk a known and existing outdoor economy that is supporting economic vitality in Valley County. What is being offered in its stead is a speculative but threatening multiple open pit mining venture that, if it is commercially successful, will bring only a relatively small and short "bump" in additional economic activity in Valley County. When a mine or other types of industrial facilities are proposed near where people live, the people that live in the area, as well as the people who know about the new facility and the area, may change the way that they think about that area. That is, a "stigma", or negative perception, about an area caused by the negative characteristics associated with the industrial facility such as degraded air and water quality, noise, congestion, general run-down characteristics of the neighborhoods, falling property values, etc.

The stigma can be the result of many different local industrial degradations, but for the purpose of this report, we will consider spills from truck traffic delivering supplies to the mine and spills from Tailings Storage Facility (TSF). There will be a dramatic increase in truck traffic as thousands of loads of materials are hauled from around the U.S. to the proposed mine site which will dramatically alter traffic patterns in the local area and all but assure that there will be spills. TSF are the permanent storage features at a mine that will hold back the toxic sediments that are left over from processing the ore to obtain the minerals. In the modern age of mining, and especially when dealing with open pit mines, there is an incredible volume of rock that is moved to recover a very small percentage of the mass moved as metal (in this case gold, antimony, and silver). The amount that is recovered, measured in grams per ton of rock moved, is between 1 and 2 in this case. TSF design, in recent years, has not kept up with advances in mining technology and the statistics on failure show that the newer TSF are failing at a higher rate than the older ones.

The problem with having the proposed mine in Valley County is that so much of Valley County's economy is based on the high-quality natural landscapes that are in it and all around it. When we compare Valley County's economic vitality to that of the other Idaho non-metropolitan counties, we see that Valley County has significantly outperformed them. That is, people in Valley County received more income than their Idaho peers in other non-metropolitan counties. The average "bonus" to Valley County residents compared to the group of non-metropolitan counties was $7,400 a year per person in 2020 dollars. However, a SGP related spill that casts a shadow of stigma over Valley County, could easily erase all potential benefits that the proposed mine could bring to Valley County during the mine operation phase. For example, a spill that caused a 2 percent decline in the Visitor-Recreation and Non-Labor Income in Valley County, could erase nearly all of the benefits of having 200 highly paid miners living in Valley County.

d. Socio-Economic Volatility in Mining Communities

Metal mining is notoriously volatile, and gold is a charter member of the club of volatility. In fact, the price of gold has fluctuated by almost a factor of 10 in the last 50 plus years. However, regardless of gold price fluctuations, Valley County and the City of McCall will still have to make decisions about infrastructure. Things like schools, sewers, hospitals, roads, the size of the police and fire departments etc., will still require additional investments, because of the increased use by the miners.

While mining jobs will likely pay above average wages, there will also be costs associated with having a mine in Valley County, and those costs have not been explored. Mines are generally located near small towns in rural portions of the U.S. that will have a harder time dealing with some of the negative impacts that come with the mine. What is unknown is what some of the costs associated with having the Stibnite mine in Valley County will be. The economic and social science literature tells us that there will be costs in the form of retarded economic growth, increased pressure on public services that Valley County provides, reduced educational attainment, and increased negative social interactions as a transient workforce tries to integrate into the local community. What this report also will show is that Valley County's economy is currently thriving and the reason that the economy is so robust, in large part, is because of the natural amenities that Valley County has. The possibility of short-term gain associated with the proposed mine should be carefully weighed against the potential for long term harm to an otherwise thriving economy.

X. Recreation Resources

1. Overview of recreation in the analysis area and impacts of the SDEIS action alternatives.

The public lands and waterways in, near, and along the access routes of either alternative for the Stibnite Gold Project and beyond the analysis area, are of immense value to Idahoans and recreational tourists. In a brief summary, this region, within the Payette and Boise National Forests, represents a diverse array of recreational assets providing a broad range of opportunities for the public. Hunting, fishing, whitewater paddling, cycling, backcountry skiing, dispersed camping, hiking, bird watching, wildlife viewing, mushroom picking, OHV use, and horseback riding are a few examples of activities that are enjoyed in the area year-round.

Scoping comments submitted on the Stibnite Gold Project included many requests to address impacts to specific recreation resources. General comments requested that the Forest Service address the following in analyzing recreational use; "The Salmon River draws thousands of rafters and kayakers from all over the country and internationally each season. Whitewater enthusiasts are concerned about the impacts to the river and river basin for paddling; The South Fork of the Salmon River is one of the key locations in Idaho to which anglers travel to fish for salmon and steelhead. Most of the fishing activity is on the South Fork of the Salmon River, but the mine threatens to impact that activity from traffic and by threatening the health of fish; concern for how the project could impact hunting and trapping, both access and wildlife habitat".[407] In addition, the State of Idaho requested the following, "An assessment of potential effects of new roads and road closures on hunting, fishing, and trapping including effects of new roads on stream channel and wildlife habitats."[408]

In general, the analysis of impacts to recreation resources is lacking in the SDEIS, and the Forest Service failed to consider and analyze the impacts to whitewater paddling and fishing recreational resources specifically. The SDEIS does not provide sufficient characterization of recreational use in the area affected by action alternatives in the SDEIS, nor a broad enough scope of analysis to accurately examine likely impacts, and thus impacts to recreation are underestimated and lack analysis of alternative comparison.

2. The SDEIS analysis area for recreational impacts does not adequately encompass potential impacts resulting from the Stibnite Gold Project.

As shown in SDEIS figure 3.19-1, the analysis area for direct and indirect impacts to recreation consists of a 5-mile radius from the major SGP components. This analysis area is too narrow in scope and misses numerous trailheads, access points, and campgrounds that will be impacted by the alternatives presented in the SDEIS. In particular, the analysis area does not encompass much of the East Fork of the South Fork Salmon River, South Fork Salmon River, or the South Fork Salmon River Road (FR 50674) from the intersection of

[407] USFS, 2018. Stibnite Gold Project EIS Scoping Issues and Summary Report, p. 49
[408] *Id. at 53.*

Warm Lake Road (FH22) to the Lick Creek Road (CR 50-412), and the Lick Creek Road (CR 50-412) itself.

Under either alternative there will be a significant increase in mine related traffic, delays, and closures along Johnson Creek Road (CR 10-413). Under the preferred alternative, Johnson Creek Road will be used as the primary access route to the project site for the duration of construction. Under the Johnson Creek Alternative, this route will be utilized for the duration of construction, operations, and closure. During summer months in particular, this road is a primary travel route to access numerous recreation destinations and attractions in the area. Given this increase in mine related traffic, one would assume that recreationists will pursue alternative routes to access the area to avoid these delays and will likely travel along the South Fork Salmon River Road and Lick Creek Road when it is open. Both the South Fork Salmon River Road and Lick Creek Road are already popular routes for recreationalists with numerous trailheads, campgrounds, and access points to rivers and dispersed camping. This likely increase in traffic and congestion must be analyzed and addressed by the Forest Service and is lacking in the current SDEIS.

3. The SDEIS lacks adequate characterization of river related recreational use, and relies on too narrow of a scope of analysis.

The SDEIS fails to recognize the significant amount of whitewater paddling and recreational angling use on rivers within the project area vicinity that would be impacted by both action alternatives in the SDEIS. In scoping comments submitted on July 17th, 2017, Idaho Rivers United included that "IRU would like the Forest Service to specifically consider the impact this proposed mine will have to the boating (and other recreation) community of the South Fork of the Salmon River basin, and all those downstream of this operation."[409] The Forest Service did not fulfill IRU's request in the DEIS or the SDEIS. There is essentially no qualitative or quantitative assessment of river related recreational use or impacts in the document. The SDEIS at 3.19.4.1 describes existing conditions for recreation in the analysis area and only mentions river recreation without any additional information or analysis.

The narrow scope of analysis also excludes river segments with recreation opportunities that would be impacted by both action alternatives. Figure 3.19-1 in the SDEIS illustrates the Recreational Analysis Area, and this boundary excludes a vast portion of the East Fork South Fork Salmon River, and the South Fork Salmon River, a river segment managed as a Suitable Wild and Scenic River with recreation as an Outstandingly Remarkable Value (ORV). In their Wild and Scenic suitability report, the Forest Service states that "the SFSR has outstanding white-water boating and nationally recognized fishing

[409] *See* Idaho Rivers United "Stibnite Gold EIS Scoping Comments" 2017, p. 9

opportunities during premier steelhead and chinook salmon seasons. The river corridor also provides recreation opportunities that include hunting, hiking, camping, and snowmobiling. The many hot springs along the river corridor are beautiful and provide the visitor with a remote soaking experience."[410] Both of the above sections of river would be impacted by this project. This analysis is nowhere to be found within the SDEIS and should be addressed by the Forest Service.

Downstream, the South Fork Salmon River feeds into the congressionally designated Wild and Scenic Main Salmon River. The SDEIS largely ignores impacts to downstream reaches, including potential impacts to the 32 permitted commercial outfitters that operate on the Wild and Scenic Main Salmon River[411]. Direct, indirect, and cumulative impacts to these river segments are described in the sections to follow and should be incorporated into any analysis related to recreational impacts associated with the Stibnite Gold Project.

At 4.19.1, the SDEIS states that "Because there are no specific recreational use and demand estimates for the analysis area, the discussion of changes to recreational use is qualitative, and describes potential changes in recreational use due to displacement, increased access, reduced acreage for recreation, and changes in the recreation setting." However, the qualitative discussion in the SDEIS is limited to certain recreational activities, and completely neglects whitewater paddling within the analysis area.

A simple review of literature, internet trip reports, and member-based recreation advocacy group websites such as American Whitewater, reveals that whitewater paddling within the area of concern is world renowned and cherished by this recreational user group. These resources are readily available to both the public and the USFS officials responsible for conducting the recreation analysis in the SDEIS, to provide a more robust characterization of this recreational resource and adequate analysis of impacts to users.

Grant Amaral's book *Idaho: The Whitewater State*[412] has long been the primary resource for information on whitewater recreation within the state. River stretches listed in this book that would be directly impacted by action alternatives in the SDEIS include the following:

- South Fork Salmon River - Goat Creek Run
- South Fork Salmon River - Canyon
- Johnson Creek
- East Fork South Fork Salmon River - Upper

[410] Payette and Boise National Forests. Wild and Scenic Suitability Report, Appendix J
[411] Salmon-Challis National Forest, Main Salmon permitted outfitters 2022
[412] Grant Amaral, Idaho - The Whitewater State (USA: BookCrafters, 1990), p. 72-88.

- East Fork South Fork Salmon River - Lower

These same river segments that are prized for whitewater paddling are listed in online databases such as American Whitewater[413], Whitewater Guidebook[414], Oregon Kayaking[415], California Creeks[416], Blue River Expeditions[417], and Camping by Kayak[418]. This is not an exhaustive list, as there are many more trip reports describing the quality and uniqueness of the recreational resources available on the South Fork Salmon River and tributaries (East Fork South Fork Salmon, Johnson Creek). Outside Magazine published an online article and film in 2018 titled "The Best Big Whitewater in Idaho", referring to the South Fork Salmon River.[419] American Whitewater's web page highlighting the South Fork Salmon River states that "Following the pioneering descent in 1971, Cal Giddings reported in the American Whitewater journal that "we feel we have uncovered a superb wilderness kayaking river."

"The South Fork has stood the test of time as a great 2-3 day self-support trip in central Idaho. The put in is at the confluence where the Secesh River joins the South Fork Salmon River and the road ends. The trip can be combined with runs on the South Fork Salmon River, East Fork South Fork Salmon River, or Secesh River that all have access points along the forest road network in the basin."[420] From 2020-2022 the annual number of permits issued for this stretch ranged from 414 to 209[421], with actual user numbers likely much higher due to the voluntary nature of the permits and lack of monitoring.

Whitewater floaters come from all across the region to paddle Johnson Creek, the East Fork South Fork Salmon River and the South Fork Salmon River. Some of the remarkable values of this area include the relatively pristine water quality conditions, world-class whitewater interspersed with deep emerald green pools, and proximity to Inventoried Roadless Areas. The most often used guidebook for the area states the following regarding the East Fork South Fork; "This is an outstanding whitewater run...There are good campsites at both the put-in and take-out. Food and drink as well as gas and groceries can be found a mile up from the start in the little mining town of Yellow Pine."[422] Kayakers may choose to put in on the East Fork South Fork Salmon River about one mile upstream of Yellow Pine and can float the entire stretch down to the Main Salmon River and beyond.

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[413] https://www.americanwhitewater.org/content/River/state-summary/state/ID/
[414] https://www.whitewaterguidebook.com/idaho/
[415] https://www.oregonkayaking.net/rivers/sf_salmon_wilderness/sf_salmon_wilderness.html
[416] https://cacreeks.com/mfsfsalm.htm
[417] https://brexpeditions.com/idaho/south-fork-salmon-river/
[418] http://www.campingbykayak.com/south-fork-salmon-river-id/
[419] https://www.outsideonline.com/2339221/best-big-whitewater-idaho
[420] https://www.americanwhitewater.org/content/River/view?#/river-detail/621/main
[421] Parker, Caelan USFS - "South Fork Salmon Permit numbers" Email exchange 11/21/2022
[422] Grant Amaral, Idaho - The Whitewater State (USA: BookCrafters, 1990), p. 84.

From a fishing perspective, large westslope cutthroat trout and the occasional huge bull trout draw anglers to Johnson Creek, the East Fork South Fork Salmon River and South Fork Salmon River. From McCall, this watershed represents some of the closest waters for anglers to target these species. As detailed in the fisheries section, these species still persist here because of cold, clear, clean, and complex watershed conditions. The segment of the East Fork South Fork Salmon River along Stibnite Road, in between Johnson Creek and Stibnite, is a cherished catch and release bull trout fishery. Downstream, the South Fork Salmon is world renowned for its Chinook Salmon and steelhead runs, and when returns allow, recreational fishing season. According to Payette National Forest, "The South Fork Salmon River contains the most important remaining habitat for summer Chinook salmon in the Columbia River basin. The fish were once the largest, most valuable segment of the world's largest runs of Chinook salmon."[423] The SDEIS vastly underestimates the recreational value of the fisheries in the analysis area and downstream. As a result, the impacts to fishing as a recreational resource are underestimated in the SDEIS.

4. **The SDEIS fails to consider direct, indirect, and cumulative impacts on river recreation resources.**

    a. **Increased project related traffic and access roads will negatively impact river recreation resources and users.**

While kayakers and rafters value river stretches away from roads, one of the benefits of floating the East Fork South Fork Salmon and Johnson Creek is the ability to put in and take out at different places that suit a paddler's ability given the whitewater conditions at that time. Log jams and other hazards may require portaging or scouting from the river bank. As such, it is helpful to be able to pull over and park at different places along the river road. Mine-related traffic will be directed to the Johnson Creek corridor for different amounts of time depending on the alternative chosen. Many members of the public headed towards Yellow Pine utilize the Johnson Creek road when it is open. Due to concerns about or actual experiences with mine-related congestion, delays, and accidents, members of the public who would otherwise use the Johnson Creek Road are likely to increase use along the South Fork Salmon River and East Fork South Fork Salmon River Road, impacting the recreation experience of individuals camping, boating, hiking, or biking. Road construction, increases in mine-related traffic, and increased public traffic may result in fewer access points, increased safety concerns, access to river put-ins and take-outs, decreased water quality, and a generally degraded experience for all recreationists within this analysis area and along the entire stretch of the East Fork South Fork Salmon River Road and the South Fork Salmon River Road.

[423] Payette National Forest, South Fork Salmon River Information. Accessed at https://www.fs.usda.gov/detail/payette/home?cid=STELPRDB5160141

b. River access will be negatively impacted by both action alternatives in the SDEIS.

Like most outdoor recreation activities, river related recreation depends upon access for enjoyment of these activities. The SDEIS fails to acknowledge the numerous negative impacts to river access from project activities during construction, operations, and closure/reclamation. With whitewater paddling in particular, the put-in and take-out access points[424] are essential to enable recreational users the opportunity for down river paddling experiences (the value of which is emphasized in preceding comments).

The SDEIS acknowledges that construction of the upgraded transmission line, Burntlog Route construction and operation, and use of the Johnson Creek Route for mine access, will impact public access at various points in time, with varying duration of road closures. However, these descriptions of project related road closures are overly simplified, and fail to draw a connection to the resulting negative impacts upon recreation access. Multiple whitewater paddling river access points will be adversely impacted by construction related delays. This vague description of effects of road delay on these essential recreation corridors in the SDEIS highlight the need for a more detailed analysis of impacts. The SDEIS should state the estimated duration of delays, and include a mitigation measure to notify the public of such issues.

In addition, river access along Johnson Creek Road and Stibnite Road may be adversely affected during site construction. The SDEIS states at 4-536 that "use of Johnson Creek Road and the Stibnite Road portion of the McCall-Stibnite Road as the primary route to the SGP during the construction of the Burntlog Route could result in short-term impacts (1 to 2 years) to motorized recreation access due to potential delays, traffic, and safety-related issues from mine construction-related traffic". Why would only motorized recreation be affected by these issues? Johnson Creek Road and Stibnite Road are used for many different recreational opportunities, most notably camping, fishing, and whitewater paddling. Any temporary closure could inhibit the recreational access to the Vibika Creek put-in and Johnson Creek take-out on the EFSF Salmon, and the Ice Hole Campground put-in and Yellow Pine take-out on Johnson Creek, depending on where the closure is taking place. Anglers utilize Johnson Creek Road and Stibnite Road upstream to the Yellow Pine pit lake to fish for westslope cutthroat trout, mountain whitefish, and bull trout. Temporary closures would directly impact this recreational resource. The SDEIS should include an analysis of impacts to river recreation access, and provide a sufficient comparison of alternatives.

[424] *See* Grant Amaral, Idaho - The Whitewater State (USA: BookCrafters, 1990), p. 72-88 for river put-in and take-out descriptions on affected rivers.

c. Impacts to water quality and fisheries will impact recreation resources.

River recreation, especially whitewater paddling and rafting, involves primary contact with river water through splashing, swimming, flipping/rolling, and occasionally accidental drinking of untreated water. Any impacts to water quality from proposed mining activities could directly, and indirectly, affect recreational opportunities. The SDEIS vastly underestimates impacts to water quality from Stibnite Gold Project Activities[425], and provides little support for the lack of hazardous material spill analysis and the likely impacts to water quality.[426] For recreational fishing, healthy fisheries are essential. The SDEIS vastly underestimates the impacts to fisheries in the watershed[427].

For detailed comments on impacts to water quality, fisheries, and analysis of transportation spill risk, see the included reports by Lubetkin (2022), O'Neal (2020), Gregory (2022), Zamzow (2020), and Maest (2020 and 2022).

5. Impacts to other recreation resources are underestimated and lacking robust analysis.

One of the draws to the area are the opportunities for camping at both developed campsites and dispersed campsites next to or a short distance away from the road. The quality of these camping experiences will be degraded by traffic, noise, dust, light, and exhaust from mine related traffic, and general increases in mine related traffic. Additionally, there is no analysis regarding the likely increase in traffic volume along the South Fork Salmon River Road or Lick Creek Road. Recreationalists attempting to avoid delays and mine related traffic along Johnson Creek Road will seek other access routes, likely the South Fork Road or Lick Creek Road. As a result, the numerous trailheads, campgrounds, and access points along these routes will be negatively impacted and should be addressed by the Forest Service.

Recreation impacts by alternatives are difficult to analyze in the SDEIS. The SDEIS states at 4-533 that "motorized public use (not including special use permit holders) of the Burntlog Route would only be allowed when the public access route through the mine site was closed, which would occur during some mining activities that would be considered public safety hazards (e.g., high wall scaling, blasting)." This seems to mean that recreation opportunities, including access to campsites, trailheads, dispersed recreation, and the Burnt Log Creek (eligible Wild and Scenic River), off of Burnt Log Road would not be accessible during operations under Alternative 2 (unless Stibnite Road to Thunder Mountain Road is

[425] *See* Maest (2020, 2022) and Zamzow (2020) attached reports
[426] *See* Lubetkin (2020, 2022) attached reports
[427] *See* O'Neal (2020) and Gregory (2022) attached reports

closed). The SDEIS fails to clearly disclose and analyze how this would impact these specific recreational resources. Will the public be able to access Pistol Lake Trailhead, Mud Lake Campground, Burnt Log Campground, or Thunder Mountain/Riordan Trailhead during operations? How will this impact the public's ability to access and enjoy these recreational resources? This lack of detailed analysis and alternative comparison extends to other access-related issues on Johnson Creek Road and Warm Lake Road.

Downstream, the South Fork Salmon River feeds into the congressionally designated Wild and Scenic Main Salmon River. Section 7(a) of the Wild and Scenic Rivers Act prohibits the Forest Service from "assist[ing] by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration. Specific to tributaries, Section 7(a) prohibits water resource projects that would "unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area on the date of designation of a river as a component of the National Wild and Scenic Rivers System." Section 10(d) of the Wild and Scenic Rivers Act further clarifies agency authority to protect the values of designated and study rivers.

The SDEIS largely ignores impacts to downstream reaches, including impacts to the 32 permitted commercial outfitters that operate on the Wild and Scenic Main Salmon River[428]. Direct, indirect, and cumulative impacts to these river segments are described in the sections to follow.

Y. Mitigation and Monitoring Measures

NEPA requires the Forest Service to fully analyze mitigation measures, their effectiveness, and any impacts that might result from their implementation. An EIS must: (1) "include appropriate mitigation measures not already included in the proposed action or alternatives," 40 C.F.R.§1502.14(f); and (2) "include discussions of: . . . Means to mitigate adverse environmental impacts (if not already covered under 1502.14(f))," 40 C.F.R. §1502.16(h). NEPA thus requires that the Forest Service review mitigation measures as part of the NEPA process — not in some future decision shielded from public review.

Z. Cumulative effects

To comply with NEPA, the Forest Service must take a hard look at cumulative impacts/effects. Cumulative impact is defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and

[428] Salmon-Challis National Forest, Main Salmon permitted outfitters 2022

reasonably foreseeable future actions."[429] "[W]here several actions have a cumulative . . . environmental effect, this consequence must be considered in an EIS."[430]

> [A]n EIS must catalogue adequately the relevant past projects in the area. It must also include a useful analysis of the cumulative impacts of past, present and future projects. This requires discussion of how future projects together with the proposed project will affect the environment. The EIS must analyze the combined effects of the actions in sufficient detail as to be useful to the decisionmaker in deciding whether, or how, to alter the program to lessen cumulative impacts. Detail is therefore required in describing the cumulative effects of a proposed action with other proposed actions."[431]

The Ninth Circuit has, time and again, rejected NEPA analyses that unreasonably limit the geographic scope of a cumulative impacts analysis.[432]

1. Geographic Scope of Cumulative Effects

The SDEIS identifies the geographic scope, or cumulative effects areas (CEAs), in Table 5.1-1. SDEIS at 5-1–5-2. The SDEIS states: "Due to the nature of the SGP that requires many miles of transmission line and roads, the direct and indirect effects areas are expansive. However, the effects themselves are not expansive. Therefore, the analysis of cumulative effects does not result in a broader analysis area for most resources." SDEIS at 5-1. In reality, many project effects are expansive, including air quality impacts (which can extend far in any direction), water quality impacts (which can extend far downstream beyond project activities), and fish and wildlife impacts (which for species with large home ranges, migrations, and such, can extend for great distances). The Forest Service must reconsider the geographic scope of its cumulative effects analysis to ensure the CEAs are large enough to address these and any other expansive effects.

2. Past & Present Actions

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[429] 40 C.F.R. § 1508.27(7).
[430] *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1378 (9th Cir. 1998) (quotation and citation omitted).
[431] *Muckleshoot Indian Tribe v. U.S. Forest Serv.*, 177 F.3d 800, 809–10 (9th Cir. 1999) (cleaned up).
[432] *See Bark v. U.S. Forest Serv.*, 958 F.3d 865, 871–73 (9th Cir. 2020); *Klamath-Siskiyou Wildlands Center v. BLM*, 387 F.3d 989, 993–97 (9th Cir. 2004); *Idaho Sporting Cong. v. Rittenhouse*, 305 F.3d 957, 973 (9th Cir. 2002); *Native Ecosystems Council v. Dombeck*, 304 F.3d 886, 902 (9th Cir. 2002); *Kern v. BLM*, 284 F.3d 1062, 1078–79 (9th Cir. 2002); *City of Tenakee Springs v. Clough*, 915 F.2d 1308, 1313 (9th Cir. 1990).

The SDEIS lists and briefly describes a number of past and present actions. SDEIS at 5-3–5-8. The cumulative effects of Mine Closure and Reclamation (SDEIS, p. 5-6) should discuss the reclamation projects from 2004-2009 identified on p. 1-6.

3. Future Actions

The SDEIS lists and briefly describes reasonably foreseeable future actions (RFFAs) in Table 5.1-2. SDEIS at 5-8–5-9.

Absent from this is any discussion about mine expansion or additional mining by Perpetua at or near the SGP site. The SDEIS fails to consider future mining based on the Golden Meadows exploration project, mining claims Perpetua purports to have along the Burnt Log Road and elsewhere, all which indicate that additional future mining is foreseeable and must be analyzed in the SDEIS.

The SDEIS also fails to consider future actions necessary to address the inevitable long-term impacts associated with liner failures beneath the TSF and stream channels, potential long-term management of water releases from the West End pit lake and the need for reclamation maintenance.

4. Cumulative Impacts by Resource

The SDEIS discusses cumulative impacts to a number of affected environmental values and resources. SDEIS 5-9–5-50. However, each of these discussions is brief, uninformative, and includes very little actual information. Each of these discussions fails to include sufficient detail as to be useful to the decision maker in deciding whether, or how, to alter the SGP to lessen cumulative impacts as required by NEPA. Instead, each section does little beyond noting that specified past, present, and/or future actions would add to some of the adverse effects of the action alternatives, without useful detail, information, or analysis to meaningfully consider the degree of the likely adverse cumulative impacts. The Forest Service should provide quantified and other detailed information on cumulative impacts to each resource.

The sections of these comments discussing different environmental values and resources include additional comments on the inadequacies of the cumulative effects analysis for each value and resource.

AA. Connected Actions associated with the long-distance transport of minerals, namely antimony concentrate, from the mine site to locations for processing are not identified or analyzed.

As described in 40 CFR 1508.25, scope consists of the range of actions, alternatives, and impacts to be considered in an environmental impact statement. The scope of an individual statement may depend on its relationships to other statements (Secs.1502.20 and 1508.28). To determine the scope of environmental impact statements, agencies shall consider three types of actions, three types of alternatives, and three types of impacts. They include: (a) Actions (other than unconnected single actions) which may be: 1. Connected actions, which means that they are closely related and therefore should be discussed in the same impact statement. Actions are connected if they: (i) Automatically trigger other actions which may require environmental impact statements. (ii) Cannot or will not proceed unless other actions are taken previously or simultaneously. (iii) Are interdependent parts of a larger action and depend on the larger action for their justification.

The description of traffic associated with the project is briefly addressed at page 2-21 through 2-22, but the subsequent analysis provided under the impact topic of Access and Transportation in chapters 3 and 4 inappropriately narrows the analysis area to exclude most of state highway 55. In fact, the analysis should continue until the mine associated traffic becomes commingled with other interstate traffic, which would be the juncture with I-84 to the south and either the Port of Lewiston or I-90 to the north. Because the "destination" for additional processing is in fact not located at the terminus of Warm Lake Road with SH-55, but rather some further distance to be accessed most likely through interstate travel, the long-distance transportation and processing should be disclosed and analyzed. This is particularly true if the processing of antimony is intended to occur in Mexico or Oman. In such a case, the export of a nationally important mineral to another country for processing should also be described in the socioeconomic section of the document. Alternatively, if the intent is to transport the antimony concentrate to a domestic smelter, those air quality impacts of the smelting process should be included as connected actions.

Perpetua Resources anticipates that compost (and potentially other soil amendments) will be imported to the Project site and applied to GM and YPP Till to improve their suitability. It proposes to import 13,850 tons of compost (RCP, p. 352) from dairy or feedlot operations (composted manure), which would be temporarily placed in stockpiles around the facility. The transport of this material would be a connected action, and its transport should be analyzed in the SDEIS.

BB. Environmental justice

The SDEIS (P. ES-32) predicts "Adverse impacts to tribal rights and interests under either alternative, including preventing access to traditional lands, harming traditional fishing and hunting rights, impacting endangered salmon and concerns that it would harm the tribe's salmon restoration efforts."

On December 1, 2022, the Biden administration announced new best practices for Tribal Treaty and Reserved Rights to integrate Tribal treaty and reserved rights into agency decision-making processes, including decisions by DOI, DOD, DOA, and other agencies.[433] As recognized by the Biden-Harris administration, indigenous people have been disproportionately harmed by mining.[434]

In a December 2022, press release, Agriculture Secretary Tom Vilsack, stated that the "USDA is committed to addressing deeply embedded rules and policies that disadvantage Tribal nations and communities." In response to the notice of new best practices, Secretary Vilsack stated that "These regulations and policies will protect Indigenous interests and resources from mining impacts and give them a voice in mining activities before they begin."[435]

In addition, on November 15, 2021, the Department of the Interior and the Department of Agriculture issued Joint Secretarial Order No. 3403: "Fulfilling the Trust Responsibility to Indian Tribes in the Stewardship of Federal Lands and Waters."[436] The order's purpose is to ensure that the Departments manage "Federal lands and waters in a manner that seeks to protect the treaty, religious, subsistence, and cultural interests of federally recognized Indian Tribes," including "areas where Indian Tribes have reserved the right to hunt, fish, gather, and pray pursuant to ratified treaties and agreements with the United States."[437] Notably, the Department of the Interior and the Department of Agriculture "recognize and affirm that the United States' trust and treaty obligations are an integral part of each Department's responsibilities in managing Federal lands," and that "the Departments will benefit by incorporating Tribal expertise and Indigenous knowledge into Federal land and resources management."[438]

Treaty rights must be respected. We support and incorporate by reference the comments from the Nez Perce Tribe on these issues. The SDEIS must describe how these issues are addressed in the NEPA process related to the proposed mine plan and associated

[433] Biden-Harris Administration, "Fact Sheet: Biden-Harris Administration Announces New Actions to Support Indian Country and Native Communities ahead of the Administration's Second Tribal Nationals Summit, November 30, 2022.
[434] U.S. Department of Interior, "Departments of the Interior, Agriculture Advance Mining Reforms Aimed at Protecting and Empowering Tribal Communities, December 1, 2022. Available at: https://www.doi.gov/pressreleases/departments-interior-agriculture-advance-mining-reforms-aimed-protecting-and
[435] *Id.*
[436] https://www.usda.gov/sites/default/files/documents/joint-so-3403-stewardship-tribal-nations.pdf.
[437] *Id.* at Section 1.
[438] *Id.*

FEIS and ROD issued by the Forest Service and BLM, along with recent decisions by the Department of Defense to authorize funding from the DPA Investments Program for SGP.

CC. Additional Review of State Regulations Needed

In the SDEIS, the Forest Service consistently defers to the state of Idaho on issues involving the management of federal lands and the effects on public resources. In many instances, the Forest Service assumes to some degree that various state processes have sufficiently addressed key resource issues associated with the SGP. However, these state rulemaking and permitting processes may actually have fewer safeguards in place to protect taxpayers, public health, water quality, fisheries and wildlife compared to NEPA and other federal laws.

Perpetua Resources has been closely involved in several recent state rulemaking and permitting processes that will impact the SGP. These include the Idaho Department of Lands rulemaking regarding financial assurances and cyanidation regulations, and Idaho Department of Environmental Quality's air quality permit. In each of these instances, the mining company successfully reduced the permitting requirements or safeguards for key elements over the objections of conservation organizations and others. Groups like the Idaho Conservation League had pointed out that the new proposed rules and permits are less protective than regulations in other states. The federal government was not directly involved in the rulemaking processes or air quality permitting, but the EPA did comment on the final draft of the state air permit expressing significant concerns.

State regulatory and land management agencies have professional staff who are dedicated to their jobs. However, the state of Idaho and state agencies are not subject to many of the same standards, requirements, safeguards and the multiple-use mission that the federal government must meet. The state of Idaho also prides itself on being the "least regulated state in the Union" and has a gubernatorial directive to remove two regulations for every one passed. This is why it is critically important that the Forest Service carefully scrutinize the permits issued by the State of Idaho regarding the SGP; and, if the state permit conditions do not meet the federal standards for the protection of public resources and multiple uses, the Forest Service must apply more protective measures and/or permit conditions as required by federal policy, rules and law.

1. **Financial assurances**

Perpetua's staff and attorneys participated in state rulemaking regarding financial assurances for mining operations. Perpetua convinced the Idaho Department of Lands to accept corporate guarantees as a financial assurance in replacement of cash as a bonding

mechanism. Corporate guarantees are essentially a promise to pay based on the reputation and brand of the mining company. Corporate guarantees have proven to be problematic based on numerous examples of mining companies being unable to pay for long term water treatment costs. In fact, Idaho taxpayers are still covering the long term water treatment costs of Asarco's Triumph Mine. The Forest Service did not participate in this rulemaking.

While the majority of the Stibnite Gold Project is on federal land, some portions are on private property owned by Perpetua. It is unclear if the new state bonding regulations - which can be much cheaper for the mining company and far less protective to taxpayers - would apply to the private properties within the Operations Area Boundary or if the federal bonding requirements would apply to the entire project.

We are concerned that if the less protective state bonding rules are utilized for the sections of private property, the financial assurances will ultimately be insufficient to pay for successful reclamation on that property. With insufficient reclamation on private properties, we are concerned that environmental problems originating on private property can affect nearby public resources on National Forest System lands. Potential issues include slope instability, increased sedimentation, noxious weeds, heavy metal seepages and water temperatures too high for one or more listed fish species.

As such, we strongly recommend that the federal bonding mechanism be used across the entire project area, including across private properties, and that Corporate Guarantees do not play any role in the financial assurance mechanism. We also recommend that the Forest Service include both the reclamation plan and the bonding calculations in a Supplemental SDEIS so the public can have a say in these critical negotiations. Please see our other comments on bonding for additional details.

2. Cyanidation

The staff and attorneys of Perpetuas's predecessor, Midas Gold, participated in a state rulemaking regarding cyanidation regulations for mining operations. Midas Gold convinced the Idaho Department of Lands to lower the standards for mine tailings facilities by allowing a single layer liner instead of the previously required double layer. The Idaho Conservation League pointed out that this is inconsistent with requirements in other states and that all liners leak to some extent. The Forest Service did not participate in this rulemaking.

We are concerned that the Forest Service is accepting this controversial lower standard as sufficient for the liner of the tailings storage facility. The tailings storage facility needs to contain over 100 million tons of tailings containing toxic materials, prevent infiltration of meteoric water during reclamation and after closure, prevent leakages through

the bottom liner, and endure for millenia. If leaks do occur, as our comments point out they are likely to, the long term costs to taxpayers and impacts to downstream resources, including listed fish species, are likely to be extensive and permanent. Instead of deferring to the state on this issue, the Forest Service needs to conduct its own independent review and ensure that public resources are protected.

3. Air Quality/Permit to Construct

When Perpetua Resources (then Midas Gold) submitted its original Plan of Operations, the Forest Service deemed it acceptable to initiate the NEPA process and developed it as Alternative 1 in the DEIS. When the company submitted a Modified Plan of Operations, the Forest Service developed that as Alternative 2 in the DEIS. Now the Forest Service is analyzing another iteration, the 2021 Modified Mine Plan.

In each of these cases, the Forest Service deferred to the Idaho Department of Environmental Quality (IDEQ) regarding the Air Quality Permit/Permit to Construct. The Forest Service simply accepted that the initial draft permit was sufficiently protective of public health, water quality, plants and wildlife. However, that initial draft permit overlooked over 90% of arsenic emissions from the fugitive dust that would be generated by mining activities. These high levels of arsenic would have had significant impacts on the public and the public resources the Forest Service manages. The Idaho Conservation League and other organizations successfully objected to this permit. A subsequent version of the draft permit was issued and was again successfully objected to by ICL and others on the grounds that it was still not sufficiently protective of public health. During the public comment period for the third version of this permit, both the Idaho Conservation League and EPA submitted comments with additional recommendations to protect public health. IDEQ failed to respond to these comments and also failed to incorporate these measures into this permit. In fact, the EPA Region 10 indicated that IDEQ did not reach out to EPA to discuss their comments and concerns. This third version of the permit was officially issued on June 17, 2022. On July 22, 2022, the Nez Perce Tribe, the Idaho Conservation League, and Save the South Fork Salmon officially submitted a petition administratively appealing the issuance of the permit. Perpetua attempted, unsuccessfully, to dismiss the appeal, and oral arguments are slated for spring 2023. The Forest Service has not participated in any of these proceedings.

Had ICL and others not objected to the state's first draft air quality permit, the Forest Service could have assumed that this permit to construct was sufficiently protective of public health and the environment. Instead, as written, this flawed permit would have allowed Perpetua's mining activities to blanket the Operations Area Boundary with fugitive dust containing toxic levels of arsenic. This degree of arsenic contamination would have had significant impacts on National Forest lands and public resources, and would have been

exceedingly difficult to remediate. To help address the remaining shortcomings of the third version of the permit, the Forest Service should require ambient air quality monitoring at the Operations Area Boundary and at several points along the public route through the SGP to Thunder Mountain. Ambient air quality monitoring at surface mines is not a novel concept. Several open pit surface mines across the West currently require ambient air monitoring, including the Bingham Canyon Copper Mine in Utah, and the Cripple Creek and Victor Gold Mine in Colorado. Any ambient air quality monitoring should be conducted according to a publically reviewable plan that is developed based on best industry practices.

4. Water Quantity

Perpetua's Water Rights application is an entirely separate process from the NEPA process for the Stibnite Gold Project. In this case, the Forest Service recognized that Perpetua's use of the water rights could have negative effects on outstandingly remarkable values in the Wild and Scenic Main Salmon River. The Forest Service and several other parties are protesting specific water rights related to this application. We appreciate the Forest Service's involvement in this issue. We also believe that additional measures on the part of the Forest Service related to the development of alternatives and design features in the NEPA process could be used to avoid, minimize, and mitigate impacts for water resources.

5. Summary

While the state permitting is designed to be protective of the human environment, the Forest Service should view the state permitting process as a starting point and not the end point. Projects such as the SGP will have significant and permanent negative impacts on National Forest System lands. We recognize that the Forest Service has limited capacity to engage in state rulemaking and state permitting processes. This is why it is critically important for the Forest Service to thoroughly review all state permits relevant to the SGP to ensure they comply with federal standards regarding protection of multiple uses and public resources. By utilizing a Supplemental SDEIS, we believe the Forest Service can utilize the NEPA process to conduct this review and make additional project improvements as needed so that public lands and public health are adequately protected.