OBJECTION to the Stibnite Gold Project
Final Supplemental Environmental Impact Statement ("SFEIS") and
Draft Record of Decision ("Draft ROD" or "DROD")
Responsible Official: Matthew Davis, Forest Supervisor
Payette National Forest

October 8, 2024

Background

Don Newberry has over 25 years of experience as a fish biologist and aquatics management of public lands. His experience includes ecology of fishes, management of anadromous and resident fisheries in streams and lakes, monitoring of anadromous spawning substrates, habitat relationships, aquatic habitat restoration and the effects of management of public lands on streams and rivers of the Boise National Forest, Cascade and Lowman Ranger Districts between 1982 and 2007. His education includes a Bachelor's degree in Zoology from Southern Illinois University-Carbondale, and a Master's Degree in Biology (fisheries and limnologic emphases) from Murray State University. He is retired from the USDA Forest Service, and resides in Cascade, Idaho.

Don has filed comments on the SGP 2020 Draft Environmental Impact Statement and to the SGP Supplemental Draft Environmental Impact Statement on January 9 and 10, 2023.

Generalizations of the comments appear in the FEIS Appendix B Volume II Response to Concerns on the 2020 DEIS starting on page B-749. Specific replies to specific questions were not apparent.

All of his previous comments submitted, including all exhibits and attachments submitted to the Forest Service by him, are hereby incorporated into this Objection and into the administrative record and hereby submitted to the Reviewing Officer for its review and consideration.

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ITEMS NOT FURTHER WARRANTED FOR OBJECTION

1. As described in the Comments on Noise and Light- Landmark R.S. (NRHS) and Proposed Landmark Maintenance Facility (Newberry 2022; 11.b.1 pp. 28-30.

   Comment: *"The Landmark Maintenance facility has problems with its closeness to the Landmark Ranger Station NHR site from noise and light pollution. The site builds in the stream RHCA, "The nearest waterbody to the relocated Landmark Maintenance Facility would be Landmark Creek, which would be **just a few feet away from the facility footprint**. Landmark Creek is listed by IDEQ as impaired (Category 4A) for water temperature, with a designated beneficial use of salmonid spawning." **A new location near the Landmark Airstrip is a proposed mitigation."***

   FEIS Response: A reply to this comment was Not found in Responses, FEIS Appendix B.

   Action: With the FEIS Selection of the 2021 MMP (Burntlog route) alternative, this proposed facility and its location will not be constructed. The concern is removed.

2. As described in the Group Comments, Bonnie Gestring and 7 others, **Section XI I. #13, p. 192. Comment: "SDEIS fails to address "91- meter" buffer zones as described in the DEIS."**

   FEIS Appendix B- Responses # 802.0105, B5, p. B-939: Concern Statement: "There are concerns that there is no known use of a Riparian Habitat Conservation Area to buffer spills, especially for gasoline or diesel fuel."

   FEIS Response: "The SDEIS was revised where appropriate to remove mention of RHCAs buffering spills and specify BMPs where appropriate."

Action: This item was removed from the FEIS document. **The concern is removed.**

3. As described in the Group Comments, Bonnie Gestring and 7 others, page 194 #15, and Newberry, 2002; 11.A.1 pp.20-21.

Comment: *"SDEIS contains two locations for the proposed Burntlog Maintenance Facility"*

FEIS Response: "*A reply to this comment was Not found in Responses, FEIS Appendix B.*"

Alternative 2 (DEIS at 4.9.2.2.2.4 Off-site Facilities): "*The nearest waterbody to the Burnt Log Maintenance Facility location (approximately 100-150 feet away) would be Peanut Creek.*"

FS FEIS p. 4.110, Off-Site Facilities*: "Off-site facilities associated with the 2021 MMP include the SGLF on Warm Lake Road and the Burntlog Maintenance Facility located along the Burntlog Route, approximately 4.4 miles east of the junction of Johnson Creek Road and Warm Lake Road (midway between Sites 4 and 5)."*

Action: The location "4.4 miles east of.…" should be about 1 mile beyond the proposed site described above as adjacent to Peanut Creek. Peanut Creek is listed a bull trout critical habitat and has bull trout in the lower reaches. From personal observation the 4.4 mile site is near or on a bend in the FDR 447 road that overlooks a wide vista facing to the northwest and north. The proposed site is on a high bench with the Peanut Creek riparian area several hundred yards below this proposed site**.** **The concern about location is removed**.

DETAILED OBJECTIONS

4. **Section XI I. Wetlands and Riparian Bonnie Gestring and 7 others, Group Comment Section XI, R. Botanical Resources, 1.f. page 254.**

Concern: "*There are concerns that road traffic along the Burntlog Route will have indirect impacts on fens in the vicinity of Mud Lake."*

FEIS ***Response: Appendix B, p. B-940; # 802.0105C.****7: "Fens in the vicinity of Mud Creek are described in Section 3.11.3.2.4 in the DEIS and potential impacts are addressed in Section 4.11.2.2.1.2 of the DEIS."*

NOAA Fisheries BiOp p. 189: "*NMFS agrees with this characterization for Riordan and Trapper Creeks.* ***However, because no barriers are suspected to occur in upper Burntlog Creek, East Fork Burntlog, or Peanut Creek, NMFS considers O. mykiss in these remaining streams as steelhead in our analysis. emphasis added.***

NOAA Fisheries BiOp p. 350 "*Our assessment assumes the USFS, USACE, and any applicant or contractor* ***will properly implement appropriate EDFs and BMPs during project implementation.****"*

DEIS Section: 4.10.2.2.5.6 Rannoch-rush (*Scheuchzeria palustris*): "*The most likely impact of the SGP on this occurrence is dust associated with construction of the road and vehicle travel in this area. Increased dust deposition could result in impacts ranging from metabolic inhibition or mortality of individuals. Alternative 1 may indirectly impact Rannoch-rush individuals and habitat but would not likely contribute to loss of viability to the species within the planning area (i.e., BNF-administered lands)".*

DEIS 4.10.2.1.1.2 Indirect Impacts: *"**These sorts of impacts could impact wetlands and fens in ways that that could affect the ability of these areas to function as habitat for* *wetland plants. The effects of hydrological alteration would be greater for species that are highly sensitive to changes in environmental conditions."*

FEIS p. 4-315 Rannoch-rush (Scheuchzeria palustris)
One occurrence of Rannoch-rush, a forest watch species on the BNF, is located in a wetland in the Mud Lake area in the BNF (IDFG 2004; IFWIS 2017). This occurrence is within 300 feet of an existing portion of Burnt Log Road (FR 447). This occurrence is likely to be impacted by dust associated with road widening and vehicle travel on the Burntlog Route in this location. This occurrence also could be subject to other potential indirect effects described, under Indirect Impacts. The most likely impact of the SGP on this occurrence is dust associated with construction of the road and vehicle travel in this area. Increased dust deposition could result in impacts ranging from metabolic inhibition or mortality of individuals (Farmer 1993). However, based on the implementation of required and proposed EDFs presented in ***Section 2.4.9****, particularly those related to sensitive plant species and dust control as well as topsoil and vegetation management, impacts to Rannoch-rush and its habitat would be reduced.* ***This potential impact would result primarily in localized, long-term and permanent, minor impacts to the Rannoch-rush. Therefore, the 2021 MMP may indirectly impact Rannoch-rush individuals (one) and habitat but would not likely contribute to loss of viability to the species within the planning area (i.e., BNF-administered land). emphasis added.***

Action: Continue to Object. NOAA *Fisheries BiOp p. 189* describes Peanut Creek, immediately North of the Mud Lake fen as containing steelhead for their BiOp. Road 447 management at Mud Lake will be the same as that to the adjacent Peanut Creek culvert.

The FEIS at p. 4-315 states that a take of one plant is estimated because of dust as mitigated by BMPs, EDF's etc. The standard "mantra" used in the DEIS and SDEIS employing the use of BMPs, EDFs, SWPPP, dust abatement (water, lignan sulfonate, magnesium chloride) etc., to effectively reduce problems**, but does not explain how the use of these tools will accomplish the desired outcomes.** This process has been objected to in previous comments. No reply is given to the effects of hydraulic alteration by widening the road. A culvert is proposed to replace the existing culvert at the north end of the fen (This is NOT the Peanut Creek culvert). No information on continued monitoring of this site for sediment, dust or loss of plant life is found.

5. Bonnie Gestring and 7 others. 17634, #199 p. B-400; Group Comment. Section XI I. #9, p. 190: Comment: *"The SDEIS does not describe what specific substrate monitoring will be done to protect the fisheries habitat."*

FEIS Response #199 p. B-400; "*As shown in MWH 2017 and Stantec 2018, 2019, and 2020, substrate monitoring was conducted (McNeil core samples, cobble embeddedness and free matrix), following the guidelines established by the Forest Service.* ***As described in Section 2.4.8 of the SDEIS, environmental monitoring would be conducted through an adaptive management process. It is expected that monitoring programs established for baseline data collection would be continued. (emphasis added)"***

FWS BiOp. pp.128-129 Sediment: "*The rearing capacity of salmonid habitat decreases as embeddedness levels increase. For example, Suttle et al. (2004, p. 969) found that growth and survival of juvenile steelhead declined with a measure of increasing substrate embeddedness.* ***The substrate monitoring sites are spread out across the fish analysis area (Figure 11) and are measured annually, so the data are best interpreted as a measure of annual, watershed scale conditions and trends, rather than site- specific effects from point sources of sediment.(emphasis added)*** *Generally high embeddedness relative to reference conditions could indicate degraded conditions in a watershed, while low embeddedness indicate favorable conditions in a watershed."*

"*Burntlog Creek, Trapper Creek, and Riordan Creek/Lake*
"Aquatic baseline studies in Burntlog and Trapper creeks show over 5-year average embeddedness levels at 8 and 4% (FA). Free matrix and surface fines measurements in Burntlog, and Trapper creeks have WCIs that are FA. Free matrix in Riordan Creek are FA, however, surface fines are FUR (Stantec 2020, p. 16, Table 2). ***The Sediment WCI is expected to be FUR due to impacts from the Cascade Complex wildfire in the temporary to short-term timeframes. In comparison to the pre-fire condition, soil erosion will increase due to the loss of vegetation consumed by the Cascade Complex wildfire and, to a much lesser degree, the fire-induced hydrophobic soil conditions (emphasis added).*** *Sediment delivery to streams increased as a result of increased surface erosion, decreased surface roughness, and increased water runoff.* ***Much of this sediment is stored in the tributary channels and delivered to main channels over time.*** *The total volume of sediment stored behind obstructions will vary between subwatersheds and years in response to changes in bankfull channel width and annual peak flow rates (Megahan 1982, entire)."*

FS FEIS Biological Assessment Section 4.1.3.1, p. 312 "*The Geomorphic Roads Analysis and Inventory Package Lite (GRAIP Lite) model was used to simulate sediment generation and sediment delivery to streams by travel activities associated with the SGP (TetraTech 2024). Based on these model results, sediment accumulation in streams is also modeled. The GRAIP Lite model used terrain data and selected parameter values representing road materials, maintenance level, and usage to calculate sediment quantities. (emphasis added)* *For the SGP, the model simulated three scenarios:*

• Existing conditions involving public use of the Johnson Creek Road (CR 10-413), Stibnite Road (CR 50-412), existing portions of the Burnt Log Road (FR 447), Thunder Mountain Road (FR 50375), Meadow Creek Lookout Road (FR 51290), and existing on-site roads,

• Construction conditions with public use of Johnson Creek Road, Stibnite Road, existing portions of the Burnt Log Road, Thunder Mountain Road, Meadow Creek Lookout Road, and existing on-site roads and SGP construction use of the Johnson Creek Road, Stibnite Road, and on-site roads.

• Operational conditions with public use of Johnson Creek Road, Stibnite Road, existing portions of the Burnt Log Road, Thunder Mountain Road, Meadow Creek Lookout Road, and a relocated on-site road and SGP operational usage of the new Burntlog Route and on-site roads."

NOAA Fisheries BiOp Section 2.12.2 p. 347 *"**Localized deposition of fine sediment in action area streams has the potential to decrease spawning gravel suitability and decrease benthic invertebrate production within gravel riffles, potentially impacting spawning/incubation and rearing/feeding life stages of Chinook salmon and steelhead.** e**mphasis added.** However, spawning substrates are generally FA in action area streams, and GRAIP-Lite modeling suggests that the amount of sediment delivered to action area streams will decrease in comparison to the baseline condition."*

NOAA Fisheries BiOP Section 2.15.3 p. 356; "The extent of take exempted by this ITS would be exceeded if: (5) *"Biological monitoring indicates the mine is having adverse effects on aquatic communities in Meadow Creek and the EFSFSR. At a minimum, aquatic community metrics that shall be used to evaluate potential adverse effects are listed below**. In the future, alternate metrics may be developed that are more appropriate for evaluating potential impacts from mining activities. As such, NMFS recognizes that the suite of metrics may be adjusted to reflect the best available science, subject to verification by NMFS." emphasis added.***

Action: Continue to Object. Annual monitoring of Embeddedness and Surface Fines is accomplished at the initial downstream data collection sites **(**FEIS Response #199 p. B-400). These data have not been incorporated into the DEIS, SDEIS or FEIS documents as requested except for the written designation of the habitat Current conditions (at: FS FEIS Biological Assessment Appendix C, Table C-1). No substrate monitoring sites have been proposed upstream of the initial data collection sites to monitor changed conditions from road construction or reconstruction on any of the roads/RoW stream crossings proposed because, **"…much *of this sediment is stored in the tributary channels and delivered to main channels over time.*** *(Megahan 1982, entire)."*

NOAA Fisheries BiOP (pp. 347 and 356 above) states that the potential for sediment increase exists. It also recognizes that monitoring "…***may be adjusted to reflec***t…".

Use of the GRAIP Lite existing road sediment data and subsequent road sediment modeling (Tetra Tech 2024) efforts shows increased sediment production and delivery **(see: concern #11, p. 21 below**) primarily during the Operations phase (lasting 15 years) of the project.
No direct correlation of the Nephelometric monitoring method to actual substrate measurements has been **demonstrated. But nephelometry has been accepted as a reasonable and cost - effective substitution by NOAA Fisheries (see: concerns #6 and 6a below).**

Regarding the statement in **FEIS Response #199 p. B-400;** Re: "Adaptive Management Process" and "***It is expected that monitoring programs established for baseline data collection would be continued***." The assumption that monitoring **might** continue is not acceptable in streams with ESA listed fish where specific substrate sampling protocols have already been established. Monitoring must demonstrate existing fish habitat conditions and be correlated to fisheries WCIs in compliance with existing Forest Plans.

6. **Bonnie Gestring and 7 others, Section M.9 p. 190; Newberry 2002 #9 pp. 12-14**

Comment: "*There are concerns that the two aquatic monitoring methods (Nephelometry and total suspended solids) identified for the Project are not consistent with the stream substrate monitoring methods (modified McNeil core samples, cobble embeddedness and free matrix) that the Boise and Payette National Forests currently use and are required by the National Marine Fisheries Service to use under the Endangered Species Act"*

FEIS Response B. 802.0600.00 B.4, p. B-940; *"The National Marine Fisheries Service has reviewed the Project monitoring data in its consideration of the Project's Biological Assessment and accepted them for use."*
{Note: The NOAA Fisheries SGP Biological Opinion was received on October 7. 2024. See: Comment *NOAA Fisheries BiOp Section 2.15.1, p.352 on page 12 of this document for explanation.* The FWS SGP Biological Opinion and the NOAA Fisheries BiOp use the SGP Nephelometric analysis in road and sediment production and deposition estimates and modeling from TetraTech 2024.}

FEIS Fisheries Specialist's Report: p.45 6.1.3; Mine Site Watershed Condition Indicators; 6.1.3.2 Sediment/*Turbidity:* *"All of the stream reaches in the Headwaters East Fork SFSR subwatershed are at unacceptable risk for Chinook salmon, steelhead, and bull trout due to baseline sediment conditions (Table 6-3). This is due to a variety of past disturbances at the SGP mine site that are currently affecting streambank stability and erosion, and the proximity to existing roads.* ***The matrix WCIs use surface fines as a proxy to evaluate suspended sediment, turbidity, and salmonid spawning substrate quality."***

FEIS Fisheries Specialist Report 7.2.3.2 pp. 110-112; Impacts to Watershed Condition Indicators/Fish Habitat Elements *"Expected permit stipulations from IDWR and IDEQ would be similar to the examples provided above for access roads and would ensure the use of erosion and sediment control BMPs associated with a stormwater pollution prevention plan. ROW vegetation clearing would retain vegetation root structure within soils thus reducing erosion concerns." p. 112.*

FWS SGP BiOp. p.131; Stibnite Project Area; Burntlog Creek, Trapper Creek, and Riordan Creek/Lake

"***There is no WCI identified for turbidity alone, but it is connected to the metric for sediment, specifically surface fines. (emphasis added)*** *Surface fines in Burntlog Creek are FA at two sites (MWH 050 and 051) and FR at MWH 052. In Trapper Creek, surface fines are FA at MWH 053 and 054, and FUR at MWH 055. In Riordan Creek, surface fines are FUR at MWH 055 (Stantec 2018, p. 17, Table 3)."* ***"As noted above, there is no WCI identified for turbidity alone, but it is connected to surface fines. Based on the aquatics baseline monitoring, surface fines are considered FA (USFS 2024, Appendix C)." (emphasis added).*** *For the Burntlog Route, the potential for sedimentation will be minimized using standard erosion control measures, such as silt fencing, ditch checks, and other measures, which will be installed and maintained to minimize the potential for erosion and sedimentation.* ***Numerous small (15- to 60-inch) drainage culverts will be***

***installed along the Burntlog Route to reduce rutting and shunt water out of ditches and off the road prism, which will serve to reduce erosion from the road into streams**. A hardened road surface with gravel surfacing will be maintained to promote an efficient and useable all-weather road while minimizing erosion (Perpetua 2022b, Section 3.1.1, p. 3-1)." (USFS 2024, Figure 4.1-13)."*

FWS SGP BiOp ***p. 166;*** **(*note: this is the effects determination*)** "*The overall effects of construction of temporary roads and transmission lines on sedimentation on fish and aquatic habitat are expected to include localized behavioral and sub-lethal health impacts**, as well as habitat alterations**; however, the implementation of BMPs and EDFs will substantially reduce the effects (USFS 2024, Appendix B)."*

***FWS BiOp p. 167; (note: shows Correlation between Suspended sediments and NTU readings not to WCI measurements**) "Literature reviewed in Rowe et al. (2003, p. 6) indicated that Nephelometric Turbidity Unit (NTU) levels below 50 generally elicit only behavioral responses from salmonids thereby making this a suitable surrogate for sublethal effects. Moreover, Idaho state water quality standards use NTUs when measuring suspended solids and require that turbidity plumes do not rise more than 50 NTUs over background levels, 600 feet downstream from a project site (Rowe et al. 2003, p.12). **Suspended sediment and turbidity are correlated, but this correlation can vary by watershed and even within the same watershed (Henley et al. 2000, pp. 128–129). (emphasis added)**. **Although the relationship between suspended sediment and turbidity in the EFSFSR is unknown, we used 1 a regression equation developed by Dodds and Whiles (2004, p. 357)1 to estimate the suspended sediment concentration associated with 50 NTUs. The equation yields a suspended sediment concentration of 173 mg/L. According to Newcombe and Jensen (1996, p. 698), bull trout exposed to suspended sediment concentrations of 173 mg/L for one hour are likely to be subject to sublethal effects in the form of short-term reductions in feeding rate and feeding success. (Emphasis added)** This finding supports the conclusion that adhering to the Idaho state water quality standard for turbidity during project implementation will result in insignificant disturbance, but not result in injury or mortality of bull trout. The proposed action also includes instream work area dewatering and isolation, staged rewatering, and turbidity monitoring that will further reduce the potential for significant turbidity effects."*

FWS BiOp p. 170;** "Reaction to sedimentation and turbidity by bull trout could include behavioral effects, such as avoidance, as well as potentially causing impaired respiration. **Additionally, there could be habitat impacts from sediment causing increased substrate embeddedness and decreasing the spawning habitat conditions. However, EDFs and

BMPs (e.g., turbidity monitoring) described in USFS 2024, Appendix B will significantly reduce the risk of these impacts to bull trout." (Emphasis added).

FWS BiOp p. 170; *"Also, during the operational period, surface discharge of treated waters has the potential to generate turbidity. These IPDES permitted outfalls will be constructed with energy dissipation at their discharge location to minimize the turbidity generated by introduction of additional flow into the stream channel.* ***The TSS in surface water are generally correlated with turbidity (NTU), which is a more visually apparent estimator of sediment contamination. Under baseline conditions, (emphasis added)*** *turbidity is generally low (less than 5 NTU) with occasional spikes of up to 70 NTU during snowmelt or rainfall events (USFS 2023e, p. 67, Table 6-14)).*
*The greatest potential for increases in stream sedimentation will come during storm events causing overland flow across exposed soil, excavated areas, and roads****. BMPs, such as mulching, wetland sodding; planting of vegetation to stabilize slopes; and use of silt fences, biofilters, brush mats, erosion control fabric, and/or fiber rolls along temporary swales, perimeter dikes, and stream banks (USFS 2024, Appendix B), will be employed for near-stream or instream work such as removal of legacy materials and stream restoration to minimize the potential for coarser sediment generation or mass wasting that will affect sediment transport and deposition. The GRAIP Lite model results show an increase in sediment delivery, sediment input into the streams, and sediment accumulation, primarily because of the additional 55 km of road compared to baseline. Table 30 shows the change in sediment production, delivery and accumulation during operations, and Table 31 shows the sediment delivery to drainage crossings by location and crossing type." (Emphasis added).***

FWS BiOp p.172; "Increases in fine sediment deposition within stream channels have the potential to decrease spawning gravel suitability and decrease benthic invertebrate production within gravel riffles. With the application of sediment reduction BMPs and surface runoff minimizing design techniques such as those mentioned above (USFS 2024, Appendix B), the impacts of sediment in surface water, as well as interstitial sediment, to fish are predicted to be measurable but not severe, limited to the mine site, and occur during the active mining period." (Emphasis added).

FWS BiOp p.211 **(*note: Estimated Take for Burntlog Rd construction (new) and decommissioning.*)** ***"Table 38 shows that a total of 279 bull trout could be affected in Burntlog, Trapper, and Riordan Creeks and tributaries by fish salvage during construction of the Burntlog Route culverts and road stream crossings. The same number of bull trout will be injured or killed during decommissioning of the Burntlog Route (Table 38)." (emphasis added).*** ***(note: These take estimates do NOT agree with the numbers stated on the FWS BiOp p. 239 below).***

FWS BiOp p.239; ***"Adverse effects from the proposed action are localized and limited to individual foraging, migrating, overwintering, spawning, and early rearing bull trout in the Upper EFSFSR, Sugar Creek, Burntlog Creek, Trapper Creek, and Riordan Creek local populations, which represent 5 out of 27 local populations (18.5%) in the core area. (emphasis added).*** *The proposed action is also expected to maintain population size and growth and survival (USFS 2024, Appendix C, Tables C-3 and C-4). For these reasons the Service does not anticipate effects to the survival and recovery of the South Fork Salmon River core area, Upper Snake recovery unit, or the coterminous rangewide population.*

FWS BiOp p.239; (note: Take estimate and determination) ***"The proposed action is expected to result in injury and mortality of 629 bull trout (402 in the Stibnite project area*** *and 227 in the Lemhi restoration project area)(* ***emphasis added)****. In Idaho, it is estimated that there are 1.13 million bull trout within all recovery units (High et al. 2008, p. 1687). The potential loss of 629 bull trout represents 0.06% of bull trout in the State. This makes adverse effects to bull trout negligible at the population scale and range wide. Furthermore, the calculated estimates were rounded up to the nearest whole fish before totaling for the project and are thus expected to be high estimates. The Service does not expect the potential loss of 629 bull trout to measurably affect South Fork Salmon and Lemhi core areas, or the Upper Snake River recovery unit in the short- or long-term timescale. The Service also does not expect any injuries or deaths associated with this proposed action to have measurable effects to the conservation or recovery of the species."*

FWS BiOp pp. 115-116; Stibnite Project Area Burnt Log Creek, Trapper Creek, and Riordan Creek/Lake

*"Johnson Creek from its confluence with the EFSFSR upstream 28.7 mi to Rock Creek provides feeding, migration, and overwintering (FMO) habitat. Burntlog Creek from its confluence with Johnson Creek upstream 14.1 mi to its headwaters provides SR habitat. Trapper Creek from its confluence with Johnson Creek upstream 9.0 mi to its headwaters provides SR habitat. Riordan Creek from its confluence with Johnson Creek upstream 2.7 mi to potential passage barriers contains FMO habitat; Riordan Creek from the potential barriers upstream 2.0 mi to Riordan Lake outlet provides spawning and rearing habitat; Riordan Lake (73.1 acres) contains FMO habitat; and Riordan Creek from Riordan Lake inlet upstream 4.1 mi to its headwaters provides SR habitat (USFWS 2010, pp. 681–682). There are bull trout eDNA detections in Burntlog Creek and its tributaries, Trapper Creek, Riordan Creek, and Johnson Creek, although no estimate has been made of population size in these waters****. Data from field collections by the BNF have shown that up to 200 bull trout have been observed at any given site, but most samples showed less***

than 20 individuals. Multiple life stages of bull trout have been observed in these local population watersheds (USFS 2024, Appendix C, Table C-1, p. C-1) (emphasis added)."

NOAA Fisheries BiOp Section 2.15.1, p.352*; "The best available indicators for the extent of take caused by increased sediment delivery is the magnitude and extent of turbidity plumes in the receiving waters during project implementation. The magnitude and extent of the turbidity plume is proportional to the amount of harm that the proposed action is likely to cause through short-term degradation of water quality and instream habitat. Sediment levels are expected to rapidly peak and then steadily decrease in intensity within 1,000 feet downstream of construction areas that are immediately adjacent to or within the stream channel.* ***Although we recognize the limitations of using turbidity as a surrogate for suspended sediment, monitoring for turbidity is a reasonable and cost-effective measure that can be readily implemented in the field. Most of the time turbidity measurements take 30 seconds, can be done on site, and therefore allow for rapid adjustments in project activities if turbidity approaches unacceptable levels. For these reasons, we have chosen turbidity as a surrogate for incidental take from sediment-related effects." emphasis added.***

"NMFS will consider the extent of take exceeded if turbidity readings, taken approximately 1,000 feet downstream of inwater work areas, reveal turbidity concentrations greater than 50 NTU above background for more than 90 minutes, or 100 NTUs instantaneously. Literature reviewed in Rowe et al. (2003) indicated that NTU levels below 50 generally elicit only behavioral responses from salmonids thereby making this a suitable surrogate for sublethal incidental take monitoring. This take indicator functions as effective reinitiation trigger because it can be readily monitored, and thus will serve as a regular check on the proposed action."

Action: Thank the Forest Service for providing the road sediment modeling estimates asked for in the SDEIS replies.
Action: Continue to Object. The FEIS and associated documents show that annual monitoring of WCI habitat data at the initial data collection sites continues. These data are not being used in these assessments. Several attempts to loosely correlate WCI surface fines or embeddedness to turbidity occur in the assessments (FEIS at 6.3.1; FWS BiOp at p. 31, p. 167, and p. 170). Nephelometry from the GRAIP Lite estimates and modeling efforts is then being used for sediment estimates from roads for production and for deposition into streams at streams and "drainage crossings" (TetraTech 2024 entire)**.** Monitoring sites and approved WCI protocols other than nephelometry need to be established upstream of the current monitoring locations, closer to the areas affected by roads and RoW crossings and where they both parallel streams as well as at crossings. NOAA fisheries (***BiOp Section 2.15.1, p.352 a***bove) recognizes the tradeoffs using nephelometry as a substitute. What they don't say is that annual WCI sediment measurements should be discontinued. The WCI measurements would be the final

demonstration of the effects monitoring success or failure of sediment reduction in actual fisheries rearing/spawning areas.

Additional Concerns connected to, but not assessed in this analysis: The FWS BiOp p. 239 states that between 402 and 598 bull trout are estimated to be injured or killed in the project lifespan and reclamation. It states that 5 of 27 local populations (18.5% of the core area) will be affected. It copies the FS FEIS stating that between 20-200 bull trout have been observed at any one site evaluated (FS FEIS Biological Assessment Appendix C Table C-1). Yet the determination for the take on the local bull trout populations is based on their percentage of the entire state population (0.06%), and not on the loss from the core area or even the larger Recovery Unit area.

New Item 6a. Nephelometric Turbidity Monitoring Protocol FS FEIS Biological Assessment pp.229-230; FWS Bi Op p. 110.

- "Turbidity monitoring will include:
- Turbidity reading, location, and time will be recorded for background reading approximately 100 ft upstream from the project area using a recently calibrated turbidimeter or via visual observation.
- The turbidity reading, location, and time will be recorded at the measure compliance location point. 50 ft downstream for streams less than 30 ft wide
- 100 ft downstream for streams between 30 and 100 ft wide
- 200 ft downstream for streams greater than 100 ft wide
-
- Turbidity will be measured (background location and compliance point) **ever 4 hours while work is being implemented.**
- **If exceedances occur for more than two consecutive monitoring intervals (after 8 hours), the activity will stop until the turbidity level returns to background. The Offices of Species Conservation will be notified for all exceedances and corrective actions at project completion (emphasis added).**
- If turbidity controls (cofferdams, wattles, fencing, etc.) are determined ineffective, crews will be mobilized to modify, as necessary. Occurrences will be documented in the project daily reports."

Comment FWS BiOp p. 167 (see p. 8 above); "*Although the relationship between suspended sediment and turbidity in the EFSFSR is unknown, we used 1 a regression equation developed by Dodds and Whiles (2004, p. 357)1 to estimate the suspended sediment concentration associated with 50 NTUs. The equation yields a suspended sediment concentration of 173 mg/L.* **"*According to Newcombe and Jensen (1996, p. 698), bull trout exposed to suspended sediment concentrations of 173 mg/L for one hour are likely to be subject to sublethal effects in the form of short-term reductions in feeding rate and feeding success." emphasis added.***

NOAA Fisheries BiOP pp.352; "NMFS will consider the extent of take exceeded if turbidity readings, taken approximately 1,000 feet downstream of inwater work areas, reveal turbidity concentrations greater than 50 NTU above background for more than 90 minutes, or 100 NTUs instantaneously. *Literature reviewed in Rowe et al. (2003) indicated that NTU levels below 50 generally elicit only behavioral responses from salmonids thereby making this a suitable surrogate for sublethal incidental take monitoring.* ***This take indicator functions as effective reinitiation trigger because it can be readily monitored, and thus will serve as a regular check on the proposed action" (emphasis added).***

NOAA Fisheries BiOp, Section 2.18.1 Term and Conditions p.357*;"1. The following terms and conditions implement RPM 1:*
b. Monitor turbidity as proposed, but stop construction activities if turbidity levels 1,000 feet downstream of their source begin to approach 50 NTUs above background or are visible for more than 90 minutes or begin to approach 100 NTUs above background at any time. After stopping the activities, contact NMFS to determine when work can proceed and if additional BMPs need to be employed to further minimize the intensity of remaining plumes to ensure extent of take is not exceeded."

c. "Initiate a visual turbidity monitoring program if drilling occurs in RCAs. Visual monitoring must occur at least two times during drilling activities at each location. If visible turbidity is present downstream of drilling activities, operations will cease until the source of turbidity can be identified and mitigated."

Action: Object to the times listed in the Turbidity Monitoring protocol. See the NOAA Fisheries BiOp ***Section 2.18.1,*** Terms and Conditions (above). We need to reduce the time gap from the 4 or 8 hour intervals listed in the FEIS to the values listed in the Terms and Conditions above especially if this is to be used as a construction monitoring method. During construction phases at streams or culverts leading directly to streams then NTU's need to be monitored directly.

7. Antimony transport from mine to SGP facility Samuel Penney (Chairman), 19396; #164, #318; **Newberry 2022, pp. 59-60.**

FEIS Comment: Samuel Penney (Chairman) 19396; #164
"The final antimony concentrate would be placed in 2-ton supersack containers ready for shipment off site for further refining. Add this to the risk of hazardous material spills in the project area and its waters and also enroute to the overseas refinery. The annual transport is estimated at to 730 truckloads. It is assumed that the concentrate, when sold, would be shipped to facilities outside of the U.S. for smelting and refining because there

are currently no smelters in the United States with capacity for refining the antimony concentrate. This risk is unacceptable and grounds for denying the approval of this Project."

FEIS Comment: Samuel Penney (Chairman) 19396; #318
"The potential and impact of antimony concentrate entering a waterbody from a spill should be evaluated Descriptions of the potential effects of certain spill scenarios, including antimony concentrate, and documented."

Questions (Newberry 2022 pp. 59-60):

- *What is the percent Arsenic in the Antimony concentrate being shipped to the SGLF?*
- *Are the "supersacks" that will be shipped on the flatbed trailers waterproof?*
- *In the situation of an accident, are the "supersacks" able to contain their contents if thrown off the flatbed trailer?*
    - *What is the percent recovery of the Antimony concentrate in the situation of a spill between the mine site and the SGLF?*
    - *What is the likelihood that the expected Antimony(V) can be changed into Antimony (III) the toxic phase of Antimony, especially if it is in streams waters?*

Responses

FEIS Response to: Samuel Penny, (Chairman), 19396; #318
Descriptions of the potential effects of certain spill scenarios, including antimony concentrate, have been added to Section 4.7.2 of the Final EIS.

FEIS Response to: Samuel Penney (Chairman) 19396; #164: "The Antimony *Concentrate Handling subsection of Section 4.7.2.2 of the SDEIS discusses how the antimony sulfide concentrate would be handled at the site and in transport off site. In addition to placing the dry concentrate in closed supersacks, these containers would be placed into steel shipping containers at the mill. These would be sealed shut and locked before being placed on semi-trucks for transportation off site."*

FEIS Section 4.7.2.2 page 4-145 Antimony Concentrate Handling
"An estimated 15 to 20 percent of the total mill feed would contain sufficient antimony mineral grades (> 0.1 percent weight antimony) to warrant production of an antimony concentrate product. Annual production of antimony would be variable with almost all of the antimony being recovered from ore mined in the first 6 years of operations (M3 2021). After then, the antimony recovery circuit in the mill process would be operated infrequently and the gold/silver circuit would be operated alone when the antimony recovery circuit is bypassed. The SGP ore processing circuit would produce an antimony concentrate that would contain approximately 55 to 60 percent antimony by weight. The remaining 40 to 45 percent of the concentrate is predominantly sulfur (as sulfide in the stibnite) and common rock, with trace amounts of gold, silver, and mercury. Antimony concentrate would be produced at a rate of approximately 20 to 50 tons per day.

The antimony concentrate filtration and loading area would be within the flotation building. The concentrate would be a dry, granular material that would be placed in 2-ton supersack containers secured to a bagging machine. The filled supersacks would then be sealed in the building and loaded into 20-foot shipping containers at the process site. The loaded shipping containers would then be closed and affixed with shipping seals before being loaded onto trucks for transportation to the SGLF and then transported to market via highway legal trucks. The dual containment of supersacks within sealed shipping containers makes it unlikely that there would be spills of concentrate during transportation from the SGP. In the unlikely event that a concentrate spill occurred, the spilled concentrate could be recovered with mechanical means appropriate to the spill event, placing the recovered concentrate and any contaminated native material in a suitable container by a person equipped with appropriate personal protection equipment. The recovered material can be recycled into the process at the mill. Sampling of the remediated spill site would be done to confirm that the cleanup was completed."

FEIS Comment: 802.0600.00 J.5 (includes Newberry, 2022) *"Commenters note that information regarding toxicity of antimony is lacking and assert that laboratory toxicity testing (including of site-specific waters) should be required prior to permitting."*

FEIS Response: "*Based on published data for the site, dissolved antimony occurs predominantly in its oxidized form [Sb(V)] under baseline conditions. This would also be expected as the predominant species under the Project alternatives. Sb(V) is the antimony species on which toxicity criteria are based. Toxicity criteria and water quality standards for antimony have been adopted by regulatory agencies to be protective of human and ecological health. As noted in response to comment 802.0800 Comment C.8, water quality of surface flow (i.e., rivers) would be the same or better than baseline conditions. Therefore, observations from existing conditions provide site-specific toxicity information as opposed to reliance of laboratory testing.*

NOAA Fisheries BiOp, Appendix F, pp. F-2 toF-5 *"For the purposes of this assessment, we have elected to utilize the EPA recommendations of 88 and 30 ug/L for characterizing the risk of adverse effects to ESA-listed species and their prey resulting from acute and chronic exposures, respectively. Considering Sb(V) is more prevalent in the aquatic environment and the recent work evaluating Sb(III) and Sb(V) toxicities, comparing concentrations of total dissolved Sb to toxicity thresholds developed from Sb(III) toxicity tests is deemed appropriate for our current assessment."*

Action: Object to vagueness of information on long distance haul, spill and cleanup and to the lack of information on the potential change of Antimony (Stibnite) toxicity (from form V to toxic form III) after a spill. ***{Note: NOAA Fisheries BiOp, Appendix F, pp. F2-F5 discusses the complexities of the Antimony toxicity issue. It describes the uncertainty of any toxicity difference between Sb(V) and Sb(III).*** Because of the low numbers of Stibnite Concentrate haul (1-2 daily) the NOAA BiOp (page) considers the likelihood of the effects of a spill low compared to Diesel, and toxics like cyanide, etc. hauled in larger quantities and more hauls to SGP.

Most of the antimony concentrate questions were answered for the short-distance haul from the mine site to the SGLP. The use of the maritime containers with the supersacks inside will add additional protection. The question about cleanup was made easier with the use of the maritime containers. **Not discussed** is the ability of the maritime containers to withstand a roll-over accident. The Long Distance haul questions on hazardous haul and spills were not answered. The question about the change of toxicity from Antimony (V) to Antimony (III) was not answered in the FEIS, but is covered in the NOAA Fisheries BiOpP, Appendix F (above).

8. Bonnie Gestring, Section XI I. D. Fisheries, 6a, p. 115: Newberry 2022 p.60. Impacts to macroinvertebrates; Western Pearlshell mussel, <u>Margaritifera falcata</u>

Concern: Bonnie Gestring 17634, # 100 p. B-385; "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 and presentation of the decades of macroinvertebrate sampling which occurred in Stibnite mine site streams seven others 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.

Concern: Samuel Penny, 19396, # 364 p. B-417; *802.0600.00 #E.2*
"There are concerns that the DEIS analysis does not consider cumulative effects to the Pacific lamprey, Idaho giant salamander, western pearlshell mussel, other freshwater mussels, and aquatic invertebrates."

FEIS Responses:
Bonnie Gestring 17634, # 100 p. B-385. "*Benthic macroinvertebrates were monitored between 2012 and 2018. Results of the monitoring showed that most of the invertebrate species present were considered sensitive to poor water quality, indicating water quality under baseline conditions are considered suitable. Adverse water quality effects are not predicted related to Project activities. No revision made."*

Samuel Penny 19396, Response #364p. 417; *"Impacts to Margaritifera falcata were not analyzed in the SDEIS due to lack of federal listing status for the species and* ***this species have not been observed in the mine site area or immediately downstream from the mine site area****." (emphasis added)*

Response 802.0600.00, E.2 p. B-944*; "Earlier studies, including eDNA surveys did not show presence of Pacific lamprey in the Project Area, and there is no known documentation or likely presence of the Idaho giant salamander, western pearlshell mussel, other freshwater mussels based on annual site surveys conducted since 2012."*

Newberry 2022, #16, p.60. Questions:
- *• Have monitoring for populations of the Western pearlshell been conducted in the East Fork South Fork Salmon River, Johnson Creek or the lower portions of Riordan and Burntlog Creeks?*

• • *Have mussels, specifically Margaritifera falcata, the Western pearlshell mussel, been tested for antimony or other heavy metal accumulations?*

• • *Will there also be a loss of the Western pearlshell mussel in the stated losses of fisheries habitat as Threatened and Sensitive fish are used by the mussel glochidia for propagation?*

• *How do the proposed WQ testing methods of Nephelometry, and Total suspended sediments demonstrate the changes on substrate quality for the Western pearlshell habitat in streams?* ***(Source: Bash, Berman and Bolton (2001)).***

Comments (New Information):
The USDA Forest Service, Rocky Mountain Research Station's Aquatic EDNAtlas https://usfs.maps.arcgis.com/apps/webappviewer/index.html?id=f00b2a934fc54b67a923e5f0d8b2976f
Shows that the Western Pearlshell (acronym WEPS) mussel is found in three sites downstream of Yellow Pine in the East Fork South Fork Salmon River (EFSFSR). Two additional sites are shown in the South Fork Salmon River (SFSR) at/below the Secech River confluence.

NOAA Fisheries BiOp, Section 2.15.3 Incidental Take Statement, Water Quality p. 356;
"The extent of take exempted by this ITS would be exceeded if: (5) *"Biological monitoring indicates the mine is having adverse effects on aquatic communities in Meadow Creek and the EFSFSR. At a minimum, aquatic community metrics that shall be used to evaluate potential adverse effects are listed below****. In the future, alternate metrics may be developed that are more appropriate for evaluating potential impacts from mining activities. As such, NMFS recognizes that the suite of metrics may be adjusted to reflect the best available science, subject to verification by NMFS. emphasis added.***

•Total Taxa Richness
•Percent 5 Dominant Taxa
•Ephemeroptera Taxa Richness
•Metals Tolerance Index
•Plecoptera Taxa Richness
•Intolerant Taxa Richness
•Percent Plecoptera
•Percent Tolerant Individuals
•Percent Ephemeroptera
•PIBO O/E
•Trichoptera taxa Richness
•Hilsenhoff Biotic Index"

NOAA Fisheries BiOp Section 2.12.2., p. 347 *"Sediment generating activities will include frequent, sporadic turbidity effects to water quality across action area streams, with those increases occurring most frequently occurring during runoff events and resulting in localized deposition of fine sediment in action area stream channels. Although these effects will likely temporarily affect fish behavior (particularly during runoff events), they are unlikely to reach levels severe enough to result in harm.* ***Localized deposition of***

fine sediment in action area streams has the potential to decrease spawning gravel suitability and decrease benthic invertebrate production within gravel riffles, potentially impacting spawning/incubation and rearing/feeding life stages of Chinook salmon and steelhead. Emphasis added. *However, spawning substrates are generally FA in action area streams, and GRAIP-Lite modeling suggests that the amount of sediment delivered to action area streams will decrease in comparison to the baseline condition."*

Action: Continue to Object. The state of Idaho ranks the Western Pearlshell as "S2" defined as "Imperiled because of rarity or because of other factors demonstrably make it very vulnerable to extinction". eDNA sample data were available demonstrating pearlshell mussels and pearlshell habitat downstream of the mine site. The demonstrated loss of bull trout individuals (see: FWS BiOP p. 239-page 10 above- "take") implies fewer hosts for the glochidia. The demonstrated addition of sediment by the GRAIP Lite road sediment modeling (TetraTech 2024) may also deteriorate Pearlshell habitat along with bull trout, Chinook and steelhead spawning and rearing habitat. The potential for loss of spawning rearing habitat for Chinook and steelhead is recognized by the NOAA Fisheries BiOp (Section 3.12.2 p. 347, above), therefore the potential for loss of pearlshell habitat as they have been located at/near Chinook spawning areas (personal observations). Fish tissue and macroinvertebrates but not pearlshell tissue have been tested for heavy metals. The NOAA Fisheries ITS, **Section 2.15.3 above** would allow the inclusion of the pearlshell in the macroinvertebrate monitoring.

9. Comments: Samuel Penny, Chairman, 19396, #136, p. B-402; **Bonnie Gestring 17634 #101 p. B-385; Combined comments Section D.6b. p 115.**

Concern:#136 "Failure to analyze impacts on Pacific lamprey." *3.12 Fish Resources and Fish Habitat. "The Tribe has worked to restore Pacific lamprey in the SFSR watershed, including the EFSFSR, as an important cultural and treaty resource since 2012, through releasing adult lamprey to naturally spawn. The SDEIS recognizes that Pacific lamprey are one of the native fish species within the analysis area, but fails to mention the effects of this project on the fish, recovery efforts being made to restore these unique fish to the SFSR ecosystem and fails to analyze how this proposed project would threaten restoration success."*

Concern: #101 "*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, and their distribution is contracting throughout Oregon, Washington, Idaho, and California. 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 (emphasis added).***

FEIS Response # 101: ***'Text was added to clarify the lack of presence of Pacific lamprey in the Project area. e-DNA sampling and snorkel surveys indicate Pacific lamprey nor any other species of lamprey occur in or near the Project site, and therefore were not included in the analysis.(emphasis added)*** *Text added states "It is important to note that while Pacific lamprey may occur in the South Fork Salmon River, no observations of these fish have been made in snorkel surveys and electrofishing surveys,* ***and eDNA studies conducted did not detect any lamprey DNA within or downstream from the Project area."(emphasis added)***

FEIS Response # 136: *"The following text has been added to Section 3.12 of the Final EIS and Fisheries and Aquatic Habitat Specialist Report - "It is important to note that while Pacific lamprey may occur in the vicinity of the Project,* ***no observations of these fish have been made in snorkel surveys and electrofishing surveys, and eDNA studies conducted did not detect any lamprey DNA within or downstream from the Project area."(emphasis added)***

Comment (New Information):
The USDA Forest Service, Rocky Mountain Research Station's Aquatic EDNAtlas
https://usfs.maps.arcgis.com/apps/webappviewer/index.html?id=f00b2a934fc54b67a923e5f0d8b2976f
The Atlas also shows Pacific lamprey (acronym PALA) in the EFSFSR Downstream of Yellow Pine (starting at Phoebe Creek) and one additional site before the SFSR confluence. The Atlas also shows sites in the SFSR near the Secesh confluence. Johnson Creek shows 13 sites including Pacific Lamprey starting below Halfway Creek and going to the SFSFSR confluence at Yellow Pine.'}

Action: Continue to Object. eDNA samples of Pacific lamprey were found and are available that show Pacific Lamprey were found downstream of the mine site.

10. Bonnie Gestring 17634, #200; Group Comment. Section XI I. #10, p. **191 "No current road sediment production data was gathered, and no project monitoring methods were described for road sediment generated during use by the mine."**

FEIS Response p.B-269: "Design features and Forest Service requirements for road construction and maintenance would be incorporated into the Project resulting in sediment generation consistent with approved Forest Service roadways."

FS FEIS Water Quality Specialist's Report December,2023, pages 165-169; FS SGP BA pp. 312- 320; FWS Bi Op pp. 158-167; Tetra Tech 2024.

"The Geomorphic Roads Analysis and Inventory Package Lite (GRAIP Lite) model was used to simulate sediment generation and sediment delivery to streams by travel activities associated with the SGP (Tetra Tech 2024). Based on these model results, sediment accumulation in streams is also modeled. The GRAIP Lite model used terrain data and selected parameter values representing road materials, maintenance level, and usage to calculate sediment quantities."

Action: Thank the FS for accomplishing a road sediment estimate that was asked for in the DEIS and SDEIS.

11. **Comment**: **Bonnie Gestring 17634 #204 p. B-269.** 14. "Burntlog Route and associated roads and ROWs will contribute significant sediment to waterways."

FS FEIS Water Quality Specialist's Report December,2023, pages 165-169; FS SGP BA pp. 312- 320; FWS Bi Op pp. 158-167; NOAA Fisheries BiOp Tables 55-59 pp. 273-280. (Initial Source: Tetra Tech 2024 Section 4.41, pp. 26-29) *"The Geomorphic Roads Analysis and Inventory Package Lite (GRAIP Lite) model was used to simulate sediment generation and sediment delivery to streams by travel activities associated with the SGP (Tetra Tech 2024). Based on these model results, sediment accumulation in streams is also modeled. The GRAIP Lite model used terrain data and selected parameter values representing road materials, maintenance level, and usage to calculate sediment quantities."*

Table 4.1-22 GRAIP Lite Model Results

Metric	Baseline Conditions	Construction Phase	Change from Baseline Conditions	Operations Phase	Change from Baseline Conditions
Sediment Generation (kilogram/year)	387,955	264,925	-32%	419,478	8%
Sediment Delivery to Streams (kilogram/year)	93,371	65,622	-30%	120,609	29%
Sediment Accumulation in Streams (metric tons/year)	8,901	6,143	-31%	11,779	32%

Table 4.1-23 Predicted Sediment Loading by Road Segment

	Baseline Conditions		Operations Phase	
	Sediment Generated (kg/year)	**Sediment Delivered (kg/year)**	**Sediment Generated (kg/year)**	**Sediment Delivered (kg/year)**
Johnson Creek Road	78,441	27,736	18,458	7,544
Stibnite Road	23,407	10,875	12,792	5,992
Burnt Log Road/Burntlog Route	65,233	13,450	118,706	40,306
On-Site Roads	102,156	24.637	140,988	46,820
Meadow Creek Lookout Road and Thunder Mountain Road	118,717	16,675	128,534	19,947

Burnt Log Road/Burntlog Route
Baseline sediment delivered 13,450 kg/yr {= 14.83 tons/yr}
Operations sediment delivered 40,306 kg/yr" {= 44.43 tons/yr}

Table 4.1-24 Sediment Production, Delivery, and Accumulation under Baseline and Construction Conditions

Metric	Baseline Conditions	Construction	Percent Change from Baseline
Kilometers of roads modeled	125	125	0
Sediment Production (kg/year)	387,955	264,925	-32%
Sediment delivery to streams (kg/year)	93,371	65,622	-30%
Sediment accumulated in streams (kg/year)	8,901,299	6,142,548	-31%

Key:
% = percent; kg = kilograms

Table 4.1-26 Sediment Production, Delivery, and Accumulation under Baseline and Operation Conditions

Metric	Baseline Conditions	Operations	Percent Change from Baseline
Kilometers of roads modeled	125	180	+44%
Sediment Production (kg/year)	387,955	419,478	+8%
Sediment delivery to streams (kg/year)	93,371	120,609	+29%
Sediment accumulated in streams (kg/year)	8,901,299	11,778,886	+32%

Key:
% = percent; kg = kilograms

Table 4.1-27 Annual Sediment Delivery to Drainage Crossings under Baseline and Construction Conditions

Sediment Delivery per Drainage Crossing Type	Johnson Creek	Stibnite Road	Burntlog Route	On-Site Roads
Bridges				
Baseline	627	111	740	4
Construction	168	118	874	330
Culverts				
Baseline	1,477	3	1,238	208
Construction	514	172	5,346	415
Total				
Baseline	2,104	114	1,978	212
Construction	682	290	6,220	745

FWS BiOp pp. 158-166

These pages basically reiterate the findings described in the FS FEIS WQ Specialist's Report (2024) ***"****The overall effects of construction of temporary roads and transmission lines on sedimentation on fish and aquatic habitat are expected to include localized behavioral and sub-lethal health impacts, as well as habitat alterations; however, the implementation of BMPs and EDFs will substantially reduce the effects (USFS 2024, Appendix B)."*

FWS BiOp Page 167: "*Once the Burntlog Route is in use, predicted travel-related sediment generation and delivery on the Johnson Creek Road and Stibnite Road decreases due to the reduced traffic and their construction period upgrades and improvements. Predicted sediment generation and delivery on the Burntlog Route and on- site roads increase due to the increased traffic on these roads without the representation of magnesium chloride surface treatments and Project sediment control BMPs in the model. For the Meadow Creek Lookout Road and Thunder Mountain Road, predicted sediment generation and delivery increase slightly due to changes in their geomorphology where they intersect the Burntlog Road without the representation of Project sediment control BMPs in the model." "The overall effects of the SGP construction of temporary roads and transmission lines on sedimentation on fish and aquatic habitat are* ***expected to include localized behavioral and sub-lethal health impacts, as well as alterations to Critical Habitat; however, the implementation of BMPs and EDFs would substantially reduce the effects."***

Comment: Tetra Tech 2024 p. 27

"4.4.2 Breakdown of Sediment Delivery at Drainage Crossings (Scenarios 1, 2, 3 and 3a)

The existing conditions road network considered in this analysis includes hundreds of existing drainage crossings that include bridges, culverts, and relief culverts. Figure 10 illustrates the type and location of existing drainage crossings on the Johnson Creek Route, Burntlog Road, Meadow Creek Lookout Road, Thunder Mountain Road, and on the project site. During the construction of the Burntlog Route, existing drainage crossings will be upgraded, and new drainage crossings will be added to newly constructed roads. Proposed drainage crossings that will be added to the network of crossings on existing roads are illustrated on Figure 11.

The term "drainage crossing" is preferable to "stream crossing" to clarify the fact that not all of these analyzed crossings occur at defined waterways. **Whereas bridges and culverts occur at (or will be installed at) perennial, intermittent or ephemeral drainages, relief culverts occur (or will be placed) at relative low points along roadway segments to drain water that may collect in roadside ditches during storm events and would potentially pool on the road surface. Thus, although sediment delivery to relief culverts is reported here, sediment entrained in drainage from relief culverts is more likely to be delivered to a vegetated surface rather than a defined watercourse. This is an important consideration when reviewing the data presented in the tables below." (emphasis added)**

Comments Source: Newberry, 2022 Section 12.g. p. 46
Comment: "*Roads in midslope and ridgetop positions may affect the drainage network by initiating new channels or extending the existing drainage network. By concentrating runoff along an impervious surface, roads may decrease the critical source area required to initiate headwater streams (Montgomery 1994). In addition, concentrated road runoff channeled to roadside ditches may extend the channel network by eroding gullies or intermittent channels on hillslopes and by linking road segments to small tributary streams (Weaver and others 1995, Wemple and others 1996a). These effects of roads on the channel network have implications for slope stability, sedimentation, and streamflow regimes".* **(Source: Forest Roads: A Synthesis of Scientific Information Hermann Gucinski, Michael J. Furniss, Robert R. Ziemer, and Martha H. Brookes Editor Pacific Northwest Research Station General Technical Report PNW-GTR-509 May 2001.)**

Comment: "*Megahan and Ketcheson (1996) found that sediment travel distances from road cross drains in the Idaho batholith are proportional to slope gradient (in percent) raised to the 0.5 power. This study was conducted below roads on forested lands and includes slope gradients ranging from 9 to 59 percent. Megahan and Ketcheson (1996) and Ketcheson and Megahan (1996) present equations for estimating sediment travel distance below road fills and cross drains which incorporate sediment volume, obstructions, slope angle, and source area as significant explanatory variables. Slope is a significant predictor of distance, and it is not unreasonable to adjust an RHCA width to slope when lacking other intensive site variable information. At slopes greater than 70 percent, other screening tools that incorporate mass erosion risk are needed (Tang and Montgomery 1995)."* **(Source: Quigley, T.M and Arbelbide, 1997. PNW-GTR-405. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 4 vol. (Quigley, Thomas M.,tech. ed.; The Interior Columbia Basin Ecosystem Management Project: Scientific Assessment), Volume 3, pp 1365-1369.**

Comment: "*Reduction of sediment production from road traveledways and cutslopes, through mitigation treatments, allows water with lowered sediment concentration to flow down the ditch. This relatively clean ditch water has increased capacity to detach soil from the ditch bottom and transport it to the stream crossing. The most common erosion control treatment for roadside ditches is a rock blanket, or riprap. The D_{50}, Dmax, and riprap thickness may be designed as a function of flow rate, channel slope, and channel shape."* (S**ource: Burroughs and King 1989).**

Action: Continue objecting to high sediment delivery from roads both off-site and on site during Operations especially. The tables developed initially by StanTech(2024) and used in the FEIS, and both Biological Opinions (notes above), shown above demonstrate that our initial concerns and objections about sediment developed from roads were valid. Sediment is projected especially during the 15-year Operations phase even with the modeling of a "bituminous surfacing" on the roads to attempt to describe the surfacing derived from granitic gravels applied with magnesium chloride or lignin sulfonate. The tables show that during the Construction phase a lower sediment delivery occurs. During the Operations phase, higher sediment delivery occurs, especially from the relief culverts. During the Decommissioning phase, a lowering of sediment occurs. During construction, the relief culverts especially contribute the highest amounts of modelled sediment. This can be confusing as the Tetra Tech memo describes the culverts as leading away from streams, but research has shown (see: Newberry, 2022 12.g., p.46 above) that relief culverts can and often do erode sediment, through developing rills especially on steep slopes and have the potential to join with a stream downslope if improperly placed. The standard "mantra' of using the BMPs, EDF, etc., to reduce sediment is yet to be demonstrated.

12. Bonnie Gestring, and 7; 17634 # 204 p. B-269; Group letter M.2 p. 178, Newberry 2022 #13,pp. 47-50; "Impacts to water quality from ROW infrastructure;

FEIS Response*: "Sediment monitoring is required in the Project area as part of an approved Water Resources Monitoring Plan."*

FEIS p. 4-369 4.12.2.2 Sediment and Turbidity *"Utilities associated with the SGP (existing transmission line upgrades and structure work, right-of-way (ROW) clearing, new transmission line, and transmission line access roads) would cross 37 different streams, as identified in Table 7-20 in the Water Quality Specialist Report (Forest Service 2023f). Of the 37 streams that would be crossed, 26 would be related to the upgrade of existing IPCo transmission lines, where the existing transmission line ROW crosses various streams**. During transmission line upgrades and new transmission line construction, the potential exists for increased runoff, erosion, and sedimentation as a result of vegetation removal within the ROW, and the localized excavation of soil, rock, and sediment for structure work and/or ROW access roads. Expected permit stipulations from IDWR and IDEQ would be similar to the examples provided above for access roads and would ensure the use of erosion and sediment control BMPs associated with a stormwater pollution prevention plan (emphasis added).** ROW vegetation clearing would retain vegetation root structure within soils thus reducing erosion concerns.*

*Surface water quality also could be impacted during construction **by fugitive dust** from vehicles and heavy equipment that settles into adjacent water bodies. Reduction of these potential impacts would be achieved through fugitive dust control at the SGP. In dry months, Perpetua would spray water on mine haul roads as necessary to mitigate dust emissions in compliance with state and Forest Service requirements."*
"The extent of sedimentation effects from fugitive dust would be concentrated at the SGP; however, due to the nature of sediment transport by streams, the geographic extent of the impact could extend farther downstream in the East Fork SFSR depending on site- and event-specific factors. The duration for traffic- related dust and erosion/sedimentation would last throughout the mine construction, operations, and post- closure periods;

however, the potential for these effects would be incrementally reduced during closure and reclamation due to reduced activity at the SGP and stabilization of disturbed areas. ***Therefore, the effects of fugitive dust on fish would be minor, long-term and localized. The effects of the SGP construction of temporary roads and transmission lines on sedimentation on fish and aquatic habitat are expected to be moderate, short-term, and localized." (emphasis added)***

FWS BiOp p. 163. *"Utilities associated with the proposed action (existing transmission line upgrades and structure work, ROW clearing, new transmission line, and transmission line access roads) will cross 37 different streams (USFS 2023e, pp. 160–161, Table 7-24). Of the 37 streams, 26 will be related to the upgrade of existing IPC transmission lines, where the existing transmission line ROW crosses various streams. The existing transmission line currently crosses multiple streams, including Little Creek, Cabin Creek, Trout Creek, and Riordan Creek. The ROW overlaps with 132.4 acres of RCAs (USFS 2023d, Table 7-5). However, the utility poles are not directly along the creeks or within the RCA, and the line is currently kept cleared for access when necessary. Upgrades of these lines, while requiring a wider clearing zone, the effects will be limited to trimming of trees that pose a fire risk to the power line.*
Transmission line access roads will cross Big Creek and Cabin Creek. Bull trout DNA was detected in Cabin Creek (USFS 2020, p. 31, Table 13). The BNF conducted DNA sampling in upper Big Creek but did not detect any bull trout DNA. The new transmission line will cross three creeks with only one being perennial (Riordan Creek). According to data collected by the BNF, Riordan Creek supports bull trout upstream from Riordan Lake, and rainbow trout (O. mykiss; resident) and bull trout downstream from Riordan Lake. The ROW overlaps with 14.8 acres of RCAs (USFS 2023d, Table 7-5).
During transmission line upgrades and new transmission line construction, the potential exists for increased runoff, erosion, and sedimentation as a result of vegetation removal within the ROW, and the localized excavation of soil, rock, and sediment for structure work and/or ROW access roads. Project design features (USFS 2024, Appendix B) and anticipated permit stipulations from IDWR and IDEQ will be similar to the examples provided above for access roads and will ensure the use of erosion and sediment control BMPs, such as stabilizing rills, gullies, and other erosion features, associated with a stormwater pollution prevention plan. ROW vegetation clearing will retain vegetation root structure within soils thus reducing erosion concerns. Surface water quality also could be impacted during construction by fugitive dust from vehicles and heavy equipment that settles into adjacent water bodies. Reduction of these potential impacts will be achieved through fugitive dust control.(emphasis added)"

FWS BiOP pp. 242-243; Anticipated Take from Sediment Delivery p. 242 *"As discussed above, the Service can use surrogates to measure the amount or extent of incidental take. In this Opinion, the modeled (GRAIP-Lite) annual amount of sediment delivery to streams will be used as surrogates to determine the level of anticipated take of bull trout that may result from sediment impacts during the construction (During construction, there is an increased risk to disturb, excavate, and move soil and overburden* *(alluvial and glacial materials), thereby raising the potential for sediment runoff and suspended sediment increases in surface waters***. The TSS in surface water are generally correlated with turbidity (NTU), which is a more visually apparent estimator of sediment contamination (emphasis added).** *Under baseline conditions, turbidity is generally low (less than 5 NTU) with occasional spikes of up to 70 NTU during snowmelt or rainfall events (USFS 2023e, Table 6-14). The greatest potential for increases in stream sedimentation will come during storm events causing overland flow across exposed soil, excavated areas, and roads."*

"The GRAIP Lite model results shows a substantial decrease in sediment delivery, sediment input into the streams, and sediment accumulation. Error! Not a valid bookmark self-reference. shows the change in sediment production, delivery and accumulation during construction, and Table 29 shows the annual sediment delivery by drainage crossing type. Therefore, sedimentation in the waterways under construction will be decreased compared to baseline conditions. Additional details regarding the GRAIP model and its results are provided in Tetra Tech (2024, entire). Table 28 and Table 29) and operation (Table 30 and Table 31) phases."

"The introduction of sediment in excess of natural amounts can have multiple adverse effects on bull trout and their habitat. The effect of suspended and deposited sediment beyond natural background conditions can be fatal at high levels. Embryo survival and subsequent fry emergence success have been highly correlated to percentage of fine material within the streambed. Low levels of suspended sediment may result in sublethal and behavioral effects such as increased activity, stress, and emigration rates; loss or reduction of foraging capability; reduced growth and resistance to disease; physical abrasion; clogging of gills; and interference with orientation in homing and migration. The effects of increased suspended sediments can cause changes in the abundance and/or type of food organisms, alterations in fish habitat, and long-term impacts to fish populations. No threshold has been determined at which fine-sediment addition to a stream is harmless. Even at low concentrations, fine-sediment deposition can decrease growth and survival of juvenile salmonids (Weaver and Fraley 1991, entire; Weaver and White 1985, entire; Furniss et al. 1991, pp. 302–303)."

p. 243; "*The GRAIP Lite model results shows a substantial decrease in sediment delivery, sediment input into the streams, and sediment accumulation during the construction phase* *(During construction, there is an increased risk to disturb, excavate, and move soil and overburden (alluvial and glacial materials), thereby raising the potential for sediment runoff and suspended sediment increases in surface waters. The TSS in surface water are generally correlated with turbidity (NTU), which is a more visually apparent estimator of sediment contamination. Under baseline conditions, turbidity is generally low (less than 5 NTU) with occasional spikes of up to 70 NTU during snowmelt or rainfall events (USFS 2023e, Table 6-14). The greatest potential for increases in stream sedimentation will come during storm events causing overland flow across exposed soil, excavated areas, and roads."*

"The GRAIP Lite model results shows a substantial decrease in sediment delivery, sediment input into the streams, and sediment accumulation. Error! Not a valid bookmark self-reference. shows the change in sediment production, delivery and accumulation during

construction, and Table 29 shows the annual sediment delivery by drainage crossing type. Therefore, sedimentation in the waterways under construction will be decreased compared to baseline conditions. Additional details regarding the GRAIP model and its results are provided in Tetra Tech (2024, entire, Table 28). Table 29 shows the annual sediment delivery by drainage crossing type; during construction sedimentation in the waterways under construction will be decreased compared to baseline conditions."
"The GRAIP Lite model results shows a substantial increase in sediment delivery, sediment input into the streams, and sediment accumulation during the operation phase (Table 30). *Table 31 shows the annual sediment delivery by drainage crossing type; during operations sediment delivery to drainage crossings will increase compared to baseline conditions at Stibnite Road, Burntlog Route, and on-site road drainage crossings (there will be a decrease at Johnson Creek crossings)."*
*"**During the closure and reclamation phase, sediment delivery to bull trout streams is expected to decrease due to leaving sediment design features and BMPs in place as mine disturbance is covered, reclaimed, and revegetated to control runoff from mine facility areas.** Design features and BMPs as described in USFS 2024, Appendix B will be employed to pre-rinse diversion channels and introduce flows slowly to limit generation of new turbidity by the diversions. IPDES permitted outfalls for treated water will be constructed with energy dissipation at their discharge location to minimize the turbidity generated by the introduction of additional flow into the stream channel."*

Take Exceedance
"Authorized take of bull trout from sediment delivery is likely during the operations phase. Anticipated take will be exceeded if measured changes in sediment delivery exceed the predicted changes in sediment delivery as shown in Table 28, Table 29, Table 30, and Table 31."
NOAA Fisheries BiOp, Section 2.10.1.1.7, pp. 275-276. *"The existing transmission line currently crosses Cabin Creek, Trout Creek, and Riordan Creek. The new transmission line will cross three creeks with only one being perennial (Riordan Creek). Riordan Creek supports O. mykiss, and although the BA considered these fish resident rainbow trout versus steelhead, steelhead are present in Johnson Creek, and NMFS is not aware of any passage barrier in Riordan Creek that would preclude steelhead access to this stream.* ***Therefore, in this analysis, NMFS considers O. mykiss in Riordan Creek steelhead upstream to approximately Riordan Lake." Emphasis added.***

*"During transmission line upgrades and new transmission line construction, the potential exists for increased runoff, erosion, and sedimentation as a result of vegetation removal within the ROW, and the localized excavation of soil, rock, and sediment for structure work and/or ROW access roads. Although often requiring a wider clearing zone, vegetation clearing along the ROW is not expected to generate large amounts of sediment as work will be limited to trimming of trees that pose a fire risk to the power line. During all vegetation clearing activities, **IPC will ensure there is no disturbance of the soil surface that will***

create an added risk of erosion, the promotion of the establishment or expansion of invasive species (including noxious weeds), damage to cultural resources, sensitive species, or ESA-listed species. *Vegetation clearing will retain vegetation root structure within soils, therefore reducing erosion concerns."*

*"Access routes will be required from the existing access road to reach powerline structure locations without current access (Table 11). Roads will be opened/cleared for use by trucks transporting materials, excavators, drill rigs, bucket trucks, pickup trucks, and crew-haul vehicles. These overland service routes will require a 14-foot-wide ROW to accommodate construction and maintenance equipment. Access roads will generally be left as close to an undeveloped nature (i.e., two-track road) as possible without creating environmental degradation (e.g., erosion or rutting from poor water drainage). Specific actions, such as installing water bars and dips to control erosion and stormwater, will be implemented to reduce construction impacts and will follow standard designs. Routine inspection and maintenance of service and access roads, such as blading the road to maintain the surface condition and drainage, removing minor physical barriers (i.e., rocks and debris), replacing culverts or rock crossings, and rehabilitating after major disturbances requiring heavy equipment (such as slumping). Heavy equipment will travel and maneuver on existing service and access roads. Given proposed road maintenance and application of erosion control EDFs will be similar to those used for other SGP access roads****, NMFS therefore expects that powerline access roads will deliver some quantity of sediment to action area streams, but they are not likely to become a chronic source of sediment delivery, and are not expected to meaningfully impact the water quality PBF."***

Action: Continue to Object. NOAA Fisheries (NMFS) therefore expects that powerline access roads will deliver some quantity of sediment to action area streams, but they are not likely to become a chronic source of sediment delivery, and are not expected to meaningfully impact the water quality PBF. No sediment monitoring is programmed or discussed for any RoW/stream interaction. No sediment estimates from RoW construction has been attempted. The "Table 29" reference (FWS Bi Op pp. 242-243) above refers to road sediment at different types of crossings not RoW sediment. The usual statements about the BMPs, MDFs etc., are used to minimize sediment without any explanation or assessment of their effects (Refer to: ***NOAA Fisheries BiOp p. 350 "****Our assessment assumes the USFS, USACE, and any applicant or contractor* ***will properly implement appropriate EDFs and BMPs during project implementation.****"*.

No assessment of additional use of the RoW or closure of the RoW to the public has been made. Additional sediment generation is possible in locations from continued use of the RoW two tracks between towers especially in the 132.4 ac of RHCAs crossed and is a potential at 26 of 37 streams crossed. The "fugitive dust" described will be primarily at the mine site or on roads and might be on RoW two tracks if used after construction (see: Group Combined, L.3. p.179).

New References

US Department of Commerce. National Oceanic and Atmospheric Administration Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson–Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Stibnite Gold Project, South Fork Salmon River HUC 17060208, Valley County, Idaho; Lemhi River HUC 17060204, Lemhi County, Idaho. 600 pp. **https://doi.org/10.25923/6zyd-4t83** ***{note this document was received on October 7, 2024 and is not currently listed in the PNF SOPA}***

The USDA Forest Service, Rocky Mountain Research Station's Aquatic EDNAtlas https://usfs.maps.arcgis.com/apps/webappviewer/index.html?id=f00b2a934fc54b67a923e5f0d8b2976f

Tetra Tech 2024. Tetra Tech Memo dated March 15, 2024. Stibnite Gold Project GRAIP Lite Analysis (RFAI-146). 46 pp. {*note: this document was received from SGP on October 2, 2024}*

U.S. Fish and Wildlife Service (USFWS). 2024. BIOLOGICAL OPINION FOR THE STIBNITE GOLD PROJECT 024-0084691-001. 335 pp.

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