Data Submitted (UTC 11): 10/20/2020 6:00:00 AM
First name: Don
Last name: Newberry
Organization:
Title:
Comments: The comments below identify insufficient or are missing information from the SGP DEIS and analysis. The requested information is required to understand the effects of the SGP DEIS proposal on streams listed by IDEQ as impaired and fish listed under the ESA as Threatened.

1. What are the effects of the 2020 fires on the Johnson Creek, Burnt Log, Riordan and Trapper subwatersheds?

o Comment: The baseline WCIs need to be evaluated before the DEIs is considered complete so the effects of the SGP will be correctly analyzed on baseline WCIs.

o Question: How do the WCIs from the 2003 Payette NF and 2010 Revised Boise Forest Plans differ from the current baseline WCIs after two forest fires in the Burnt Log, Riordan, Trapper Creek subwatersheds within the last 13 years?

2. No listing exists of the actual WCI values in the DEIS.

o Question: What are the potential changes in actual WCI values for Upper Burnt Log, Trapper and Riordan subwatersheds for the following WCI values: # Road /Stream crossings; % Landslide prone; Landslide prone acres; Road miles in Landslide prone; Road miles in Riparian Conservation Areas; Change in Drainage network; Road density; and Road miles (increased). These are missing and should be included in the DEIS.

3. Johnson Creek (CR 10-413), Burnt Log (FDR 447) and Stibnite Roads (CR 50-412) have no sediment erosion data collected or erosion assessment made for them.

o Comment: Sediment movement will occur off any of the native surface road systems when maintained, reconstructed or new construction occurs.

o Comment: Sediment erosion models exist for estimating erosion from constructed, re-constructed and maintained native soil roads. BOISED (Reinig, et. al., 1991 in: Ketcheson, Megahan and Kidd, 1999) and GRAIP (Cissel, et. al., 2012) are available.

o Comment: 3.12.4.4.3 PHYSICAL AND BIOLOGICAL FEATURES AND RECOVERY PLAN. [ldquo]The USFWS identified threats to bull trout persistence as [ldquo]the combined effects of habitat degradation, fragmentation and alterations associated with dewatering, road construction and maintenance, mining, grazing; the blockage of migratory corridors by dams or other diversion structures; poor water quality; incidental angler harvest; entrainment into diversion channels; and introduced nonnative species (64 Federal Register 58910)[rdquo] 1. P. 3.12-12

o Questions:

o Why have no erosion data been gathered from or used for modeling sediment from the road system reconstruction, new construction and use?

o How will sediment monitoring occur demonstrating that sediment will or will not enter streams from reconstruction, new construction or maintenance activities?

1Note: The quoted statements in italics are taken from the DEIS.

o How will stream habitat monitoring sites demonstrate whether road [ndash]generated sediment is/isn[rsquo]t affecting the spawning /rearing/holding habitats of these streams, especially for bull trout?

4. Are there stream fish habitat monitoring sites in Burnt Log, Trapper and Riordan Creeks, which metrics will be used, and when will they occur?

o Comment: In Brown and Caldwell, 2019b. Fisheries and Aquatic Resources Mitigation p. 8-2 it states: [ldquo]Specific SFA elements outlined below will be monitored at strategic locations at a frequency determined in consultation with the agencies and with the USACE. This is because the stream restoration would be part of a compensatory mitigation plan to be submitted by Midas Gold to the USACE for a DA permit pursuant to Section 404 of the CWA.[rdquo]

o Question: Why are these not being used for annual stream habitat and fish monitoring, especially for instream bedload sediment monitoring? This mitigation needs to be disclosed in order to understand the analysis of adverse effects to ESA listed fish and their critical habitat as required in the

5. Johnson Creek (CR 10-413), Warm Lake (CR 10-579) and Stibnite Roads (CR 50-412) have no geologic hazard assessment data.

Section 3.2.3.7.2 ACCESS ROADS states: [ldquo][hellip] because only the Burnt Log Route has been the subject of a specific geologic hazard assessment (STRATA 2016)[rdquo]

Section 4.23.2.2.4 ALTERNATIVE 4 states, [ldquo]Johnson Creek Johnson Creek Road (CR 10-413) would be part of the mine access route under Alternative 4. Increased traffic would occur along this route, which parallels the eligible segment of Johnson Creek. Detailed road prism studies of this potential route have not been completed.[rdquo]

o Question: If these roads are being used at a minimum for the first 2-3 years, and potentially in Alternative 4 for the duration of the mining, why have they not had geologic hazard assessment completed?

6. Stream Monitoring, especially of the Burnt Log, Trapper and Riordan Creek drainages (Burnt Log road)

Brown and Caldwell, 2019b. Fisheries and Aquatic Resources Mitigation 2019 states,[rdquo] Specific SFA elements outlined below will be monitored at strategic locations at a frequency determined in consultation with the agencies and with the USACE[hellip].Monitoring frequency will vary for different SFA elements and across sites such as continuous hydrologic monitoring (streamflow, temperature), annual field visits included with other performance indicators above, and a full survey 5 years after restoration of each site.[rdquo]

o Comment: Baseline and monitoring sites need to be established. Data need to be collected to validate that the roads constructed or reconstructed do not further degrade the TES Listed Critical Habitat or fisheries in these streams.

o Question: Why are these sites not used in annual monitoring, especially for road sediment issues?

7. Stream Fisheries Monitoring data in SGP literature

Section 3.9.3.1.2 ACCESS ROADS, UTILITIES, AND OFF-SITE FACILITIES states,[rdquo] The Surface Water Quality Baseline Study (HDR 2017) did not include sample locations outside of the proposed mine site.[rdquo]

o Comment: Section 3.12-1 states [ldquo] For the purposes of this Environmental Impact Statement (EIS), the [ldquo]analysis area[rdquo] for fish resources and fish habitat is synonymous with the [ldquo]action area[rdquo] as defined by the ESA (50 Code of Federal Regulations [CFR] 402.02). The analysis area encompasses all areas in which fish resources and fish habitat may be affected directly or indirectly by the SGP, 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 on Figure 3.12-1. SGP-related facilities potentially located within these two subbasins would include buildings, tailings and waste rock storage facilities, access roads, electrical substations, transmission lines, and mining operational areas.[rdquo]

o Comment: Section 3.9.1.1 Analysis Area states, [ldquo]The surface water quality analysis area includes streams and lakes located in the 22 sub-watersheds that encompass the proposed mine site, access roads, transmission lines, and off-site facilities (Figure 3.9-1)[rdquo].

o Comment: Section 3.9.1.2.1 SURFACE WATER QUALITY states,[rdquo] Of the 32 stream sampling locations included in the baseline study, 10 were selected by SRK Consulting (SRK) as assessment/prediction nodes for surface water quality modeling (SRK 2018a). The 10 assessment nodes are listed in Table 3.9-1 and are depicted on Figure 3.9-3. The assessment nodes were selected from the existing stream sampling points based on their location downstream of future mining facilities, such as the mine pits, tailings storage facility, and development rock storage facilities (DRSFs). Each assessment node was sampled approximately 45 times between 2012 and 2018[rdquo].

o Comment: Cobble Embeddedness, free matrix particle, and PIBO fisheries habitat data were gathered for Johnson, Burnt Log, Riordan and Trapper Creeks in the DEIS supplementary reports: HDR, 2016; MWH, 2015-2017;Great Ecology, 2018 and others.

o Question: Why were these data and sites not used as fish habitat baseline and monitoring references?

8. Competency /Hardness of local granitic rock sources for Burnt Log road gravel application.

Section 4.23.2.2.1 ALTERNATIVE 1 Burnt Log Road (FR 447) states, [ldquo]Rock, gravel, and sand required to construct and maintain the road surface would be quarried from locations along the route[hellip]. During mine operations, these borrow (quarry) sites would be used to stockpile soil/cleared vegetation for use in eventual reclamation.[rdquo] P.4.23- 28. And also, [ldquo]Midas Gold would maintain a hardened road surface with gravel surfacing to promote an efficient and useable all-weather road[rdquo]. P. 4.9-49.

o Question: What is the competency /hardness of the granite quarried at the three -up to eight- borrow sites along the Burnt Log road? [rdquo]

o Comment: [ldquo]A section of road with marginal-quality aggregate produced 3.7 to 17.3 times as much sediment as a similar section with good-quality aggregate[hellip]. The marginal quality aggregate had less resistance to cross-slope flattening and, therefore, longer flow paths and hence more sediment production. Another mechanism was the inability of the marginal-quality material to resist crushing or chemical degradation, which resulted in a constant replenishment of the fine material to be transported by the flowing water.[rdquo] (Source: Randy B. Foltz and Mark Truebe Transportation Research Record 1819 ¦ 185 Paper No. LVR8-1050).

o Comment: Section 4.23.2.2.1.1 poor gravel sources will not aide in fish or fish habitat recovery. [ldquo]Forest roads can accelerate erosion and sediment delivery to streams and have been identified as the primary contributor of sediments to stream channels in managed watersheds (Trombulak and Frissell 2000). (pp. 4.23-35,36).

9. Change in monitoring requirements for sediment

In Section 3.9.3.1.1.6 Sediment Content; and Section 4.9.2.1.2.1, Surface Water and Groundwater Quality [ndash] Mine Site Sediment [ndash] Alternative 1, pp. 4.12-30 to 31, water quality monitoring is described as,[rdquo] Erosion and sedimentation effects on surface water quality are indicated primarily by changes in turbidity and total suspended solids in the receiving environment.[rdquo] Page 4.9-41 continues, [ldquo]Erosion and sedimentation effects on surface water quality are indicated primarily by changes in turbidity and total suspended solids in the receiving environment. Predictions of these water quality indicators were not included in the SWWC modeling. As such, changes in turbidity and total suspended solids have been qualitatively assessed using best available data, professional judgement, and consideration of proposed management and mitigation strategies for the SGP.[rdquo]

Questions:

o How do these two methods correlate with the monitoring methodologies that are required for the Boise and Payette National Forests by the National Marine Fisheries Service (NMFS) biological opinion Term and Condition 3.B.1.which states,[ldquo][hellip] required the Payette National Forest (PNF) and Boise National Forest (BNF) revise the default sediment watershed condition indicator (WCI) values to something more appropriate for the South Fork Salmon River (SFSR).[rdquo] (Source: Letter from: UNITED STATES DEPARTMENT OF COMMERCE National Oceanic and Atmospheric Administration NATIONAL MARINE FISHERIES SERVICE 10095 West Emerald Street Boise, Idaho 83704 July 28, 2005) . The current methods in use by the forests are: modified McNeil core samples; Cobble Embeddedness; and free matrix particles. Appendix J-1, Table J1-4 shows these methods.

o How do Nephelometry and total suspended solids measure stream bed load sediment movements which affect the salmonid rearing and spawning habitats, as well as macroinvertebrate habitat?

o What monitoring methodologies will be used in the replacement/new construction of culverts and bridge abutments on the Burnt Log and Johnson Creek/Stibnite roads?

o What monitoring will be used to determine whether bed load sediments from the reconstruction/new construction/maintenance of the Burnt Log road systems on the spawning and rearing habitats of bull trout in the Burnt Log, Trapper and Riordan Creek drainages?

Comment: In the Aquatic Resources 2016 Baseline Study (MWH 2017) Purpose of Study (Section 1.10 states: [ldquo]The study describes the existing aquatic resources in the project study area, and it will be used to support the United States Forest Service (USFS) Environmental Impact Statement (EIS) for the Stibnite Gold Project.[rdquo] Section 3.2.1, Stream Habitat Surveys, pp. 3-2 to 3-13 show the rationales tiered to the WCIs.

o Question: Why weren[rsquo]t these methods continued in the analysis or monitoring of the DEIS?

o Comment: Newcombe and Jensen (1996), p.708 recommends the following: [ldquo]However, in the aftermath of a sediment pollution event, the investigation should switch its focus and gather evidence of sediment deposition.[rdquo]

10. Section 4.12.2.3.2.2 Use of RHCAs ([ldquo]91 meters[rdquo]) as spill [ldquo]buffer strips[rdquo]

Use: In the section labeled [lsquo]spills[rsquo] it states, [ldquo]To evaluate the risk of spills during the transportation and handling of hazardous materials, several factors were assessed, including: past fuel hauling accidents (Section 3.7.3.3, Past Releases, Remediation, and Mitigation), length of roads traveled within 91 meters (300 feet) from road centerline of important fish habitat, number and timing of hazardous material trips, and mitigation measures.[rdquo] The section continues with lengths of road miles within/adjacent to streams within this 91 meter distance as a method to prefer the Burnt Log road over the Johnson Creek/Stibnite roads. Again in the DEIS Page 4.12-23, [ldquo]Stream Crossings Along Access Roads, Utilities, and Off-site Facilities it states, [ldquo]Stream crossings are another potential place where hazardous spills could enter waterways. Access roads, including those necessary for access to the transmission line and off-site facilities, cross streams in the analysis area. Although not all waterbodies crossed via culvert are fish-bearing, spills into any waterway could travel downstream to fish-bearing waters. Based on the analysis in the subsections above, and the short length of each crossing, it is expected that the risk of a spill large enough to negatively affect fish or aquatic habitat would be low[rdquo].

o Personal knowledge: Ditchlines in road design imply the road surface is insloped towards the ditch, and the road slopes down towards a stream or relief culvert. The petroleum spilled from the tankers will find the nearest ditchline, and follow it to the nearest culvert. Whether the culvert is on a road segment parallel to a stream or perpendicular to a stream is irrelevant.

o Question: Where are the reference citations that have RCAs used a spill buffer strip?

11. Use of RHCAs ([ldquo]91 meters[rdquo]) as a [ldquo]one- size- fits- all[rdquo] sediment buffer strip.[rdquo]

Use: A 300 foot (91m) buffer was mapped surrounding each stream. If a road or action was outside this zone, then it was assumed by the DEIS to be [ldquo]OK[rdquo]. The rationale for this appears to come from: DEIS Attachment 1 which states, [rdquo]Belt and others (1992) concluded, based on studies conducted in Idaho (Haupt 1959a and 1959b, Ketcheson and Megahan 1990, Burroughs and King 1985 and 1989) and elsewhere (Trimble and Sartz 1957, Packer 1967, Swift 1986) that sediment rarely travels more than about 91 meters for non-channelized flow. Therefore, 91-meter filter strips are generally effective in controlling sediment that is not channelized.[rdquo](Source: DEIS Attachment 1: Riparian Area Literature Summary- Including RHCAs. From: Salmonids Effects Determination Criteria. Northwest National Fire Plan Project Design and Consultation Process)

Comments:

o Megahan and Ketecheson (1996) are in general agreement with the idea of, [ldquo][hellip]filter strips are generally effective in controlling sediment that is not channelized.[rdquo]

However, too many other parts of the road system affect sediment generation and movement into streams and fish habitat to make a one size fits all general comment about a 300 ft sediment buffer strip.

Documentation follows:

o In Section 4.23.2.2.1.1, Alternative 1 [ndash] Construction (pp. 4.23-35,36) this idea is further clarified, [ldquo][hellip]increased acreage of gravel roads and increased heavy vehicle traffic is associated with increases in sediment load delivery to streams (Reid and Dunne 1984). Forest roads can accelerate erosion and sediment delivery to streams and have been identified as the primary contributor of sediments to stream channels in managed watersheds (Trombulak and Frissell 2000). Roads are often chronic sources of sediment delivery from cut-slopes, ditch-lines, and running (i.e., driving) surfaces, and act as potential sites for accelerated mass movements (e.g., mud slides). Roads also intercept subsurface flows, concentrate flows in ditch lines and through culverts and bridges, and act as direct conduits for sediment delivery to stream channels (Beschta 1978)[rdquo].

o DEIS Attachment 2 states, [ldquo]Roads directly affect natural sediment and hydrologic regimes by altering streamflow, sediment loading, sediment transport and deposition, channel morphology, channel stability, substrate composition, stream temperatures, water quality, and riparian conditions within a watershed. For example, interruption of hill-slope drainage patterns alters the timing and magnitude of peak flows and changes base stream discharge (Furniss and others 1991; Harr and others 1975) and sub-surface flows (Furniss and others 1991; Megahan 1972).[rdquo] (Source: DEIS, Attachment 2, January 2005). And also [ldquo]Road/stream crossings can also be a major source of sediment to streams resulting from channel fill around culverts and subsequent road crossing failures (Furniss and others 1991). Plugged culverts and fill slope failures are frequent and often lead to catastrophic increases in stream channel sediment, especially on old abandoned or unmaintained roads (Weaver and others 1987).[rdquo] (Source: DEIS, Attachment 2, January 2005).

o Brown and Caldwell 2019b in their Fisheries and Aquatic Resources Mitigation Plan (pp. 6-1 and 6-2) state, [ldquo]Erosion control techniques available to combat upland or excessive streambank erosion at the Project include 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. Selection of an appropriate technique (or combination of techniques) would depend on the specific location, extent of the impact area, and the soil/substrate type requiring stabilizations.[ldquo]

o Question: How can an effects determination be made in this DEIS if what erosion abatement will be applied where is neither determined nor answered??

12. Culvert replacement methods, spacing and placement

Section 4.16.2.4 Alternative 4, p.4.16-19 states that [ldquo][hellip]the Burnt Log road will have 182 18-inch culverts and 2 60-inch culverts installed.[rdquo] Section 4.9.2.1.2.2 [lsquo]Access Roads states, [ldquo]Alternative 1 would cross 71 different named and unnamed streams, as inventoried in Table 4.9-13.[rsquo] DEIS Attachment 7 (Criteria for Cross-Drain spacing) discusses methods for installation and spacing of culverts for maximizing sediment disbursement and minimizing channeling of sediment into streams. DEIS Attachment 9- Culvert addresses specifically the Goat Creek culvert replacement and lists the requirements to be followed in removal and replacement.

Questions:

o Will the Goat Creek requirements listed in Attachment 9 be followed during installation on-the- ground for all culverts, or just fish bearing/live stream culverts?

o Will culvert spacing listed in Attachment 7 be followed in relief culvert placement?

o How will relief culvert drainage into intermittent stream channels and [ldquo]swales[rdquo] (zero order streams) be accomplished to minimize development of first order channels that will create additional sedimentation downstream?

12.a Sizing of road culverts.

Section 4.16.2.4 Alternative 4, p.4.16-19 states that the Burnt Log road will have 182 18-inch culverts and 2 60-inch culverts installed.

o Appendix D.1. Mitigation Measures: FS-25 [ldquo]To accommodate floods, including associated bedload and debris, new culverts, replacement culverts, and other stream crossings will be designed to accommodate a 100- year flood recurrence interval unless site-specific analysis using calculated risk tools or another method, determines a more appropriate recurrence interval.[rdquo]

o Section 4.23.2.2.1.1. [ldquo]The Forest Service would require stream crossings to be designed to accommodate a 100-year flood recurrence interval, unless site-specific analysis using calculated risk tools or another method determines a more appropriate recurrence interval.[rdquo]

o Question: Do the 18-inch and 60-inch diameter culverts listed meet the Forest Service required 100-year flood recurrence levels at those locations?

13. Upper slope road placement vs. lower slope road placement

In Section 4.7.2.4.4 [ldquo]The Burnt Log Route is closer to avalanche [ldquo]starting zones[rdquo] such that it may have frequent but small avalanches (Class 1 or 2) that would be unlikely to impact vehicles.[rdquo] The gist of the argument is that the Johnson Creek/Stibnite road access will be worse that then Burnt Log road access primarily from the number of landslides/rockslides, and the extra three years of construction required if the Stibnite roads is to be the primary haul route during construction.

Documentation:

o Quigley and Arbelbide (1997) describe problems encountered with mid-upper slope road placement:

o [ldquo]Small perennial and intermittent non-fish bearing streams are especially important in routing water, sediment, and nutrients to downstream fish habitats (Reid and Ziemer 1994).

o Intermittent streams account for more than one-half the total channel length in many watersheds in the Basin and therefore strongly influence the input of materials to the rest of the channel system.

o Channelized flow from intermittent and small streams into fish bearing streams is a primary source of sediment in mountainous regions (Belt and others 1992).

o In steep, highly dissected areas, intermittent streams can move large amounts of sediment hundreds of meters, though buffer strips, and into fish bearing streams.

o In-channel sediment flows are limited primarily by the amount and frequency of flow and by the storage capacity of the channel.[rdquo](Source: Quigley, Thomas M.; Arbelbide, Sylvia J., tech. eds. 1997. Gen. Tech. Rep. PNW-GTR-405.)

o Quigley and Thomas (1997) demonstrate that many problems also occur with mid to high slope road locations:

[bull] [hellip] small streams are more affected by hill slope activities than are larger streams because there are more smaller than larger streams within watersheds,

[bull] smaller channels respond more quickly to changes in hydrologic and sediment regimes,

[bull] stream-side vegetation is a more dominant factor in terms of woody debris inputs and leaf litter and shading.

[bull] Small perennial and intermittent non-fish bearing streams are especially important in routing water, sediment, and nutrients to downstream fish habitats (Reid and Ziemer 1994).

[bull] Intermittent streams account for more than one-half the total channel length in many watersheds in the Basin and therefore strongly influence the input of materials to the rest of the channel system. Channelized flow from intermittent and small streams into fish bearing streams is a primary source of sediment in mountainous regions (Belt and others 1992).

[bull] In steep, highly dissected areas, intermittent streams can move large amounts of sediment hundreds of meters, though buffer strips, and into fish bearing streams. In-channel sediment flows are limited primarily by the amount and frequency of flow and by the storage capacity of the channel. (Source: 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. 1997.)

[bull] Grant and Swanson (2007) found that ridgetop and mid-slope roads tended to generate sediment, whereas toeslope roads tended to collect the sediment generated above (in: W. J. Elliot, P. J. Edwards and R. B. Foltz in: D. C. Hayes et al. (eds.), Chapter 16 Research Related to Roads in USDA Experimental Forests. USDA Forest Service Experimental Forests and Ranges, DOI 10.1007/978-1-4614-1818-4_16, [copy] Springer New York 2014)

Comment: Re-construct the existing Johnson Creek/Stibnite route. The Johnson Creek/Stibnite roads already exist, where 15-20 miles of the Burnt Log road needs to be totally constructed , and the existing 20 miles needs to be re-constructed to a 20 ft running surface, creating additional sediment to headwater streams feeding bull trout, Westslope cutthroat trout and finally to Chinook habitat and spawning reaches in Johnson Creek.

14.   Access roads

Sections 3.15.3.2.2, 3.16.3.2 and 4.9.2.1.2.2 describe the three access roads - Johnson Creek (CR 10-579), McCall-Stibnite (CR 50-412), and Burnt Log (FR 447) - their usage by alternative, the number of streams crossed and their average daily traffic loads. These sections describe The Johnson/Stibnite roads as being within 100 ft of streams (primarily Johnson Creek and the East Fork South Fork Salmon River) 6.5 miles versus 1.69 miles for the Burnt Log road-(Burnt Log, Trapper and Riordan Creeks. In Section 4.9-135 [ldquo] Access routes would cross 71 streams under Alternative 1, 69 streams under Alternative 2, 71 streams under Alternative 3, and 50 streams under Alternative 4. [ldquo]

14.a. Erosion / Sediment from roads

The number of stream crossings, and the closeness of roads paralleling a stream within a 91 m (or in some instances, a 100 ft) distance have been used as indicators of potential erosion. Statements like, [ldquo][hellip] Expected permit stipulations from the Idaho Department of Water Resources (IDWR) and IDEQ would ensure that streambank vegetation would be protected except where its removal is absolutely necessary; [hellip] and that all activities would be conducted in accordance with Idaho environmental anti-degradation policies, including IDEQ water quality regulations and applicable federal regulations[rdquo].(4.9.2.1.2.2 Access Roads) have been used in lieu of actual mitigation designs. The number of potential landslides and rockfalls has also been used as a factor in choosing the preferred route ([ldquo][hellip], a desktop study of both corridors was conducted (Appendix E-2). The desktop study (Appendix E-2) was conducted to identify probable landslides, rockfalls, and avalanche paths along the transportation corridors based on imagery from Google Earth (2020) using the following methods:[hellip][rdquo] [ldquo]Figure 3.2-6 depicts identified geohazards based on all sources of available information and the desk top study (3.2.3.7.2 ACCESS ROADS) . Section 3.2.3.7.2.1 Burnt Log Route continues,[ldquo]Landslide and slope instability hazards have been assessed along the proposed Burnt Log Route, including in-field observations (STRATA 2016).[rdquo] p. 3.2-28.

Question: Why is SGP waiting for and assuming that other agencies will finalize mitigation practices to use, and how to use them? This does not allow for an assessment of the amount of sediment reduction by alternative in the DEIS or on-the-ground practices. Is it not the responsibility of SGP in this DEIS to design these practices first?

Sediment from road erosion is also discussed. Section 4.9.2.1.2.2 Access Roads states, [ldquo]Construction and use of roads can accelerate erosion and sediment delivery to streams and have been identified as the primary contributor of sediments to stream channels in managed watersheds (Trombulak and Frissell 2000). Roads are often chronic sources of sediment delivery from cut-slopes, ditch- lines, and running surfaces, and act as potential sites for accelerated mass movements (e.g., mud slides). Roads also intercept subsurface flows, concentrate flows in ditch lines and through culverts and bridges, and act as direct conduits for sediment delivery to stream channels (Beschta 1978)[hellip]. [ldquo]The access roads used under Alternative 1 would cross 71 different named and unnamed streams, as inventoried in Table 4.9-13.[rdquo]

Sections Section 3.2.3.7.2.1 discusses the Burnt Log road more in detail. [ldquo]Landslide and slope instability hazards have been assessed along the proposed Burnt Log Route, including in-field observations (STRATA 2016), [ldquo] and [ldquo] [ldquo]These soils and rock cut slopes range from 30 to 60 degrees and range in height from 10 to 20 feet.[rdquo] (pp. 4.9-48, 49). [ldquo][hellip]the Burnt Log Route would include both new road sections (approximately 14.9 miles) and upgrades to existing roads (approximately 20 miles). Soil disturbance would be associated with cut and fill and full bench road construction (including culvert installation, approximately 1.5 miles of soil nail retaining walls, and rock cuts) borrow source areas, and construction staging areas[hellip].[rdquo]

Comment: Megahan and Ketecheson (1996) are in general agreement with the idea of, [ldquo][hellip]filter strips are generally effective in controlling sediment that is not channelized.[rdquo] However, culverts, especially those leading to streams, first order intermittent channels and cross ditching can create channels thus produce additional sediment:

o [ldquo][hellip]a total of 264[deposits], or about 84 percent originated from road fill slopes (table 1). Cross drains account for 26 deposits or about 8 percent of the sediment flows.[ldquo] (p.5)

o [ldquo]In contrast, deposits from berm drains and culverts traveled much farther and often tended to funnel into the bottom of swales (figure3).[rdquo] (p.5)

o [ldquo]The maximum travel distance for cross drains was about 275 m, considerably greater than any other source where maximum distances barely exceeded 100m.[rdquo] (p. 6)

o [ldquo]Much of the soil loss from road sections treated by intensive erosion control measures occurred during the first over-winter period when erosion control measures were least effective (for example, vegetation growth had not yet occurred [e.g. seeding, mulching, terracing[hellip]].[rdquo](p.8) (Source: Sediment Production and Downslope Sediment Transport from Forest Roads in Granitic Watersheds. Department of Agriculture Forest Service Intermountain Research Station Research Paper INT-RP-486 May 1996).

Comment: [ldquo]Roads directly change the hydrology of slopes and stream channels, resulting in alteration of surface-water habitats that are often detrimental to native biota. Roads intercept shallow groundwater flow paths, diverting the water along the roadway and routing it efficiently to surface-water systems at stream crossings (Megahan 1972; Wemple et al. 1996). This can cause or contribute to changes in the timing and routing of runoff (King & Tennyson 1984; Jones & Grant 1996; Ziemer & Lisle 1998), the effects of which may be more evident in smaller streams than in larger rivers (Jones & Grant 1996). Hydrologic effects are likely to persist for as long as the road remains a physical feature altering flow routing[mdash] often long after abandonment and revegetation of the road surface. By altering surface or subsurface flow, roads can destroy and create wetland habitats. Changes in the routing of shallow groundwater and surface flow may cause unusually high concentrations of runoff on hillslopes that can trigger erosion through channel downcutting, new gully or channel head initiation, or slumping and debris flows (Megahan 1972; Richardson et al. 1975; Wemple et al. 1996; Seyedbagheri 1996). Once such processes occur, they can adversely affect fishes and other biota far downstream for long periods of time (Hagans et al. 1986; Hicks et al. 1991). Roads have been responsible for the majority of hillslope failures and gully erosion in most steep, forested landscapes subject to logging activity (Furniss et al. 1991; Hagans et al. 1986). Because most of these more catastrophic responses are triggered by the response of roads during infrequent, intense storm events, lag times of many years or decades pass before the full effects of road construction are realized. Chronic effects also occur, however. The surfaces of unpaved roads can route fine sediments to streams, lakes, and wetlands, increasing the turbidity of the waters (Reid & Dunne 1984), reducing productivity and survival or growth of fishes (Newcombe & Jensen 1996), and otherwise impairing fishing (Buck 1956). Existing problem roads can be remediated to reduce future erosion potential (e.g., Weaver et al. 1987; Harr & Nichols 1993). The consequences of past sediment delivery are long-lasting and cumulative, however, and cannot be effectively mitigated (Hagans et al. 1986).[rdquo](Source: Trombulak and Frissell 2000)

Questions:

o Again. Why is SGP waiting for and assuming that other agencies will finalize mitigation practices to use, and how to use them? This does not allow for an assessment of the amount of sediment reduction by alternative in the DEIS or on-the-ground practices. It is the responsibility of SGP in this DEIS to design these practices first. How will the sediment eroded from road surfaces, ditchlines and cut/fill slopes of any road used in this DEIS be monitored?

o How will spawning and rearing habitat in the off-site affected streams- Johnson Creek, the lower EFSFSR, Burnt Log Creek, Trapper Creek, Riordan Creek and Peanut Creek be monitored?

14.a.1. Running Surface Hardening

Section 4.23.2.2.1.1 Construction states, [ldquo] Alternative 1 construction activities include widening Burnt Log Road; mining gravel, sand, and rock at several borrow sources along the Burnt Log Route for use in road surfacing; placing construction camps along Burnt Log Route; and the construction of new segments of road from its current terminus to the mine site. Soil and cleared vegetation from road widening would be salvaged and stored within borrow sources once they have been quarried. Construction also would entail upgrading the existing transmission line to increase capacity. The utility corridor ROW would be widened from 70 feet to 100 feet.[rdquo] P.4.23- 28. And also, [ldquo]Midas Gold would maintain a hardened road surface with gravel surfacing to promote an efficient and useable all-weather road[rdquo]. P. 4.9-49. And

[ldquo] During Burnt Log Route construction, the potential also exists 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 the Idaho Department of Water Resources (IDWR) and Idaho Department of Environmental Quality (IDEQ) would require that:

[bull] Streambank vegetation be protected except where its removal is necessary;

[bull] New cut or fill slopes not protected with some form of riprap be seeded and planted with native vegetation to prevent erosion;

[bull] Use of temporary erosion and sediment control Best Management Practices (BMPs) associated with a stormwater pollution prevention plan (SWPPP); and

[bull] That all construction activities be conducted per Idaho environmental anti-degradation policies, including IDEQ water quality regulations and applicable federal regulations.[rdquo] P. 4.9-49.

Questions:

o Again. Why is SGP waiting for and assuming that other agencies will finalize BMPs, and mitigation practices to use, and how to use them? This does not allow for an assessment of the amount of sediment reduction by alternative in the DEIS or on-the-ground practices. It is the responsibility of SGP in this DEIS to design these practices first.

o What are the sediment reduction mitigation practices for the borrow sites?

o Why is FS Mitigation # FS-105 [ldquo]Water management features will be constructed, installed, and/or maintained on authorized temporary roads on completion of use, before expected water runoff, or before seasonal shutdown. Activities and features could include water bars, rolling dips, seeding, grading, slump removal, barriers/berms, distribution of slash, and culvert/ditch cleaning.[rdquo] Not being addressed here?

Comments:

o [ldquo]Roads concentrate surface water flows, which in turn increases erosion. Megahan and Kidd, in 1972, found that erosion from logging roads in Idaho was 220 times greater than erosion from undisturbed sites. Logging roads used by more than 16 trucks per day may produce 130 times more sediment than do roads used only by passenger cars.[ldquo] (Source: The Ecological Effects of Roads By Reed Noss, PhD)

o [ldquo]Mitigation of sediment production by graveling is a function of the erodibility of both the gravel and the underlying material. Erosion reduction by gravel surfacing is maximized by the use of hard crushed rock over highly erodible subgrade material.[rdquo](Source: Burroughs and King 1989).

o [ldquo]The Rocky Mountain Research Station and the Willamette National Forest conducted a 4-year study comparing the runoff and sediment production from two low-volume roads with aggregate surfaces (1). A section of road with marginal-quality aggregate produced 3.7 to 17.3 times as much sediment as a similar section with good-quality aggregate. One mechanism that caused the increase in sediment production from the marginal-quality aggregate was the increase in the flow path on the marginal-quality aggregate. After road maintenance, water flowed diagonally from the road crown to the road edge. With traffic, the cross slope was reduced, causing the flow to take a longer flow path. The marginal quality aggregate had less resistance to cross-slope flattening and, therefore, longer flow paths and hence more sediment production. Another mechanism was the inability of the marginal-quality material to resist crushing or chemical degradation, which resulted in a constant replenishment of the fine material to be transported by the flowing water.[rdquo] (Source: Randy B. Foltz and Mark Truebe Transportation Research Record 1819 ¦ 185 Paper No. LVR8-1050)

o [ldquo]Therefore, heavy logging vehicles and equipment can exert more structural damage (e.g., crushing) to a forest road than light traffic.... When there is enough stress, aggregate material may be crushed or moved down into the finer-textured subgrade material, but its movement is dependent on material strength, particle size of the aggregate, and road conditions such as water content and compaction.[rdquo] (Source: Traffic-Induced Changes and Processes in Forest Road Aggregate Particle-Size Distributions Hakjun Rhee ,* ID , James Fridley and Deborah Page-Dumroese . Forests 2018, 9, 181; doi:10.3390/f9040181.

Questions:

o What is the competency /hardness of the granite quarried at the three -up to eight- borrow sites along the Burnt Log road? [rdquo]

o How much more sediment will be produced by the approximately 45 passes/day of heavy vehicles compared to the 16 passes /day cited in Megahan and Kidd, 1972?

14a.2. Fillslopes

o 4.5.2.1.3.1 Volume of Available RCM states, [ldquo]On disturbed areas with greater than 30 percent slope, Midas Gold also would apply mulch to aid in stabilizing the area and promote revegetation. Straw mulch would be certified as weed-free and applied over a roughened seed bed at a rate of about 3,000 pounds per acre. The straw mulch also would be considered a nominal amount, and it would have a short duration of effectiveness due to its quick rate of decomposition and susceptibility to wind.[rdquo]

o Appendix D, page D-24 states, [ldquo]Cut and fill slopes along roads will be mulched, hydro-seeded or have durable rock inlay material to minimize the potential for sediment generation.[rdquo]

Comments:

o [ldquo]Initially, fillslope sediment production was responsive to rainfall, partially because of the absence of mulch and the availability of easily eroded particles on the unconsolidated fillslopes. About half of the total fillslope sediment production measured over a 2-year period took place in the first summer and fall. Thus, erosion control measures that can be put in place immediately after fillslope construction have a much larger potential to appreciably reduce sediment production compared to measures that are implemented later.[rdquo] (Source: Burroughs and King 1989).

o [ldquo]The effectiveness of any mulch treatment can be reduced if traveledway drainage contributes to the fillslope, promoting accelerated rill and gully erosion. [hellip]. Almost all of the larger gullies in the fillslope were generated from traveledway drainage. This process was more dominant than any sheet or splash erosion process. On fillslopes with a vertical height of less than 20 ft, reductions due to seed, hydromulch (1,500 lb per acre), or straw mulch (2 tons per acre) with an asphalt tackifier (250 gal per acre) were statistically similar and ranged from 46 to 58 percent over a 3-year period. The treatment effects were also statistically similar on fills with vertical heights of 20 to 40 ft, resulting in only a 24 to 30 percent reduction. For the straw mulch with an asphalt tackifier, the reductions were much smaller than expected because the mulch was not able to protect the fills from concentrated drainage from the traveledway.[rdquo](Source: Burroughs and King 1989).

o [ldquo]Filter windrows are barriers constructed of logging slash that slow the velocity of any surface runoff, causing deposition of most sediments. They can be constructed on or immediately below the fillslope. The advantage of this treatment is that it can be constructed concurrent with road construction to provide immediate control of fillslope sediment. Filter windrow construction by hydraulic excavator (backhoe) is a cost-effective method to incorporate erosion control into forest road construction. Field evaluation of seven machine-constructed windrows in the Horse Creek watersheds over a 3-year period indicated a 75 to 85 percent reduction in sediment leaving the fillslope compared to adjacent hydromulched slopes (Cook and King 1983).[rdquo] (Source: Burroughs and King 1989) .

o [ldquo]Although the initial rate of fillslope erosion can be high compared to erosion rates on other road components, it is the transport of eroded material below the fillslopes that determines the degree that streams are affected by fill erosion. For most midslope forest roads, only those fillslopes near stream crossings have a high potential to contribute eroded material to streams. The slope distance required to prevent material from reaching a stream is a function of many interacting site and climatic factors, making it difficult to predict with any degree of accuracy.[rdquo] (Source: Burroughs and King 1989).

o [lsquo]Those situations that resulted in the longest average transport distance were rills formed in slumped material and rills either below relief culvert outflows or rills whose flow paths combined with culvert flow paths.[rdquo] (Source: Burroughs and King 1989).

Questions:

o Why is there no analysis of potential constructed fillslope sediment delivery to streams?

o Why is straw the only listed mitigation for steep fill/cut slopes?

o Why is no type of holding material for the straw designed for steep slopes?

o Why is FS Mitigation # FS-52, [ldquo]To minimize sediment runoff from the temporary roads and roadbeds, water bars, silt fencing, certified weed-free wattles, and/or weed-free straw bales will be installed in strategic downslope areas and in RCAs[rdquo] not being addressed here?

14a.3. Cutslopes

Comments:

o [ldquo]Cutslope erosion processes are often quite different from those on the fillslopes with gentler gradients. Dry raveling during the summer months is a dominant process on cutslopes, especially on noncohesive soils (Megahan 1978)[rdquo]. (Source: Burroughs and King 1989).

o [ldquo]Cutslope sediment production from the coarse sand Idaho Batholith soils was usually two to five times higher during the summer and early fall than during the remainder of the year (Boise State University 1984). However, the partitioning between dry ravel and rain-caused sediment was not measured. Bank sloughing when soils are saturated, especially during spring snowmelt, may produce larger soil losses than dry ravel on cohesionless soils. Of the total 2-year cutslope sediment production from border zone gneisses and schists in the Horse Creek watersheds (Nez Perce National Forest), 80 percent was produced from November through mid-June and 20 percent during the summer and early fall. King and Gonsior (1980) observed that bank sloughing during saturated soil conditions was the dominant process.[rdquo] (Source: Burroughs and King 1989).

Personal knowledge:

o Hydro-seeding was tried experimentally in the late 1980s on small cutslopes on Idaho batholith slopes in the South Fork Salmon River drainage. It failed after the coated seeds sprouted.

o Plantings in road cutslopes have a high failure rate. They are buried under the raveling DG soils.

Questions:

o Why is FS Mitigation # FS-52, [ldquo]To minimize sediment runoff from the temporary roads and roadbeds, water bars, silt fencing, certified weed-free wattles, and/or weed-free straw bales will be installed in strategic downslope areas and in RCAs[rdquo] not being addressed here?

o Why is there no analysis of potential constructed cutslope sediment delivery to streams?

o How will hydro-seeding be accomplished to insure germination and catch in granitic soils of the cut/fill slopes?

o Besides straw, what other mulches are listed to work on granitic soils in cut/fill slope applications?

14a.4. Ditchlines

Comments

o [ldquo]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[rdquo]. (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.)

o [ldquo]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).[rdquo] (Source: 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.

o [ldquo]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 D50, Dmax, and riprap thickness may be designed as a function of flow rate, channel slope, and channel shape.[rdquo] (Source: Burroughs and King 1989).

o [ldquo]Ditch grading can increase sediment yields on a level comparable to or greater than wet weather hauling. Ditch grading is an important and necessary step in the maintenance of roads when significant sediment inputs (e.g. from a slump or upslope gully) block the ditch, however indiscriminate ditch grading to clean ditches may not be the best use of equipment time. The practice of placing rock in ditches and design criteria for ditch rocking were proposed by Burroughs and King (1989), and our results support their suggestion.[rdquo] (Source: EFFECTS OF TRAFFIC AND DITCH MAINTENANCE ON FOREST ROAD SEDIMENT PRODUCTION Charles H. Luce, Research Hydrologist, and Thomas A. Black, Hydrologist, USDA Forest Service, Rocky Mountain Research Station, Boise, Idaho).

o Luce and Black (2001) show an additional location from which sediment are delivered :

o [ldquo]There are important implications for the design of BMPs or forest practice regulations. Ditch grading can increase sediment yields on a level comparable to or greater than wet weather hauling. Ditch grading is an important and necessary step in the maintenance of roads when significant sediment inputs (e.g. from a slump or upslope gully) block the ditch, however indiscriminate ditch grading to clean ditches may not be the best use of equipment time. The practice of placing rock in ditches and design criteria for ditch rocking were proposed by Burroughs and King (1989), and our results support their suggestion.[rdquo] (p. 5)

o [ldquo]Ditch grading is an important and necessary step in the maintenance of roads when significant sediment inputs (e.g. from a slump or upslope gully) block the ditch, however indiscriminate ditch grading to clean ditches may not be the best use of equipment time. The practice of placing rock in ditches and design criteria for ditch rocking were proposed by Burroughs and King (1989), and our results support their suggestion.[rdquo] (P.5)

o [ldquo]Grading of the ditch increased sediment yields more than heavy traffic on a road built in a fine grained parent material with high quality basalt aggregate. The combination of both traffic and ditch grading produced on average more sediment than either treatment alone,[hellip].[rdquo] (p.7)

Questions:

o How are the ditchlines to be maintained along with the running surface of the roads?

o Will riprap be used where needed in ditchlines to armor and slow down erosion and sediment movement from cut slopes and road running surfaces?

o How will ditchlines leading directly to live and /or intermittent stream channels be designed to reduce sediment movement to the stream channels?

15. UTILITIES and sediment production

Section 3.9.3.1.2 ACCESS ROADS, UTILITIES, AND OFF-SITE FACILITIES states, [ldquo]The Surface Water Quality Baseline Study (HDR 2017) did not include sample locations outside of the proposed mine site. However, streams adjacent to proposed access roads, utility corridors, and off-site facilities still have the potential to be impacted by SGP activities.[rdquo]

Section 4.5.2.1.1.2 Boise National Forest states, [ldquo]The new and upgraded transmission line corridor and access roads would be constructed during the 3-year SGP construction phase. The construction laydown areas, tensioning areas, and some of the new roads would be reclaimed immediately following construction. Final reclamation of the new transmission line corridor would occur during the post-closure period beginning after SGP year 18. After final closure of the mine, the upgraded section of transmission line would remain in use by Idaho Power Company (IPCo), so there would be no post-closure reclamation or monitoring requirements for Midas Gold. The new transmission line would be removed and reclaimed during the closure and reclamation phase. Any remaining access roads or disturbed areas would be recontoured to match surrounding topography, scarified, capped with 6 inches of GM, seeded and mulched[rdquo] . P. 4.5-18

Section 4.7.2.4 Alternative 1 states, [ldquo]New and upgraded utilities would be constructed including: transmission lines (42 miles of existing 69-kilovolt line and 21.5 miles of existing 12.5-kilovolt line upgraded to 138-kilovolt line, and 8.5 miles of new 138-kilovolt line from Johnson Creek Substation to the mine site), three new electrical substations, and upgrades to two existing substations (Lake Fork and Warm Lake substations).

Section 4.9.2.1.2.3 Utilities Sediment [ndash] Alternative 1 [ldquo]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. All activities would be conducted in accordance with Idaho environmental anti-degradation policies, including IDEQ water quality regulations and applicable federal regulations. It is important to note that ROW vegetation clearing would be for the purpose of maintaining low height during operations and would not entail clearing and grubbing to bare dirt. Consequently, the vegetation root structure within soils would be retained, reducing erosion concerns. Based on the type of vegetation removal, the localized and discontinuous ground disturbance for structure footings and ROW access roads, and permit-related requirements including use of BMPs, the potential for transmission line-related erosion and sedimentation would be minimal (i.e., limited to periods of substantial overland flow). The duration of erosion/sedimentation potential would occur from the time new transmission line is constructed until it is reclaimed at the end of mine closure and reclamation (approximately 25 years). The upgrades to IPCo[rsquo]s existing transmission line corridor would be permanent. Due to the nature of sediment transport by streams, the geographic extent of increased sedimentation could be hundreds of feet to miles, but it is expected that effects would be limited to within the subwatersheds of the analysis area.[rdquo]

Section 4.9-135 Cumulative Effects states, [ldquo]Utilities routes would cross 37 streams under Alternative 1, 36 streams under Alternative 2, and 37 streams under Alternative 3. Under Alternative 4, Potential impacts would be reduced due to the use of helicopters for construction and maintenance of communications sites.[rdquo]

Section 4.9.2.1.2.3 Utilities states, [ldquo]Of the 37 streams that would be crossed, 26 would be related to the upgrade of existing Idaho Power Company (IPCo) transmission lines, where the existing transmission line ROW crosses various streams. The existing transmission line would be upgraded from 69 kilovolts (kV) to 138 kV service, which would require removing vegetation to widen the ROW corridor and replacing existing power poles with taller structures. Structure work would result in some ground disturbance at or near five streams. Use of the transmission line access road to facilitate year -round maintenance of the line also would result in disturbance at three stream crossings. Additionally, Midas Gold would construct a new 8.5-mile, 138-kV transmission line from the Johnson Creek substation to a new substation at the mine site. The new transmission line corridor would require vegetation clearing along the ROW (intersecting three streams).[rdquo]

Section 4.15.2.1.2.3 states, [ldquo]Utilities Transmission Lines Alternative 1 would require upgrading existing 12.5-kilovolt (kV) and 69-kV transmission lines to a 138-kV system, and building 8.5 miles of new transmission line from the new Johnson Creek Substation to the mine site. Existing roads and approximately 4 miles of new spur roads would be used for access during construction and maintenance of the transmission line. Transmission Line Upgrade approximately 63 miles of existing transmission line would require upgrading to a 138-kV system. Transmission line upgrades would involve replacement of existing structures with taller structures and widening the existing ROW to a width of 100 feet. The transmission line upgrade would result in a change of approximately 136 combined acres of land from undeveloped to utility use (Table 4.15-3). Approximately 100 acres of the transmission line ROW associated with the upgrade would be on NFS lands. [hellip] New Electric Transmission Between the new Johnson Creek Substation and the mine site, approximately 8.5 miles of new 138-kV transmission line would be constructed. The ROW for the new transmission line would be approximately 100 feet wide. The new ROW corridor is considered a direct effect to land use, changing these areas to a utility use during construction, operation, and closure and reclamation. The ROW required for the new transmission line segment would result in a land use change of approximately 84 acres (assuming a final ROW width of 100 feet) of NFS and private land (Table 4.15-3) and would cross private lands and NFS lands administered by the PNF and BNF[rdquo]. p. 4.15-5,6 .

Section 4.9.2.3.3.2 and Section 4.9.2.4.2.3 Utilities for Alternatives 3 and 4 Under Alternative 3 states, [ldquo] As such, surface water quality impacts from the utility corridors would be the same as Alternative 1.[rdquo]

Questions:

o How will

- the widening of approximately 63 miles of existing power lines from 50 to 100 ft wide,

-the construction of approximately 4 miles of access roads,

-the construction of laydown areas, tensioning areas,

-the addition of new, taller transmission towers

-and new construction of about 8 miles of utility lines

specifically affect the water quality of IDEQ listed impaired streams, and ESA-listed fish and fish habitat?

o What are the, [ldquo][hellip] erosion control and sediment BMPs[hellip].[rdquo] that will reduce sediment production at the pole construction areas?

o What processes will reduce sediment at stream crossings where new towers are to be replaced?

o What are the [ldquo]reclamation processes[rdquo] mentioned in Section 4.5.2.1.1.2 Boise National Forest p. 4.15-18 for the utility pad, lay down /tensioning areas and roads?

o When will this reclamation occur?

o Define: [ldquo]Immediately after construction[rdquo]. Is this after the three years construction period has been completed, or after each one of the [ldquo][hellip]construction laydown areas, tensioning areas, and some of the new roads[hellip].[rdquo] Have been completed?

Comments:

o Refer to Comments for: 14.a.2 [ldquo]Fillslopes[rdquo] and 14.a. [ldquo]Erosion/Sediment[rdquo].

o Refer to Comments for: 11. [ldquo]Use of RHCAs ([ldquo]91 meters[rdquo]) as sediment buffer strips.[rdquo]

16. Landmark Maintenance Facility- Alternative 1

4.9.2.1.2.4 Off-site Facilities; Landmark Maintenance Facility [ndash] Alternative 1 states, [ldquo]The nearest waterbodies to the Landmark Maintenance Facility (approximately 400 to 700 feet) would be Landmark and Johnson Creeks, both of which are listed by IDEQ as impaired (Category 4A) for water temperature, with a designated beneficial use of salmonid spawning[rdquo].

[ldquo]Overall, based on the implementation of required standard design and permit stipulations, and distance to the nearest waterbodies, impacts to surface water as a result of the Landmark Maintenance Facility would be controlled such that the magnitude of impacts associated with runoff, erosion, sedimentation, and spills would be very low and likely only notable during substantial overland flow from very large rainfall events.[rdquo]

Questions:

o How do you propose to meet the following Management Area Directions for Management Area, 20, Upper Johnson Creek:

[bull] MPC 3.2 Active Restoration and Maintenance of Aquatic, Terrestrial, and Watershed Resources;

[bull] General Standard 2010;

[bull] Vegetation Standard 2011; and

[bull] Road Standard 2012?

o How do you plan to meet the Soil, Water, Riparian, and Aquatic Resources Objectives 2014, 2015, 2016 and 2017 Directions for Management Area 20, Upper Johnson Creek?

o How do you plan to meet the Soil, Water, Riparian, and Aquatic Resources

[bull] Objective 2037, [ldquo]Maintain the National Register status of Landmark Guard Station and other eligible properties[rdquo], and

[bull] Objective 2040, [ldquo]Nominate Landmark Guard Station to the NRHP, develop a management plan to protect its historic character[rdquo].

o Is this proposed structure within the floodplain of Johnson Creek, and/or Landmark Creek?? Johnson Creek is known for flooding.

o Is the proposed septic system located above the flood plain?

o Are the proposed gas and diesel fuel tanks located above the flood plain?

o Describe the mitigations that will protect this facility from the [ldquo][hellip]substantial overland flow[hellip][rdquo] either from rain, rain-on-snow or flooding events??

o How do you propose to minimize the expected increase in nutrients to either Johnson Creek or Landmark Creek from the proposed septic tank leach field?

17. Burnt Log Maintenance Facility-, Alternatives 2, 3

4.9.2.2.2.4 Off-site Facilities; Burnt Log Maintenance Facility [ndash] Alternative 2[&3] states, [ldquo] Under Alternative 2, the maintenance facility location would be moved to a borrow source approximately 4.4 miles east of the intersection of Johnson Creek Road and Warm Lake Road. The building constructed at this new location would be referred to as the Burnt Log Maintenance Facility. The maintenance facility would include the same structures and parking areas described for the Landmark Maintenance Facility above, but the configuration would be modified to fit within the borrow source site. The nearest waterbody to the Burnt Log Maintenance Facility location (approximately 100 to 150 feet away) would be Peanut Creek[rdquo].

4.23.2.2.2 ALTERNATIVE 2 states, [ldquo][T]he Landmark Maintenance Facility would be located along Burnt Log Road (FR 447) approximately 4.4 miles east of the junction of Johnson Creek Road (CR 10-413) and Warm Lake Road (CR 10-579). This location is near Peanut Creek in the Burnt Log Creek watershed. The Landmark Maintenance Facility would be located in part of a proposed new borrow site that would be excavated for gravel for SGP road improvements. Following excavation, the maintenance facility would serve as a base for equipment and materials stockpiles needed for winter plowing and sanding of the Burnt Log Route. The facility would include fuel tanks and a fueling station for vehicles and heavy equipment, a building for vehicle and equipment maintenance, and space for offices and overnight accommodation for equipment operators. Approximately 2.5 acres of the 5.13-acre borrow site would be occupied by structures or storage after gravel quarry operations were complete. The facility would have an on-site generator for electricity, and would require water and septic services, presumably on-site. As there are currently no buildings or operations in the Burnt Log Creek watershed, the addition of this facility would likely have an incremental increased effect on stormwater runoff, potential leaks or spills of automotive fluids, and sedimentation of dust from on-site road sanding material storage and vehicle travel over gravel surfaces.[rdquo]

Comment: Table 13. 2018 eDNA Results for the Burnt Log Road Access Sites and 2017 Resampled Sites shows that Peanut Creek contains bull trout, westslope cutthroat trout and rainbow trout.

Questions:

o Why is this facility proposed to be constructed within 150 ft of Peanut Creek?

o Why is the proposed structure constructed within the 300 ft RCA of Peanut Creek?

o Is the proposed construction within the floodplain of Mud Lake/Peanut Creek?

o How will this facility[rsquo]s construction and occupation affect Peanut Creek?

o Is the proposed septic system located above the flood plain?

o Will the proposed septic system built in the [ldquo]borrow site[rdquo] leach into the soils and affect Peanut creek by adding nutrients such as phosphates?

o Are the proposed gas and diesel fuel tanks located above the flood plain?

o Describe the mitigations that will protect this facility from the [ldquo][hellip]substantial overland flow[hellip][rdquo] either from rain, rain-on-snow or flooding events??

18. Landmark Maintenance Facility- Alternative 4

Section 4.9.2.4.2.4 Off-site Facilities Landmark Maintenance Facility [ndash] Alternative 4 states, [ldquo]Under Alternative 4, the Landmark Maintenance Facility would be moved to a site on the south side of Warm Lake Road approximately 0.1 mile south of Landmark. The maintenance facility buildings, including building dimensions and parking/laydown areas would be the same as Alternative 1. 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.[rdquo]

Questions:

[bull] In Management Area, 20, Upper Johnson Creek, how do you propose to meet the following Management Area Directions for MPC 3.2 Active Restoration and Maintenance of Aquatic, Terrestrial, and Watershed Resources: General Standard 2010; Vegetation Standard 2011; Road Standard 2012?

[bull] How do you plan to meet the Soil, Water, Riparian, and Aquatic Resources Objectives 2014; 2015; 2016; and 2017?

[bull] How do you plan to meet the Soil, Water, Riparian, and Aquatic Resources Objective 2037, [ldquo]Maintain the National Register status of Landmark Guard Station and other eligible properties[rdquo], or Objective 2040, [rdquo]Nominate Landmark Guard Station to the NRHP, develop a management plan to protect its historic character[rdquo].

[bull] This proposed structure is within the floodplain therefore the RHCA of Landmark Creek. How do you meet the Standard, [ldquo] TEST06 Management actions shall be designed to avoid or minimize adverse effects to listed species and their habitats. For listed fish species, use Appendix B for determining compliance with this standard.[rdquo]?

[bull] Is the proposed septic system located above the flood plain?

[bull] Are the proposed gas and diesel fuel tanks located above the flood plain?

[bull] Describe the mitigations that will protect this facility from the [ldquo][hellip]substantial overland flow[hellip][rdquo] either from rain, rain-on-snow or flooding events??

[bull] How do you propose to minimize the expected increase in nutrients to Landmark Creek from the proposed septic tank leach field?

19. Mud Lake Fen

Section 3.11.3.2.4 FENS states, [ldquo]Because of their rarity and tendency to support unique/rare plants, the Forest Service considers fens to be high priority conservation habitats (Williams 2018).[rdquo]

And [ldquo]Tetra Tech review. IDFG considers wetlands associated with Mud Lake, Tule Lake, and Warm Lake, to be poor fens (IDFG 2004a) (poor fens have pH levels as low as 4.0 and are low in nutrients [IDFG 2004b]). Mud Lake and its associated wetlands are designated as a Class I site under the Wetland Conservation Prioritization Plan (IDFG 2012), indicating that this area is in near pristine condition and likely provides habitat for high concentrations of state rare plant or animal species (IDFG 2004a). All these sites are within the analysis area for wetlands and riparian resources but outside of the proposed construction footprint for the SGP.[rdquo]

And [ldquo]Mud Lake occurs near the existing Burnt Log Road (National Forest System Road 447) and Warm Lake and Tule Lake occur south of Warm Lake Road (County Road 10-579). For this analysis, wetlands associated with Mud Lake, Tule Lake, and Warm Lake are considered fens and impacts to these areas will be assessed accordingly in Chapter 4.11, Wetlands and Riparian Resources - Environmental Consequences.[rdquo]

Section 4.11.2.2.1.2 states, [ldquo]Impacts on wetlands due to construction, maintenance, and use of Burntlog Route (which includes alignment modifications and widening of existing portions and construction of new portions) would contribute the greatest proportion of impacts to wetlands due to access road construction as the proposed width of this route would be approximately four times wider than standard roads in this area. Indirect effects on wetlands and riparian areas, such as dust, changes in hydrology, and species composition could be greater on this route than would be expected on standard roads due to frequency of travel, size of equipment, and proposed use across seasons.

Burntlog Route would be near Mud Lake, which is characterized by Idaho Fish and Game as a poor fen (Idaho Fish and Game 2004). Indirect impacts of road improvements and vehicle travel (i.e., increased dust) are likely to impact this fen and degrade its function as habitat for a fen- specific special status plant (Rannoch-rush [Scheuchzeria palustris]; Section 4.10.2.2.5.6, Rannoch-rush).[rdquo]

Comment: The proposed Burnt Log Maintenance Facility is to be constructed at a 150 ft distance from Peanut Creek, and is within 0.1-0.2 miles from Mud Lake. The Burnt Log haul route and the proposed reconstruction on it is immediately adjacent to Mud Lake.

o Question: How will this road reconstruction, and the proposed maintenance facility structure construction and operations be completed as to not affect the Mud Lake Class 1 fen?

20. . Antimony concentrate in shipping

Section 2.3.5.6 Ore Processing Facilities ANTIMONY CONCENTRATE TRANSPORT states, [ldquo]The antimony concentrate would contain approximately 55 to 60 percent antimony by weight. The remaining balance, 40 to 45 percent by weight, of the concentrate includes common rock forming minerals with trace amounts of gold, silver, and mercury. The concentrate would be in 1 to 2 ton super sacks and transported on flatbed trailers from the mine site for off-site smelting and refining. An estimated one to two truckloads of antimony concentrate, containing up to 20 supersacks per truckload, would be hauled off site each day. The antimony concentrate would be transported via Burntlog Route to State Highway 55, and then to a commercial barge or truck loading facility depending upon the refinery location. 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 U.S. with capacity for refining the antimony concentrate. P.2-31.[rdquo]

Comments:

o 3.12.4.7.3.3 East Fork South Fork Salmon River Watershed Baseline General Overview of Upper EFSFSR Watershed Conditions [ldquo]Known effects of antimony on aquatic organisms are more limited than for other metals and most available information pre-date the last three decades. Antimony can be toxic to aquatic life and bioaccumulate in tissues but has not consistently shown a tendency to biomagnify within aquatic food webs as other metals (Obiakor et al. 2017). Ambient water quality criteria for the protection of aquatic life has not been established for antimony. Average antimony concentrations currently exceed the analysis criteria at every assessment node except YP-T-11 (Table 3.12-24)[rdquo] p. 3.12-93

o 6. EFFECTS ON HUMANS The toxicity of antimony is a function of the water solubility and the oxidation state of the antimony species under consideration (Elinder & Friberg, 1986; Fowler & Goering, 1991). In general, antimony(III) is more toxic than antimony(V), and the inorganic compounds are more toxic than the organic compounds (Stemmer, 1976), with stibin (SbH3), a lipophilic gas, being most toxic (by inhalation) (source: Antimony in Drinking-water. Background document for development of WHO Guidelines for Drinking-water Quality. P. 8. WHO/SDE/WSH/03.04/74. World Health Organization 2003)

Questions:

o What is the valence of the antimony in the antimony concentrate being shipped?

o What is the percent Arsenic in the antimony concentrate being shipped?

o Are the [ldquo]supersacks[rdquo] that will be shipped on flatbed trailers waterproof?

o Are the [ldquo]supersacks[rdquo] able to withstand being thrown off a flatbed trailer in an accident without spilling their contents?

21. Western Pearlshell mussel, Margaritifera falcata

Section 3.24.3.4 Tribal Interests states, [ldquo]Many fish, wildlife, and plant species were traditionally utilized by regional tribes and bands of this region for subsistence, ceremonial, medicinal, and other uses (Battaglia 2018; Hunn et al. 1998; Walker 2019). Culturally important species of fish, wildlife, and plants are present in the analysis area, and the Forest Service is continuing to consult with tribes about these tribal resources of concern. Culturally important fish species of interest for the analysis area include 3 AFFECTED ENVIRONMENT 3.24 TRIBAL RIGHTS AND INTERESTS Stibnite Gold Project Draft Environmental Impact Statement 3.24-14 Chinook salmon (Oncorhynchus tshawytscha), steelhead trout (Oncorhynchus mykiss), bull trout (Salvelinus confluentus), Westslope cutthroat trout (Oncorhynchus clarki lewisi), mountain whitefish (Prosopium williamsoni), and western pearlshell mussel (Unionida) (Battaglia 2018, Appendix C). p. 3.24-14,15

Comments:

o Idaho State rank: S2 = Imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction (typically 6 to 20 occurrences). (Source: https://idfg.idaho.gov/species/taxa/20574)

o HABITAT AND ECOLOGY Western pearlshell populations occur in cold, clear streams and rivers, often in reaches having fast current and coarse substrate. This species is intolerant of heavy nutrient loads, siltation, and water pollution (Frest 1999). Larval western pearlshells are fish parasites that attach to the fins or gills of host fish. Host species include Chinook salmon, rainbow trout, brown trout, brook trout, and speckled dace (Frest 1999). (source: IDFG. August, 2005).

o M. falcata seem to prefer cold clean creeks and rivers that support salmonid populations. They can inhabit headwater streams less than a few feet wide, but are more common in larger rivers. Less commonly, this species can be found in more degraded habitats such as irrigation ditches in Washington and Oregon. Sand, gravel, and cobble are preferred substrates, especially in stable areas of the streambed. Large boulders help create these stable environments by anchoring the substrate and creating a refuge from strong currents. Banks and pools are often favorable habitats because the currents are weaker, shear stress is lower, and the substrates are more stable51,92. M. falcata does not tolerate sedimentation. In Idaho[rsquo]s Salmon River, M. falcata covered with a substantial amount of sand and gravel were unable to move to the surface and perished105. In environments where host fish are abundant, physical habitat is ideal, and human threats are minimal, M. falcata can attain very high densities (>300 per square yard), often carpeting the stream bottom. In 1981, Clarke wrote, [ldquo]In favourable localities in British Columbia the mussels may be so abundant and closely packed that they completely obscure the stream bottom.[rdquo] pp. 33,34. (Source: Freshwater Mussels of the Pacific Northwest. Second Edition, Ethan Jay Nedeau, Allan K. Smith, Jen Stone, and Sarina Jepsen. The Xerxes Society 2009.)

o 2) Host Fish Glochidia Infections. We documented WEPE glochidia on all salmonid species captured, including non-native brook, rainbow, brown trout and mountain whitefish (1st time ever field documented). Typically, browns, brook trout and mountain whitefish had low infection rates (<10 glochidia per gill side) compared to Oncorhynchus spp. captured in the same reach. In streams with native westslope cutthroat trout (WCT) present (Upper Willow, Moose Meadows, Elliston and W.F. Rock Creek) or Columbia Redband trout (Yaak River Basin), WEPE glochidia infection loads were higher on these species[rsquo] gills compared to non-native trout species captured in the same reach (Figure 3). Synthesis and Conclusions 1) Comparisons among the 25 WEPE populations indicated that while host fish densities and salmonid infection rates were significantly higher at viable, recruiting WEPE streams, benthic sedimentation may ultimately be responsible for recruitment failure in at least 50% of these non-viable populations. The presence of juvenile mussels less than 30 mm (a determining factor in the viability of stream populations) was negatively related to fine sediments. In streams with high-quality benthic habitat (low % fine sediments) (Marshall Creek and Yaak River,), even lower salmonid densities and corresponding infection rates are producing recent WEPE juveniles, so it likely doesn[rsquo]t take many infected fish to produce viable WEPE juveniles, if the benthic habitat is suitable for post-parasitic survival (Figure 1). (Source: Western Pearlshell Mussel (WEPE) Reproduction and Life History Study in Five Watersheds of Montana: Aquatic SWG Implementation. Tributary, Volume 44 | Issue 3 | Fall 2020. Western Division of the American Fisheries Society. Pp 9,10.

Questions:

o Have monitoring for populations of the Western pearlshell been conducted in the East Fork South Fork Salmon River, Johnson Creek or the lower Burnt Log Creek?

o Have monitoring for populations of the Western pearlshell been conducted in the North Fork Payette River or the Little Salmon River as these are potential travel routes for hazardous materials to and from the proposed mining operation?

o Have mussels, specifically Margaritifera falcata, the Western pearlshell mussel been tested for antimony or other heavy metals?

o Losses of Chinook, westslope cutthroat trout and bull trout as well as Chinook, westslope cutthroat trout and bull trout habitat are shown in the DEIS. Will there also be a loss of the Western pearlshell mussel as these Threatened and Sensitive fish are used by the mussel glochidia for propagation?

o 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?

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