From:	John Robison
To:	FS-comments-intermtn-payette
Cc:	Lannom, Keith -FS; Goessel, Kathryn M -FS; Justin Hayes; Bonnie Gestring
Subject:	Idaho Conservation League comments on the Stibnite Gold Plan of Operations
Date:	Thursday, July 20, 2017 11:49:50 PM
Attachments:	Stibnite Gold EIS.doc

Dear Keith,

Thank you for the opportunity to provide scoping comments on the Stibnite Gold Plan of Operations. These comments are submitted on behalf of Earthworks and the Idaho Conservation League. Please keep our organizations on the mailing list for all updates regarding this project. We would also appreciate the opportunity to tour the project site with your staff in the coming months and next year.

Sincerely,

John Robison
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Idaho's leading voice for conservation

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EARTHWORKS

Keith Lannom
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Payette National Forest
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comments-intermtn-payette@fs.fed.us

July 20, 2017

RE: Stibnite Gold EIS

Dear Keith,

Thank you for considering our scoping comments on the Stibnite Gold Project. Since 1973, the Idaho Conservation League has worked to protect and Idaho's clean water, wilderness, and quality of life through citizen action, public education, and professional advocacy. As Idaho's largest statewide conservation organization, we represent over 20,000 supporters who have a deep personal interest in protecting our drinking water, fish, wildlife, and watersheds from the impacts of mining and mineral exploration activities. There is no other permitted use of our public lands that has such a dramatic and permanent impact on the landscape, soils, water and wildlife than mining. Even mining projects with restoration components can have significant, long term water quality effects and other negative impacts.

We appreciate having had the opportunity to tour the project area in the East Fork South Fork Salmon River watershed with the Forest Service and Midas Gold over the last several years. Our members utilize the South Fork Salmon River drainage for recreational activities including camping, boating, fishing, fish watching, birding, and botanizing. Our members also seek to protect and restore the South Fork Salmon River watershed so it can continue to provide habitat for salmon, steelhead, and bull trout recovery.

Earthworks is a national non-profit organization dedicated to protecting communities and the environment against the adverse impacts of mineral development. Earthworks has a long history of engaging in hardrock mining issues in Idaho and on federal public lands nation-wide, and we seek to promote responsible mining practices that protect public health, fish, wildlife, and clean water.

Our members prize the South Fork watershed for a variety of activities. We represent members of the public who live, own property, float, fish, botanize, hunt, camp, ski, snowmobile and hike in or around the project area and the area of influence, including areas proposed for haul roads, facility construction, and powerline expansion.

We acknowledge that the Stibnite area has been degraded by historic and previous Forest-Service approved mining activities and is a high priority for restoration. As such, we appreciate the fact that Midas Gold has emphasized the restoration potential of the area in its plan. However, many more aspects of its plan actually increase the long term risks of environmental degradation.

The Stibnite Gold Project would entail diverting 0.8 miles of the East Fork South Fork Salmon River into a tunnel, constructing three open pits, one of which would be several hundred below the riverbed of the East Fork South Fork Salmon River, filling in significant portions of Fiddle Creek and Meadow Creek with several hundred million tons of mine tailings and waste rock, and leaving behind two pit lakes.

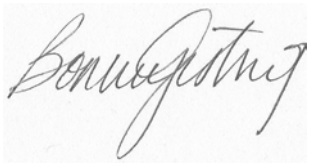
As set forth in our attached comments, we have numerous concerns with the Plan as submitted. Despite the robust discussion of restoration in Midas Gold's documents, fact remains that this large-scale open pit mine development project would occur in such ecologically-important and sensitive habitat. While the Forest Service may have limitations on its ability to deny the permit, it does have an obligation to avoid, minimize and mitigate for surface resources that may be affected by development.

While we understand that Midas Gold has collected a significant amount of information about the Stibnite area, the estimated 18-month timeline to complete the Draft Environmental Impact Statement is not sufficient to complete all the required analyses for such a complex project. We note that even when the Forest Service conducted multiple years of analysis for much less complicated mining projects, the Environmental Impact Statements contained significant inaccuracies, underestimated the impacts, and provided a flawed foundation for bonding discussions. As such, we strongly suggest that the Forest Service and other permitting agencies adjust the project timelines to ensure that impacts to public resources are properly analyzed and that the impacts can be avoided, minimized and mitigated.

Please include all of ICL's previously submitted comments, our 2012 administrative appeal of the Golden Meadows Exploration Project, our 2013 comments and subsequent objection, and all legal filings related to our lawsuit challenging your prior approval of the Project (*Idaho Conservation League and Nez Perce Tribe vs. U.S. Forest Service, et al.*, No. 14-cv-156-EJL (D. Idaho)) as part of the administrative record for consideration.

Our specific comments are included below.

Sincerely,



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Idaho Conservation League and Earthworks scoping comments on the 2017 Stibnite Gold Project

Project timeline

As stated above, we understand that Midas Gold has collected a significant amount of information about the Stibnite area over the years but are concerned that the estimated 18-month timeline to complete the Draft Environmental Impact Statement is not sufficient to complete all the required analyses for such a complex project. We note that even when the Forest Service conducted multiple years of analysis for much less complicated mining projects such at the Thompson Creek Mine and Grouse Creek Mine, the Final Environmental Impact Statements contained significant inaccuracies, underestimated the impacts, and provided flawed foundations for bonding discussions.

Furthermore, the project area is in an extremely sensitive location at the headwaters of the East Fork South Fork Salmon River. The South Fork Salmon River watershed (including the East Fork of the South Fork of the Salmon River, South Fork Salmon River, Johnson Creek and associated tributaries) provides uniquely important habitat for threatened Chinook salmon, steelhead, and bull trout. Notably, in the Forest Plan for the Payette National Forest, the Forest Service recognizes this watershed "has a rare and significant assemblage of wild Chinook salmon, steelhead trout, bull trout, and westslope cutthroat tout" and describes the watershed as an "aquatic stronghold and recovery area for these species." Forest Plan, p. III-242. The Forest Plan also provides that the Project area is highly sensitive to Forest management actions due to fisheries and proximity to wilderness. Forest Plan III-262. Nevertheless, the Forest Service proposes to approve Midas Gold's Project on an expedited timeline.

As such, we strongly suggest that the Forest Service and other permitting agencies adjust the project timelines to ensure that impacts to public resources are properly analyzed and that the impacts can be avoided, minimized and mitigated.

Ecological importance of watershed

Despite the emphasis of restoration in Midas Gold's documents, the fact remains that this large-scale open pit mine development project would occur an extremely ecologically important habitat. The Draft EIS should fully describe the unique importance of the South Fork Salmon River watershed. The South Fork Salmon River watershed (including the East Fork of the South Fork of the Salmon River, South Fork Salmon River, Johnson Creek and associated tributaries) provides uniquely important habitat for threatened Chinook salmon, steelhead, and bull trout. Notably, in the Forest Plan for the Payette National Forest, the Forest Service recognizes this watershed "has a rare and significant assemblage of wild Chinook salmon, steelhead trout, bull trout, and westslope cutthroat tout" and describes the watershed as an "aquatic stronghold and recovery area for these species." Forest Plan, p. III-242. The Forest Plan also emphasizes that the area highly sensitive to Forest management actions due to fisheries and proximity to wilderness. Forest Plan III-262.

Under the Forest Plan, the area is to be managed for active restoration and maintenance of aquatic, terrestrial and hydrologic resources.

"This management area has a rare and significant fish species mix of Chinook salmon, steelhead, bull trout, and westslope cutthroat trout, the first three of which are listed at Threatened species

under the Endangered Species Act, and the latter is a Region 4 Sensitive species. Some streams or portions of streams within the management area are designated critical habitat and Essential Fish Habitat for Chinook salmon." III-258.

Forest Plan consistency
The Plan states that the proposed Project is consistent with the current Forest Plan (ES-27); however, we note that due to the sensitive nature of the area, management actions normally have to maintain or restore water quality and wildlife habitat. Even salvage timbers harvest may only degrade aquatic, terrestrial, and watershed conditions in the temporary (up to 3 years) or short term (3-15 years) time periods, and must be designed to avoid degradation of existing conditions in the long-term (greater than 15 years). (General Standard 1306, Forest Plan III-263). Standard TEST06 states that "Management actions shall be designed to avoid or minimize adverse effects to listed species and their habitats. *See Forest Plan* at III-250–III-253.

The Stibnite Gold Plan fails by all of these metrics as significant aquatic, terrestrial and watershed conditions will be impaired for long-term to permanent time spans. While Objective 1218 states that the Forest Service should restore fish habitat degraded from past mining activities, it does not call for additional degradation of fish or wildlife habitat as prescribed in the Plan. The Plan is somewhat consistent with Mineral Resources Objective (Objective 1333) which states that abandoned mined lands should be identified and rehabilitated, however, the Plan leaves more areas both temporarily and permanently impaired than currently exist. However, under the Mining Law of 1872, all these safeguards are waived as mining falls under the exception for valid existing rights.

Alternatives
We appreciate the discussion of alternatives that were considered but discarded by Midas Gold in the plan. However, we still believe that the Forest Service should reevaluate several of these alternatives, including reduced or modified mining activities to lower the impacts. The Forest Service should develop all reasonable alternatives to address concerns the public raises including the number of pits, pit design, access routes, tailings storage options, tailings storage locations, waste rock storage locations, replacement access for snowmobilers and motorized users, mitigation for fish and wildlife, and project duration.

Given the significant negative issues of placing the Tailings Storage Facility in the Upper Meadow Creek stream, wetlands, and Riparian Conservation Area (RCA), the Forest Service should develop an alternative that essentially limits tailings production to the volume that can be safely stored without inundating wetlands, RCAs or streams. Thus, the limiting factor for mining would be tailings storage. Once all the suitable, non-sensitive areas are used for tailings storage sites, mining should cease. One option for the Forest Service to analyze is refilling the historic Stibnite Pit, the conical shaped-pit at the west end of the project area, with waste rock or tailings.

We also recommended developing an alternative in which the tailings and/or waste rock are relocated back into the main pits (or other geologically stable area). While rehandling this material would require additional expense, the Forest Service should compare this with the cost of dealing with a catastrophic dam failure, contamination, and effects of downstream public health and fisheries issues. We appreciate rounding the crests and utilizing variable slope angles of waste rock piles to blend in with natural landforms where this can be done without compromising stability or integrity of the waste rock piles.

The Forest Service is unclear with regard to how and where mine-affected water will be treated post-closure. Water treatment remains one of the major unresolved issues related to this project and the outcome will affect the environment of the area beyond the foreseeable future. The details regarding water treatment will also determine the ultimate cost for long-term water treatment and the adequacy of the financial mechanism needed so that taxpayer dollars are not needed. A detailed analysis is needed with respect to cost, efficacy, long-term viability, maintenance, power needs, ease of repair, filter removal, pond mucking, waste disposal, treatment methods (passive vs. active), replacement schedule, upgrades, staffing needs, etc. The Forest Service should develop alternatives regarding the design and engineering of the waste rock and tailings facilities to see if the quantity of water contacting mine waste and needing treatment can be further minimized.

In the environmental review of a proposed copper porphyry mine, the EPA highlights the uncertainties associated with long term water treatment systems for mines, saying, "Seepage and leachate monitoring and collection systems, as well as the WWTP, might need to be maintained for hundreds to thousands of years. It is impossible to evaluate the success of such long-term collection and treatment systems for mines. No examples exist, because these timeframes exceed both existing systems and most human institutions." (USEPA, 2014)

The Forest Service should evaluate the potential impacts from water treatment system failure, and provide alternatives that evaluate additional mitigation measures to ensure that contaminated water isn't released in the event of a water treatment plant failure, and that financial assurance is in place to cover the full cost of these back-up systems, as well as the regular replacement of water treatment systems during post-closure, etc.

The analysis for the Thompson Creek Mine noted that the water treatment facility is going to need to be fully functional for centuries in order to protect public resources, and, even, then, failures are likely:

> [T]he water management system consists of a series of collection points, pipelines, pump stations, and treatment plants. These facilities, during operations of 100s years or more, could be subject to equipment failures (e.g., pipeline rupture), human error (e.g., a valve improperly opened), or extended power outages (e.g., earthquake damages to the regional electricity grid). Such problems may be inevitable over the course of 100s of years or more, and could result in the release of untreated water to the environment.
>
> It is not possible to predict how such problems would occur or what the consequences would be, as such would depend on what water was released, where and how much water was released, and the duration and timing of the release. However, in the worst case, the release of untreated water could cause exceedances of acute WQSs in sections of the Salmon River, Thompson Creek, S. Creek, and Bruno Creek. … The adaptive groundwater management plan (Lorax 2012b) offers three mitigation contingencies in the event that "specified Performance Metrics" are exceeded. These include a slurry wall, a permeable reactive barrier, and additional pumping wells within the vicinity of the existing pump-back system. (FEIS p. 2-57 to 2-58, emphasis added.)

The Forest Service needs to develop meaningful alternatives regarding the most significant environmental risk. The public deserves an opportunity to review and compare alternatives for

the probability and consequence of future water contamination. The selected alternative should do the best job of protect public resources far into the future.

Care and maintenance procedures need to be developed for each alternative
In the event of a short-term halt to mining or suspension of production, "care and maintenance" procedures need to be spelled out for each alternative. Periods of temporary suspension may not fit the category of daily operations or the category of reclamation and closure. Major pieces of infrastructure need to be retained and maintained for future start up, but daily procedures such as water use for milling and dust control may be discontinued. As such, the Forest Service needs to describe how water balance will be affected, how capture, treatment and disposal of water will be affected, and what level of work force is needed to assist in site management. This uncertain period of mine management leaves many uncertainties that are best addressed in advance of the actual event. Because different alternatives may have different ways of managing water balance or treatment, care and maintenance procedures should be spelled out for each alternative.

Restoration certainty
We appreciate the emphasis on restoration and the intention of placing the proposed mine footprint on disturbed areas to the extent practicable. We note that 42% of new infrastructure is proposed to be within historically disturbed lands. We encourage Midas Gold to continue to refine the project so that the actual disturbance footprint is significantly reduced. We also note that some disturbed lands may not be appropriate for new disturbance.

There are any number of circumstances in which Midas Gold may be unable or unwilling to complete the suite of restoration measures described in the Stibnite Gold Plan. As with the Idaho Cobalt Project on the Salmon-Challis National Forest, the mine may ultimately be permitted but the mining company may be unable to raise sufficient funds to initiate the project. Or as with the Thompson Creek Mine, the mine may temporarily stop production due to metals prices and enter several years of "care and maintenance." In the intervening years, there are a number of restoration activities that the Forest Service could authorize without an accompanying mining component. For every phase of mine life, the Forest Service should develop a series of alternatives in which the restoration components can be pursued without ongoing mine development activities.

Restoration duration
When previous mining companies abandoned the site, the Forest Service-approved bond was insufficient to reclaim the area, as required by federal law. Taxpayer dollars were ultimately used to partially restore the site. However, these restored areas will be consumed and undone by the proposed mining activities. Should Midas Gold ultimately be successful in restoring the site as described, there is nothing that would prevent another mining company from acquiring the claims, conducting additional mining activities and undoing all the restoration work. The Forest Service and Midas Gold need to explore ways to permanently retire the upper East Fork South Fork watershed at the end of the mine life, including both public and private properties, to permanently protect the restoration investments. We note that the Thunder Mountain area was withdrawn from mineral entry by Congress in part to protect the Middle Fork Salmon River watershed.

Should this project be permitted, it will be accompanied by an extensive mitigation program that functions on local and regional scales. Many of the promised ecological benefits will not be complete until operations have ended and the site has been successfully reclaimed. The extension

of mine life through the discovery and development of additional reserves will result in delays of site restoration. We propose that for every year of mine operations after the original 20-year mine life estimate, the mitigation portfolio be expanded, in essence, earning interest.

Water quality

No degradation of surface or groundwater resources should be allowed. The Golden Meadows EA mentioned that naturally occurring arsenic levels were found at 2600 micrograms/liter and mentions that high levels of arsenic were found in association with mill tailings, but does not mention the actual arsenic levels recorded at this site. This information is important because there needs to be a clear record of the baseline conditions to determine if mining activities have any impact on surface or groundwater resources.

The Stibnite Gold Plan states that any water discharged to surface water bodies will first be treated to the effluent standards listed in any applicable National Pollutant Discharge Elimination System (NPDES) permit. Discharging only sufficiently treated water is a federal requirement and is intended to preserve beneficial uses such as cold-water aquatic life and primary contact recreation for affected surface water bodies.

Water treatment plants for mine-affected water can be expensive, challenging to engineer and maintain properly, difficult to adjust to changing water quality conditions and quantities, and is likely going to be needed to function in perpetuity. We recommend that the Forest Service and Midas Gold design all alternatives to minimize water contamination and hopefully obviate the need for a water treatment plant. Should a water treatment plant be needed, minimizing the amount of contamination and the volume of water needing treatment will reduce the difficulties and cost of such treatments. It is of utmost importance that the long-term water quality management system contains redundant backup systems to avoid unanticipated problems and to ensure that water quality standards are met. NEPA requires the agencies to carefully consider detailed information concerning significant environmental impacts. By focusing agencies' attentions on the environmental consequences of their actions, NEPA "ensures that important effects will not be overlooked or underestimated only to be discovered after resources have been committed or the die otherwise cast." 40 C.F.R. § 1500.1(a).

The Forest Service needs to provide more information with regard to the water balance flow sheet, particularly during extreme conditions such as prolonged drought and severe rain-on-snow events when ground conditions are saturated. Many unpermitted discharges of contaminated water at mine sites are related to high-water events that overwhelm the capacity of engineered ponds and water retention facilities. It is unclear how effective "enhanced evaporation" mechanisms will be in freezing spring conditions.

The Forest Service should not wait for the discharge limits established by the NPDES discharge program to determine the exact size and type of water treatment facility. Given Midas Gold's restoration goals, discharge standards should be consistent with Idaho's water quality standards (WQS) found in IDAPA 58.01.02. The Forest Service should determine the type, efficacy, initial, and replacement and maintenance costs for water treatment facilities. The Forest Service also needs to require redundant water monitoring, capture, and treatment systems, particularly downgradient from the tailings storage facility and waste rock dumps where contaminated water may infiltrate beyond initial capture mechanisms.

No mixing zones should be allowed, particularly given the use of these waterways by listed fish

species. Having end-of-pipe limits consistent with Idaho's WQS will provide better protection for aquatic species and human health and will be more consistent with Midas Gold's stated intentions to restore the site.

We are also concerned that basic information about sources of water pollution at the site has not been gathered or disclosed. The Project site itself includes an area that was eligible for Superfund listing due to its significant, ongoing environmental problems. While some remediation has occurred in the watershed, water quality problems persist and continue to impact aquatic resources at the site and downstream. The Forest Service needs to document these conditions and factor them into its evaluation of Midas Gold's proposed project. The Forest Service should also assess if blasting will elevate the level of nitrates in the area which could have adverse impacts on water quality and fisheries.

The Project area contains a vast network of tunnels, adits, abandoned bore holes, and other underground workings from previous mining activities. The Forest Service needs to evaluate how these underground workings affect the geology, soil, groundwater hydrology, and other environmental conditions in the Project area, as this information is important for understanding the impacts of the Stibnite Gold Project. The Forest Service needs to describe how the defile and other underground workings will be reclaimed. Water quality within these workings is a concern for us. The Forest Service should examine the option of backfilling these workings with paste from tailings that has been appropriately buffered.

We are also concerned that aquifers with artesian conditions have been encountered during previous exploration activities. The Forest Service should analyze the possibility of encountering additional artesian flows and the effects if these flows are uncontrolled for various periods of time.

The Golden Meadows EA stated that the highest levels of dissolved arsenic and antimony were associated with groundwater that had been in contact with mill tailings and that reclamation projects have been implemented. The Forest Service cannot accurately predict the potential impacts of Midas Gold's activities without identifying and characterizing these pollution sources. The Forest Service should assess and describe the actual levels of dissolved arsenic and antimony from these locations and note if the levels have changed as a result of reclamation activities. The Project proposes to excavate and rehandle material classified as Areas of Recognized Environmental Conditions, including tailings and mine dumps which can contain contaminants of concern. The Forest Service should also assess the likelihood of the proposed restoration activities in successfully removing all the contaminants, describe methods to address any remaining subsurface contamination, and disclose the likelihood that the Stibnite Gold project could inadvertently release additional contaminants.

More information is needed about the quality of the groundwater upgradient of the Yellow Pine and Hanger Flats pits. We understand the plan is to implement a series of wells to allow for the dewatering of the pits and treating, utilizing, or discharging the groundwater at different locations during mining operations. The Forest Service needs to describe the post-closure plans for groundwater management under several scenarios. In the event that groundwater is contaminated, it may not be allowable to have them flow into the pits untreated and these wells may need to function in perpetuity.

Additional information is needed about the type of sewage treatment facilities to be utilized and which is most appropriate for site conditions.

Supernatant water within the Tailings Storage Facility (TSF) will be exposed to the open air and therefore susceptible to evaporation. As evaporation occurs, we are concerned over potential impacts due to the concentration of pollutants in the left behind water. The Forest Service should analyze how far-reaching and deleterious a spill of concentrated supernatant water were to occur relative to a spill of less-concentrated supernatant water.

As a proactive safety measure, the Forest Service should analyze (1) the worst possible water quality expected for the supernatant water and (2) if this highly-polluted water were to spill from the TSF, what are the timing and magnitude of impacts. Having this information prior to any accidental spill could be vital in ensuring the release is contained and appropriately mitigated without needlessly endangering human health or the environment.

Tailings will be conveyed as slurry to the TSF via a pipe-within-a-pipe system for secondary containment. We are concerned that the same level of protection does not appear to be afforded to the return line for supernatant water being transported to the ore processing facility. The Forest Service should require a similar pipe-within-a-pipe conveyance method for the supernatant return line. Further, the Forest Service should install some form of leak detection and removal method to provide immediate notification of any potential leaks of the inner pipe.

Midas Gold plans to utilize rapid infiltration basins (RIB) as a means of handling precipitation that falls within the footprint of operations. We feel that RIBs are inappropriate at this site for three reasons. First, groundwater flow at the site is likely dominated by flow through alluvial material. This alluvium is likely not very deep, and as a result, retention time within the subsurface is also likely low. According to the Forest Service's Golden Meadows EA, the water table throughout most of the Meadow Creek valley is less than 30 feet in depth. In order for RIBs to be effective, potentially contaminated water must spend a sufficient amount of time within the subsurface prior to being discharged to a surface water body. Second, the alluvial material may contain contaminated materials and increased shallow subsurface flows may increase the transport these contaminants into Meadow Creek. Third, the RIBs are located adjacent to Meadow Creek. The combination of these factors – low retention time, high potential levels of contaminants and proximity to Meadow Creek – means that any water emplaced in the RIBs will likely be immediately discharged into Meadow Creek, without any time for treatment to occur.

In light of this, we request that the Forest Service analyze alternative or ancillary approaches to simply directing water straight to RIBs. We suggest considering treatment to Idaho's WQS prior to placing water in RIBs to ensure water quality within Meadow Creek is not negatively impacted.

TMDLs

The Idaho Department of Environmental Quality has found that portions of East Fork South Fork Salmon River in the project area are impaired due to high metal loading and sediment. The TMDL sediment includes a 25% reduction in from human activities and sets a load limit of 1,590 tons/year. The Forest Service should provide an assessment of previous sediment reduction projects and an analysis of the success of these efforts, the current sediment load, the projected sediment load during mining activities and the projected sediment load following reclamation.

The TMDL sediment load should be the basis for additional alternatives for project design and access routes.

Acid mine drainage and metals leaching

We are particularly concerned about the potential for acid mine drainage and metals leaching and the potential associated effects to water and aquatic life. A 2006 study of hardrock mines in the U.S. found that 76% failed to predict water quality impacts during mine permitting.[1] Its companion report outlines recommendations for geochemical analysis and predictive modeling that should be incorporated in the analysis of the proposed Midas Gold Project.[2]

Water reaches to be monitored should include the South Fork Salmon River, East Fork South Fork Salmon River, and Johnson Creek. Metrics to be monitored should include turbidity, temperature, dissolved oxygen, conductivity and pH. Sufficient data needs to be collected to establish baseline conditions during spring, summer, winter and fall. Monitoring should also include pre and post-activity sampling.

Water withdrawals

The Stibnite Gold project will require significant water supplies for both mine-related activities and domestic use. The Forest Service needs to disclose the source and quantity of water withdrawals from surface and groundwater sources and design the project to avoid, minimize and mitigate impacts. We are concerned that even a water withdrawal limit of 10% from streams may still adversely affect aquatic organisms, particularly during low water months of September-February. (see Golden Meadows EA table p. 3-19).

We are also concerned that the withdrawal of water and associated impacts from mine development may violate the Forest Service's duty to protect water quality and fisheries under the Clean Water Act, the 1897 Organic Act and 36 CFR Part 228 mining regulations. In addition, the project may violate the MM standards in the Payette Forest Plan.

We note that Midas Gold is anticipating withdrawing up to 5.63 cfs over the present water right to maintain ore processing operations during a prolonged severe drought. This may result in adverse effects on fisheries. We recommend that the Forest Service establish a cap for water withdrawals to protect fisheries during drought conditions. During these times, Midas Gold may have to suspend or modify milling operations.

Tailings Storage Facility design

We appreciate the goal of restoring Meadow Creek across the tailings impoundment but are concerned that surface water will infiltrate the tailings and lead to increased groundwater flows of contaminants. The Forest Service should reassess the cap and consider using impermeable layers above the tailings and below Meadow Creek. The cap of the tailings facility should be designed so it is adapted to the expected tree growth, anticipated root depth and designed to withstand tip ups.

[1] https://www.earthworksaction.org/files/publications/ComparisonsReportFinal.pdf

[2] https://www.earthworksaction.org/library/detail/predicting_water_quality_at_hardrock_mines/#.WW-d69PytnY

In addition, we are concerned about temporary pooling at the lip of the tailings dam during high-water events that may occur post-closure. We recommend designing the lip of the tailings dam with a backup or secondary spillway that will prevent any pooling. In addition, should the designed water channel across the surface of the tailings facility meander or become rerouted, the flow could be redirected away from the spillway. To resolve this, we recommend designing the final surface of the tailings facility to accommodate meanders and to widen the spillway/incorporate secondary a spillway to capture and direct these flows.

In addition to handling hydrologic events, we recommend that the tailings facility be designed to handle significant seismic events beyond the 6.5 magnitude events.

We understand that IDWR does not approve reclamation design plans until the actual time of final reclamation, but we believe that Midas Gold has an obligation to present its version of the reclamation plan to the public as part of this EIS.

The long-term stability of the Tailings Storage Facility is of tremendous concern to us. Recent research has determined that the rate of severe tailings dam failures globally is increasing.[3] The Forest Service should include the lessons learned from the recent Mount Polley Mine tailings dam failure as outlined in the investigative panel's final report.[4] The panel of experts recommended using best available technology to reduce the risk of failure. This included recommendations to:

- Eliminate surface water from the impoundment
- Promote unsaturated conditions in the tailings with drainage provisions
- Achieve dilatant conditions (setting to a solid) throughout the tailings deposit by compaction.

The EIS should incorporate a Failure Modes Effects Analysis in evaluating tailings disposal methods, and it should incorporate an independent tailings review panel in the earliest stages of planning, development and analysis. The tailings review should prioritize long-term stability and public safety, and analyze methods for dry tailings disposal. We would particularly like to emphasize the need for an independent tailings pond review panel to assess the final design and long-term management of the facility. We are attaching the official analysis of the Mount Polley

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[3] Lindsay Newland Bower and David M. Chambers, "The Risk, Public Liability & Economics of Tailings Storage Facility Failures," July 21, 2015, Available at: http://www.csp2.org/files/reports/Bowker%20%26%20Chambers%20-%20Risk-Public%20Liability-Economics%20of%20Tailings%20Storage%20Facility%20Failures%20%E2%80%93%2023Jul15.pdf
Lindsay Newland Bowker and David M. Chambers, The Root Causes of Tailings Overtopping: The Economics of Risk and Consequence", Presented at Protections 2016, 2nd International Seminar on Dam Protections Against Overtopping, September 2016. Available at: https://dspace.library.colostate.edu/bitstream/handle/10217/179793/CONF_2nd_%20%3E%20Protections_2016_8-24.pdf?sequence=4&isAllowed=y

[4] Independent Expert Engineering and Review Panel, Report on Mount Polley Tailings Storage Facility Breach, January 30, 2015. Available at: https://www.mountpolleyreviewpanel.ca/sites/default/files/report/ReportonMountPolleyTailingsStorageFacilityBreach.pdf

tailings failure with these comments. Since different designs have different characteristics and tradeoffs, the public deserves to know which design options are available, and what the pros and cons are for each one, before commenting on the DEIS.

While the likelihood of a catastrophic failure of the TSF may be relatively low, the environmental costs of a collapse would be extremely high and are not covered financially under any proposed scenario. We point out that this area is seismically active and that the tailings storage facility and dam will be a feature on the landscape for millennia. The tailings facility is designed to withstand the maximum credible earthquake of magnitude 6.5, however the 1983 Borah earthquake registered 6.9 on the Richter scale. A collapse would lead to both massive sedimentation issues in the East Fork South Fork Salmon River, South Fork Salmon River, and Main Salmon River drainages, smothering riparian areas, listed fish species and their critical habitat. We note that when the dam at the South Fork Meadow Creek (Blowout Creek) failed, the sediment plume was visible in Riggins on the Main Salmon River. The displaced material would be distributed on top of the streambed, riparian areas and access roads over a considerable distance, making clean up extremely difficult. Reconstructing a proper storage facility and rehandling the material would be exceedingly expensive. In the interim, the material from the tailings facility would present significant chemical contamination issues for downstream waters.

The Forest Service needs to complete an Emergency Action Plan in coordination with Valley County and the community of Yellow Pine for the tailings impoundment. This plan needs to include different emergency levels, the notification and communication list and section on expected actions but believe the EAP could still be improved.

Regarding liner material, the Forest Service should assess utilizing a Geosynthetic Clay Laminate Liner instead of a simple geosynthetic clay liner to see which is more protective of water quality. Redundant water monitoring, capture and treatment systems need to be established downgradient of the tailings to assist in the event of liner system leaks. This system, along with the water treatment system, will have to be monitored and maintained in perpetuity and the bonding should reflect these costs.

Pit lakes

The EIS must include a full analysis of the potential effects of the pit lake on water quality, quantity, wildlife and other resources. We are concerned about the hydrological effects to surface and ground water associated with the drawdown of groundwater resources to dewater the pit during operations. We are also concerned about the long-term loss of water from hydrologically connected surface and groundwater resources due to the formation of a pit lake after mining operations cease, and the long-term evaporative loss post closure. The EIS must also fully analyze the potential water quality of the pit lake over time, and fully evaluate methods for ensuring that water quality will be protected. Similarly, we are concerned about the potential impacts to public safety and to wildlife from exposure to unsafe conditions or poor water quality post closure. If perpetual care is necessary to maintain the pit lake water quality, this must be documented, and the EIS must include a discussion about this will be managed. The EIS must also include an analysis for backfilling the open pits, concurrent with mine operations.

Effects to groundwater dependent ecosystems

The EIS should fully evaluate the potential effects of the project on groundwater dependent ecosystems (GDEs), including wetlands, seeps, springs, floodplains, and riparian areas. The EIS should include baseline data to fully characterize the GDE resources that could be adversely

affected by the project, including changes in hydrology, groundwater drawdown from dewatering the pit during operations, dredge and fill, and any other project related impact.

Access issues

The project will require the transportation of cyanide, diesel fuel, ammonium nitrate, sulphuric acid and other hazardous materials. The Forest Service needs to provide a list of all chemicals to be hauled on site along with quantities. We are concerned about the risk of spills both on site and along the transportation route. The Forest Service needs to develop a series of design features such as the use of pilot cars, flaggers, pull outs, and developing and posting transportation schedules for the public so they can minimize interactions with mine traffic.

Assessments for previous exploration projects stated that it may be necessary to sand the road in advance of the convoy (1/4" to 5/8" rock with less than 2-% fines) but even this material may negatively affect fish spawning, thus warranting additional analysis and guidelines on which areas may be sanded, when and under what conditions.

Winter use of the Johnson Creek Road will require snow plowing as well as avalanche control efforts. The Forest Service should describe the likely locations for control efforts or if avalanche control will entail placing explosive charges from fixed or mobile locations or the frequency of control efforts. This information is important because nitrates from the explosives used for avalanche control can have adverse impacts on fisheries.

Due to the increased risk of traffic accidents in the winter and the difficulty in containing spills, the Forest Service should assess the pros and cons of clustering fuel trips in the summer months and stockpiling the fuel on site to further reduce winter fuel transportation needs. It is likely that some winter fuel hauling would still be needed.

Fuel storage on site, even though it is located on private property, is not without risk and not beyond the scope of this analysis. Even with the EPA requirements, a fuel risk or fuel leak is possible and could impact ground and surface waters in the immediate area, which also supports listed fish species. The Forest Service should analyze the pros and cons of requiring increased fuel capacity on site sufficient to reduce winter fuel transportation and the increased risks of a leak from the Aboveground Storage Tank. The Forest Service should also analyze the safety of the Aboveground Storage Tanks in the event of a wildfire or fire at the facility.

Well-engineered pullouts are an integral part of the transportation plan to reduce conflicts between mine traffic and other vehicles. The Forest Service needs to incorporate and disclose the number, location, or capacity of pullouts. Road monitors should be positioned at kiosks along the access route. Each road monitor should have a map to hand out to other drivers showing the exact mileage and location of each pullout so they can inform various forms of vehicles, ranging from ATVs to RVs, on where they can safely pull over to avoid the convoy. This map should be included in the project NEPA analysis document. It may be less convenient but more prudent for road monitors to hold traffic until the mine-related traffic passes that location.

The Forest Service should update the Petroleum Risk Assessment and Risk Reduction Procedures used for the Golden Meadows Project.

Convoys and other exploration-related traffic will increase the amount of dust generated. This dust can have negative impacts on both riparian vegetation in terms of reduced photosynthetic

ability and fish from increased fine sediments. This analysis should examine the need and locations for increased dust control measures with water or magnesium chloride and the limitations of each material.

The Forest Service should work with the project proponent to define the safe speed for each section of road. All mine-related traffic should travel at safe speeds at or below posted speed limits, according to current road conditions.

All drivers should participate in a safe-driver training courses. Truck drivers should be required to drive the route with unloaded trucks to gain practice before driving fuel. Emergency response vehicle should accompany mine traffic carrying hazardous chemicals on the downstream side of the convoy for a better chance of deploying booms in the event of a spill into the river. In addition to having the emergency vehicle accompany the convoy, oil-absorbent booms and other spill cleanup materials should be strategically placed and secured at several places so they can be quickly deployed in the event of a transportation accident. A sea-curtain should be available for deployment at the Glory Hole.

Regarding reducing the risk of collisions with wildlife, the Forest Service should work with the Idaho Department of Fish and Game to identify the location of wildlife crossings and require further speed reductions at these locations.

We understand that the Burnt Log Route is being proposed to help reduce the impacts if there is an accident and spill. However, the vast majority of the transportation route is still within the Johnson Creek drainage and still has multiple stream crossings. Both the Forest Service and NOAA Fisheries have described this watershed as highly erosive where many streams are listed as “impaired” under the Clean Water Act and/or “functioning at risk” by the Forest Service due to high sediment.

In addition, development of the Burnt Log Route will adversely impact several Inventoried Roadless Areas, Visual Quality Objectives and the Frank Church River of No Return Wilderness. The Idaho Roadless Rule states that roads may be constructed for mining activities if no other reasonable access exists. The Stibnite Plan states that the current access to the mine site will be consumed by the Yellow Pine pit and that the Burnt Log Route is thus the only reasonable route.

We also note that the 20+ years that the road would be in use fits the Forest Service description of long-term (15+ years) and thus does not meet the definition of a temporary road. The Forest Service should develop an alternative using the existing road network for comparison purposes. It may well be possible to reconfigure the geometry of the Yellow Pine pit to allow the current access to persist. We also note that the benches within open pits are designed to support ore trucks and should be able to accommodate normal vehicular traffic. While the potential impacts to aquatic systems will remain, the impacts to the Inventoried Roadless Areas, terrestrial wildlife and the Frank Church River of No Return Wilderness will be largely avoided. In fact, a new maintenance road is planned to be constructed on the southwest side of the Yellow Pine pit from Hennessey Creek to Fiddle Creek, so the engineering is not insurmountable. Significant safety measures would need to be incorporated, but are certainly possible. These two different ways to access the site have significant environmental impacts, one is to terrestrial systems and one is to aquatic systems. However, until both alternatives are developed, it will be impossible to know

which one presents fewer overall risks. As such, the Forest Service needs to fully analyze both alternatives and perhaps develop a third one.

As with the Golden Meadows exploration project, the Forest Service should estimate the annual number of vehicle trips for the different classes of vehicles involved. The Forest Service should also estimate vehicle accidents, delays for local and recreational traffic, noise levels, wildlife collisions, dust and sediment production and other negative impacts accompanying the project activities. The Forest Service should develop design features to avoid, minimize and mitigate the impacts for each of these issues. Monitoring efforts should include both baseline conditions as well as seasonal and annual reports during mining activities. For sediment, baseline turbidity monitoring in surface waters will be an important metric. The Forest Service should establish triggers by which more protective measures will be in place.

For example, the Golden Meadows EA recognized that driving on recently thawed gravel roads (usually late March to late May) can increase the amount of sediment that could enter streams. As such, the 2014 EA proposed transportation restrictions during "spring break up." The Forest Service should note that meteorological conditions may last longer than anticipated or may reoccur, as in the example of a late spring snowstorm. As such, limitations during spring break may need to exceed the 3-week period proposed in the Golden Meadows EA.

While the spring break up provision in the Golden Meadow Project proposed using lighter trucks to transport fuel, more vehicle trips could also be made during this time. While the weight of the individual vehicles might be lighter, the greater number of vehicle trips may lead to greater sediment production reaching streams. Should any vehicular traffic occur during spring break up, the Forest Service should analyze which alternative has the least environmental impacts: fewer trips with larger vehicles or more numerous trips with smaller vehicles.

We note that the Forest Plan has a restriction regarding fuel haul along the South Fork Salmon River and this safeguard should remain intact under all circumstances. In coordination with NOAA Fisheries in the 1990s, the Forest Service amended the Forest Plan to include road maintenance and transportation management plans to reduce adverse impacts to fish from sediment delivery and the risk of a fuel spill from use of the South Fork Salmon River Road. The Forest Service, in its 1990 Record of Decision for the EIS for the South Fork Salmon River Road Project, described that the "South Fork Salmon River (SFSR) contains the most important remaining habitat for summer chinooks salmon in the Columbia River Basin." *Id.* at 1. Ultimately, among other restrictions, the Forest Service limited all commercial fuel haul on the South Fork Salmon River Road to a maximum of 500 gallons at one time, explaining that "[t]he basic intent is to eliminate all fuel and other hazardous material haul on the South Fork road unless absolutely necessary." *Id.* at E-1.

Impacts of mitigation for recreationists

We understand that the Forest Service is considering developing an ATV trail along Riordan Lake, connecting with Forest Service Trail 097 to the Horse Heaven Summit p. 6-9 to provide access to Thunder Mountain for recreationists in the Yellow Pine area so they do not have to travel to Landmark first. While this may help reduce the travel time for recreationists, this new route will impact the Inventoried Roadless Area and will further fragment this area, impacting both terrestrial wildlife and potentially affecting streams. In addition, winter use of Johnson Creek Road will displace snowmobilers on approximately 11 miles of groomed routes. To mitigate for this, the Forest Service is proposing additional snowmobile grooming, possibly in

the Trout/Cabin Creek route (the same access for transmission line maintenance). This additional grooming will also further fragment wildlife habitat and potentially displace non-motorized recreationists. The Forest Plan contains restrictions on additional snowmobile grooming to avoid impacts to lynx from competing predators. In this case the Forest Service is proposing to groom an additional route as well as snowplow an additional route. While there may not technically be an increase in "groomed snowmobile routes" there will be a net increase in areas accessible to lynx competitors. The Forest Service needs to find additional ways to avoid, minimize and mitigate for potential impacts to lynx and other wildlife.

Potential impacts to the South Fork Salmon River

The Record of Decision (ROD) for the Final EIS and Revised Land and Resource Management Plan for the Payette National Forest recommends the South Fork Salmon River for designation under the Wild and Scenic River Act because the South Fork "represents a premier example of a river with outstandingly remarkable recreational, scenic, geological, cultural, botanical and fisheries values within the region of comparison." ROD, p. 24. The ROD explains:

> As a major tributary to the already designated Salmon River, the South Fork supports whitewater recreation opportunities from around the nation. It also supports prime examples of federally listed anadromous fish species populations. The river is a major fishery for the Nez Perce and Shoshone-Bannock Tribes. It also contains some of the most remarkable cultural and historic properties in Idaho. Populations of rare plants and plant communities exist along the river corridor. There are also outstanding geological features through the river corridor. The river offers highly unique and rare values within its region of comparison, and is worthy of national recognition within the National Wild and Scenic Rivers System.

We are concerned that a spill or leak at the site or along the transportation route could affect one or more of the Outstandingly Remarkable Values of the South Fork Salmon River, particularly fisheries. We recognize that the project does not entail any deliberate dumping of waste or contaminants into the South Fork Salmon River or its tributaries. However, comprehensive analyses of modern, state of the art mines show that unpermitted discharges and spills occur at alarming frequency. It is entirely within the Forest Service's purview to analyze the frequency of such discharges, estimate the impacts, and develop additional design features to avoid, minimize and mitigate these impacts.

While the main transportation route crosses the South Fork Salmon at one location, many of the fish found in the South Fork spend some portion of their life cycle in the Johnson Creek, Meadow Creek or East Fork South Fork Salmon River drainages. An accidental toxic chemical spill on the transportation route or at the site could adversely affect fish that contribute to the Outstandingly Remarkable Values of the South Fork Salmon River. In addition, recreational boating on the South Fork Salmon River could be adversely impacted if there were a discharge that could affect public health. Boaters often filter river water for their drinking water supply and a release of toxic chemicals could negatively affect public health as well as recreational use of the river.

Forest Plan WSST01 provides: "When management actions are proposed that *may* compromise the outstandingly remarkable value, classification, or free-flowing character of an eligible Wild and Scenic River segment, a suitability study must be completed for that eligible river segment prior to initiating the actions." Emphasis added. Forest Plan, p. III-

75. As such, the Forest Service must complete a suitability study for the Wild and Scenic eligible South Fork Salmon River, as required by Forest Plan Standard WSST01.

The Golden Meadow EA explained that driving conditions are a major factor determining the likelihood of an accident and fuel spill. Poor road and driving conditions can occur during spring break up, during winter, and during storms year-round. Standard Operating Procedures designed to reduce fuel haul during spring break up need to be enforceable, well defined, and inclusive. For example, NOAA's "Biological Opinion for Authorizations for Stibnite Mining Inc. Commercial Road Use Permits and Garnet Pit Mining" (June 29, 1995), NOAA not only prohibited hauling fuel on the Johnson Creek Road during any inclement weather and road hauling conditions, but also prohibited any fuel haul on the South Fork Salmon River Road, and prohibited hauling fuel on Johnson Creek beginning October 1 of each year due to weather conditions.

Road maintenance

The dramatic increase in traffic will significantly increase road maintenance needs. Midas Gold should continue to reapply gravel and other surfacing on roads as needed to reduce sediment impacts. The Forest Service should describe available gravel sources and the impacts if new ones need to be developed. We appreciate the map on figure 7-5 showing potential borrow source areas but more information is needed about the suitability of developing these sites for gravel pits, particularly with regard to fisheries, water quality and the Idaho Roadless Rule.

Although road maintenance is important for minimizing impacts from road use, road maintenance itself can have impacts on adjacent streams and aquatic habitat. The Forest Service needs to provide clarity and detailed information on what road maintenance is needed and if, how, and when it will occur on each stretch of the access routes to the site. For road sections that are maintained by Valley County to these specified standards, it is important that the required funds for this level of maintenance are available.

Exploration drilling and underground exploration

The Project includes additional exploration drilling. We expect that Midas Gold will utilize the same best management practices for exploration drilling as they have used previously, including voluntary mitigation measures on noise, lights and water quality. We understand that, if used properly, the drilling fluids are not expected to violate state or federal drinking water standards. The Forest Service states that the only fluid that will migrate into groundwater is a negligible amount of the filtrate from non-toxic drilling fluids and that risks are low due to low permeability rates in bedrock.

However, there are circumstances in which fluid pressure is lost and unknown volumes of fluid have been lost into fissures, cracks, voids and to surface expressions. While steps can be taken to condition the drill hole to limit fluid loss and prevent future loss of pressure, the Forest Service notes that approximately 25 gallons per 1,000 foot hole *or more* may be lost before the driller could be aware of the new inflow/outflow condition. This implies that more significant losses may occur in the future before corrective steps are taken.

The Forest Service states that there have been a "couple" of instances during recent exploration activities in which a substantial loss of circulation have resulted in drilling mud discharging at the ground surface downslope of the drill hole. In order to determine if the cumulative effects of this loss of circulation are significant and to assess the likelihood of this occurring the future, the

Forest Service needs to describe how many instances of significant circulation losses occurred during past drilling for this project, provide an estimation of the quantity of fluid lost, and analyze any environmental effects of these discharges on surface and water resources when this occurs.

We have also been informed of a circumstance in which a loss of circulation resulted in a discharge occurring under the waterline at the Glory Hole and a cloud of drilling mud and sediment were observed in the water. We are concerned that future discharges could have adverse effects on water quality, violate the TMDL for sediment in the East Fork South Fork Salmon River and harm listed fish species. The Forest Service should analyze the possibility and effects of this type of discharge occurring in the East Fork South Fork Salmon River in the future. The Forest Service should also reinitiate consultation with the US Fish and Wildlife Service and NOAA fisheries on this issue.

The December 2014 Golden Meadows EA noted that that drilling areas to the east of the Glory Hole are the most likely locations where a loss of drilling fluids and surface expression may occur. The EA noted that there would be staff on site to visually examine the hillside in order to detect any discharges. More information is needed on the ability for the operator to detect discharges and respond appropriately to protect water quality in the East Fork South Fork should such an event occur in the future.

Certain springs and seeps in the area contain high levels of arsenic. Springs also provide important habitat for amphibians such as Columbian spotted frogs and other organisms. We are not only concerned about the amphibians but also about predators that prey upon Columbian spotted frogs such as birds, but also about the frogs themselves.

Pressurization from drilling activities could increase spring flows and arsenic levels, or alternatively decrease these flows. The Forest Service should conduct a baseline study not only examining water quantity and quality but also the levels of arsenic in amphibians and other organisms in the area. Project monitoring would track these metrics throughout the project implementation and reclamation.

Wildlife fencing

We appreciate that Midas Gold plans to utilize wildlife fencing around pits, sumps and other hazards. We also recommend the use of wildlife ramps to allow small mammals and amphibians to escape.

Activities in Riparian Conservation Areas (RCAs)

Several facilities and structures such as the Tailing Storage Facility will be located within RCAs. Forest Plan Standard MIST08 requires new structures, roads, and support facilities to be located outside of RCAs. *Forest Plan*, p. III-49. Only where no alternative exists can these be located in RCAs. *Id.* When a facility is located in an RCA, it must be located and constructed so as to avoid or minimize degrading effects to RCAs and streams and adverse effects to TEPC species. *Id.* The Forest Service should reconfigure the project to avoid or minimize the degrading effects to RCAs, streams, and TEPC species from Midas Gold's structures and support facilities in RCAs.

ESA-listed and other special status species and their habitats

The Forest Service needs to fully consider the impacts to ESA listed fish, native fish species such as westslope cutthroat trout and Pacific lamprey, and their habitat from Midas Gold's activities, and the cumulative effects of Midas Gold along with other regional activities. The Forest Service needs to acknowledge and account for the importance of the area to these species, provide extensive baseline information on the health of these species and their habitat in the action area, and consider how Midas Gold's Project as whole impacts these species and how it aligns with the goals and objectives to maintain and recover these species set in the Forest Plan and under the ESA.

While we appreciate and support Midas Gold's intent to providing fish passage upstream of the Glory Hole during mining operations, the tunnel technology described is uncertain at best. The Forest Service needs to provide significantly more information about the efficacy of this engineered tunnel for fish passage, and analyze alternatives. The Forest Service needs to develop a series of contingency measures should the tunnel not function as intended for fish passage. We are also concerned about water infiltrating the tunnel post-closure and blowing out the concrete plug, potentially with disastrous results, depending on water quality within the tunnel. The Forest Service should consider backfilling the tunnel with neutralized rocks for closure.

Given the length of mining operations, and the possible extension of the mine life associated with their exploration plans, the EIS must identify the potential effects to these fish species at different stages throughout the mine life, and post-closure. The EIS should also consider the cumulative effects associated with climate change (e.g., increase in water temperatures), on these species.

Bull Trout

In addition to being a threatened species listed under the Endangered Species Act, bull trout are a Management Indicator Species for the Payette National Forest. Forest Plan Objective SWOB15 directs the Forest to "Maintain and update species occurrence and habitat maps for Forest species (e.g. MIS and Region 4 Sensitive species) during fine and site/project scale analyses." *Forest Plan*, p. III-20. The Forest Service needs to update its bull trout information, and also needs to describe bull trout populations in the area and their trends, and evaluate the impacts of Midas Gold's Project on these populations. We are particularly concerned about impacts to a unique adfluvial population of bull trout that has formed in the last several decades that use the Glory Hole as part of its life cycle. The dewatering of this stretch of the East Fork South Fork Salmon and the loss of the Glory Hole as the river is reengineered may have permanent impacts on this population of bull trout. The EIS must also provide extensive baseline data to characterize existing sediment conditions in streams that could be affected by mine activities, to evaluate the potential short and long-term effects of increased sediment from mine activities. Bull trout are particularly sensitive to changes in temperature. The EIS should analyze the potential effects on stream temperature from mine operations, including reduced stream flows, loss of groundwater inputs, discharge temperatures, etc. The EIS should also evaluate how changes in hydrology could affect threatened species, including loss of groundwater upwellings that bull trout prefer for spawning.

Goshawk

The Golden Meadows EA noted an active goshawk nest tree. We note that the Blackfoot Bridge Mine on the BLM's Idaho Falls District had several additional design features developed to avoid and monitor potential disturbance to a pair of bald eagles that nest nearby. These design features included visually monitoring the bald eagle pair to see how mine development activities

such as blasting affected the eagles and adjusting the timing of activities accordingly. The Forest Service should develop a series of design features to accommodate goshawk use of the project area.

Bent Flowered Milkvetch
Bent flowered milkvetch is a Forest Service sensitive species that occupies the area within and around the site. The Forest Service is directed to maintain or restore known populations and occupied habitats of threatened, endangered, proposed or candidate plants, including bent flowered milkvetch. The Forest Service should develop a plant conservation strategy which avoids, minimizes and mitigates impacts to this species. A monitoring program should track milkvetch populations within and around the site. The Project should reestablish milkvetch in areas where individuals may be lost and establish formal protections around populations outside of the project footprint to ensure they are not accidentally impacted by other activities. We are particularly concerned about impacts to milkvetch populations by vehicles and equipment upgrading communications facilities.

Noise and light disturbance
The EIS should include baseline information on noise and light levels within the project area, and evaluate the impacts of light and noise on wildlife resources. Mining activity within the project area will displace wildlife such as elk, deer, moose, lynx, fisher, wolverines, raptors, and other wildlife. This displacement started with initial exploration several years ago and will continue for at least the next twenty years. Unlike other types of human activity, the bright lights and loud noise from exploration drilling can operate 24 hours a day, 7 days a week. Twenty or more years of year-round activity may well have significant impacts on wildlife that warrant additional analysis and more protective measures.

The continuous noise and lights from mining activities will impact also nearby residents and recreationists. We note that this area of Central Idaho is within one of the largest areas in the United States largely unaffected by light pollution. In addition to diminished aesthetics, light pollution can have a host of negative impacts on wildlife, including disruption of migrating birds. The Thompson Creek Mine is the source of significant light pollution and is easily visible at night from the nearby White Cloud Wilderness. Nearby residents and recreationists in the surrounding area, including visitors to the Frank Church River of No Return Wilderness, will also notice light pollution from the Stibnite Gold Project. The Forest Service needs to map out areas from which light pollution from the Stibnite Gold Project will be visible. The Forest Service also needs to consider night time traffic from the mine and the new staging area at Landmark.

The Forest Service and Midas Gold should work together to integrate noise and light-reducing features for all facilities and activities for every stage of the project. Midas Gold incorporated several noise and light-reducing impacts in its exploration drilling program. These included the following components:

- A temporary wooden structure with sound-absorbing panels
- Mufflers or sound control devices on all engines at the drill rigs
- Scheduling noise-producing activities concurrently when possible
- The use of Whisper Quiet light plants
- Night shields on outside lights

- Monitoring of the effectiveness of noise reduction measures
- Additional wildlife monitoring program

Development rock
The Project uses the term "development rock" instead of "waste rock." This substitution is confusing and misleading. The term "waste rock" is commonly used in the mining industry and in Forest Service documents. In order to be consistent with other mine permitting efforts on National Forests and transparent with the public, the Forest Service should utilize the term "waste rock" going forward.

The Forest Service should also consider placing caps on top of waste rock piles and lining them to prevent surface or groundwater infiltration of the waste rock piles.

The Plan states that fisheries will be established overtop of the waste rock dump covering Fiddle Creek. It is unclear what the gradient will be and if it will be accessible to migratory fishes. The post-closure plan for Hennessy Creek is to have it run over the west highwall of the Yellow Pine pit to join the restored East Fork South Fork Salmon River. We are concerned that the exposed highwall may be a source of contaminants and that the water flowing down the pit wall will help accelerate chemical weathering of contaminated material and that the waterfall itself may threaten the long term structural integrity of the pit wall, leading to sloughing and additional release of contaminants and sediment. The Forest Service needs to thoroughly analyze all pit walls for potential contaminants over the short term and long term. Modeling should extend beyond 500 years.

Landslide Prone Areas
Several locations within the activity area are rated as medium or high for landslide potential. The Forest Service needs to provide additional information on how activities will be designed to avoid, minimize and mitigate for landslide risks and what the impacts might be if a landslide were to occur at the medium and high-rated locations.

Mitigation measures
The Forest Service should disclose the failure rate of proposed mitigation measures, and how those failures will be addressed. For example, the EPA estimated potential water collection and treatment failure rates for mine seepage for a proposed porphyry mine, based on the track record of operating porphyry mines in its peer-reviewed Bristol Bay Watershed Assessment (USEPA, 2014):

> "Based on a review of historical and currently operating mines, some failure of water collection and treatment systems would be expected to occur during operation or post-closure periods. A variety of water collection and treatment failures are possible, ranging from operational failures that result in short-term releases of untreated or partially treated leachates to long-term failures to operate water collection and treatment systems in perpetuity. A reasonable but severe failure scenario would involve a complete loss of water treatment and release of average untreated wastewater flows into average dilution flows."
>
> "Reviews of mine records found that 93% of operating porphyry copper mines in the United States reported a water collection or treatment failure (Earthworks 2012). Improved design and practices should result in lower failure rates, but given this record it

is unlikely that failure rates would be lower than 10% over the life of a mine. During operation, failures should be brief (less than 1 week) unless they involve a faulty system design or parts that are difficult to replace."

Given the record of seepage collection and treatment failures at other operating gold mines[5] and copper porphyry mines[6] in the U.S., the EIS should fully evaluate the potential impacts to the resource from this failure mode, and mitigation measures should be incorporated into the project and reflected in the financial assurance.

The Forest Service has the authority and the responsibility to require additional mitigation measures when warranted. We believe that additional mitigation measures should be included to help offset increased sedimentation from transportation and mining activities. We note that FR 474/674 SFSR Road, FR 579 Warm Lake Highway, FR 412 EFSFSR (Yellow Pine to Stibnite) are all Functioning at Risk (Table 3-7 on EA p. 3-21). The Forest Service should provide additional information on the revised TMDL sediment targets and successes to date. Mitigation measures could include closing, obliterating, signing and enforcing currently closed routes in the area that are contributing to sedimentation problems to area rivers.

Mitigation measures need to factor in both the quantity (miles of stream) as well as the habitat quality. The mitigation ratio should allow for larger areas of medium-quality areas to be conserved if a small, higher quality area is being impacted. Mitigation measures need to factor in both direct and indirect effects.

Concurrent Reclamation

The Forest Service needs to provide additional information on the definition of concurrent reclamation and be more explicit that the timeline for reclamation should be as soon as practicable after mining activities area completed. The use of concurrent reclamation will reduce both surface disturbance and bonding costs.

Topsoil

The area contains very little topsoil for reclamation purposes. The Forest Service should consider ways to help promote topsoil development over the course of the mine life so additional organic material will be available for reclamation.

Connected Actions

The Forest Service should examine the effects of drilling and fuel storage on private property. We recommend that the Forest Service work with Midas Gold on placing groundwater monitoring wells downgradient from both the aboveground storage tanks. Leak detection and removal technology should be incorporated. The Forest Service should also determine the

[5] Earthworks, "U.S. Gold Mines Spills and Failures Report: The Track Record of Environmental Impacts Resulting from Pipeline Spills, Accidental Releases and Failure to Capture and Treat Mine Impacted Water," July 2017: Available at: https://www.earthworksaction.org/USgoldMiningFailuresReport

[6] Earthworks, "U.S. Copper Porphyry Mines Report: The Track Record of Water Quality Impacts Resulting from pipeline Spills, Tailings Failures and Water Collection and Treatment Failures," July 2012 (Revised Nov. 2012). Available at; https://www.earthworksaction.org/files/publications/Porphyry_Copper_Mines_Track_Record_-_8-2012.pdf

suitability of spoil material from the borrow pit as a soil amendment filler as part of this analysis. The Forest Service should also insure that an Underground Injection Control Permit has been acquired.

Surface Occupancy
As stated in our previous comments, within the mancamp, noise and lights should be regulated to minimize impacts to recreationists and wildlife.

Fire Safety
We also recommend developing an evacuation plan and identify potential safe zones in the event of a wildfire. Regularly inspected fire extinguishers need to be placed in all vehicles. In case of a vehicle fire, each vehicle should be required to contain a Pulaski axe, fire rake, McLeod fire tool, fire flag, and shovel.

In the event of a wildfire, protection of the operator's equipment should be the responsibility of the operator and a point protection plan with appropriate fire suppression equipment should be detailed. During the summer fire season, the operator must comply with all regulations to avoid and to curtail fire starts.

Climate Change
We are also concerned about the potential effects of climate change (e.g., increase in intensity and frequency of large storm events and more rain-on-snow events in winter and spring) on the tailings storage facility, storm water systems, process ponds, and all mine facilities that store and manage water. The Bureau of Land Management has identified this as significant issue in the management of mine facilities, and expressed concern that designing mine facilities for a 100-year, 24 hour storm event is insufficient.[7]

Cumulative effects
According to Midas Gold, the company has drilled over 120 miles of holes in the area. The Forest Service should analyze the cumulative effects of this past drilling. The Forest Service should also provide a more detailed analysis of how legacy issues from previous mining efforts may or may not be exacerbated by the proposed action. In particular, ongoing water quality violations at the Project site should be included in the analysis.

The Cumulative Effects section should quantify effects and not just provide a qualitative overview. Projects that should be assessed include the Big Creek Roads Plan of Operations and the Golden Hand Project.

Financial Mechanism
The EIS should include the bond calculation for public review. While we realize that the bond calculation will ultimately be revised and updated, based on the Final EIS and ROD, it is important for the public to participate in evaluating the financial assurance associated with the mine project. Without sufficient financial assurance for the reclamation and restoration components of the project, it's impossible to determine whether these measures will be completed as proposed. The amount of money necessary for a post-closure financial surety alone

[7] R. David Williams, "Climate Change – Extreme Conditions: Do Plans of Operations Need to Include an Ark?"
http://www.mtech.edu/mwtp/conference/2012_presentations/Dave%20Williams.pdf

is typically in the tens to hundreds of millions of dollars. If this surety is not calculated properly to protect the public from an underestimation of the cost involved, the taxpaying public would have to pay the money, as is the case at the Zortman-Landusky and Beal mines in Montana, or suffer the environmental damage associated with not treating the contamination. Failure to analyze this potentially significant impact violates NEPA's requirement for a full discussion of all mitigation measures and impacts.

NEPA requires that mitigation measures be fully reviewed in the FEIS, not in the future. "[O]mission of a reasonably complete discussion of possible mitigation measures would undermine the 'action-forcing' function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects." Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 353 (1989). NEPA requires that documents: (1) "include appropriate mitigation measures not already included in the proposed action or alternatives," and (2) "include discussion of . . . Means to mitigate adverse environmental impacts (if not already covered under 1502.14(f))." 40 C.F.R. § 1502.14(f); 40 C.F.R. § 1502.16(h). "Mitigation" is defined as a way to avoid, minimize, rectify, or compensate for the impact of a potentially harmful action. 40 C.F.R. §§ 1508.20 (a)-(e). Mitigation measures must be discussed with "sufficient detail to ensure that environmental consequences have been fairly evaluated." Robertson, 490 U.S. at 352. The discussion of mitigation measures must also assess their effectiveness. "An essential component of a reasonably complete mitigation discussion is an assessment of whether the proposed mitigation measures can be effective." South Fork Band Council v. Dept. of Interior, 588 F.3d 718, 726 (9th Cir. 2009).

The public needs to have an idea of how "effective" the mitigation/reclamation bond would be for any of the action alternatives:

> NEPA establishes "action-forcing" procedures that require agencies to take a "hard look" at environmental consequences.
> …
> An EIS serves two purposes:
> First, [i]t ensures that the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts. Second, it guarantees that the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision.

Center for Biological Diversity v. Dept. of Interior, 623 F.3d 633, 642 (9th Cir. 2010). Such public review is required in this case.

The US EPA specifically notified the USFS that bonding must be discussed and reviewed as part of the NEPA process:

> EPA believes that financial assurance is an important element of the proposed action and must be disclosed in the EIS. FA is an important component of the mitigation plan, and disclosing information on the costs and form of FA is essential for the public to understand and comment on the adequacy of mitigation, risks to the environment, and financial risks to the public. EPA believe it is not possible to fully evaluate anticipated effectiveness of the mine and reclamation plan and associated risks to the environment without this type of information. (Letter from Lynne McWhorter, EPA Environmental

Review and Sediment Management Unit to Dave Rosenkrance, Challis BLM, dated September 27, 2010)

The EIS must contain a review of bonding levels for the action alternatives. The reclamation cost estimate should be periodically reviewed and adjusted annually. Our past experience with other mining operations has led us to conclude that bonds are not reviewed as frequently as needed.

Air quality effects
The EIS should analyze the effects of mine operations on air quality, particularly to Class I airsheds. In addition to direct emissions, it should analyze the effects of fugitive emissions, such as dust from roads, tailings, blasting activities, and incinerator operations, among others.

Cultural resources
The EIS should analyze the potential impacts to cultural resources (archaeological and historic).

Powerline ROW and power
Additional information is needed with regard to negative impacts from the powerline upgrade. We appreciate the intent to use renewable power from Idaho Power but note that hydropower is not generally considered sustainable given impacts on salmon. Instead, Midas Gold should support alternative energy sources such as wind or solar either directly or indirectly.

Contamination of water, soil and air from chemical spills and accidental releases
Recent research demonstrates that spills and other accidental releases are a common occurrence at gold and copper mining operations.[8] The EIS needs to evaluate the potential effects of spills of hazardous materials to natural resources, potential mitigation measures, and the effectiveness of these mitigation measures. Although mitigation measures are crucial, these reports demonstrate that while we can reduce the potential for spills and other harmful releases due to human error, we cannot eliminate it. We are particularly concerned that a spill or other accidental release could harm resources that support threatened species. This needs to be fully evaluated.

Third party monitoring and implementation website
The Forest Service should establish a robust monitoring program managed by the agency or a third party. The Forest Service should also engage in spot inspections without prior notification. In addition, the Forest Service should establish an implementation website showing activities completed and activities underway. This website should also host all completed monitoring, inspection and compliance reports. In this way, members of the public can track project implementation, ascertain whether the project is complying with existing regulations, and see how the project adapts to changed conditions. Members of the public should be able to sign up for alerts as the implementation website is updated with new material. The website could post recent photos and updates, as well. The website should be managed by the Forest Service or an independent third party.

[8] See Earthworks (2012); Earthworks (2017)