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Title:
Comments: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 10

The U.S. Environmental Protection Agency has reviewed the draft Environmental Impact Statement prepared by the United States Forest Service for the Stibnite Gold Project (CEQ No. 20200165; EPA Project Number 17-0013-AFS). Our review was conducted in accordance with EPA[rsquo]s responsibilities under the National Environmental Policy Act and Section 309 of the Clean Air Act. EPA is also supporting the Forest Service in the EIS development as a cooperating agency. This included EPA[rsquo]s review and comment on administrative drafts of EIS documents. Additionally, EPA provided scoping comments to the Forest Service in July 2017.

The Stibnite Gold Project draft EIS analyzes a proposal submitted by Midas Gold Idaho, Inc. for mining operations located on the Payette and Boise National Forests in central Idaho. The proposed project includes three open pits, an ore processing facility, development rock storage facilities, a tailings storage facility, a water treatment facility, access and haul roads, and electrical transmission lines. Construction, operation, closure, and reclamation of the Stibnite Gold Project are proposed to occur over approximately 20 years, followed by long-term monitoring, maintenance, and water treatment. The draft EIS analyzes four action alternatives as well as the no action alternative. Alternative 2 represents Midas Gold[rsquo]s current proposed action. The draft EIS does not identify a preferred alternative.

EPA appreciates that the draft EIS has addressed many of the concerns and recommendations that we provided earlier in the process. Based on our review of the draft EIS, we continue to have significant concerns regarding potential impacts to water quality and aquatic resources. We recommend the following key concerns be addressed in the final EIS:

[bull] A lack of testing procedures and criteria that would be utilized to ensure appropriate management of development rock and legacy materials to protect groundwater and surface water quality;

[bull] The need for additional analysis to support the effectiveness of proposed active and passive water treatment processes to mitigate anticipated water quality impacts;

[bull] The need for improved analysis of potential impacts to surface water quality, particularly including impacts of mercury methylation and mercury deposition;

[bull] Post-closure long-term contamination of groundwater of unknown extent due to Yellow Pine pit backfill;

[bull] Lack of clarity and specificity regarding the antimony, arsenic, and mercury thresholds that would be utilized to ensure that reclamation cover materials are protective of human health and the environment; and

[bull] A lack of information to support the effectiveness and long-term success of on-site mitigation for impacts to wetlands and aquatic resources.

The enclosed detailed comments and recommendations address these key issues, as well as additional concerns and recommendations for your consideration.

We appreciate the opportunity to review the draft EIS for the Stibnite Gold Project and look forward to working with you as you prepare the final EIS. We appreciate the constructive ongoing engagement with the Forest Service during the NEPA process. Past technical meetings with the Forest Service and other agencies have

helped resolve some of our previous comments, and we hope to have the opportunity to meet with the Forest Service to discuss our draft EIS concerns and recommendations described in this letter.

If you have questions concerning our comments, please contact Molly Vaughan of my staff in Anchorage, at (907) 271-1215 or vaughan.molly@epa.gov, or you may contact me at (206) 553-6387 or baca.andrew@epa.gov.

Enclosure:

U.S. Environmental Protection Agency Detailed Comments for the Stibnite Gold Project Draft Environmental Impact Statement

Description of Proposed Action and Alternatives Project Timeline

There are conflicting statements in the draft EIS related to the post-closure project timeline. Some

sections of the draft EIS refer to the reclamation and closure timeline as approximately five years followed by monitoring for as long as needed (e.g., Section 1.2, Table 2.2.-1; Section 2.3.3, Figure 2.3- 3). However, the description of Alternative 2 (Midas Gold[rsquo]s proposed action) and the water quality analysis state that active water treatment would occur into perpetuity. Accurately describing the duration of the project timeline supports clear disclosure of the duration of potential impacts and mitigation measures applied to avoid impacts to water quality and aquatic resources.

Recommendations for the Final EIS:

[bull] Consistently describe the project timeline as including five years of reclamation and closure, long-term monitoring, and post-closure water treatment into perpetuity.

[bull] Revise Figure 2.3-3 (Estimated Phasing and Timeline) to include a new row entitled "water treatment" to show that water treatment would be required into perpetuity.

Development Rock and Legacy Material Testing

The draft EIS provides limited information on the criteria and testing procedures that would be utilized to ensure appropriate placement of contaminated legacy materials and development rock. For example, Section 2.3.5.5 states that "physical and chemical testing of the legacy material would determine if the material is suitable for construction uses and determine the final placement of the material. If additional legacy materials are encountered during construction they would be removed and hauled offsite to an appropriate disposal facility, placed in the TSF [tailings storage facility] or a DRSF [development rock storage facility], or left in place, depending on testing to determine physical and chemical suitability." Section 4.9.2.1.1.1 states that the Development Rock Management Plan would include criteria to designate metal leaching and non-metal leaching rock, although the DRMP, and corresponding criteria, would be developed after the preferred alternative is identified.

The criteria for determining metal leaching are critically important to meaningfully evaluate the effectiveness of project plans to manage and dispose of acid generating and metal leaching material in a manner that is protective of water quality and aquatic resources. Without inclusion of these criteria in the draft EIS, EPA cannot evaluate their protectiveness or the effectiveness of the DRMP and legacy materials management plans to avoid and minimize impacts to groundwater and surface water quality. In addition, it is not possible to evaluate whether

legacy materials can be used in construction of project features; if they cannot, it is unclear where construction materials would come from and whether mining additional borrow material could result in additional impacts.

Recommendations for the Final EIS:

[bull] Identify the criteria and testing procedures that would be used in the DRMP and legacy materials management plan to determine whether materials are acid generating and metal leaching.

[bull] Include the draft DRMP and legacy materials management plans in an appendix or in reference materials available on the project website and note in the final EIS text where they can be accessed.

[bull] Evaluate the effectiveness of the criteria and testing procedures at separating metal leaching from non-metal leaching rock and legacy wastes.

[bull] Based on these criteria, evaluate: o Whether the disposal locations and procedures for development rock and legacy materials, as described in the draft EIS, would comply with the plans;

o Whether the materials would need to be disposed in different locations (e.g., not used for construction); and

o Whether additional mitigation actions should be considered.

For example, at many mining sites highly metal leaching materials are separated from non-acid generating and metal leaching materials and placed in disposal areas that include more robust liners and seepage collection systems.

[bull] Based on the criteria, evaluate whether there are changes to the material balances presented in the draft EIS that would entail mining additional clean sources of material for construction.

Contact Water Ponds

Ponds that are important features of mine drainage and process water management are mentioned in the draft EIS, including numerous contact water ponds (Section 2.3.5.9), a tailings pipeline maintenance pond, and a flow equalization pond. However, these ponds are not shown on any figure. The draft EIS also does not contain discussion of the type of embankments that would be built to contain the ponds, the type of liners that would be used to protect groundwater from pond seepage, or seepage monitoring.

Recommendations for the Final EIS:

[bull] Include the pond locations and approximate sizes on figures that show other project components (or create new figures).

[bull] Describe how the ponds would be constructed and maintained to protect groundwater and surface water resources, including information related to the pond embankments, type of liners/liner performance, and seepage monitoring.

Groundwater Spring and Seep Control

Underdrains would be constructed beneath the DRSFs and the TSF to convey groundwater from seeps and springs below the facilities. According to Section 2.4.5.9, the material used to construct the underdrains would be "inert materials with limited potential to generate acid or leach metals." It is not clear what is meant by "limited potential." Without information related to the criteria that would be used to characterize metal leaching potential, it

is not possible to assess whether the materials used to construct underdrains would be protective of water resources.

Recommendation for the Final EIS:

[bull] Provide the criteria that would be used to determine both acid generating and metal leaching potential for underdrain materials and discuss whether the criteria would be sufficient to avoid or minimize impacts to groundwater and surface water quality.

[bull] We recommend that material used for underdrains, and other construction that would come into contact with groundwaters, surface waters, and precipitation, have no potential for acid generation and metal leaching, rather than "limited".

Sanitary Waste

The Alternative 2 Operations Water Balance Flow Diagram (Figure 2.4-11) contains reference to the concept of discharging sanitary wastewater to the Rapid Infiltration Basins. There is no discussion of this in the text, or any subsequent discussion of the possible environmental impacts of such an action.

Recommendation for the Final EIS:

[bull] Clarify whether the sanitary wastewater will be discharged through its own permitted outfall. If there is a possibility of discharging through the RIBs, provide a description in the text of how this would occur and analyze the environmental impacts of this discharge.

Materials, Supplies, Chemical Reagents, and Waste

Section 2.3.5.18 states that "[sodium cyanide would be transported as dry cyanide briquettes to the mine site," but additional information regarding this transport is not provided.

Recommendation for the Final EIS:

[bull] Provide a more complete description of how the briquettes would be packaged (e.g., bagged or in sealed totes) to prevent accidental exposure to the environment in case of an accident, with details provided in an appendix or reference available on the project website if appropriate.

Surface Exploration Wastes

Section 2.3.6.1 states that water and non-toxic drilling fluids will be used during exploration activities but does not provide any information of how disposal of these site wastes will be achieved.

Recommendation for the Final EIS:

[bull] Describe the final disposition of the exploration waste materials.

Mine Site Borrow Sources

Section 2.3.5.13 describes the locations of earth and rock material sources for construction, maintenance, and closure activities. A material balance is not provided to demonstrate that material quantities from these sources are sufficient to meet project needs. Therefore, it is not clear whether additional sources would need to be accessed and mined beyond those disclosed in the draft EIS, which could increase project impacts.

Recommendation for the Final EIS:

[bull] Provide a material balance in the EIS that includes the amount of clean material needed and available at the proposed borrow sources to demonstrate that sufficient quantities are available.

Decommissioning, Demolition, and Disposal of Facilities

Section 2.3.7.2 indicates that all reagents would be removed from the site for reuse or disposed at closure. However, storage would need to be maintained for water treatment supplies and chemicals to support in perpetuity passive and active water treatment systems.

Recommendation for the Final EIS:

[bull] Revise text to indicate that not all facilities and chemicals would be removed from the project site and describe the facilities and chemicals that would remain to support long-term water treatment.

Outfall Locations

Outfall locations during operations and closure do not appear to be provided on any of the maps. This information is relevant to the project description and water quality analysis.

Recommendation for the Final EIS:

[bull] Include outfall locations at operations and closure on an existing figure (e.g., mine site layout figure or water management plan figures) or on a new figure.

Financial Assurance

Section 2.3.7.16 states that "[hellip]financial assurance would provide adequate funding to allow the Forest Service to complete reclamation and post closure operations, including continuation of any post-closure active or passive water treatment." Based on other reclamation and post closure operations, EPA is concerned that without a detailed assessment of the actions needed to complete reclamation and post closure operations for this project, the plan of operations financial assurance determination may not adequately capture the full costs to the Forest Service and provide for effective and enforceable mitigation options.

Recommendation for the Final EIS:

[bull] Include a more detailed assessment of reclamation and post-closure measures, specifically considering in-perpetuity water treatment, and the identification of the financial assurance mechanism(s) in the final EIS to assist with the post-ROD financial assurance determination to be made by Forest Service.

Inclusion of this information in the final EIS would assist with improved efficient and enforceable mitigation, more accurate initial estimate of the initial bond amount post-ROD, reduced variability and adjustments on the permittee, and increased transparency to the public.

Monitoring

Section 2.3.8 refers to the Draft Environmental Monitoring and Management Plan for monitoring details. The Draft EMMP is listed as a reference document and provides a general description of the monitoring that could occur and the general monitoring objectives. Because monitoring is such a critical aspect of the project, providing

some detail related to the proposed monitoring in the final EIS would better support a meaningful evaluation of the sufficiency of the monitoring to assess project environmental impacts.

Recommendations for the Final EIS: Include the following:

[bull] A summary of proposed monitoring locations and parameters for each resource during operations and closure. This information could concisely be provided in tables.

[bull] A discussion of the frequency and duration of monitoring and reporting.

[bull] An explanation of where the complete Draft EMMP can be found.

Annual Report

The proposed action includes submittal of an annual report during reclamation and closure to summarize activities completed, monitoring, and corrective actions. Regular reporting would also be relevant during the operations phase, but this is not discussed in the draft EIS.

Recommendation for the Final EIS:

[bull] Describe annual reporting requirements during operations.

Rapid Infiltration Basins

In the RIBs descriptions under Alternative 1, Section 2.3.5.9 states that "[t]he RIBs would be fully contained basins with no direct surface water discharges under normal operations. Because the RIBs would be located within alluvium, some interaction between the discharge water and surface water would be expected to occur." This section differs from subsequent descriptions of the RIBs, including in Section 4.8, which describe the role of the RIBs as enhancing the flow of the East Fork South Fork Salmon River (EFSFSR) downstream of the input points.

In the RIBs descriptions under Alternative 2, Section 2.4.5.6 states that "[t]he RIBs would function the same as Alternative 1. However, RIBs would receive treated water from the Centralized [water treatment plant], primarily treated pit dewatering water. Analysis is still underway to determine the volumes of dewatering water to be pumped to the RIBs." Accurate estimates of dewatering water are important to create an accurate water balance, which is a critical basis of the water quality predictions in Section 4.9

Recommendations for the Final EIS:

[bull] In Section 2.3.5.9, clarify that the role of the RIBs is to enhance downstream surface water flows.

[bull] Develop accurate estimates of the volume of water that would be produced from dewatering and include these estimates in the EIS. Update the water balance and water quality predictions, as needed.

Reclamation and Closure Visualization/Figures

Figures are provided that show facilities during mining operations. However, no figures are provided to show the changed landforms and facilities that remain at closure (e.g., pit lakes, DRSF and TSF landforms, passive and active water treatment facilities and outfalls for each).

Recommendation for the Final EIS:

[bull] Provide a figure that shows what the main project features would look like after closure and identify the facilities that would be actively managed. Include the items identified in the comment.

Alternatives Analysis

Consistency of Impacts Analysis for All Alternatives

The analysis of Alternative 2 is different in several respects from the other action alternatives, seemingly because Midas Gold provided additional information specific to this alternative based on identified mitigation needs and information developed for the State permitting process. For example, the water quality impacts analysis only includes water treatment for Alternative 2 because Midas Gold developed a proposed Water Quality Management Plan based on this alternative. In addition, a different emissions inventory was used for Alternative 2 based on New Source Review permitting requirements, as discussed further in our Air Quality comments below.

Recommendation for the Final EIS:

[bull] Treat alternatives equally in the impacts analysis and include water treatment in all action alternatives. See our Air Quality comments below for recommendations specific to emissions inventories.

Alternative 1 Water Treatment Process

The draft EIS contains conflicting descriptions of water treatment that would occur under Alternative 1. For example, Section 2.3.5.9 states "[t]he conceptual water treatment system during operations would be an active treatment system at the ore processing area using either iron coprecipitation or reverse osmosis. Final treatment system selection, design, and operational throughput are under evaluation." However, the water quality analysis in Section 4.9 assumes that no active water treatment would occur. A consistent description of Alternative 1 water treatment is needed to support evaluation of water quality predictions and impacts that are representative of the alternative.

Recommendation for the Final EIS:

[bull] Clarify the water treatment proposed for Alternative 1 and revise the water quality analysis as needed so that it is representative of the alternative.

Alternative 3 Legacy Materials

Section 2.5.5.3 states that, because the Hangar Flats DRSF would be relocated to the EFSFSR, there would be no need to remove the spent ore disposal area and Bradley tailings materials in the Meadow Creek Valley. However, Section 2.5.5.1 indicates that legacy materials may be used in construction of the TSF dam. Further, the draft EIS also describes that the road alignment under Alternative 3 eliminates access to two borrow sites. Therefore, it appears that the legacy material may be used for construction of the TSF embankment, similar to the other alternatives.

Recommendation for the Final EIS:

[bull] Clarify why removal of the SODA and Bradley tailings materials is not included under Alternative 3 and provide details on the sources of materials that would be used to construct the TSF.

Mitigation Measures

Each resource section of environmental consequences in Chapter 4 contains a subsection on "Mitigation Measures and Effectiveness." However, each of these subsections refer the reader to Appendix D, and do not provide resource-specific discussions of mitigation measures that are proposed to reduce identified environmental impacts or their anticipated effectiveness. Given the large amount of information presented in Table D-1 [ndash] Preliminary Mitigation Measures Required by the Forest Service and Table D-2 [ndash] Mitigation Measures Proposed by Midas Gold as SGP [Stibnite Gold Project] Design Features, it is challenging to determine which measures were specifically considered in each resource section.

Recommendation for the Final EIS:

[bull] In each resource section on "Mitigation Measures and Effectiveness," summarize the key mitigation measures that would reduce impacts to that resource, including any additional mitigation measures identified following the draft EIS comment period. For any measure that was not incorporated into the impacts analysis, discuss its anticipated effectiveness in reducing identified impacts.

Reasonably Foreseeable Future Actions

Midas Gold has requested that EPA enter into a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Administrative Settlement and Order on Consent (ASAOC) to address certain legacy mining impacts at the site. EPA is currently in discussion with Midas Gold, the Forest Service, and applicable agencies and tribal governments regarding a potential ASAOC and Statement of Work (SOW). Should the ASAOC/SOW be finalized before the final EIS, then the work outlined in the SOW will become a Reasonably Foreseeable Future Action since the work could occur during proposed mining activities and could impact the same groundwater and surface water resources.

Recommendation for the Final EIS:

[bull] If the ASAOC/SOW is signed before publication of the final EIS, include the work outlined in the ASAOC/SOW as a RFFA and evaluate cumulative impacts accordingly.

Water Resources

Surface Water and Groundwater Quantity

Influence of IPDES Discharges and RIBs on Surface Water Reductions

Section 4.8.2.1.1.1 of the draft EIS states that Idaho Pollutant Discharge Elimination System discharges would "have a minor mitigation effect to surface water quantity by compensating for surface water reductions due to dewatering." However, the draft EIS does not provide any details regarding the magnitude of this mitigation effect to support the conclusion of minor effects or discuss whether there are approaches to further reduce dewatering impacts by moving the IPDES outfall or RIBs to alternate locations.

Recommendations for the Final EIS:

[bull] Provide estimates of the amount of water that would be discharged from the RIBs and IPDES outfall in comparison to streamflow losses.

[bull] Evaluate whether there are alternate locations for the RIBs and outfall discharges that would result in more than a minor mitigating effect on surface water reductions.

Summary of Surface Water Flow Impacts

Although Table 4.8-1 compares surface water flow reductions for Meadow Creek for all alternatives, it omits flow reductions that would occur in the EFSFSR.

Recommendation for the Final EIS:

[bull] Add the predicted stream flow reductions in the EFSFSR to the comparison summary table for all alternatives.

Water Treatment Evaluation

The draft EIS predicts that all alternatives would exceed water quality criteria and surface water quality baseline conditions for at least one constituent (Table 4.9-27). Although the draft EIS indicates that water treatment would be applied to mitigate these effects, the effectiveness of the proposed water treatment processes is not meaningfully evaluated. The draft EIS does not present estimated water treatment plant influent water quality, the results of treatability studies, or predicted effluent quality.

While the draft EIS states that the proposed treatment processes have been demonstrated on other similar applications for treating arsenic, antimony and mercury, evidence and references are not provided to support this statement. In addition, the descriptions of certain proposed water treatment processes are not precise, with several possibilities presented as treatment options. Therefore, it is not clear what the specific water treatment steps would be, and it is not possible to evaluate the ability of the treatment system to meet water quality standards.

Recommendations for the Final EIS: Provide the following information to support evaluation of the effectiveness of water treatment:

[bull] Disclose estimated influent water quality (for all constituents) and influent flows under average and extreme conditions to the active water treatment plant and each of the passive and temporary water treatment systems proposed for each alternative.

[bull] Develop water treatment process removal efficiencies for each constituent in the influent that exceeds water quality criteria. Treatment removal efficiencies are preferably based on treatability studies done on actual or simulated site waters using the proposed water treatment plant processes. If treatability studies have not been conducted, then provide information from where these same passive and active water treatment technologies have been used to treat wastewaters of similar chemistry and develop removal efficiencies based on this information.

[bull] Develop predicted effluent quality for each passive and active water treatment plant based on influent quality and removal efficiencies. Present the predicted effluent quality in the FEIS and compare effluent quality to water qualtiy criteria.

Surface Water Quality

Yellow Pine Pit Dewatering

The draft EIS does not evaluate the surface water quality impacts associated with dewatering the Yellow Pine Pit during construction, prior to mining. Section 2.3.5.9 states that appropriate best management practices to control turbidity would be employed under the Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activities, if necessary. However, the draft EIS does not provide information on current Yellow Pine Pit

water quality to validate that only measures to control turbidity would be needed. Pit water quality likely exceeds water quality standards for other parameters in addition to turbidity, so additional water treatment would be needed to meet IPDES permit limits and protect downstream water quality.

Recommendations for the Final EIS:

[bull] Include a table that provides current water quality of the Yellow Pine Pit lake.

[bull] Based on this information, evaluate water treatment needs for pit water to determine if treatment for more than turbidity would be needed to meet water quality standards. If that is the case, then include a mitigation measure that would accomplish treatment of Yellow Pine Pit water.

[bull] Evaluate surface water quality impacts due to discharging Yellow Pine Pit water during construction.

Predictions and Assessment Nodes

Surface water quality predictions were made at assessment nodes downstream of project facilities (pits, DRSFs, and the TSF). The predicted changes at the assessment nodes account for both impacts due to project facilities and dilution in the streams between the project discharges and the assessment node.

This could result in an under prediction of water quality impacts since stream chemistry between the project discharges and the assessment node could be greater than that predicted at the node. For example, assessment node YP-SR-4 appears to be about 2000 feet downstream of the Yellow Pine pit and therefore is not necessarily representative of impacts to the EFSFSR closer to the pit. This could imply that a mixing (dilution) zone would be authorized, which would not typically be available in an impaired situation such as the current situation at the project site.

Recommendation for the Final EIS:

[bull] Disclose the uncertainties associated with establishing assessment nodes downstream of discharges and how the uncertainties could impact water quality predictions.

Baseline Data

Surface water quality baseline conditions were documented through the surface water sampling program and are used throughout the draft EIS impacts analysis for comparison with predicted water quality conditions. According to information presented in the DEIS, the most upstream station where water quality was sampled is Station YP-SR-10, a site still heavily influenced by historic mine features.

Recommendations for the Final EIS:

[bull] Clarify throughout the impacts analysis that the baseline water quality sample locations are influenced by historic mining and no station can be considered reflective of the natural condition.

[bull] Regarding the Quality Assurance Project Plan for baseline sampling referenced in the draft EIS, describe whether this plan was submitted to and approved by any Agency (i.e., Forest Service, Idaho Department of Environmental Quality).

Seeps and Springs Baseline Data

Water quality sampling was performed for seeps and springs at the site locations identified on Figure 3.9-2.

Some of the sampling results from seeps impacted by past mining operations are discussed in the draft EIS (Section 3.9.3.3.2.3), but a summary of water quality of natural seeps and springs is not provided. This information is relevant to provide a baseline for predicted changes to seep and spring water quality due to project implementation.

Recommendation for the Final EIS:

[bull] Add a table that provides water quality data for constituents (minimum, maximum, and average) sampled in seeps and springs (natural and those impacted by past operations), consistent with how water quality data was disclosed for surface water (e.g., Table 3.9-5).

Water Quality Criteria

Table 3.9-2 indicates that the 5th percentile hardness was used to determine the hardness-based metals criteria. Idaho Water Quality Standards require the use of hardness at the critical low flows, which could result in more or less stringent criteria than are reflected in the Table.

It also appears that not all categories from the IDEQ Implementation Guidance for the Idaho Copper Criteria for Aquatic Life [ndash] Using the Biotic Ligand Model (November 2017) were applied to develop the copper criterion of 2.4 ug/L used in the draft EIS. The IDEQ BLM Guidance requires the most stringent standard from all categories be used to determine the conservative copper BLM criterion. Section 6.1 of the Guidance states that any stream order less than 5 is a stream and not a river. Given that Table 3.9-2 states that the EFSFSR is a 3rd order stream, it would be categorized as a Mountain Stream.

Recommendations for the Final EIS:

[bull] Use the critical low flows for the project area (1Q10 and 7Q10) to determine the criteria.

[bull] Consider all the categories in determining the copper criterion in accordance with the IDEQ BLM Guidance, which would result in 0.6 ug/L as the most stringent criterion rather than 2.4 ug/L and use this value throughout the final EIS analysis.

Sediment Impacts

Section 4.9.2.1.2.1 states that "[t]he effect to surface water quality as a result of sedimentation and erosion would be limited by applicable mitigation strategies and control techniques, by the limited duration of surface disturbing activities, and by the adaptability of the receiving environment (as indicated by the typically low baseline levels of total suspended solids and turbidity with seasonally variable spikes at times of higher overland flow)." However, information is not provided to support these conclusions.

Recommendations for the Final EIS:

[bull] Clarify what is meant by "limited duration of surface disturbing activities" since surface disturbance would occur during all phases of the project.

[bull] Clarify that seasonal adaptability does not reflect an ability to adapt to a continuous load of sediment or continuously turbid waterbody.

Access Roads

Section 4.9.2.1.1.2 of the draft EIS states that "access road crossings of the EFSFSR and Sugar Creek would not

contribute arsenic or mercury loading as long as arsenic and mercury are not present in the disturbed soils." It is not clear from this statement whether proposed locations of access road crossings have been assessed for arsenic and mercury.

Recommendation for the Final EIS:

[bull] Clarify how it will be determined whether arsenic and mercury are present, and what measures will be in place to prevent impacts if they are found in disturbed soils.

Mercury Impacts Analysis Methodologies

Mercury Deposition

The draft EIS does not evaluate the impacts to surface water quality due to deposition of mercury from project-related fugitive emissions and ore processing facility emissions. These sources are predicted to emit 32 lbs of mercury per year, which is not an inconsequential amount. Without this assessment it is likely that the draft EIS underpredicts the impacts of mercury on surface water quality and aquatic resources and therefore it is not possible to assess whether additional mitigation would need to be applied. This is especially concerning since some of the streams in the project area are already impaired for mercury and mercury is one of the primary contaminants of concern identified in the draft EIS. A meaningful evaluation of the impacts due to project-related mercury deposition can be performed without redoing the Site-wide Water Chemistry model, since it can be evaluated as an additive impact. For example, see the evaluation of mercury deposition for the Donlin Gold Project final EIS (U.S. Army Corps of Engineers 2018).

Recommendations for the FEIS:

[bull] Quantify the estimated amount of mercury that would be deposited on site soils, wetlands, and surface waters due to deposition from project-related mercury emissions. Include evaluation of the geographic extent.

[bull] Evaluate impacts by estimating changes in surface water mercury concentrations due to deposited mercury.

Predicted Methylmercury Concentrations

The draft EIS uses a value of 2% methylmercury (MeHg) to predict future MeHg concentrations, based on a previous study of Sugar Creek and EFSFSR (Holloway et al. 2017). We are concerned that the 2% value is based on only two samples that were collected during June, while numerous studies have shown that in general MeHg concentrations tend to be highest at the end of summer. Table 1 in Holloway et al, 2017 shows dissolved total mercury (THg) of 9.38 nanograms per liter(ng/L) and MeHg of 0.38 ng/L measured in Sugar Creek, which results in a % MeHg of 4.1%. This is a higher methylation percentage than observed in the EFSFSR and would represent a more conservative value to use in water quality predictions. In addition, because the mining activities will result in an increase in sulfate loading, which could increase the methylation rate, the utilization of the 2% value will likely greatly underestimate the impact of the proposed mine on MeHg concentrations.

Recommendations for the Final EIS:

[bull] Use the site-specific value of 4.1% MeHg instead of 2% MeHg to predict future concentrations.

[bull] Evaluate and discuss the potential for sulfate loading to increase MeHg production.

Seasonal Variability and the Role of Groundwater Mercury Sources

Section 3.9 of the draft EIS does not address the influence of seasonal variability on dissolved mercury concentrations. The average dissolved mercury concentration measured during the baseline study (Table 3.9-4) was calculated to encompass a large range (from 4 to 56 percent) of the average total mercury concentration. Without additional information regarding the cause of this large range, the potentially important role of seasonal differences on mercury sources (e.g., particle erosion versus groundwater) remains unclear. Later in Section 3.9, the draft EIS describes that "mercury concentrations are positively

correlated to streamflow" and suggests that the mercury is "derived from erosion and resuspension of surface material." While we agree that the positive correlation between streamflow and mercury concentration indicates that at higher flow conditions the mercury is likely derived from erosion and resuspension of surface material, it does not indicate that during lower flow conditions most of the mercury is associated with particles.

Recommendation for the Final EIS:

[bull] Address the role that seasonal differences in hydrological conditions may be playing in the dissolved mercury concentrations.

[bull] Provide additional information to support the conclusion that most of the mercury is bound to particles.

Applicable Water Quality Criteria for Mercury

EPA previously recommended that the human health methylmercury criteria be considered the most stringent applicable mercury criteria referred to in the EIS. This human health value is 0.3 milligrams per kilogram (mg/kg) and has been translated into a total-mercury water concentration of 2 ng/L (see the 2014 ESA Biological Opinion Idaho Water Quality Standards for Toxic Substances report). This value is more stringent than the aquatic life total mercury value of 12 ng/L. We appreciate the inclusion of the 2 ng/L value in Table 3.12-24 and Table 4.12-7. However, throughout the discussions and figures in other sections of the DEIS, the less stringent 12 ng/L value is referred to.

Recommendation for the FEIS:

[bull] Replace references to the 12 ng/L value with 2 ng/L throughout the EIS or use both criteria, and update conclusions regarding comparison with the criteria as needed.

Methylmercury Detection Level

Section 3.9.3.1.1.4 lists two values as the detection level for methylmercury. Clarification of this value is important due to the large number of non-detect results.

Recommendation for the Final EIS:

[bull] Clarify whether the detection level was 0.01 ng/L or 0.1 ng/L.

Groundwater Impacts

Groundwater Concentrations Below DRSFs

Groundwater concentrations below the Hangar Flats and West End DRSFs would exceed baseline conditions and groundwater quality standards under all of the action alternatives, and section 4.9.2.1.3.1 of the draft EIS states that contaminated groundwater would migrate to the open pits. While statements in the draft EIS imply that 100% of the groundwater would flow to the pits, groundwater flow maps are not presented to support this

conclusion. The draft EIS summarizes groundwater concentrations but does not evaluate the geographic extent of contamination from the DRSFs. Geographic extent is important to fully characterize the nature of the impacts and evaluate whether additional mitigation and monitoring is warranted. This information is typically supplied in mining EISs.

Recommendations for the Final EIS:

[bull] Clarify whether 100% of the groundwater contaminated by the DRSFs would flow to the open pits. If some groundwater would not flow to the open pits, explain where it would flow and describe the geographic extent during operations and closure.

[bull] Include groundwater flow maps to support final EIS conclusions.

Alternatives or Mitigation for Groundwater Impacts

The draft EIS predicts that backfilling the Yellow Pine Pit would result in groundwater contamination significantly exceeding both current (contaminated) background conditions and groundwater standards for arsenic and antimony during operations and post-closure. Section 4.9.2.1.3.1 indicates that the groundwater "may migrate beyond the final extent of the pit through fractures in the pit walls or through native alluvium at the downgradient edge of the pit." The draft EIS does not describe how far the contaminated groundwater would flow from the pit or whether the groundwater would impact surface waters. Given that efforts are being made to improve groundwater conditions at the site through removal of legacy materials, it is concerning that mining activities will worsen groundwater conditions to an undisclosed extent at this location.

Recommendations for the Final EIS:

[bull] Describe the geographic extent of groundwater contamination due to Yellow Pine pit backfill, whether groundwater would impact surface waters, and the magnitude and duration of the impacts.

[bull] Include mitigation and/or an alternative to mitigate the groundwater impact due to Yellow Pine Pit backfill. The current pit backfill plan includes some potentially acid generating (PAG) material being placed into the pit. Consider mitigation that would not allow PAG or metal leaching material to be disposed as backfill in the pit.

[bull] Evaluate an alternative to backfilling such as creation of a pit lake at closure and long-term water treatment, as is proposed for the Hangar Flats pit under Alternative 2, if this would reduce groundwater impacts.

Surface Water and Groundwater Quality Impacts Summary Table

We offer the following recommendations to improve disclosure of surface water and groundwater quality impacts in the summary table (Table 4.9-27).

Recommendations for the Final EIS:

[bull] The table currently shows only EFSFSR water quality impacts at post-closure. Add a row that summarizes impacts to the EFSFSR during operations.

[bull] Summarize extent of surface water impacts by stating how far downstream (in feet or miles) the impact occurs in the EFSFSR both for operations and closure.

[bull] Add a row that summarizes water quality impacts during construction.

[bull] Highlight temperature criteria exceedances.

[bull] The table summarizes groundwater concentrations. Also include a summary statement of extent (feet from project features) that groundwater contamination occurs and the duration.

Geochemistry and Material Management Impacts

Predicted Chemistry of Development Rock Leachate and Pit Lakes

Section 4.9 of the DEIS summarizes pit wall lithology and development rock testing, but it does not fully present the results of the estimated chemistry of the pit lakes and DRSF seepage and runoff.

Constituents that were leached at concentrations above water quality criteria are listed, but the DEIS does not provide the magnitude of the exceedances. This information is critical to disclose and characterize pit water quality and seepage produced from development rock and to assess whether the proposed water treatment processes would be effective at treating these sources. Estimated chemistry was provided for TSF process water and seepage and is typically provided in mining EISs for other sources including open pits and DRSFs.

Recommendation for the Final EIS:

[bull] Provide tables that disclose the predicted concentrations of all constituents for the following (see Table 4.9-9 as an example, though ranges of concentrations could also be presented):

1. Predicted runoff and seepage water quality for the Hangar Flats, West End, and Fiddle DRSFs during operations and closure;

2. Predicted water quality for the Hangar, Yellow Pine, West End, and Midnight open pits during operations and closure; and

3. Predicted water quality of the Yellow Pine pit backfill seepage.

Removal of Legacy Materials

The proposed project includes removing, reprocessing, and reuse of approximately 11.8 million tons of contaminated material from the project area. This activity, if conducted appropriately, could have a beneficial impact on groundwater and surface water quality. However, the water quality impacts of this aspect of the project are not adequately assessed. Rather, the draft EIS indicates that, even though groundwater and surface water quality impacts will exceed standards due to project implementation, concentrations for some constituents would be below current background levels. Such statements do not account for the improvements in groundwater and surface water quality that could occur due to management of legacy materials. As discussed above, Alternative 3 would not include removal of the SODA or Bradley tailings, thus this potential beneficial water quality impact would not occur under this Alternative 3.

Recommendation for the Final EIS:

[bull] Include a more complete evaluation of the impacts to groundwater and surface water quality associated with removal, reprocessing, and reuse of the SODA materials and Bradley tailings by describing the magnitude and extent of predicted changes to water quality chemistry from these actions.

Alternatives or Mitigation to Reduce Impacts due to SODA Material Management

Section 4.9.2.1.3.1 of the draft EIS states that "placing SODA in the TSF embankment could contribute to mass loading of arsenic and antimony in the underlying alluvial aquifer." The impacts of this loading are discounted since groundwater is already contaminated due to past mining. As noted above, removal of legacy mine wastes could improve groundwater quality, therefore while comparison to current conditions is valid, it is also important to consider potential future cleaner groundwater conditions.

Based on information presented in the draft EIS, it appears that removing the SODA wastes as proposed may just be moving contaminated material from one location to another. Using only clean material for the TSF embankment would prevent leaching and prevent creation of preferential flow paths that could impact TSF stability.

Recommendations for the Final EIS:

[bull] Consider an alternative and/or mitigation to reduce groundwater impacts that would result from placing SODA material in the TSF embankment, such as improved collection and treatment of leachate from the TSF embankment.

[bull] Consider an alternative or alternative variant that utilizes only clean material for the embankment, such as an alternative that disposes SODA material in the lined TSF or in a lined repository within or adjacent to one of the DRSFs.

Neutralizing Potential Ratio

A site-specific Neutralizing Potential Ratio of 1.5 was used to differentiate between PAG and non-PAG development rock material. According to Section 4.9.2.1.1.1 of the DEIS, the 1.5 NPR threshold was based on guidance contained in the Global Acid Rock Drainage (GARD) Guide (International Network for Acid Prevention 2014). However, we note that the GARD Guide classifies rock as PAG if the NPR is less than 1, and non-PAG if the NPR is greater than 2. Midas Gold selected an NPR cutoff midway between these values.

Recommendation for the Final EIS:

[bull] Utilize an NPR of 2, consistent with the GARD Guide, to ensure adequate identification and management of PAG material and minimization of impacts to water quality.

Temperature Impacts

EPA appreciates the temperature modeling included in the draft EIS to evaluate the impact of mining activities on temperature response and the potential for fish habitat resilience. Predicted stream temperature increases resulting from project activities associated with all action alternatives are significant and appear to increase water temperatures above the water quality standard within several reaches within the project area. Temperature criteria violations were predicted downstream of the project area several decades after mining activities are terminated. Water quality standards are set to protect the beneficial uses within streams and violations of the standards indicate a potential detrimental impact to the beneficial uses.

While temperature reductions in the Meadow Creek sites in Alternative 2 were temporarily reduced below values predicted for Alternative 1, temperatures associated with Alternative 2 were predicted to increase above Alternative 1 by end of year 18. Alternative 3 was shown to greatly increase stream temperature within the Upper EFSFSR above Meadow Creek, a segment of the river which currently is not highly impacted by historic mining activities; these temperature impacts contribute to downstream temperature increases, resulting in the highest reported stream temperatures downstream of the project area.

Recommendations for the Final EIS:

[bull] Consider the importance of minimizing temperature increases when selecting a preferred alternative, in order to minimize the resulting increased temperature criteria violations throughout the project area.

[bull] Explore additional mitigation and restoration opportunities, including off-site restoration, to reduce existing elevated temperatures within historically disturbed areas and to improve aquatic resource habitat.

Scout Decline and Exploration

The draft EIS does not evaluate impacts to groundwater and surface water quality from the underground and surface exploration that is included in the proposed project description in Section 2.3.6. The Scout underground decline would be one mile long and would encounter groundwater. Approximately 100,000 tons of material would be mined. EPA recommends disclosing the impacts of these activities on groundwater and surface water quality in the final EIS.

Recommendation for the Final EIS:

[bull] Evaluate impacts of surface and underground exploration activities including the Scout decline on groundwater and surface water quality and discuss mitigation measures to minimize impacts. Depending on the result of the evaluation, mitigation measures may include best management practices associated with water and materials management.

Stream Restoration

The proposed project includes the post-mining reconstruction of obliterated stream channels and creation of new stream channels with full hydrological and biological function. EPA is not aware where this extent of stream restoration/creation has been successfully undertaken or accomplished. Additional detail is therefore needed to demonstrate the ability to establish and perform key functions (transport of wood, water, sediment, and biological stability). EPA has concerns that if these do not function as proposed, it may affect the estimates of stream temperature, DO, and other constituents that affect water quality and stream biota. While the draft EIS states that any issues will be adequately addressed in "development of performance standards and monitoring," providing additional discussion in the final EIS will help decision makers and the public understand the likelihood of success as well as the ramifications if the reconstructed stream channels fail to perform as intended.

Recommendations for the Final EIS:

[bull] Provide additional analysis and discussion of the complexities associated with stream reconstruction/creation of this large spatial extent, including disclosing the risks and limitations.

[bull] Provide the performance standards that would be used to determine success and evaluate the sufficiency of the standards.

Soils and Reclamation Cover Materials

Screening Values for Contaminated Soil Cover Material

The draft EIS contains some inconsistent information on the screening levels that would be used to determine materials that would be suitable for reclamation cover material. According to Section 4.5.2, Midas Gold proposed

a 3,000-ppm arsenic limit for suitable root zone material in the Reclamation and Closure Plan. This value is much higher than the average arsenic concentration in contaminated soils at the site (94.4 ppm). The draft EIS notes that the re-use of soil and rock at the mine site may complicate revegetation plans for reclaimed areas.

Section 4.18 of the draft EIS identifies proposed risk-based screening levels for arsenic, mercury, and antimony based on risk to recreational users (Table 4.18-4). We are concerned that these values may not be protective of risks to surface waters and ecological receptors. The RBSL values for mercury are 240 mg/kg. While this value was developed for soil ingestion RBSLs, impacts to proximate waterbodies at concentrations in this general range could be a significant issue. A mercury concentration of 240 mg/kg in reclamation cover material would be similar to the average concentration of mercury in tailings at the Cinnabar Mercury Mine (259 [plusmn]101 mg/kg), which is a significant source of mercury to downstream waterbodies. In addition, surface emissions to the air at concentrations in this range could become a significant source to the atmosphere that would need to be included in the emission estimates. The proposed cover material concentration of 240 mg/kg is three to four orders of magnitude above typical background soil concentrations presented in the draft EIS, which identifies a mean mercury concentration in soil samples collected from undisturbed areas surrounding the mine site of 0.94 mg/kg. It is not clear why any contaminated material would be used as reclamation cover material, when utilizing uncontaminated soils would reduce risk. We are concerned with potential ecological and health impacts associated with using contaminated soils for reclamation cover materials.

Recommendation for the Final EIS:

[bull] Use the site-specific undisturbed background values of arsenic, antimony, and mercury as the target value for clean reclamation cover material, including the mercury value of 0.94 mg/kg.

Amounts of Reclamation Cover Material

The draft EIS identifies a deficit of cover material suitable for reclamation (Table 4.5-11). Therefore, it

seems that new sources of material are needed beyond those described in the draft EIS. Accessing and excavating these additional material sources could result in additional impacts beyond those evaluated in the draft EIS.

Recommendations for the Final EIS:

Based on the target values for reclamation cover materials (see our previous comment regarding screening values), identify additional areas where clean cover material can be obtained to demonstrate that sufficient amounts of cover material would be used. If these locations are not already included in the proposed project and EIS, evaluate the impacts from accessing and removing cover material at these new locations.

[bull] Update the Draft Reclamation and Closure Plan based on cover material target levels, cover material sources, and any other project closure modifications (e.g., include long-term water treatment) and include a note in the final EIS regarding where the updated Draft RCP can be accessed.

Potential Public Health Risks from Reclamation Cover Materials

The Idaho Department of Health and Welfare previously recommended, in a Letter Health Consultation referenced in the draft EIS, that soil that would be used for reclamation be further characterized to adequately assess any public health risks. The IDHW included the following specific recommendations: "Provide more specific information on the location, distribution, and metal concentrations of selected surface soils across the reclaimed site. This is necessary to understand metal concentrations in areas of the site that are likely to be accessed by recreational users. Natural background concentrations for metals in soils near the site should also

be identified."

Recreational RBSLs were calculated and presented in Table 4.18-4. The draft EIS states, "these proposed RBSLs, or another agreed upon RBSL, are intended to be used to determine the suitability of reclamation cover materials for protection of public health... The IDHW (2019) recommendations should be considered and a site-specific study on how RCM is identified, allocated, and used should be conducted, with agency consultation, to ensure protection of public health." We support the need to conduct a site-specific study to inform the RCP. As noted in comments above, we recommend that the cover materials not represent an ecological or human health risk.

Recommendations for the FEIS:

[bull] Apply IDHW recommendations to determine updated RBSLs.

[bull] Compare concentrations of metals in soils with updated RBSLs and describe any potential risks to public health.

Geological Resources

Impacts to Geological and Mineral Resources

Section 4.2.1 of the draft EIS identifies the amount and value of ore extracted and depletion of mineral resources as effects indicators but does not fully evaluate the project and alternatives compared to these indicators. The mineral resources analysis (Section 4.2.2.1.1.1) identifies the total quantity of ore plus development rock that would be mined from each pit, but does not describe the amount of ore that would be mined from each pit (mineral reserve) in comparison to the amount of measured and indicated mineral resources that have been delineated by Midas Gold in its Preliminary Feasibility Study or any updated technical reports. This information is relevant to understanding ore geology and how the proposed project and alternatives may impact the overall mineral resources.

Recommendations for the Final EIS:

[bull] In Section 3.2.3.2, describe the current estimates of the mineral resources and mineral reserves for each deposit.

[bull] In Section 4.2.2.1.1, compare the mineral resources and reserves to the amount of ore that would be mined from each pit to predict the amount (tons) of mineral resources that would remain in each pit at the end of mining operations, and describe any further impacts of the project and alternatives on the remaining mineral resources. For example, under Alternative 2 the Yellow Pine Pit and Hangar Flats pits would be backfilled after 12-15 years of mining, which would strand a mineral resource locations are not already included in the proposed project and EIS, evaluate the impacts from accessing and removing cover material at these new locations.

[bull] Update the Draft Reclamation and Closure Plan based on cover material target levels, cover material sources, and any other project closure modifications (e.g., include long-term water treatment) and include a note in the final EIS regarding where the updated Draft RCP can be accessed.

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specific information on the location, distribution, and metal concentrations of selected surface soils across the reclaimed site. This is necessary to understand metal concentrations in areas of the site that are likely to be accessed by recreational users. Natural background concentrations for metals in soils near the site should also be identified."

Recreational RBSLs were calculated and presented in Table 4.18-4. The draft EIS states, "these proposed RBSLs, or another agreed upon RBSL, are intended to be used to determine the suitability of reclamation cover materials for protection of public health... The IDHW (2019) recommendations should be considered and a site-specific study on how RCM is identified, allocated, and used should be conducted, with agency consultation, to ensure protection of public health." We support the need to conduct a site-specific study to inform the RCP. As noted in comments above, we recommend that the cover materials not represent an ecological or human health risk.

Recommendations for the FEIS:

[bull] Apply IDHW recommendations to determine updated RBSLs.

[bull] Compare concentrations of metals in soils with updated RBSLs and describe any potential risks to public health.

Geological Resources

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Recommendations for the Final EIS:

[bull] In Section 3.2.3.2, describe the current estimates of the mineral resources and mineral reserves for each deposit.

[bull] In Section 4.2.2.1.1, compare the mineral resources and reserves to the amount of ore that would be mined from each pit to predict the amount (tons) of mineral resources that would remain in each pit at the end of mining operations, and describe any further impacts of the project and alternatives on the remaining mineral resources. For example, under Alternative 2 the Yellow Pine Pit and Hangar Flats pits would be backfilled after 12-15 years of mining, which would strand a mineral resource.

Geotechnical Hazards

Application of National Dam Safety Program Guidelines

The draft EIS states that the Forest Service would require the TSF to adhere to Federal Emergency Management Agency National Dam Safety Program (NDSP) guidelines. However, the analysis of geotechnical hazards in Section 4.2.2.1.2.1 compares factors of safety to only State of Idaho criteria. Both Federal and State dam safety

guidelines and criteria are relevant to the EIS evaluation of geotechnical stability for TSFs on Federal land, and some of the Federal guidelines may be more stringent. For example, Idaho regulations require a minimum pseudo-static (earthquake) factor of safety of 1, whereas FEMA guidelines recommend 1.2.

Recommendations for the Final EIS:

[bull] Revise section 4.2.2.1.2.1 and 4.2.2.1.4.1 to include comparison of factors of safety, earthquake return periods, maximum credible earthquake and other key design criteria to both Idaho requirements and FEMA NDSP guidelines. As an example, see Table 3.10.1-2 from the Resolution Copper Project draft EIS (Forest Service, August 2019), which shows how the Forest Service succinctly compared key dam design criteria of the proposed project to State requirements, Federal guidelines, and industry best practices.

[bull] Adopt FEMA NDSP guidelines for the TSF dam to adhere throughout its life, in addition to the State of Idaho requirements.

Hangar DRSF Buttress and TSF Dam Construction

The high factors of safety for the TSF are largely due to the Hangar Flats DRSF buttress in front of the TSF dam. To maintain these high factors of safety, it is critical that the buttress be developed at the same rate as the TSF dam height is increased. The draft EIS does not describe the construction sequencing of these structures or the quality control that will occur during construction and operations to ensure that the high factors of safety are maintained.

Recommendations for the Final EIS:

[bull] Describe the construction sequencing of the Hangar DRSF and TSF dam.

[bull] Include a mitigation measure in Appendix D that requires that the structures be constructed concurrently to maintain the high factors of safety for the TSF as disclosed in the draft EIS.

Independent Engineering Review of the TSF

The draft EIS does not describe the type of inspections or reviews that would occur to ensure geotechnical stability of the TSF dam or whether independent engineering reviews would be required. Regular independent reviews are a best practice as described in the Global Industry Standard on

Tailings Management (ICMM, UNEP, PRI, August 2020), Independent Expert Engineering

Investigation and Review Panel Report on Mount Polley Tailings Storage Facility Breach (2015) and in Appendix E of the DEIS.

Recommendations for the Final EIS:

[bull] Due to the size of the TSF and the critical aquatic habitat downstream, include regular independent engineering reviews of the TSF as a mitigation measure in Appendix D.

Geotechnical Impacts Associated with Project Effects on Underground Workings

The draft EIS identifies areas with historic underground workings including the Meadow Creek Mine, DMEA Tunnel, North Tunnel, Monday Tunnel, Cinnabar Tunnel, Bailey Drain Tunnel, and Clark Tunnel, but does not address geotechnical effects of the proposed project on the existing underground workings. Proposed mining

activities (blasting, haul truck traffic, rock crushing, facilities construction,

etc.) could cause geotechnical instability of underground workings which could result in caving and surface subsidence that, in turn, could result in structural stability concerns with facilities and infrastructure built on top of underground workings.

Recommendations for the Final EIS:

[bull] Describe potential impacts of proposed mining activities on historic underground workings and impacts of any resulting instability, caving, and subsidence of underground workings on surface resources and proposed project facilities.

[bull] Include a figure that identifies underground workings that are below and near proposed project features.

[bull] If the analysis indicates that caving or subsidence could occur that could adversely impact groundwater, surface waters, or the geotechnical stability of project facilities, include mitigation to minimize the possibility of caving occuring and minimize impacts should it occur.

Wetlands and Riparian Resources Indirect and Temporary Impacts

Section 3.11.1 states that "the analysis area for wetlands includes a mine site focus area and an off-site

focus area" and that the off-site focus area includes "primarily linear narrow corridors where wetlands were evaluated." It is unclear if the off-site focus area, as defined, includes analysis for indirect and cumulative impacts. In addition, project impacts will cause temporal loss of wetlands/riparian resources functions and services. It is unclear whether the characterization of wetland impacts duration accurately reflects overall project impacts.

Recommendations for the Final EIS:

[bull] Include additional quantitative information on indirect effects, including dust deposition, changes in hydrology, impacts due to water-body crossings, and fragmentation. Additional detailed recommendations are provided in the following comments.

[bull] Include a table, similar to Tables 4.11-2 and 4.11-3, that summarizes and categorizes direct, indirect, permanent, and temporary wetland impacts for each project component for each alternative.

Wetland Impacts due to Dewatering

It is not clear that the availability of water related to sustaining wetland/riparian aquatic resources functions and services has been sufficiently considered in the analysis. The draft EIS summarizes the acres of indirect impacts to wetlands due to dewatering and states that the entirety of these wetlands would also be subject to direct impacts from construction. However, figures in Section 4.8 that show dewatering areas of influence do not clearly support this conclusion. In addition, the draft EIS discloses that the dewatering area and groundwater dependent ecosystems impacted by dewatering could be larger than predicted by modeling (Section 4.8.2.1.2.1). This underestimation of impacts on groundwater dependent ecosystems is not carried through in the discussion of impacts on wetlands due to dewatering in Section 4.11.

Recommendations for the Final EIS:

[bull] Provide additional analysis to support the estimates of indirect impacts due to dewatering.

[bull] Include a figure that shows the geographical extent of both groundwater dewatering and stream flow loss overlying site wetland areas to verify this accounting.

If the modeling significantly underestimates dewatering areas of influence, then we recommend that the modeling be revised to be more accurate and not result in underestimation of impacts.

Wetland Impacts due to Fugitive Dust and Mercury Deposition

The draft EIS does not analyze indirect effects to wetlands due to fugitive dust deposition and mercury deposition from project activities. Since dust and mercury can be significant sources of wetland degradation, accounting for these deposition impacts is important to ensure that potential wetland impacts are not underestimated.

Recommendations for the Final EIS:

[bull] Evaluate the impacts of fugitive dust deposition to wetlands at the mine site and along the transportation corridor including an estimate of the acres and stream miles that could be affected and the significance of the effects.

[bull] Based on mercury deposition modeling, evaluate impacts to wetlands due to mercury deposition including an estimate of the acres and stream miles impacted and a discussion of the significance of the effects.

Reclamation and Temporal Loss

Section 4.11 of the draft EIS states "specific reclamation designs would be developed for each wetland feature and would be incorporated into the Clean Water Act Section 404 permit application to address spatial and temporal loss of wetlands." Temporal and spatial loss are important components of the analysis of potential impacts to wetlands from the proposed project.

Recommendation for the Final EIS:

[bull] Account for temporal and spatial loss in the analysis of potential impacts, including disclosing the site-specific reclamation designs and considering the associated effectiveness of each design at meeting reclamation goals.

Wetland Conversion

The draft EIS discloses that clearing of trees within the transmission line corridor may result in a conversion of wetland types and thus a permanent impact. EPA notes that there are other project impacts that may also result in conversion from one wetland type to another, particularly if reclamation is not successful in restoring the intended wetland type. For example, limited soil depth may reduce the likelihood of success for establishment of a forested wetland.

Recommendation for the Final EIS:

[bull] Disclose risks associated with wetlands successfully meeting performance standards and the likelihood of wetland type conversion in site-specific reclamation designs.

Characterization of Existing Conditions

Section 3.11 states that the assessed wetlands at the mine site "do not support known populations of

ESA-listed threatened or endangered plant species." However, this statement appears to conflict with

Table 3.11-3a, which identifies federally listed fish species present in mine site wetland resources.

Further, based on the information provided in the draft EIS, it is our understanding that some wetlands were assessed using online tools and may be lacking sufficient information to support this statement.

Recommendation for the Final EIS:

[bull] Revise text to clarify that, while ESA species have not been specifically identified to occur within wetlands at the mine site, the wetlands indirectly provide important functions to support listed species in downstream waters. Discuss any limitations in data on ESA-listed species used to support the EIS analysis.

Wetland Impacts Analysis and Mitigation

Impacts on Wetland and Riparian Functions

The draft EIS refers to Appendix I for a summary of wetland impacts by assessment area as well as a "detailed map set showing wetland impacts in relation to the various alternatives analyzed in this section." While descriptive information is provided on the assessment areas in a table format and location information provided on the delineated wetlands to be impacted, it is difficult to connect the two sets of information to determine the effects of the wetland impacts.

Recommendation for the Final EIS:

[bull] Include a map of the pre-impact and post-impact assessment areas overlaid on top of the maps with the delineated Waters of the U.S. and impact areas so that the location and boundary of the assessment area is clearly designated.

Compensatory Mitigation

EPA supports that Midas Gold is working with the U.S. Army Corps of Engineers in preparing a permittee responsible Compensatory Mitigation Plan and appreciates that Appendix D includes a Conceptual Stream and Wetland Mitigation Plan. Because this conceptual plan does not include detailed information on compensatory mitigation project locations and design plans, it is difficult to determine how compensatory mitigation would offset aquatic resource impacts. Our recommendations for the final EIS are provided below. EPA will also be providing additional comments to USACE relevant to the Compensatory Mitigation Plan and compliance with the CWA Section 404(b)(1) Guidelines under separate cover pursuant to our CWA Section 404 authorities.1

Appendix D states "Midas Gold proposes to mitigate for unavoidable stream and wetland impacts associated with the Project by restoring and establishing stream segments and wetlands before, during, and after mining, as part of site cleanup, mine construction, operations, and closure." The stated goal is "to accomplish mitigation onsite to the extent practical, to enhance and restore resources in areas adjacent to where impacts would occur, and to minimize temporal loss by restoring streams and wetlands as soon as practical." Our comments above note that permittee responsible stream restoration mitigation can be challenging.

Section 4.11 of the draft EIS states "the current location and configuration of mitigation sites identified in the CMP [Conceptual Stream and Wetland Mitigation Plan] were selected based on suitable hydrology and compatibility with watershed-scale features and on the likelihood that compensatory mitigation wetlands would be sustainable within five years." As the CWA Section 404(b)(1) Guidelines direct that compensatory mitigation shall, to the

maximum extent practicable, occur in advance of or concurrent with the impacts, which includes the mitigation site having already successfully met its performance standards, the 5 years mentioned in the above quote represents substantial temporal loss. EPA is concerned that, due

to the significant temporal lag-time and ecological risk/uncertainty of the proposed mitigation, it would not provide adequate compensatory mitigation to offset the proposed impacts. In addition, it is not clear that the Conceptual Stream and Wetland Mitigation Plan includes mitigation for indirect (secondary) impacts.

Recommendations for the Final EIS:

[bull] Include a compensatory mitigation plan that not only addresses offsetting direct impacts, but also includes offsets to indirect and cumulative impacts.

[bull] Factor temporal losses in the compensatory mitigation plan. To account for those temporal losses, we recommend implementation of compensatory mitigation projects in advance (or at least concurrent with mine construction).

[bull] Consider off-site mitigation sites, which have a greater likelihood of success in real time (concurrent with the impacts) and would not be impacted by ongoing mining activities (e.g., dust deposition).

[bull] Carefully evaluate environmental impacts of the compensatory mitigation plan (i.e., downstream impacts to waters, restoration of wetlands or streams that contains contaminants that could impact aquatic species, etc.).

Clean Water Action Section 404(b)(1) Evaluation

Appendix B contains a draft Clean Water Act Section 404(b)(1) Evaluation Framework prepared by Midas Gold to inform the public of factors relevant to the USACE decision-making process and to invite public comment relevant to the future CWA Section 404(b)(1) compliance evaluation. Similar to the concerns described above regarding the draft EIS impacts analysis, EPA is concerned that the analysis in Appendix B appears to focus on direct effects. As described in the CWA Section 404(b)(1) Guidelines, secondary effects, including temporal loss, as well as cumulative effects need to be considered in the analysis to accurately determine the effects of the proposed discharge. EPA will be providing additional comments to USACE relevant to the CWA Section 404(b)(1) evaluation under separate cover.

Air Quality

Emission Control Measures

Controlled Access Road

Impacts along the proposed controlled access road through the mine site were modeled for Alternative 2. Modeling results indicate exceedances of the NAAQS for annual and 24-hour PM2.5 as well as 24-hour PM10. According to the draft EIS, IDEQ has determined that the controlled access road can be excluded from ambient air quality analysis for compliance with the NAAQS due to administrative controls.

Members of the public would be considered "guests of the mine" and restrictions would be in place to protect their safety while passing through the mine site. While recognizing that this controlled access road would not be ambient air, we encourage consideration of reasonable mitigation measures to reduce particulate matter impacts. We appreciate the commitment to achieve a 90 percent or higher fraction of fugitive dust control as a mitigation measure, which will help limit impacts to local and regional air quality, visibility, and vegetation health.

Recommendations for the Final EIS:

[bull] Include a draft fugitive dust control plan to demonstrate how the 90 percent level of control will be achieved.
o Address the procedures and methods for control as well as an outline of the monitoring, communications, and record-keeping procedure plans.

o Specifically discuss measures that will be used for protecting public health while visitors are traveling through the mine site.

Control Measures and Effectiveness

The draft EIS states that details on the control measures and estimated control effectiveness, including additional measures that would be stipulated by the Forest Service, can be found in Appendices F-1 and F-2. It appears that the correct reference is to Appendix D-1, Tables D-1 and D-2, which contain mitigation measures required by the Forest Service and proposed by Midas Gold as project design features (while Appendices F-1 and F-2 contain emissions inventories). However, the tables do not address the estimated air emission control effectiveness of the listed mitigation measures.

Recommendation for the Final EIS:

[bull] Provide details on air emission control measures and estimated control effectiveness.

Mitigation for Fugitive Mercury Emissions

According to Table 4.3-21, approximately 24.9 lbs/year of mercury would be emitted due to ore processing and refining operations and 7.1 lbs/year due to uncontrolled fugitive sources. The largest contributor to fugitive sources is the TSF which would emit 6.3 lbs/yr (Appendix F). The draft EIS mentions emissions controls that would be applied to processing and refining sources but does not include any mitigation for uncontrolled sources.

Recommendation for the Final EIS:

[bull] Assess mitigation for fugitive sources of mercury to reduce impacts due to mercury emissions, particularly for the TSF. This could include an assessment of additives during ore processing and/or tailings disposal to bind mercury and reduce volatilization from the TSF, wetting TSF beaches, etc.

Near-Field Impacts Analysis

PM10 Impacts

The modeling indicates that Alternative 2 may cause a violation of the 24-hour PM10 standard at isolated near-source locations. The draft EIS indicates that a weight-of-evidence refined examination of these impacts is being conducted under the supervision of IDEQ to determine the likelihood and magnitude of such impacts.

Recommendations for the Final EIS:

[bull] Include a plot to show the location and size of the area of violation indicated by the modeling (e.g., an isopleth plot of modeled design concentrations) to support the statement that the few violating receptors represent a small isolated area of violation.

[bull] Identify the types of sources that are contributing most to the violations.

[bull] Consider additional mitigation measures at the identified hotspot locations to further reduce the emission of PM10 at the nearby contributing sources. For example, additional measures might include a localized highly restrictive speed limit for vehicles on unpaved roads and/or an aggressive dust monitoring and suppression treatment focused on the length of unpaved road of concern. If machinery or mechanical processes are responsible for the PM10 hotspots, consider dust control strategies that could be applied to these processes.

Alternative 2 Emissions

The draft EIS analyzes impacts for Alternative 2 using two different emissions inventories. The "Alternative 2 EIS inventory" is based on the inventory developed for Alternative 1 and is used for analysis of Alternative 2 impacts apart from regulatory compliance with NAAQS (e.g., impacts along the controlled access road and far-field impacts). The "Alternative 2 NSR inventory" was developed to support the IDEQ New Source Review permitting process and is used in the draft EIS for near-field impacts analysis for NAAQS compliance. It is unusual to use two different emissions inventories for a single alternative in an EIS, and this approach may be confusing to the public. In addition, the use of inventories based on very different assumptions makes it difficult to compare near-field NAAQS impacts between alternatives. Emissions inventories for NEPA projects are generally based on best-available information and reasonable assumptions and often do not exactly align with the inventory ultimately used for air permitting.

Recommendation for the Final EIS:

[bull] Move the "Alternative 2 NSR inventory" impacts analysis to Appendix F and use the "Alternative 2 EIS inventory" for near-field impacts analysis in the body of the EIS.

Mercury Deposition Modeling

Section 4.3.7.5 of the draft EIS states that predicted mercury deposition rates would be less than significance thresholds and health-based thresholds. However, total mercury deposition is underestimated since the mechanism of gaseous elemental mercury (Hg0) flux is not included in the model. The draft EIS does not describe the significance of the underestimation or the extent of mercury deposition, which is important to support the effects analysis and evaluation of additional mitigation is appropriate.

Recommendations for the Final EIS:

[bull] Disclose the geographical extent of mercury deposition due to the project. This would be facilitated by including a figure that shows the area over which deposition would occur. See the Donlin Gold Final EIS (USACE, April 2018) as an example.

[bull] Discuss the extent to which deposition rates are underestimated. If results are significantly underestimated, then we recommend revising the model to include Hg0 flux in order to develop more accurate estimates of mercury deposition.

NAAQS Thresholds

Tables 4.3-8 and 4.3-9 present the predicted ozone and PM2.5 impacts for Alternative 1 from modeled results combined with background concentrations.

Recommendation for the Final EIS:

[bull] Include the NAAQS thresholds for ozone and PM2.5 in these tables to clearly demonstrate to the public that the total air quality impact is within the standards.

Hazardous Materials

Location of Hazardous Waste Storage Facility

Section 4.7.2.2 of the draft EIS indicates a 90-day capacity hazardous waste storage facility and appropriate satellite storage facilities would be constructed to store any generated hazardous wastes. However, the DEIS does not identify where these facilities would be located.

Recommendation for the Final EIS:

[bull] Identify and describe where the on-site 90-day capacity facility would be located or include the location on the existing project facility figures in Chapter 2.

List of Hazardous Materials

Table 4.7-1 presents a list of hazardous materials and wastes used and generated as part of the project. However, portions of the table are incomplete, including consideration of autoclave lining/bricks and quantities of mercury containing wastes.

Recommendations for the Final EIS:

[bull] Disclose the estimated amount of mercury containing wastes that would be produced as a result of the project and include in Table 4.7-1.

[bull] Determine whether autoclave bricks/lining are a hazardous material or waste requiring appropriate management and include in Table 4.7-1, if appropriate.

Effectiveness of Mercury Emissions Controls

Section 4.7.2.4.2.1 of the draft EIS briefly describes mercury emissions controls by stating that "release of mercury to the atmosphere would be prevented by installing a venturi scrubber[hellip]" and "to ensure that it is free of mercury, the remaining gas would be passed through a bed of sulfur- impregnated carbon before being released to the atmosphere." While these mercury control technologies can be highly effective, they are not 100% effective as implied by the terms "prevented" and "free of mercury."

Recommendation for the Final EIS:

[bull] Revise these statements to provide a more accurate characterization of the effectiveness of mercury emission controls.

Water Treatment Plant Sludge Management and Transport at Closure

The draft EIS contains few details regarding management of water treatment plant sludges during closure and post-closure. Due to water treatment in perpetuity, as required under Alternative 2, sludges would be regularly produced and require appropriate storage and disposal. Section 4.7.2.5 of the DEIS states that an "unknown number of trips would be required to transport any residual treatment sludges and wastes from the site."

Recommendation for the Final EIS:

[bull] Estimate the annual amounts of sludge that would be produced and the corresponding number of truck trips

that would be needed to haul the material off-site. Utilize this information in the assessment of transportation needs and spill potential during post-closure and the financial assurance estimate.

Fish Resources and Fish Habitat

Impacts of Mercury Releases on Fish Tissue Concentrations

Section 4.12 of the draft EIS states: "For mercury, while the predicted concentrations do not exceed the aquatic life criterion, it is uncertain whether incremental change in concentrations beyond baseline would cause fish tissue concentrations to exceed the tissue-based criterion." We concur that there are inherent uncertainties regarding the characterization of chemical contamination on fish. Because the area is already impaired for mercury and a primary route of human exposure to mercury is through fish consumption, EPA believes that a quantified prediction, if available, may be helpful.

Recommendation for the Final EIS:

[bull] Provide a quantified prediction of how releases from the proposed mine will impact fish mercury concentrations and disclose the uncertainties associated with the predictions. EPA is available to discuss methodologies to quantify or otherwise conduct this analysis.

Aquatic Organisms

The draft EIS only addresses fish in characterizing the existing aquatic physical habitat in the analysis area. However, we understand that baseline information on benthic macroinvertebrates was collected for the project area in 2016. These and other aquatic organisms are key for the survival of the fish present as well as indicating general ecosystem health. For example, benthic macroinvertebrates form a vital link in the food chain by serving as a food source for prey fish in aquatic food webs.

Recommendation for the Final EIS:

[bull] Include aquatic organisms, such as benthic macroinvertebrates, in the characterization of the affected environment and analysis of environmental consequences and include site-specific information from the 2016 baseline data collection.

Environmental Justice

The draft EIS has identified potential disproportionately high and adverse impacts to tribal populations.

E.O. 12898 requires agencies to address disproportionately high and adverse impacts, as appropriate, to the greatest extent practicable. It is unclear how the draft EIS proposes to do this. Mitigation tables D-1 and D-2 in Appendix D do not list "Environmental Justice" as a resource being addressed under the "Resources Affected" column and Section 4.22.3 does not discuss specific mitigation measures.

Recommendations for the Final EIS:

[bull] During the ongoing consultation with tribes that is referenced in Section 4.22, elicit their views on measures to specifically address the potential disproportionately high and adverse impacts identified in the draft EIS.

[bull] In Section 4.22.3, list the specific mitigation measures considered to address disproportionately high and adverse impacts and discuss the anticipated effectiveness.

Reference Materials

Reference materials cited in the draft EIS are available on the project website, however, instructions for accessing these reference materials are not provided in the text. While several draft project plans (e.g., the EMMP and RCP) are referenced or summarized in the draft EIS, a thorough understanding of project plans is critical to understanding potential impacts.

Recommendation for the Final EIS:

[bull] Where project-specific reference materials are incorporated by reference or summarized in the body of the final EIS, we recommend that the text explain where the complete reference document can be found.

1 Clean Water Act Section 404(q) Memorandum of Agreement Between the Environmental Protection Agency and the Department of the Army, 1992.