



ADDENDUM TO THE FINAL SECTION 401 WATER QUALITY CERTIFICATION STIBNITE GOLD PROJECT – PERMIT NO. NWW-2013-00321

April 10, 2026

Project Name: Stibnite Gold Project (SGP)

Permit Number: NWW-2013-00321

Applicant/Authorized Agent: Kyle Fend, Perpetua Resources Idaho, Inc.

Project Location: Midnight, Valley County, Idaho; 44.908650°, -115.328892°

Receiving Water Body: Numerous tributaries to the North Fork Payette River and East Fork of the South Fork Salmon River and adjacent wetlands.

1 Purpose and Authority

This addendum to the May 22, 2024, Final Section 401 Water Quality Certification (2024 Certification, DEQ 2024) for the Stibnite Gold Project (SGP) is issued pursuant to the authority granted under the Clean Water Act (CWA) § 401 (33 USC 1341), 40 CFR 121.10, and IDAPA 58.01.02. It serves two primary purposes:

1. To incorporate and respond to updated project information and refined mitigation commitments provided by Perpetua Resources Idaho, Inc. (PRII) and reviewed by the Idaho Department of Environmental Quality (DEQ) in coordination with federal partners, including the U.S. Forest Service (USFS), National Oceanic and Atmospheric Administration's (NOAA's) National Marine Fisheries Service (NMFS), and the U.S. Army Corps of Engineers (USACE); and
2. To clarify DEQ's rationale and determinations considering issues raised by Petitioners in the pending contested case appeal before the Idaho Board of Environmental Quality (Case No. 0102-24-02), particularly those concerning:
 - The treatment of air deposition and operational dust impacts on water quality;
 - The scope of analysis under antidegradation provisions in IDAPA 58.01.02.052;
 - The clarification of mercury impacts from rerouting West End Creek;
 - The consideration of post-mining conditions in West End Pit Lake and downstream waters; and
 - The completeness of the socioeconomic justification required under IDAPA 58.01.02.052.08.

This addendum supplements—but does not replace—the conditions of the existing certification. It is intended to provide greater clarity regarding DEQ's application of Idaho's

water quality standards and enhance transparency in DEQ's findings. The certification does not waive any federal or state obligation to reassess compliance should future data indicate exceedances of Idaho's water quality standards. Conditions of the 2024 Certification and this addendum are designed to complement the § 404 USACE permit and ensure protection of water quality in waterbodies within the SGP and affected areas along the haul routes.

DEQ incorporated updated information from multiple sources, including the Final Environmental Impact Statement (FEIS) (USFS 2024a), Stibnite Gold Project Biological Assessment (USFS 2024b), the NMFS (2024) Biological Opinion (NMFS BiOp), the US Fish and Wildlife (2024) Biological Opinion (USFWS BiOp), the Final Record of Decision (ROD) (USFS 2025), U.S. Army Corps of Engineers Permit NWW-20132-00321 (USACE 2025) and revised technical submissions from PR II. These materials included new or refined modeling of pollutant concentrations and temperature, changes to the project's mine plan based on interagency review, updated mitigation and monitoring frameworks, and enhanced engineering controls. DEQ's review included evaluation of this new information against water quality standards, antidegradation requirements under IDAPA 58.01.02, and the terms of the original 2024 Certification. DEQ determines compliance with water quality standards based on applicable numeric and narrative criteria and the maintenance of existing uses. Long-term modeled projections from the various technical memoranda were considered to inform the development of conditions that would provide the reasonable assurance that the activity authorized by the § 404 permit would meet water quality standards.

Water quality modeling in the documents mentioned above was evaluated by DEQ to determine potential project impacts and inform certification conditions. Because modeling relies on assumptions regarding hydrology, climate, operational practices, and environmental response that may change over time, modeled projections are a conservative predictive tool used to evaluate indicators of potential trends and uncertainty. Predictive uncertainty increases as model projections extend further into the future. DEQ therefore evaluated long-term projections to identify areas of potential trends and risk, while relying on the operational controls, mitigation measures, treatment systems, and monitoring requirements required by this certification to provide reasonable assurance that water quality standards will be met.

Model projections do not incorporate the full suite of mitigation measures, monitoring requirements, and adaptive management provisions required by this certification and therefore the modeled results are appropriately interpreted as conservative baseline projections rather than the final operating condition. The certification conditions establish operational practices and environmental controls under which DEQ determined that the project provides reasonable assurance of compliance with Idaho water quality standards.

In making this determination, DEQ reviewed modeling results together with site-specific monitoring data, engineering design information, and the mitigation and treatment measures required by this certification. Should post-construction or operational monitoring identify pollutant levels exceeding applicable criteria, DEQ will require adaptive management, additional controls, or model updates to ensure continued compliance with Tier I protections and Idaho water quality standards. Based on this evaluation, DEQ determined that the

proposed plan of operations, when implemented in accordance with the certification conditions, remain protective of designated uses and applicable water quality standards.

2 Clarifications and Modifications to Certification Conditions and Appendices

2.1 Clarification of Water Quality Impacts from Atmospheric Deposition

DEQ's evaluation of this concern is framed by the CWA and EPA's 2023 Clean Water Act § 401 Water Quality Certification Improvement Rule (40 CFR 121). Under 40 CFR 121.3, certifying authorities evaluate whether the activity - including its construction and operation - will comply with applicable water quality requirements. DEQ's policy directive on the scope of certification affirms that while the certification review focuses on the potential water quality-related impacts of the activity authorized under the federal permit (§ 404 permit from USACE), the scope includes both direct and indirect, short- and long-term effects from the permitted activity.

For purposes of this certification, DEQ evaluates both short-term and long-term water quality impacts from the Project. *Short-term* impacts are defined as temporary changes occurring during active operations and early post-closure reclamation, while *long-term* impacts refer to conditions approaching equilibrium following reclamation and hydrologic stabilization. All predicted changes - regardless of duration - are assessed for compliance with Tier I and Tier II protections, numeric and narrative criteria, and designated uses under IDAPA 58.01.02. References to the US EPA May 21, 2025, Clean Water Act Section 401 Memorandum are included for context on the scope of factors considered in 401 decisions and do not limit DEQ's assessment of the timeframe over which water quality impacts are evaluated. This aligns with EPA's May 21, 2025, memorandum of clarification regarding the application of CWA § 401 (EPA 2025).

DEQ evaluated the USFS' FEIS (USFS 2024a) and the USFS Air Quality Specialist Report (USFS 2023a) for the SGP, which includes modeling of fugitive dust emissions and baseline data on metals in soils and water. The FEIS shows that mercury, arsenic, and antimony are present in background conditions due to legacy mining activity, but it also concludes that the majority of airborne deposition from current project operations would be localized, and that dust control measures, such as those included in the 2024 Certification and PRII's Fugitive Dust Control Plan (Air Sciences 2024), will minimize additional contributions (USFS 2024a).

Regional background mercury deposition was estimated using EPA's Regional Modeling System for Aerosols and Deposition (REMSAD). REMSAD is a widely used atmospheric transport and deposition model that has been applied across the continental United States to characterize regional mercury deposition patterns. The model was used to estimate background mercury deposition in the SGP area and in three immediately surrounding sub-basins extending up to 50

miles from the SGP. This model accounts for background effects of mercury deposition and has been implemented by EPA across the continental US to quantify mercury deposition on a regional basis. Sources of mercury deposition for this modeling includes contributions from US, Mexico, and Canada as well as global background depositions. Total regional background mercury deposition is estimated at 12.7 to 13.9 $\mu\text{g}/\text{m}^2/\text{year}$, based on monitored and modeled regional background deposition levels (USFS 2023a).

Using AERMOD modeling, the FEIS predicts that mercury emissions from project activities would result in annual deposition rates of approximately 0.056 micrograms per square meter per year ($\mu\text{g}/\text{m}^2/\text{year}$) at maximum impact locations which are less than 5 miles from the active mining site. This value represents less than 1% of total regional background mercury deposition (USFS 2023a). Outside of this area, mercury deposition contribution due to SGP sources is estimated to be less than the minimum value that can be quantified by AERMOD (USFS 2023a).

While the AERMOD analysis estimates atmospheric deposition rates, it does not by itself quantify the portion of deposited metals that may ultimately reach surface waters. PRLI and their contracting firm provided an additional analysis in a technical memo that evaluated specifically the impacts to waterbodies from air deposition (Brown and Caldwell 2025a). The analysis is based on modeled fugitive dust emissions using the AERMOD dispersion model and 2014 site-specific meteorological data. The model estimates annual deposition rates of metals across a 1- km^2 grid and considers terrain features, wind direction, and source emissions. Once deposited, all metal-containing dust is conservatively assumed to behave as sediment in runoff. Brown and Caldwell applied spatial modeling using slope, vegetation type, and distance from surface water to estimate the fraction of sediment that could reach receiving streams. Areas of the mine site with water management controls, including those covered by water management plans, IPDES Individual permits, or stormwater permits, were assumed to contribute 0% of their sediment runoff to streams, and thus were excluded from contributing to sediment loading.

The analysis indicates that modeled metal deposition occurs within or adjacent to the SGP boundary, with declining concentrations further from the source. This aligns with the findings in the USFS Air Quality Specialist Report (USFS 2023a). In Meadow Creek, predicted annual loads from dust-derived sediment total approximately 235 g arsenic, 0.8 g mercury, and 9 g antimony, contributing less than 0.2 $\mu\text{g}/\text{L}$ for arsenic, less than 0.06 ng/L for mercury, and less than 0.01 $\mu\text{g}/\text{L}$ for antimony to baseline concentrations. These values represent changes of less than 0.05%, 0.4%, and 0.02% from baseline, respectively. For the East Fork South Fork Salmon River (EFSFSR), when combining subbasins above and below Meadow Creek and Sugar Creek, the total estimated annual load from air deposition is 7,266 g arsenic, 13.6 g mercury, and 286 g antimony, resulting in a maximum change in concentration of <0.3 $\mu\text{g}/\text{L}$ arsenic, <0.6 ng/L mercury, and <0.01 $\mu\text{g}/\text{L}$ antimony. These values represent changes of less than 0.6%, less than 1.3%, and less than 0.25% from baseline, respectively; they are below laboratory detection limits or regulatory thresholds. In the Sugar Creek subbasin (including West End Creek), predicted dust-derived loads are 4,167 g arsenic, 4.8 g mercury, and 163 g antimony, again translating to negligible increases in concentration (less than 0.3 $\mu\text{g}/\text{L}$ for arsenic, less than 0.6 $\mu\text{g}/\text{L}$ for mercury, and less than 0.02 $\mu\text{g}/\text{L}$ for antimony to baseline concentrations, respectively).

given the stream's baseline flows and existing metal levels. These values represent changes of less than 0.6%, 1.3%, and 0.06% from baseline, respectively.

The modeling approach may overestimate the actual contribution of air deposition to surface water loading. Factors such as high sediment retention by vegetated buffers, limited particle transport distances, and best management practices (e.g., haul road capping, fugitive dust controls, and water treatment systems) reduce the probability of offsite movement of metals. Even though previous studies indicated that sediment retention at distances greater than 100 meters could be close to zero, the conservative assumptions made by Brown and Caldwell in their analysis meant that about half of the predicted dust-derived sediment load came from distances greater than 100 meters. Thus, load may be overestimated by as much as 200% (*Table 7 of Brown and Caldwell 2025a*).

The technical memo concluded the following:

- Mercury deposition attributable to project activities is estimated at 0.056 $\mu\text{g}/\text{m}^2/\text{year}$, representing approximately 0.4% of natural background rates of atmospheric mercury deposition in the area, which range from 13.9 $\mu\text{g}/\text{m}^2/\text{year}$. Maximum projected increases in surface water mercury concentrations were less than 0.6 ng/L and represent less than 1.5% of baseline levels (*Air Sciences Inc. 2018. Stibnite Gold Project Air Quality Analysis. Prepared for Midas Gold Idaho, Inc. October 10, 2018. AND Air Sciences Inc. 2021. Stibnite Gold Project Supplemental HAP Air Quality Analysis Addendum, ModPRO2. Prepared for Perpetua Resources Idaho Inc. October 5, 2021*).
- Arsenic deposition was estimated at 0.9 to 1.7 $\mu\text{g}/\text{m}^2/\text{year}$, and antimony at 0.5 to 1.3 $\mu\text{g}/\text{m}^2/\text{year}$. Similarly, predicted arsenic and antimony concentrations from deposition-based runoff were less than 0.3 $\mu\text{g}/\text{L}$ and 0.01 $\mu\text{g}/\text{L}$, respectively, and would not alter the impairment status of any receiving waters.

Projected concentrations in relevant waterbodies are shown in Table 1. For reference, the most stringent water quality criteria applicable would be 4.3 $\mu\text{g}/\text{L}$ for arsenic, 5.2 $\mu\text{g}/\text{L}$ for antimony, and 12 ng/L for mercury. The modeled increases in total arsenic, antimony, and mercury concentrations resulting from airborne deposition are negligible - typically less than 1.5% of current conditions with one exception - and fall within the uncertainty bounds typically associated with environmental fate and transport modeling. Given the small magnitude of change and the use of conservative assumptions that may overestimate actual transport to surface waters, these modeled differences fall within expected model variability and do not represent a measurable or environmentally meaningful change to existing water quality conditions.

Table 1: Estimated changes in concentrations of metals in waterbodies within the SGP.

Waterbody / Station	Arsenic (µg/L)	Antimony (µg/L)	Mercury (ng/L)
Meadow Creek (YP-T-22)	3.7 → 3.7	8.1 → 8.1	15.4 → 15.4
EFSFSR above Meadow Cr. (YP-SR-11)	10.4 → 10.4	1.1 → 1.1	7.5 → 7.6
EFSFSR below Meadow Cr. (YP-SR-10)	26.4 → 26.4	12.4 → 12.4	6.1 → 6.2
EFSFSR d/s of YPP, u/s Sugar Cr. (YP-SR-4)	70.5 → 70.7	31.1 → 31.1	5.9 → 6.5
EFSFSR below Sugar Cr. (YP-SR-2)	49.3 → 49.5	21.8 → 21.8	42.1 → 42.6
Sugar Creek (YP-T-1)	14.3 → 14.5	3.4 → 3.4	159 → 159

The modeling concluded that dust from the SGP would contribute less than 1% to background mercury levels, except at YP-SR-4. However, when comparing YP-SR-4, located in EFSFSR upstream of the confluence with Sugar Cr with YP -SR -2 downstream of Sugar Cr, the magnitude of the deposition is roughly the same, i.e. 0.5 to 0.6 ng/L. While the calculated percent change at this location is slightly higher (approximately 10%), the absolute increase in concentration is comparable to nearby monitoring locations. Upstream and downstream EFSFSR stations show increases of less than 1.5 percent, indicating that the higher percentage value at this location reflects the influence of a low baseline concentration rather than a meaningful change in mercury loading. The modeled concentrations remain well below the applicable water quality criterion, indicating that the modeled change does not affect attainment of water quality standards in the EFSFSR.

Although some receiving waterbodies - such as segments of the East Fork South Fork Salmon River and Sugar Creek - are currently listed as impaired for arsenic and mercury, the modeled contributions from air deposition on the project represent small, incremental increases that are not expected to produce measurable changes in existing conditions. The analysis relied on conservative assumptions, including complete mobilization of deposited metals and limited attenuation, and is therefore expected to overstate actual surface water impacts. As such, the predicted changes fall within the expected variability of environmental modeling.

DEQ recognizes the limitations of such modeling and has imposed monitoring and adaptive management requirements to detect and respond to any unanticipated pollutant increases. The 2024 Certification (DEQ 2024) includes a comprehensive suite of erosion and sediment control conditions that address potential transport pathways for airborne particulates, particularly those associated with ground-disturbing activities authorized under the § 404 permit. These include requirements for daily BMP inspections, dust suppression on roads and work areas, slope stabilization, and turbidity-based feedback triggers tied to Idaho’s numeric criteria. Conditions also require pH monitoring to detect potential acid rock drainage and contingency actions based on visual plume observations and turbidity exceedances.

In total, the certification outlines over 20 specific conditions addressing erosion, sediment control, and monitoring. These measures are designed to prevent the mobilization of sediment-bound pollutants, including metals that may be deposited from fugitive dust sources near the

construction footprint. When implemented as required, these controls provide assurance that project-related sediment will not be transported to surface waters.

DEQ recognizes the concern regarding nonpoint source mercury loading from fugitive dust. The permittee is required to implement a site-specific Fugitive Dust Control Plan (DEQ 2022a) as part of air quality permit requirements. The plan includes dust suppression methods and monitoring of ambient air concentrations near sensitive receptors and surface water bodies. Additionally, as part of the FEIS, PRII is required to conduct off-site dust monitoring to determine effectiveness of dust control measures (USFS 2024a). These measures constitute cost-effective and reasonable BMPs under IDAPA 58.01.02.052.02 and will be subject to adaptive management. DEQ retains authority to require revisions or additional controls if dust-related mercury loading is found to threaten water quality.

Based on the information available, including conservative modeling and the suite of mitigation measures already required under the 2024 Certification, DEQ finds that air deposition from the activity authorized under the § 404 permit is not expected to cause a measurable increase in pollutant concentrations or materially contribute to existing impairments in receiving waters. Additionally, DEQ maintains that the scope of the §401 certification is limited to water quality impacts associated with the federally permitted dredge and fill activities authorized by the U.S. Army Corps of Engineers. Operational activities regulated under other federal and state permitting programs - such as stormwater or air quality programs - are addressed through those regulatory frameworks. DEQ evaluated available information regarding potential water quality effects associated with these activities but relies on the applicable permitting programs to regulate those discharges in accordance with their statutory authorities. This approach aligns with EPA's May 21, 2025, memorandum clarifying the application of CWA §401 (EPA 2025).

2.2 Clarification of Tier I and Tier II Antidegradation Reviews for the Meadow Creek, East Fork of the South Fork Salmon River, and West End Creek

In evaluating compliance with Tier I protections under IDAPA 58.01.02.052.07, DEQ considered whether the project, as conditioned by this certification, would cause or contribute to violations of applicable water quality criteria. This evaluation was based on the operational conditions established by the certification, including required mitigation measures, treatment systems, monitoring requirements, and adaptive management provisions. Model outputs do not incorporate the certification conditions and represent the conditions under the modified mine plan but not those under which the project must operate as authorized by the § 401 certification. Therefore, model results do not, by themselves, establish that violations of water quality criteria will occur. DEQ considered these model outputs in establishing the mitigation measures, monitoring requirements, and operational controls required by the certification and this addendum. Based on the available information and the enforceable conditions of the certification, DEQ determined that the project provides reasonable assurance that existing uses will be maintained and protected and that water quality criteria will not be violated.

2.2.1 Water Body Antidegradation Tier Determination

As identified in the 2024 Certification, the assessment unit (AU) corresponding to Meadow Creek is ID17060208SL023_02 and the East Fork of the South Fork Salmon River (EFSFSR) AUs are ID17060208SL023_03 and ID17060208SL023_04. West End Creek has a different water body ID - AU ID17060208SL029_02 (Sugar Creek & tributaries – 1st and 2nd order). Appendix A of the 2024 Certification identifies the designated beneficial uses, repeated here for clarity, as cold water aquatic life, salmonid spawning, and primary contact recreation. All waters in the state receive Tier I protection while waters that are supporting assessed uses according to IDAPA 58.01.02.52 receive Tier II protections as well. Tier I protection is met by showing that the activity will not cause or contribute to exceedances of water quality criteria. Tier II protection is met by showing that water quality is better than necessary to meet water quality criteria and that if degradation is allowed it is necessary for important economic or social development.

DEQ uses a water body approach to determining if a water body receives Tier II protection in addition to Tier I protection. For clarity, the following is the process by which DEQ determined whether to apply Tier II protections or not.

As per IDAPA 58.01.02.052, a water body will receive Tier II protection if it is identified in the most recently approved Integrated Report as fully supporting all assessed uses. In certain instances, a water body that is not supporting all assessed uses may receive Tier II protection, but it will be based on an evaluation of the individual types of designated uses, i.e., aquatic life uses and contact recreation uses. IDAPA 58.01.02.052.05c also allows DEQ to evaluate the biological community to determine if Tier II protections are appropriate if the only causes for impairment of aquatic life uses are temperature, dissolved oxygen, or pH.

As shown in Table 2, the Meadow Creek AU and both EFSFSR AUs have been identified as impaired by temperature for the cold water aquatic life uses using data collected on these streams specifically. AU ID17060208SL023_04 for EFSFSR also shows impairment of the cold water aquatic life and salmonid spawning uses by mercury, due to the continuing upstream contributions of mercury from Cinnabar Creek, a tributary to Sugar Creek and Tier II protections for aquatic life uses is not appropriate for this AU.

Evaluation of the biological communities of Meadow Creek (ID17060208SL023_02) and the EFSFSR (ID17060208SL023_03 only) aquatic life uses indicate they do not fully support Tier II protection status. This is based on data gathered by DEQ's BURP crew within the legacy mining areas both upstream and downstream of the permitted discharge locations which reflect habitats that are less than ideal for fully supporting cold water aquatic life. In addition to the BURP data, streambed augmentations due to legacy mining activities have limited upstream passage by species seeking suitable spawning grounds to areas of the EFSFSR above the Yellow Pine Pit. Potential spawning grounds upstream of the barrier at the Yellow Pine Pit are limited due to channeling of Meadow Creek with riprap around the SODA deposit and erosion caused by a failed dam at Blowout Creek resulting in sediment traveling downstream in Blowout Creek

to Meadow Creek. Therefore, water body Tier II protections for aquatic life uses are not appropriate in these two assessment units.

With respect to contact recreation uses, Meadow Creek was evaluated in 2015 and was shown to have elevated arsenic levels that did not meet the secondary contact recreation criterion. As per IDAPA 58.01.02.052.05.c.ii, water quality data must show compliance with water quality criteria listed in Sections 200 and 210 to receive Tier II protection. In 2023, DEQ updated the arsenic criteria relating to contact recreation uses. The relevant criterion is either a fish tissue value of 8.0 ug/kg or a water column concentration of 4.3 µg/L. Concentrations in Meadow Creek were measured between 10.2 and 11.9 µg/L and therefore the secondary contact recreation use is not supported. Tier II protections for contact recreation uses in Meadow Creek are not appropriate (Table 2).

Data submitted by USGS in 2016-2018 (DEQ 2022b) shows elevated levels of arsenic in the EFSFSR (ID17060208SL023_03 and ID 17060208SL023_04) as well as elevated levels of antimony EFSFSR (ID17060208SL023_03 only) leading to impairments of the contact recreation uses as well. Tier II protection for contact recreation uses in the EFSFSR are not appropriate.

West End Creek in AU ID17060208SL029_02 shows all assessed uses as fully supporting. However, data was not collected specifically in West End Creek for this AU. Data was collected in Cinnabar and Cane Creeks. DEQ uses a ‘representative of the AU’ approach (DEQ 2016) presuming data collected in representative creeks will apply to other streams within the same AU. Data collected for this AU in 2020 and 2021 show fully supporting cold water, salmonid spawning, and contact recreation uses.

Tier II protections are appropriate for this AU. It is worth noting that DEQ does not routinely collect chemical samples for processing, relying instead on the integrated biological community indices to provide insight into water quality and impairments. The impaired beneficial uses and their cause of impairment are summarized in Table 2.

Table 2: Impaired beneficial uses for Meadow Creek, Sugar Creek and the EFSFSR.

Receiving Water and AU	Beneficial Uses	Support Status	Impairment	Tier I	Tier II
EFSRSR – 1 st and 2 nd order ID17060208SL023_02 ^a (Meadow Creek)	Cold Water Aquatic Life	Not Supporting	Temperature	X	
	Salmonid Spawning			X	
	Domestic Water Supply	Not Supporting	Arsenic	X	
	Primary Contact Recreation ^b			X	
EFSFSR – 3 rd order ID17060208SL023_03	Cold Water Aquatic Life	Not Supporting	Temperature	X	
	Salmonid Spawning			X	
	Domestic Water Supply		Arsenic	X	
	Primary Contact Recreation			X	
EFSFSR – 4 th order ID17060208SL023_04	Cold Water Aquatic Life	Not Supporting	Temperature, Mercury	X	
	Salmonid Spawning			X	
	Domestic Water Supply		Arsenic	X	
	Primary Contact Recreation			X	
	Cold Water Aquatic Life	Supporting		X	X

Sugar Creek & tributaries – 1 st and 2 nd order ID17060208SL029_02 (West End Creek)	Salmonid Spawning		X	X
	Primary Contact Recreation		X	X

- a. This AU encompasses the tributaries and the 1st and 2nd order streams of the ESFSR, both within and upstream of the legacy mining footprint (mainly along the Burntlog Route).
- b. Not listed as an impairment in *Idaho’s 2022 Integrated Report*, however, a site-specific review determined Meadow Creek (EFSSRSR – 1st and 2nd order ID17060208SL023_02) to be impaired based on monitoring data and comparable impairment downstream.

The following is a discussion of the Tier I protections.

2.2.2 Tier I Antidegradation Analysis for Meadow Creek, EFSSRSR, and West End Creek

This section describes DEQ’s evaluation of the Tier I protection (ensuring protection of existing uses) for these streams. DEQ views the § 404 permit and accompanying § 401 Certification (along with this addendum) as providing conditions on the project provide reasonable assurance that existing beneficial uses are protected.

2.2.2.1 Meadow Creek – Mercury and Temperature

In accordance with Idaho’s antidegradation policy (IDAPA 58.01.02.051 and .052), a Tier I review has been conducted for mercury and temperature in Meadow Creek to ensure that existing uses - specifically cold water aquatic life and contact recreation - are protected. The evaluation considered both operational impacts and long-term postclosure conditions using modeled data (USFS WQSR).

Predicted changes in mercury concentrations are driven by contributions from treated effluent discharged by the water treatment plant (WTP) (USFS 2023b; Brown and Caldwell 2025b). Peak mercury concentrations of 5.1 ng/L are projected at monitoring location YP-T-27 during Mine Year (MY) 4. This result represents a temporary increase from the baseline range of 2.2–2.3 ng/L, but remains well below the most stringent applicable chronic aquatic life water quality criterion of 12 ng/L. Following closure, mercury concentrations in Meadow Creek are expected to return to or fall below baseline levels (Table 3).

No exceedance of water quality criteria for mercury is anticipated, and cold water aquatic life and contact recreation uses are protected.

During operations, the realignment of Meadow Creek around the Tailings Storage Facility (TSF) will result in decreased in-stream temperatures relative to baseline. This cooling effect is attributed to piped diversions and enhanced groundwater inflows. After closure, Meadow Creek will be reinstated over the reclaimed TSF. An increase in peak temperature - reaching 24.5°C around MY 27 for the site in Meadow Creek above the East Fork Meadow Creek - is predicted due to solar exposure prior to full riparian shading. However, riparian revegetation and natural stream function are expected to drive gradual cooling in subsequent decades. For the site in Meadow Creek below the East Fork Meadow Creek the summer max temperature with no action taken is 19.8°C and by the end of mine year 6 drops below criteria to 17.2°C, by MY 12 is predicted to be 16.8°C with a slight increase by end of year 27 - indicative of the

warmer temp from upstream re-alignment - temperatures are predicted to be 18.5°C. All these indicate a general trend toward cooler temperatures and meeting cold water aquatic life temperature criteria (USFS 2023b).

Table 3: Summary of findings for Meadow Creek and EFSFSR.

Element	Condition	Predicted Short-Term Impact	Predicted Long-Term Effect	Justification
Mercury (Meadow Creek)	2.2–2.3 ng/L baseline	5.1 ng/L max (MY4)	Comparable to baseline postclosure	Below regulatory thresholds
Temperature (Meadow Creek)	19.8°C baseline	24.5°C in MY27	↓ to ~baseline by MY 52	Temporary spike; long-term cooling trend
Antimony (EFSFSR)	0.037 mg/L baseline	0.041 mg/L in MY2	↓ below baseline	Short-term, minor increase; improved postclosure
Temperature (EFSFSR)	17.4°C baseline	18.0°C max during MY12–22	↓ up to 1.4°C below baseline by MY 112	Restored reaches and riparian growth improve conditions

The analysis demonstrates that existing uses in Meadow Creek are maintained and protected in accordance with IDAPA 58.01.02.052.07 (Table 4).

- No exceedances of mercury criteria are predicted.
- Temperature changes associated with the project are not the result of a thermal discharge but instead arise from physical modifications to the channel and riparian corridor authorized under the § 404 permit.
- Cold water aquatic life and contact recreation uses are preserved throughout the project life.
- Modeled increases in mercury or temperature occur in specific stream reaches during portions of the project timeline, including a period following stream reinstatement when riparian shading has not yet fully developed. Over the life of the project and subsequent restoration phases, overall water quality and habitat conditions are projected to improve as stream and riparian functions are restored.
- The project incorporates appropriate control measures, including engineered water treatment, stream restoration, and progressive reclamation designed to support the long-term restoration of chemical and biological integrity in Meadow Creek.

This satisfies Tier I antidegradation requirements for AU ID17060208SL023_02.

Table 4: Summary of compliance with Tier I antidegradation requirements (IDAPA 58.01.02.052.07).

Requirement	IDAPA 58.01.02.052.07 Compliance Summary
Existing uses maintained and protected	All modeled changes are reversible, spatially isolated, or improved postclosure.
No degradation below standards supporting uses	No predicted exceedance of applicable water quality standards for cold water aquatic life or other uses.

Appropriate control measures in place	Includes WTP, site-wide water management, and robust reclamation plans.
Support for long-term aquatic health	Postclosure stream function, water chemistry, and habitat are improved over baseline.

2.2.2.2 EFSFSR – Antimony and Temperature

This Tier I antidegradation review evaluates predicted changes in antimony and temperature in the EFSFSR. The assessment confirms that existing beneficial uses, including cold water aquatic life and contact recreation, are protected through compliance with applicable criteria and through project design features that provide long-term improvements to stream conditions.

Maximum modeled antimony concentrations at monitoring location YP-SR-2, located downstream of all project activities, are predicted to rise modestly from 0.037 mg/L to 0.041 mg/L during MY -2, prior to construction (USFS 2023b; USFS 2024a). This increase is followed by a long-term decline to concentrations below baseline levels for the remainder of the operational and postclosure period. The decrease is attributed to removal of legacy mine waste.

Table 5 presents average background antimony concentrations at EFSFSR monitoring locations, with upstream stations ranging from 12.2 to 31.0 µg/L, as well as averaged modeled concentrations for operations and postclosure. The highest averaged modeled post-construction concentration (14 µg/L at YP-SR-2) falls within the range of average existing upstream conditions.

Table 5: Antimony concentrations at EFSFSR monitoring stations.

Monitoring Station	Background Concentration	Average Operations Concentration	Average Postclosure Concentration
YP-SR-10	12.2 µg/L	3 µg/L	1 µg/L
YP-SR-8	16.9 µg/L	8 µg/L	7 µg/L
YP-SR-6	19.3 µg/L	13 µg/L	12 µg/L
YP-SR-4	31.0 µg/L	14 µg/L	13 µg/L
YP-SR-2	21.9 µg/L	10 µg/L	9 µg/L

Four upstream stations (YP-SR-10, -8, -6, and -4) show predicted reductions in antimony concentrations relative to background. Although YP-SR-2 shows a brief increase in maximum modeled concentrations in one model year, no biological response is expected in any reach upstream of the Yellow Pine Pit. Antimony does not have a specific NMFS or USFW criteria for protection of aquatic life (USFWS 2024). The relevant water quality criterion to protect domestic water supply is 5.2 µg/L. Protection of the contact recreation use has a criterion of 190 µg/L. As noted previously, the beneficial uses being evaluated are cold water aquatic life and contact recreation. Modeling indicates that the maximum concentration (41 µg/L) remains below the relevant contact recreation criteria but above the domestic water supply criteria. Postclosure concentrations of antimony are predicted to be reduced by as much as 92% (YP-SR-

10) from existing conditions resulting in some stretches of the EFSFSR returning to below the domestic water supply criterion. All stations report as below the contact recreation criterion.

The project includes six surface water diversion channels to minimize contact water and reduce treatment volume. All surface water discharged from the site will be subject to treatment and must comply with Idaho Pollutant Discharge Elimination System (IPDES) permit conditions. While surface water discharge is outside the scope of this § 401 certification for the § 404 permit, these treatment requirements provide additional assurance of use protection.

The maximum summer temperature in the EFSFSR is projected to increase briefly from 17.4°C to 18.0°C in early post-construction years due to temporary reductions in riparian shading associated with channel reconstruction activities authorized under the § 404 permit. These modeled values represent localized maximum conditions and do not reflect the full range of thermal conditions available to aquatic species within the stream network. The EFSFSR and its tributaries contain groundwater inputs, shaded reaches, and channel complexity that create thermal refugia accessible to fish during periods of elevated temperature. These cooler microhabitats allow fish to behaviorally regulate temperature exposure and are commonly used by salmonids in mountain stream systems during summer conditions.

As riparian vegetation establishes from MY 12 to MY 27, shading, channel stabilization, and hyporheic exchange are expected to reduce solar heating and restore a more natural thermal regime. Model results therefore indicate that stream temperatures decline toward or below baseline conditions over time, with later-year projections showing cooling of up to 1.4°C below baseline, representing an overall improvement in the thermal regime of the EFSFSR.

The brief temperature increase is:

- Occurring only during early restoration;
- Spatially limited to localized restored reaches;
- Below biologically significant thresholds; and
- Offset by widespread cooling in other segments of the EFSFSR.

This analysis confirms that existing uses in the EFSFSR, including cold water aquatic life and contact recreation, will be maintained and protected in compliance with IDAPA 58.01.02.052.07.

- No adverse biological response is expected from modeled antimony or temperature changes.
- Control measures, including diversion structures and on-site water treatment, are incorporated to minimize impact.
- Long-term improvements in both water quality and stream function will result from project implementation and reclamation.

This satisfies Tier I antidegradation requirements for AUs ID17060208SL023_03 and _04.

2.2.2.3 West End Creek – Antimony, Arsenic, and Mercury

This Tier I review evaluates the protection of aquatic life uses and recreation uses from potential changes in water quality in West End Creek associated with implementation of the SGP. Tier I protections ensure that water quality criteria are not exceeded. Where current baseline conditions already exceed applicable criteria due to legacy conditions, DEQ evaluates whether the proposed activity would cause or contribute to a measurable worsening of those existing conditions.

Project modeling predicts increases in antimony, arsenic, and mercury concentrations during mining operations, primarily due to diversion-related flows and legacy contamination in upper West End Creek. The Water Quality Specialist Report (USFS 2023b) identifies modeled exceedances of Idaho water quality criteria at monitoring location YP-T-6, located in lower West End Creek as shown in Table 6. Sample point YP-T-6 is located downstream of both the upper and lower historical West End waste rock dumps; it is therefore possible that the water chemistry at this location has been influenced by the waste material, especially where the creek flows directly through historical development rock piles (USFS 2023b).

Table 6: Lower West End Creek observed and modeled concentrations for arsenic, antimony, and mercury (USFS 2023b).

Parameter	Units	Applicable Criterion	Existing Conditions		Potential Conditions During Mining with Treatment of Diversion ^b		Open Pit Mining without treatment of West End Creek Diversion (MY -2 to 12)		Post-Mining (MY 13 to 40)		Post-Mining (MY 41 to 112)	
			Ave.	Max.	Ave.	Max.	Ave.	Max.	Ave.	Max.	Ave.	Max.
Arsenic	µg/L	4.3	79	88	8.6	8.9	8.6	8.9	79	94	79	95
Antimony	µg/L	190 ^a	10	12	2.1	2.2	2.1	2.2	10	14	11	14
Mercury (total)	ng/L	12	4.3	5.6	4.3	5.6	53	63	4.4	9.7	4.3	9.5

- Applicable criterion for antimony in West End Creek is contact recreation. Waterbody is not designated for domestic water supply.
- Predictions from FEIS Water Quality Specialist Report for mercury concentrations during open pit mining are higher than expected conditions in lower West End Creek if the creek diversion is treated for mercury as required by the NMFS BO; conditions during mining when diversion water is being treated are more likely to be similar to existing conditions at lower West End Creek for mercury concentrations. Arsenic and antimony predicted concentrations are representative under both scenarios.

These results indicate that lower West End Creek is expected to meet applicable criteria for antimony and mercury, provided that mercury treatment of the West End Creek diversion is implemented as required by the NMFS BiOp. Under untreated conditions, modeled mercury concentrations during mining would exceed the applicable criterion; however, with treatment, mercury concentrations are expected to be comparable to existing conditions and remain below the applicable standard. Therefore, existing uses associated with these parameters are expected to be fully supported.

For arsenic, existing concentrations, potential concentrations during mining with treatment of diversion water, and predicted concentrations post-mining are above the applicable water quality standard due to legacy mining impacts and naturally occurring geologic sources. The baseline monitoring and modeled results reflect indirect impacts from disturbed geologic materials and groundwater interactions near backfilled pit areas, including the legacy mining areas that preceded the SGP. Modeled post-mining conditions indicate that average arsenic concentrations remain unchanged relative to existing conditions (79 µg/L), with maximum modeled values increasing slightly from 88 µg/L to 94-95 µg/L during certain modeled periods. This difference is within the range of variability associated with baseline conditions and model uncertainty and does not represent a meaningful change in the existing impairment. Based on this information, DEQ concludes that the project is not expected to result in a material increase in arsenic concentrations relative to current existing water quality conditions and satisfies Tier I antidegradation requirements.

Constituent transport is assumed to occur through shallow subsurface pathways or nonpoint runoff. The following measures - identified in the 2024 Certification - were included to ensure Tier I protections, based on the temporary, spatially limited, and reversible nature of the modeled impacts:

1. Surface Water Diversion Channels
 - The project includes six engineered diversion channels that reroute clean water away from contact with mining features.
 - These limit surface water-groundwater interaction and reduce the potential for pollutants to mobilize into West End Creek.
(2024 Certification § 4.1.1)
2. Stormwater and Sediment Controls
 - BMPs such as silt fences, sediment basins, and vegetative buffers reduce overland transport of contaminated particles.
 - These controls help limit peak concentrations during storm events, particularly during early mine years.
(2024 Certification § 4.1.3)
3. Monitoring and Adaptive Management at YP-T-6
 - Quarterly monitoring at YP-T-6 is required.
 - If criteria exceedances are detected, the permittee must implement adaptive management actions to correct or mitigate the exceedance.
(2024 Certification § 5.3)
4. Postclosure Recovery
 - The modeled exceedances occur only during the early operational phase.
 - Postclosure modeling shows declining concentrations and a trajectory of improving water quality over baseline conditions.
(2024 Certification § 6.1)

While modeled concentrations of arsenic and mercury in lower West End Creek exceed Idaho water quality criteria at YP-T-6 during early mine years without treatment for the West End Creek diversion water, only arsenic is predicted to exceed criteria if the water treatment for mercury in the diversion from the NMFS BO RPM is taken into account, and the predicted arsenic values during the diversion will be below the existing conditions. The combination of passive controls and long-term recovery ensures Tier I protections based on the following:

- Existing uses (cold water aquatic life and contact recreation) are not eliminated, and impairment is reversible and localized.
- Predicted degradation is managed through design features, BMPs, and enforceable monitoring requirements.
- No long-term degradation is predicted, and water quality is expected to improve relative to baseline in later years.
- The project incorporates multiple enforceable requirements designed to ensure long-term protection of water quality, including conditions contained in this certification, commitments incorporated into federal permitting decisions, and monitoring, treatment, and adaptive management measures required under associated regulatory approvals. Implementation of a water treatment system for flow from upper West End Creek while West End Creek is being diverted during operations in accordance with reasonable and prudent conservation measures (RPMs) outlined in the *2024 Biological Opinion* (BiOp) issued by NOAA's National Marine Fisheries Service (NMFS). The BiOp mandates that mercury concentrations be reduced to levels existing at monitoring station YP-T-6, thereby eliminating predicted mercury elevation downstream during operations.
- Post-mining removal of the diversion and hydrological reversion to natural flow paths, with surface waters captured by West End Pit Lake and not discharged to West End Creek, preventing long-term contaminant transport.
- Continuous long-term monitoring and adaptive management, including terms and conditions from the NMFS Incidental Take Statement (ITS), to ensure protection of designated aquatic life beneficial uses and downstream water quality.

In accordance with Idaho's antidegradation policy, the Tier I analysis is required to ensure water quality necessary to support existing and designated uses is maintained and protected. IDAPA 58.01.02.052.07 requires that:

1. Existing uses must be maintained and protected;
2. There must be no degradation below water quality standards necessary to support these uses; and
3. Appropriate controls must be implemented to prevent water quality degradation.

The analysis demonstrates compliance with each of these provisions through a combination of predictive modeling, enforceable project controls, and binding long-term commitments. Therefore, the conditions satisfy the requirements of IDAPA 58.01.02.052.07, and the proposed project activities within the West End Creek watershed are consistent with Tier I antidegradation protections.

2.2.3 Tier II Antidegradation Analysis

To determine whether degradation will occur, DEQ evaluates whether activities subject to federal permit issuance will affect water quality for each pollutant relevant to uses receiving Tier II protection (IDAPA 58.01.02.052.06). In this case, DEQ will evaluate degradation in West End Creek for aquatic life uses and contact recreation uses due to temperature, antimony, arsenic, and mercury.

Generally, DEQ conducts a Tier II antidegradation analysis on the pollutant by pollutant basis once it is determined the water body receives this additional level of protection. IDAPA 58.01.02.052.06 describes how the effect on water quality will be based on the calculated change in concentration in the receiving water as a result of the new permit or license. For this review, the calculated change is the difference between the existing, or current, water quality and the water quality that is modeled to result from the activity or discharge as proposed in the USACE dredge and fill permit. It is worth noting that the majority of IDAPA 58.01.02.052.06 speaks to permit effluent limits to assist in this evaluation, and USACE § 404 permits do not set effluent limits. To account for this, DEQ uses data from the WQSR (USFS 2023b) prepared by the U.S. Forest Service with data supplied by PRII (formerly Midas Gold), DEQ, and the U.S. Geological Survey.

DEQ may allow degradation of surface water quality that is better than assigned criteria if it is determined to be necessary to accommodate important economic or social development in the area in which the waters are located. This means that if the degradation is considered significant, then the use of other source controls must be evaluated, and an alternatives analysis, and socio-economic justification subject to the public participation process is required by IDAPA 58.01.02.052.08. The SGP proposes limited and temporary degradation of water quality during mine operations, supported by an updated *Technical Memorandum for Alternatives Analysis and Socioeconomic Justification* (SEJ Technical Memo; Brown and Caldwell 2025d).

DEQ concludes that this project complies with the Tier II provisions of IDAPA 58.01.02.051.02, 58.01.02.052.06, and 58.01.02.052.08. The following sections provide the rationale.

2.2.3.1 West End Creek

AU ID17060208SL029_02 is identified in *Idaho's 2022 Integrated Report* as fully supporting all assessed uses. West End Creek would typically be afforded Tier II protections for both aquatic life and contact recreation uses. Data collected for the Integrated Report assessment, however, did not sample West End Creek specifically. Lower West End Creek sample point YP-T-6 from the WQSR (USFS 2023b) and FEIS (USFS 2024a) is located downstream of both the upper and lower historical West End waste rock dumps; it is possible that the water chemistry at this location has been influenced by the waste material, especially where the creek flows directly through historical development rock piles (USFS 2024a).

Under existing conditions West End Creek has arsenic concentrations above stream surface water standards. Existing mercury concentrations in West End Creek are higher than standards

above the West End pit area (approximately 50 ng/L) and less than standards below the pit area (approximately 4 ng/L). This suggests that a naturally occurring mechanism reduces mercury concentrations in the creek between the sample locations upstream and downstream of the pit area (USFS 2024a).

Results shown in Table 7 indicate that West End Creek itself does not meet recreational use criteria and would be likely identified as an impaired stream in the next Integrated Report. As such, there is no assimilative capacity for arsenic and mercury in this stream to conduct a Tier II analysis for significant degradation. Additionally, West End Creek was not modeled for postclosure concentrations as one continuous creek; the FEIS presents modeling for upper West End Creek flowing into the zero-discharge West End Pit Lake created during operations and for lower West End Creek flowing into Sugar Creek. The SGP proposes disconnecting upper West End Creek and West End Pit Lake from the downstream area – which includes lower West End Creek and Sugar Creek.

Table 7: Existing pollutant concentrations in lower West End Creek.

Pollutant	Acute Aquatic Life	Chronic Aquatic Life	Recreation	Observed MAX	Observed AVG
Antimony	NA	NA	190 µg/L	13 µg/L	10.5 µg/L
Arsenic	340 µg/L	150 µg/L	4.3 µg/L	97.3 µg/L	79.6 µg/L
Mercury (total)	NA	NA	12 ng/L ^a	18.1 ng/L	7.8 ng/L
Copper	12.3 µg/L	7.7 µg/L	NA	0.9 µg/L	0.3 µg/L
Cadmium	1.3 µg/L	0.6 µg/L	NA	<0.02 µg/L	<0.02 µg/L
Lead	65 µg/L	2.5 µg/L	NA	60 ng/L	<20 ng/L
Zinc	120 µg/L	120 µg/L	1500 µg/L	2.5 µg/L	1.6µg/L

Bolded values denote pollutants with concentrations above most stringent applicable criterion.

a. Recreation criterion is for the species methylmercury, not total mercury. Results for lower West End Creek are for total mercury. Comparing total mercury results to methylmercury criterion will overestimate the frequency and magnitude of exceedances.

Temperature in West End Creek exhibited the highest recorded value in July at 10.2°C. This is below the 13°C applicable criteria (USFS 2023b). More discussion on the impacts of operations on West End Creek is found in sections 2.3 and 2.4

2.2.3.2 Tier II Conclusions

Tier II protections evaluate the degradation of a high-quality water body against the requirements of IDAPA 58.01.02.052. For lower West End Creek, there is no assimilative capacity for arsenic, therefore there is no degradation possible or allowable, and relying on the Tier I protections of the existing uses and criteria is appropriate. For antimony and mercury, Table 7 illustrates that there is a reduction, or no change, in concentrations from existing conditions, so no degradation is occurring.

As part of the SGP, upper West End Creek will ultimately be disconnected from lower West End Creek and the formation of a nonjurisdictional waterbody (West End Pit Lake) will occur. More discussion on this is found in section 2.4 regarding the jurisdictional element. As a

nonjurisdictional, not yet formed waterbody, West End Pit Lake is considered a non-WOTUS waterbody and Tier II protections do not apply.

The USFS, in cooperation with federal and state agencies, identified the 2021 MMP as the Agency Preferred Alternative in the FEIS, citing reduced risk of hazardous spills, improved fish habitat, and fewer environmental trade-offs compared to alternatives such as the Johnson Creek Route. The *Final Record of Decision* (USFS 2025) for the SGP confirms the following:

- Surface water diversions, such as Meadow Creek, will be reclaimed and restored postclosure with constructed wetlands and reconstructed stream channels.
- Restoration will meet IDAPA 58.01.02.052.08 criteria: any temporary degradation is justified by overriding social and economic benefits and is minimized through BMPs and treatment.

The USACE (2025) *Record of Decision* (ROD) determined that the 2021 MMP represents the Least Environmentally Damaging Practicable Alternative (LEDPA), meeting the criteria of the § 404(b)(1) Guidelines (40 CFR 230). The USACE ROD (USACE 2025) and USFS FEIS (USFS 2024a) concluded that the project:

- Will not violate Idaho's water quality standards.
- Minimizes and avoids waters of the US (WOTUS) impacts to the maximum extent practicable.
- Incorporates a comprehensive suite of mitigation measures, including a water treatment plant, stream restoration, adaptive management, and long-term monitoring.
- Improves water quality in historically impaired water bodies by removing legacy mine waste.

Additionally, the 2024 NMFS BiOp concludes that the SGP is not likely to jeopardize the continued existence of federally listed Snake River spring/summer Chinook Salmon or steelhead and will not destroy or adversely modify their designated critical habitat. The BiOp further affirms that project-related water treatment and mitigation measures, including those in West End Creek, support long-term compliance with Endangered Species Act (ESA) and CWA requirements.

PRII's long-term commitment to water quality protection of existing uses throughout the project lifecycle includes the following:

- Installation and operation of a WTP meeting Idaho Pollutant Discharge Elimination System (IPDES) permit limits.
- Surface water and groundwater monitoring programs spanning all phases: construction, operations, closure, and postclosure with continuous evaluation to verify compliance with Idaho's water quality standards.
- Stream restoration projects with active riparian revegetation to improve temperature and sediment control to improve shading, reduce erosion, and enhance aquatic habitat.
- Removal of legacy mine waste, improving baseline conditions particularly in Meadow Creek.

- Postclosure stewardship, including adaptive management to respond to water quality monitoring outcomes.

These measures demonstrate a clear commitment to enhancing water quality and ecological resilience over time, ensuring the level of water quality necessary to protect existing uses, satisfying antidegradation Tier I and Tier II protection criteria (Table 8).

Table 8: Summary of West End Creek compliance with Tier II antidegradation requirements (IDAPA 58.01.02.052.08).

Requirement	IDAPA 58.01.02.052.08 Compliance Summary
High-Quality Water Status	West End Creek's AU is classified as Tier II high-quality water by DEQ due to baseline water quality of the assessment of the AU as a whole.
Necessity of Degradation	Temporary and limited degradation is necessary to enable the SGP, which provides substantial socioeconomic and environmental benefits.
Minimization of Degradation	Project design incorporates BMPs, conservative modeling, and worst-case scenario assumptions to minimize impacts.
Remediation and Restoration Commitments	Includes removal of legacy contamination, restoration of habitat and stream flows, wetland enhancement, and long-term site reclamation.
Long-Term Water Treatment	Water treatment will continue during the West End Creek diversion to remove mercury ensuring protective water quality in West End Creek. Treatment performance is tied to mercury thresholds consistent with BiOp-required levels at monitoring station YP-T-6, preventing long-term downstream impacts.
Post-Mining Hydrologic Controls	Diversions will be removed and natural flow paths restored, eliminating surface discharge from pit lake to lower West End Creek.
Monitoring and Adaptive Management	Extensive long-term monitoring is required under both state and federal mandates, including NMFS Incidental Take Statement terms and RPMs. Continuous water quality monitoring and adaptive management are integrated into closure plans to address potential residual impacts.
BiOp and ESA Compliance	NMFS determined the project is not likely to jeopardize the continued existence of ESA-listed fish or adversely modify designated critical habitat. The BiOp affirms protective water management in West End Creek and surrounding aquatic habitats (NMFS 2024). USFWS also concluded that the SGP will not jeopardize the continued existence of bull trout and will not destroy or adversely modify designated critical habitat for bull trout (USFWS 2024).
Socioeconomic Justification	The project will generate regional jobs, tax revenue, community investment, and critical mineral supply, with net long-term ecological and economic benefits.
Agency Validation	<i>Final Record of Decision</i> (USFS 2025), NMFS BiOp (NMFS 2024), and USACE ROD (USACE 2025) affirm the SGP meets federal and state regulatory standards, including compliance with IDAPA 58.01.02.052.08 through mitigation, restoration, and socioeconomic justification.

2.3 Clarification of Mercury Impacts from Rerouting West End Creek

As part of the SGP, a series of measures have been developed to mitigate and monitor potential water quality impacts in West End Creek, particularly for mercury loading and stream function. Originally, the diversion of West End Creek was planned to occur in Mine Year (MY) 2. However, in response to the NMFS BiOp, the project plan has been modified to delay the diversion until MY9. This adjustment provides additional time to gather site-specific water quality data. Beginning in MY3, water quality monitoring will inform the design and calibration of a treatment system that will address water from the upper portion of West End Creek during the re-route of the creek. A treatment system will be in place and utilized during the West End Creek re-route to ensure lower West End Creek uses and criteria are maintained.

West End Creek is not fish-bearing and contributes relatively minor flow volumes to Sugar Creek (i.e., West End Creek inflow [mean flow of 0.51 cfs] is approximately 2% of Sugar Creek

flow [21.2 cfs]). Predicted flow reductions in Sugar Creek attributable to the proposed re-route action will be typically less than 1% with a maximum monthly difference of 3% (USFWS 2024).

To comply with the NMFS BiOp and Incidental Take Statement issued by NMFS on October 7, 2024, PRIL committed to implementing additional mitigation measures and updated work windows for the upper West End Creek reroute. The BiOp, developed in consultation with the USFS and USACE under Section 7 of the ESA and § 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act, outlines the RPMs deemed necessary by NMFS to minimize the impact of the SGP. It specifies terms, conditions, and reporting requirements to be followed by the USFS, USACE, PRIL, and any permittees involved.

Although the BiOp includes multiple RPMs and conditions, only one directly pertains to activities described in PRIL's CWA § 404 permit application and § 401 certification request. In response to the RPM pertaining to West End Creek, PRIL proposes to treat the water from West End Creek when it is diverted around the West End pit during operations, discharging it into the lower channel only after treatment. PRIL has also revised the timeline for the West End Creek diversion, initially planned for MY1 but is now postponed to MY9, when mining activities begin in the West End Creek drainage. This delay allows time to evaluate conditions and if necessary, design and implement water treatment measures. PRIL plans to adjust the West End Creek reroute and design appropriate water treatment measures for discharges related to the diversion (MY9), which will enhance water quality protection. PRIL will obtain the appropriate IPDES permit before commencing discharge of the treated West End Creek water. Final plans will be included in the future IPDES applications coordinated with, and approved by, DEQ.

During active mining, water from upper West End Creek will be treated before diversion into the lower reach of West End Creek, as outlined in the BiOp (NMFS 2024). This treatment system will be designed to reduce mercury concentrations to levels that are equal to or lower than current concentrations observed at YP-T-6, preventing any increase in mercury loading to Sugar Creek. The treatment protocols and system design will be coordinated with DEQ and formally incorporated into the next IPDES permit renewal application. The final treatment plan will be reviewed and approved by DEQ before implementation. As part of the IPDES permit, this treatment plan will also be available for public comment at the time it is incorporated into that re-issued permit.

To support regulatory oversight and performance assessment, a Water Resources Monitoring Plan (Brown and Caldwell 2025d) has been developed. This plan will track both groundwater and surface water quality and flow interactions, including those in West End Creek. Data collected through this monitoring will be shared with the USFS and DEQ as outlined in the Final ROD (USFS 2025).

In addition to active controls, the project includes extensive stream restoration and enhancement efforts to offset unavoidable impacts to West End Creek and similar streams. The Compensatory Stream and Wetland Mitigation Plan (Tetra Tech 2025) provides for the reestablishment, enhancement, and restoration of over 108,000 linear feet of stream channels

within the Salmon River watershed, including segments directly or indirectly affected by project activities.

Restored stream reaches, including those altered by the West End Creek diversion, will be monitored for a minimum of 5 years post-construction. Longer monitoring durations will be triggered as needed based on performance or through adaptive management. Annual monitoring will assess physical channel conditions, riparian vegetation development, habitat diversity, and water quality - including parameters relevant to mercury mobility and bioavailability.

Following closure, upper West End Creek will flow into a newly formed West End Pit Lake. The lake is not expected to spill due to its limited catchment and evaporative balance. However, if outflow is anticipated, site conditions will be evaluated and, if needed, a mobile treatment system will be deployed to ensure compliance with water quality standards and prevent the release of untreated discharge to lower West End Creek. Although the pit lake has no designated beneficial uses, its potential interaction with lower West End Creek is subject to monitoring. If discharge risk arises, PRII will implement treatment measures under the IPDES permit framework to ensure compliance with downstream water quality criteria (USFS 2025).

Post-reclamation modeling predicts that mercury concentrations in lower West End Creek will remain below applicable water quality standards, with only minor increases relative to current conditions (USFS 2023b; Brown and Caldwell 2025c).

Finally, water quality improvements are also anticipated from broader project activities, including removing legacy mine waste and increasing riparian vegetation throughout the West End Creek watershed (USFS 2024b). These actions contribute to stabilizing soils, reducing contaminant transport, and supporting ecological recovery to further ensure that cold water aquatic life and contact recreation uses are preserved and that the Tier I requirements for protecting existing uses are met.

2.4 Clarification of Water Quality Impacts Related to the West End Pit Lake

As part of the SGP, West End Creek - a currently jurisdictional tributary to the EFSFSR - is proposed for long-term rerouting during mine reclamation. This change will result in disconnecting upstream West End Creek from its historical surface water connection to lower West End Creek and the formation of the new West End Pit Lake. These changes raise jurisdictional and water quality considerations under the CWA and Idaho's water quality standards. The proposed conversion of upper West End Creek from a jurisdictional tributary to a nonjurisdictional pit lake feature implicates federal jurisdiction under 33 CFR 328 and the post-*Sackett* regulatory framework.

Subsurface flow conditions in and around the SGP fall outside the scope of the CWA § 401 Water Quality Certification. Instead, these conditions are addressed under the Point of Compliance (POC) Determination, a separate regulatory mechanism under IDEQ. The § 401

certification is structured to avoid duplication with other IDEQ permitting requirements, including those under the POC framework.

In accordance with the approved POC Determination, PRII is required to implement and monitor BMPs consistent with the Idaho Ground Water Quality Rule (IDAPA 58.01.11). These BMPs are designed to minimize and manage the environmental impacts associated with mining operations at the SGP and include the following objectives:

- Minimize the formation and accumulation of contact water to protect groundwater and surface water quality, including downstream aquatic habitat
- Prevent the interaction between surface water/groundwater and mine-impacted materials
- Effectively manage and treat mine-influenced water to maintain compliance with applicable water quality standards

PRII must also demonstrate compliance with groundwater quality standards as specified in IDAPA 58.01.11.200. DEQ approved PRII's POC application on January 19, 2023, contingent on the submittal of additional information regarding POC location. The requested location-specific information was submitted by Perpetua on March 7, 2023.

During mine operations, the West End pit is expected to be relatively dry, and limited water from stormwater runoff and passive groundwater inflows would pond within the pit sump and be removed. At the end of open pit mine operations, dewatering would cease, diversions would be breached, and a pit lake would ultimately form in the pit (USFS 2024a). As discussed in the previous section, West End Creek will be routed around the West End pit while active mining is occurring.

During the operational period, highwall runoff, bedrock seepage, and run on from undisturbed ground would report to the pit sump as part of the pit dewatering system. Once dewatering ceases, the West End Pit Lake begins to fill slowly until attaining a maximum volume of approximately 2,700 acre-feet and a surface elevation of 6,663 feet above sea level approximately 57 years from the start of filling. Thereafter, the lake volume and surface elevation would vary at slightly lower levels as meteoric inflows varied in relation to outflows to bedrock groundwater and evaporative balance. The final pit lake surface elevations are predicted to be more than 6 feet below the level where outflow from the pit lake to surface water would be anticipated (USFS 2024a).

The SGP proposes a long-term reclamation approach that includes the diversion of part of West End Creek, a currently jurisdictional tributary to the EFSFSR, and the eventual formation of a pit lake within the West End pit. This transformation raises key considerations under the CWA and associated definitions of WOTUS, particularly with respect to the jurisdictional status of upper West End Creek and its interaction with downstream waters.

Under the current regulatory framework, including the 2023 Supreme Court ruling in *Sackett v. EPA*, West End Creek qualifies as a WOTUS before modification due to its relatively permanent flow and direct surface water connection to downstream navigable waters. As a result,

activities involving discharge of dredged or fill material to West End Creek require § 404 authorization and are addressed under the 2024 Certification and this addendum.

Following project implementation, upper West End Creek will be permanently rerouted and disconnected from lower West End Creek. Flows from upper West End Creek will enter a newly formed pit lake that will not have a direct hydrologic connection to WOTUS under ordinary conditions. Based on *Sackett* and the 2023 EPA WOTUS Rule (as revised), such a feature - formed from precipitation, shallow groundwater, and isolated inflows - would not be considered jurisdictional because it will no longer be connected to traditional interstate navigable waters and will lack a continuous surface water connection to any other jurisdictional water.

To address this jurisdictional change, the applicant has committed to the following:

- Delaying the West End Creek diversion until MY9, allowing time for water quality monitoring and treatment system design (NMFS, 2024).
- Treating all diverted flows from upper West End Creek prior to discharge into the lower reach during active mining, with design approval coordinated through DEQ and implemented via the IPDES permit.
- Establishing a mobile treatment contingency if the pit lake, though designed not to spill, risks overflowing post-mining. In that event, treatment under the IPDES framework will ensure compliance with all downstream water quality standards.
- Monitoring the pit lake and lower West End Creek for flow, water quality, and connectivity throughout postclosure.

From a water quality protection standpoint, the functional disconnection of upper West End Creek from WOTUS does not result in degradation of downstream uses, as mitigation and restoration measures ensure maintenance of aquatic habitat, cold water temperature regimes, and pollutant attenuation. These measures are supported by the Compensatory Stream and Wetland Mitigation Plan (Tetra Tech 2025), that offsets the permanent alteration of West End Creek by restoring over 108,000 linear feet of streams in the Salmon River watershed.

Despite predicted exceedances of certain metals (e.g., mercury, antimony) at monitoring location YP-T-6 in lower West End Creek during early mining years (USFS 2023b), the project is anticipated to provide long-term net environmental benefits to downstream waters, particularly Sugar Creek, which lies downstream of the lower West End Creek confluence (Table 7). These benefits include the following:

- Reduction in mercury loading to Sugar Creek: Treatment of diverted West End Creek flows during active mining will lower mercury concentrations to levels at or below current conditions at YP-T-6, minimizing potential mobilization into downstream systems.
- Elimination of legacy mine waste sources: The removal of historical contaminated materials and backfilling of legacy pits within the West End Creek drainage will reduce leaching of metals, including mercury, antimony, and arsenic, into the watershed over the long term.

- Improved sediment and nutrient regulation: Recontouring and re-vegetating the watershed will stabilize soils, reducing turbidity and nutrient enrichment in lower West End and Sugar Creeks.
- Riparian and channel restoration: As part of the Compensatory Stream and Wetland Mitigation Plan (Tetra Tech 2025), the applicant will restore and enhance over 108,000 linear feet of streams in the Salmon River watershed, including segments hydrologically and functionally linked to Sugar Creek. These improvements will support temperature regulation, aquatic habitat, and natural metal attenuation.

DEQ concludes that while the project results in the hydrologic disconnection of part of a jurisdictional tributary and formation of a nonjurisdictional feature, the proposed activities are accompanied by protective treatment, long-term monitoring, and net improvements to downstream water quality. The combination of water treatment, legacy waste removal, watershed-scale mitigation, and contingency planning ensures that existing uses in downstream WOTUS are maintained and protected, consistent with the requirements of IDAPA 58.01.02.052.07. Therefore, this aspect of the project is eligible for certification under CWA § 401 and complies with the antidegradation requirements of IDAPA 58.01.02.052.

2.5 DEQ’s Evaluation of the Socioeconomic Justification Under IDAPA 58.01.02.052.06(d)

Under Idaho’s water quality standards, DEQ may authorize degradation of high-quality waters where such degradation is justified by important economic or social development in the area in which the waters are located, consistent with IDAPA 58.01.02.052.06(d). To determine whether the justification submitted in Appendix F (Revised Alternative Analysis and Socioeconomic Justification and PRII Response to Comments) of the 2024 Certification meets this standard, DEQ applies a structured review process that incorporates the criteria outlined in IDAPA 58.01.02.052.08. DEQ also relied on external reports, *The Economics of the Stibnite Gold Project* (Recon Insight Group, LLC 2024) and *Technical Memorandum: Idaho Department of Environmental Quality Alternatives Analysis and Socioeconomic Justification* (Brown and Caldwell 2025e), when evaluating the revised socioeconomic justification for this addendum.

Specifically, DEQ evaluated the applicant’s socioeconomic justification using the following criteria:

1. Identification of the Affected Community

Clearly define the “area in which the waters are located,” including communities that are directly affected by potential water quality degradation and those that are expected to receive the majority of the project’s benefits. This includes small rural communities, recreational corridors, downstream users, and county-level populations likely to be impacted economically, physically, or environmentally.

2. Description of the Project’s Economic and Social Importance

The justification must describe the economic and/or social development enabled by the activity. This includes job creation, income growth, public infrastructure improvements,

tax revenue, restoration of contaminated lands, and investments in workforce or community resilience.

3. Balanced Presentation of Benefits and Costs

The applicant must identify and, where possible, quantify both the benefits and costs of the proposed degradation. This includes potential adverse impacts such as strain on housing or emergency services, increased road maintenance needs, loss of recreational value, or reduced fishery-related income. Where quantification is not feasible, the applicant must provide a qualitative explanation of the projected outcomes.

4. Consideration of Duration and Relevance of Impacts

DEQ will evaluate the timing and duration of both benefits and degradation. Projects that offer short-term economic benefits but impose long-term or permanent environmental degradation require more substantial and enduring justification. DEQ considers whether degradation is geographically relevant to the communities benefiting from the development and whether any mitigation commitments effectively offset long-term risks.

5. Clarity and Verifiability of Claims

DEQ will assess whether the justification is supported by credible data, third-party analyses, or enforceable commitments. Generalized or speculative claims will carry less weight than clearly documented, site-specific, and measurable impacts.

6. Integration with Certification Conditions including Other Source Controls

If DEQ determines that the socioeconomic justification supports the allowance of degradation, it will ensure compliance with Idaho's antidegradation policy by confirming that the highest statutory requirements for point sources and effective BMPs for nonpoint sources are in place.

This approach ensures a consistent and transparent application of IDAPA 58.01.02.052.06.

This expanded socioeconomic justification supplements the record supporting DEQ's finding under IDAPA 58.01.02.052.08(d) that limited degradation of high-quality waters from the SGP is justified by important economic and social development. In addition to responding to updated economic analyses and mitigation commitments submitted by PRII, this expansion addresses concerns raised in the pending § 401 certification appeal, including whether the original justification adequately accounted for local infrastructure burdens, long-term economic transitions, and community-level costs. The following sections provide a detailed and balanced analysis of affected communities, projected benefits, potential adverse impacts, the timing of those effects, and relevant mitigation measures. This evaluation is intended to clarify DEQ's rationale and reinforce the legal and policy basis for its antidegradation determination under IDAPA 58.01.02.052.08.

To begin this expanded analysis, DEQ identified the geographic and economic scope of the communities most directly and indirectly affected by the project.

2.5.1 Identification of the Affected Community

The area directly surrounding the SGP has no permanent residential population at the mine site itself. However, the project's activities may have direct and indirect effects on several communities downstream and along access corridors, particularly in the Johnson Creek drainage and the town of Yellow Pine.

2.5.1.1 Direct Impact Area: Yellow Pine and Johnson Creek Corridor

The town of Yellow Pine, located approximately 15 miles downstream of the project site, has a permanent population of 32 residents. While small, Yellow Pine serves as a gateway community with economic activity tied to recreation, outfitting, lodging, and seasonal events, most notably the annual Harmonica Festival, which attracts hundreds of visitors and provides a critical economic boost to local businesses.

According to the *United States Census Bureau (2024)*, The *2023 American Community Survey* reported Yellow Pine's median household income as \$31,940, which is significantly lower than the Valley County median of \$76,125. This income disparity highlights the economic fragility of the community and its reliance on seasonal tourism and public lands access. Economic development associated with the SGP may offer new income opportunities or stimulate related service sectors, but it also introduces risks related to dust, additional traffic, and altered land use, which may deter visitors or reduce the area's recreational appeal.

Residences and seasonal cabins along Johnson Creek and its tributaries are located within or adjacent to haul routes and areas of dust generation, noise, and increased traffic. These areas are also hydrologically connected to surface waters affected by the project's proposed diversions, crossings, and potential downstream water quality changes.

2.5.1.2 Regional Community: Valley and Adams Counties

More broadly, the project lies within Valley County, with adjacent effects possible in Adams County. These counties are defined by low population density, relatively high dependence on natural-resource sectors and seasonal recreation, and constrained infrastructure (e.g., housing availability, road maintenance, emergency services).

Economic opportunities from the project - such as construction employment, retail service demand, and indirect contracting - will largely flow through McCall, Cascade, Donnelly, and surrounding areas, where workers are based and commercial services are available. Infrastructure strains (e.g., workforce housing shortages, utility demand) are also expected to manifest in these communities, particularly during the construction and early operational phases (Brown and Caldwell 2025e).

2.5.1.3 Broader Beneficiaries: State and National Interests

The project is expected to contribute to Idaho's economy through the following:

- Increased income tax and sales tax revenue;

- Infrastructure investments (e.g., electrical grid improvements); and
- Voluntary contributions to the Stibnite Foundation, which has authority to fund community-benefit projects across the region.

At the national level, the SGP advances several important federal priorities. It is expected to produce antimony, a federally designated critical mineral essential for national defense, renewable energy, and technology manufacturing. By sourcing this mineral domestically, the project contributes to U.S. strategic resource independence and resilience in critical supply chains. Executive Order 14156 (January 20, 2025) declared a national energy emergency and prioritized permitting and production of critical minerals and energy infrastructure - policies the SGP directly supports by accelerating the availability of key minerals and enabling essential energy-related projects.

2.5.2 Description of the Project’s Economic and Social Importance

The SGP represents a major economic and social development opportunity for central Idaho, especially in Valley County and surrounding rural areas. The project is anticipated to deliver substantial and lasting benefits across employment, income growth, public revenues, community infrastructure, and environmental restoration. This section describes DEQ’s review of the submitted socioeconomic justification (Brown and Caldwell 2024) and the revised SEJ Technical Memo (Brown and Caldwell 2025e).

2.5.2.1 Job Creation and Workforce Development

The project is expected to generate significant employment opportunities for Valley County and the surrounding region, offering both direct and indirect benefits to the local workforce and contributing to long-term economic resilience.

Direct Job Creation:

- The project anticipates creating an average of 390 direct mining-related jobs annually under baseline conditions, with potential to peak as high as 855 total jobs under optimistic projections when indirect and induced employment are included (Recon Insight Group, LLC 2024).
- These jobs will primarily include high-paying technical and skilled labor positions, such as equipment operators, maintenance technicians, environmental scientists, and engineers.
- Average annual compensation is expected to be approximately \$96,000, which is substantially higher than the current regional wage averages.

Workforce Development and Local Hiring:

- PRII has committed to hiring locally to the greatest extent possible (Brown and Caldwell 2025e) and recognizes the need for worker training partnerships to prepare the local workforce for mine-related roles.

- Workforce initiatives may involve collaborations with local schools, colleges, and vocational programs to upskill residents, especially in trades and science, technology, engineering, and mathematics fields.
- This local hiring commitment helps retain economic benefits within Valley County and reduces dependence on a transient workforce.

Phased In-Migration and Labor Force Retention:

- Due to current infrastructure and housing constraints, many initial workers will commute from other regions (e.g., Boise Metropolitan Statistical Area). However, the project anticipates a gradual increase in permanent residency as housing solutions are addressed, leading to long-term community integration.
- The project presents a strategic opportunity to reverse the region’s aging workforce trend by attracting younger, prime-working-age individuals and their families, which will in turn support regional schools, services, and civic institutions.

Stabilizing and Diversifying the Economy:

- Mining employment offers counter-cyclical economic stability, especially compared to the tourism sector, which is vulnerable to national recessions. This diversification is vital for long-term community resilience.
- The SEJ Technical Memo (Brown and Caldwell 2025e) points to the mine’s role in filling a critical employment gap created by the decline of traditional resource industries like timber.

2.5.2.2 Income Growth and Economic Activity

The SGP is projected to be a major driver of regional income growth and broader economic expansion, particularly in Valley County and the central Idaho region. By generating high-paying jobs and stimulating indirect and induced economic activity, the project is expected to significantly enhance household income and regional Gross Domestic Product over its operational lifespan.

2.5.2.2.1 Direct Income Growth

- The SGP is estimated to inject approximately \$1.5 billion in total wages and benefits into the regional economy over the life of the project.
- Average annual compensation per worker is projected to be \$96,000, which is more than double the average earnings in Valley County (approximately \$45,000–\$55,000 based on recent census data).
- These higher-than-average wages are particularly impactful in an area where seasonal and part-time work (e.g., in recreation and tourism) dominate the employment landscape, and where poverty rates exceed the statewide average.

2.5.2.2.2 Indirect and Induced Economic Effects

- The project is forecasted to generate an additional \$34 million per year in labor income from indirect and induced employment - e.g., through suppliers, local contractors, retailers, and service industries.
- Total economic output in Valley County is expected to rise by an average of 34.6% annually during the life of the mine compared to the baseline scenario with no project.
- This impact reflects both the demand for goods and services related to mining operations and the increased consumer spending driven by mine-related household income.

2.5.2.2.3 Localized Community Benefits

- The SEJ Technical Memo (Brown and Caldwell 2025e) notes that communities such as McCall, Cascade, and Donnelly will see an increase in household spending and local business growth, especially in the retail, housing, and construction sectors.
- The mine's payroll and vendor spending are expected to reinvigorate sectors that have seen stagnant or declining real wages in recent years, particularly in nonresource-based industries.

2.5.2.2.4 Support for Housing and Consumer Services

- The influx of income is projected to support increased demand for housing construction, renovation, and rental markets, offering long-term stimulus to rural construction trades.
- Local businesses, such as grocers, fuel providers, restaurants, and medical offices, are also expected to see expanded customer bases and revenues due to higher levels of disposable income and a larger resident workforce.

2.5.2.2.5 Underlying Conditions for This Assessment

1. Full mine development and operation as outlined in economic models, including continuous operation through the life-of-mine.
2. Wage and benefit estimates based on project labor projections and adjusted for inflation and regional labor market norms.
3. Indirect and induced impacts based on IMPLAN modeling using region-specific multipliers and employment categories.
4. Worker in-migration trends will be gradual and supported by phased housing and service expansion.
5. No major market or regulatory disruptions affecting gold or antimony prices that would impair profitability or payroll stability.

2.5.2.3 Public Infrastructure and Tax Revenues

The SGP is anticipated to generate substantial fiscal benefits for local, state, and federal governments, as well as contribute to lasting improvements in public infrastructure. These gains are particularly meaningful in rural counties with limited revenue streams and high dependence on federal support.

2.5.2.3.1 Tax Revenues

According to the economics study (Recon Insight Group, LLC 2024), the SGP is projected to generate:

- \$311.7 million in total tax revenues over the life of the project across all government levels.
 - \$86.3 million in state taxes, including corporate income taxes and sales taxes.
 - \$81.1 million in local taxes, primarily from property taxes and other local assessments.
 - \$144.3 million in federal taxes, including income taxes and federal royalties.

These tax revenues will directly support schools, emergency services, road maintenance, and water/wastewater systems, particularly in Valley County and adjacent jurisdictions.

2.5.2.3.2 Local Tax Impact:

- Valley County is projected to receive a significant increase in annual property tax receipts from the mine site and associated infrastructure.
- This influx of revenue will reduce local governments' reliance on volatile tourism-based income, helping to stabilize funding for essential services such as:
 - Public safety (fire and sheriff departments)
 - County road departments
 - School districts and rural health programs

2.5.2.3.3 Public Infrastructure Investment

Beyond tax revenues, the project is expected to deliver direct and indirect infrastructure improvements, both on-site and regionally:

- Roads and Access
 - The project includes upgrades to more than 70 miles of access roads, improving year-round connectivity to the site from McCall, Cascade, and Yellow Pine (Brown and Caldwell 2025e).
 - These improvements will benefit public land users, outfitters, and emergency response teams, many of whom currently rely on deteriorated or seasonally impassable roads.
- Communications and Utilities
 - The mine will expand communication infrastructure, such as broadband and radio systems, some of which may provide co-benefits to adjacent communities and recreational users (Brown and Caldwell 2025e).
 - Energy infrastructure development, including backup power systems, may support future resilience planning in the region.
- Emergency Response and Medical Infrastructure
 - The project includes commitments to enhanced onsite medical and fire protection capacity, which may serve as a regional asset in emergencies (e.g., wildfire response, backcountry rescues).

2.5.2.3.4 Community Services Expansion

- The project’s economic footprint will also indirectly support investments in housing, schools, and healthcare, as increased tax revenues allow rural jurisdictions to expand services for new residents and a growing workforce.
- PRII has indicated willingness to coordinate with local governments on long-term planning and capital improvement projects that align with community needs.

2.5.2.3.5 Underlying Conditions for This Assessment

6. Tax projections are based on IMPLAN modeling and economic activity estimates under stable commodity pricing scenarios.
7. Full buildout and continuous operation of the mine consistent with the FEIS and economic model assumptions.
8. Local governments are able to absorb and allocate revenues effectively to high-priority public services and infrastructure.
9. Road upgrades and utility expansions are constructed to standards that provide enduring benefit beyond the project’s closure period.
10. Partnerships with local governments will be formalized to ensure coordinated delivery of community infrastructure investments.

2.5.2.4 Restoration of Contaminated Lands and Waters

A defining feature of the SGP is its integrated commitment to environmental restoration, particularly the cleanup and rehabilitation of contaminated mine lands and impaired water bodies inherited from over a century of unregulated mining. The project not only meets regulatory mitigation requirements under the CWA § 404 but also delivers net environmental benefits that address long-standing degradation in the EFSFSR watershed.

2.5.2.4.1 Legacy Waste Removal and Mine Land Reclamation

- The project includes the excavation and removal of over 10 million tons of legacy mine tailings and waste rock from historic operations at the Stibnite site.
- This material has contributed to chronic acid mine drainage (AMD), elevated metals concentrations (notably arsenic, antimony, and mercury), and hydrologic alteration in local stream systems.
- According to the SEJ Technical Memo (Brown and Caldwell 2025e), waste removal and site grading will:
 - Stabilize eroding slopes and eliminate direct surface water contact with contaminated waste.
 - Restore natural hydrology by reconnecting channels that were previously blocked or diverted by mining activities.

2.5.2.4.2 Stream Channel and Wetland Restoration

- Over 20 miles (approximately 108,000 linear feet) of stream channels will be reestablished, enhanced, or restored across Meadow Creek, West End Creek, and the EFSFSR as part of the compensatory stream mitigation (USACE 2024a).

- Reconstructed stream reaches will be designed with appropriate channel morphology, bank stabilization, riparian revegetation, and instream habitat complexity to support aquatic life designated uses, including salmonids.
- Specific highlights (Brown and Caldwell 2025e) include:
 - Rebuilding the Meadow Creek channel to bypass the legacy Yellow Pine pit and restore flow connectivity.
 - Restoring stream segments that will be temporarily diverted, such as in West End Creek, and integrating them into long-term riparian and aquatic habitat plans.
- Riparian vegetation planting and slope recontouring will reduce erosion, improve shading (critical for thermal refugia), and promote long-term ecological function.

2.5.2.4.3 Water Quality Improvements

- Removal of legacy waste and implementation of active water treatment during and after mining are expected to:
 - Reduce instream concentrations of mercury, antimony, and arsenic relative to current conditions.
 - Mitigate chronic exceedances of Idaho water quality standards observed at monitoring locations such as YP-T-6 and downstream Sugar Creek.
 - Improve aquatic habitat suitability for threatened and endangered species, including Chinook Salmon and Bull Trout.
- The project's long-term water quality strategy includes:
 - Installation of mobile treatment systems if needed postclosure (e.g., in the event of pit lake overflow).
 - Extensive surface and groundwater monitoring, as outlined in the Water Resources Monitoring Plan, to guide adaptive management.

2.5.2.4.4 Long-Term Stewardship and Monitoring

- The SEJ Technical Memo (Brown and Caldwell 2025e) and the § 404 mitigation package (USACE 2025; Tetra Tech 2025) indicate that restored reaches will be monitored for at least five years, with longer-term oversight and adaptive measures required where needed.
- Monitoring parameters will include:
 - Water quality (e.g., metals, pH, temperature)
 - Biological response indicators (e.g., macroinvertebrate indices, fish presence)
 - Physical and vegetative metrics (e.g., channel geometry, canopy cover)
- These restoration actions are integrated into the project's adaptive management framework, ensuring restoration goals are met even if short-term deviations occur.

2.5.2.4.5 Underlying Conditions for This Assessment

1. Legacy waste volumes and locations are accurately characterized in the FEIS and reflected in engineering designs.
2. Stream reconstruction and riparian planting are implemented per approved mitigation designs and hydrologic models.

3. Water treatment systems will function as planned to reduce pollutant loads both during active mining and in postclosure conditions.
4. Monitoring and adaptive management commitments are adequately funded and enforced by permit conditions.
5. Climate and hydrology projections used to design channels and anticipate pit lake conditions remain within modeled expectations.

2.5.2.5 Investment in Community Resilience

The SGP includes not only direct economic and environmental investments, but also a broader commitment to building long-term community resilience in rural central Idaho. These efforts are aimed at helping communities withstand economic fluctuations, adapt to workforce demands, and recover from legacy environmental damage. Through workforce housing, infrastructure development, education partnerships, and adaptive management, the project provides a foundation for sustained regional well-being beyond the life of the mine.

2.5.2.5.1 Workforce Housing and Local Residency

- Acknowledging housing constraints in Valley County, the project developer is planning investments to support affordable workforce housing options, which are essential to attract and retain skilled labor.
- The SEJ Technical Memo (Brown and Caldwell 2025e) notes that project-phase workers may initially commute from the Boise region, but PRIL anticipates a gradual transition to local residency as housing and services expand in nearby communities such as Cascade, McCall, and Donnelly.
- This approach is expected to stabilize school enrollment, grow the local tax base, and reduce economic leakage out of the region.

2.5.2.5.2 Partnerships in Education and Workforce Development

- PRIL has expressed commitment to developing a local labor force through regional training partnerships.
 - This may include programs in collaboration with Idaho's community colleges, trade schools, and technical education centers.
 - Training opportunities will focus on mining, environmental sciences, heavy equipment operation, and electrical and mechanical trades - all of which can provide long-term employment pathways beyond mining.
- These investments help build skills capacity within the region, aligning educational resources with future economic opportunities.

2.5.2.5.3 Economic Diversification and Stability

- The economics study (Recon Insight Group, LLC 2024) emphasizes that the mining sector can serve as a counter-cyclical stabilizer to offset the volatility of tourism-dependent economies in central Idaho.
 - Seasonal employment and second-home economies have left communities vulnerable to national downturns.

- By contrast, mining wages are high, stable, and year-round - providing a base of economic resilience even in periods of national economic stress.
- Additionally, the SEJ Technical Memo (Brown and Caldwell 2025e) notes that the project provides an opportunity to rebuild a local population base and retain younger residents, reversing current demographic trends of aging and outmigration.

2.5.2.5.4 Environmental Resilience and Adaptive Management

- The project includes strong commitments to adaptive environmental management, including:
 - A Water Resources Monitoring Plan (Brown and Caldwell 2025d) for tracking groundwater and surface water interactions.
 - Post-reclamation oversight of stream and habitat restoration.
 - Mobile water treatment systems ready for deployment if needed.
- These measures ensure that community and ecosystem health are safeguarded under changing climate or hydrologic conditions and that residual risks are actively managed.

2.5.2.5.5 Underlying Conditions for This Assessment

1. Housing investments and planning coordination will proceed in collaboration with local governments and developers.
2. Education and workforce training partnerships will be successfully launched and maintained throughout mine operations.
3. Economic multipliers and labor trends modeled in the Recon Insight, LLC (2024) study remain reasonably accurate under real-world implementation.
4. Environmental monitoring and mitigation systems remain fully funded and responsive to site-specific risks.
5. Community engagement remains proactive and culturally sensitive throughout project execution.

2.5.3 Presentation of Benefits and Costs

The SGP, while primarily an economic development initiative, is also designed to deliver substantial environmental benefits through cleanup, restoration, and mitigation measures. These actions address decades of legacy mining contamination and are integrated directly into the project's operations, reclamation, and postclosure plans.

2.5.3.1 Environmental Benefits of the SGP

2.5.3.1.1 1. Cleanup of Historical Mining Contamination

One of the most significant environmental benefits of the SGP is the removal and remediation of historical mine waste (Brown and Caldwell 2025e). Legacy tailings and waste rock from former operations at the Stibnite site have long contributed to sedimentation and heavy metal contamination in local watersheds, particularly Meadow Creek and the EFSFSR.

- PRII has committed \$7.5 million to voluntary cleanup activities under an Administrative Settlement Agreement and Order on Consent with the EPA. This work is already underway and is separate from, but complementary to, the SGP.
- The project will remove and safely store these contaminated materials in modern, lined and capped facilities that meet current environmental standards.

2.5.3.1.2 Water Quality Improvements

The removal of legacy waste and the implementation of water treatment systems during and after mining will lead to measurable improvements in surface water quality, particularly for arsenic, mercury, and antimony.

- According to the FEIS (USFS 2024a), arsenic levels in Meadow Creek are projected to decrease by more than 90% postclosure (from 0.032 mg/L to 0.003 mg/L at YP-T-22).
- Arsenic concentrations in the EFSFSR within the operations area are projected to decline by 47%, and off-site by 40% (USFS 2023b).
- These reductions are expected to result in improved water quality for aquatic life and human health across multiple AUs.

2.5.3.1.3 Fish Passage Restoration and Aquatic Habitat Improvement

Legacy mining operations diverted the EFSFSR into the Yellow Pine pit, blocking access to miles of critical spawning and rearing habitat for salmonids.

- The SGP will reestablish the natural channel of the EFSFSR by backfilling the Yellow Pine pit, removing the existing fish barrier by MY12.
- This action will restore approximately 20 miles of stream habitat, with access benefits for Steelhead, Chinook Salmon, Bull Trout, and Westslope Cutthroat Trout (Tetra Tech 2025).

2.5.3.1.4 Wetland and Stream Mitigation

To offset unavoidable impacts from dredge and fill activities, the project includes a robust compensatory mitigation plan.

- The SGP will result in a 53% net increase in wetlands acreage across the project area.
- Over 108,000 linear feet of streams will be restored, enhanced, or reestablished in the Salmon River watershed (Tetra Tech 2025).
- These restored streams will be monitored for at least 5 years to ensure they meet ecological performance standards, including water quality, riparian vegetation, and habitat diversity.

2.5.3.1.5 Post Mining Environmental Protections

Even after operations cease, the SGP is designed to prevent long-term environmental harm.

- The West End Pit Lake, which will form post-mining, is designed to retain water through to evaporative balance (USFS 2023b). However, if based on monitoring a spill may occur,

a mobile treatment system will be considered for deployment to prevent the release of untreated water.

- Long-term models (USFS 2023b) project that mercury levels in lower West End Creek will remain below applicable water quality standards, ensuring that post mining conditions do not lead to exceedances.

2.5.3.1.6 Underlying Conditions for This Assessment

1. Effective Implementation of Cleanup and Mitigation Plans – It is assumed that PRII will follow through with its Administrative Order of Consent commitments and the mitigation measures outlined in the § 401 Certification and FEIS.
2. IPDES Permit Requirements Will Be Enforced – Water treatment and discharge protocols rely on stringent permitting through Idaho’s water quality standards.
3. Hydrologic and Geochemical Modeling is Accurate – Projections of post-mining water quality and mercury levels are based on accepted modeling tools and inputs provided during the EIS process.
4. Monitoring and Adaptive Management Will Be Adequately Funded and Maintained – The benefits described rely on long-term oversight and responsive actions if conditions deviate from predictions.
5. Fish Passage Reconnection is Successful – Ecological benefits from fish passage restoration assume that physical reestablishment of channels and habitat connectivity is achieved.

2.5.3.2 Environmental Costs of the SGP

While the SGP is designed to provide environmental and economic benefits, it will also result in unavoidable environmental costs and risks, particularly during the construction and operation phases. These effects include impacts to water quality, aquatic habitat, wetlands, and landscape hydrology. The project’s scale and complexity mean that even well-mitigated activities may temporarily disturb natural systems and introduce new sources of uncertainty, especially in high-elevation aquatic environments.

2.5.3.2.1 Stream Channel and Wetland Disturbance

The SGP will involve extensive earth-moving activities and infrastructure placement within aquatic environments, resulting in the following:

- Permanent alteration or removal of approximately 21.1 miles of existing stream channels due to mine pit excavation, road construction, and tailings storage facility development.
- Direct impacts to 150 acres of wetlands, requiring compensatory mitigation to meet federal CWA § 404 permit requirements (USACE 2025b). PRII submitted the Compensatory Stream and Wetland Mitigation Plan (Tetra Tech 2025) which includes restoration and mitigation in the South Fork Salmon drainage but also compensatory mitigation in the Lemhi River drainage. That work is being conducted under USACE Nationwide Permit 27 Permit # NWW-2024-523.

- Temporary loss of riparian vegetation and bank stability, especially in reaches subject to diversion (e.g., Meadow Creek and West End Creek).

Although the project includes compensatory mitigation (Tetra Tech 2025) and postclosure restoration, all ecological functions of natural stream systems may not be fully restored, particularly in higher gradient or groundwater-dependent systems.

2.5.3.2.2 Temporary Water Quality Degradation

During active mining and construction phases (e.g., MY 2 - 12), the project is projected (USFS 2023b) to cause increases in metals and temperature in surface waters.

- Mercury levels in Meadow Creek are expected to peak at 5.1 ng/L (from a baseline of 2.2 ng/L), primarily due to discharge from the WTP at site YP-T-27.
- Antimony concentrations in the EFSFSR may reach 41 µg/L (compared to a baseline of 37 µg/L), raising potential concerns for aquatic life, especially downstream of the Yellow Pine pit.
- Temperature in restored stream reaches (e.g., Meadow Creek) may rise to 24.5°C during the early post-restoration period (MY27) before full riparian shading is established.

2.5.3.2.3 Habitat Fragmentation and Wildlife Displacement

- During mine development, the project will temporarily displace terrestrial and aquatic species across several habitat types. This includes fragmentation of stream corridors, particularly those used by ESA-listed salmonids (USFS 2024a).
- Road development, noise, and blasting may impact migratory patterns and breeding behavior for elk, bear, and other sensitive wildlife.
- Although reclamation will reestablish vegetation and channel features postclosure, habitat function may take decades to fully recover, and some species may not recolonize disturbed areas.

2.5.3.2.4 Hydrologic Modification and Pit Lake Formation

- The SGP will result in permanent changes to hydrology, particularly in upper West End Creek, where surface water will be diverted into the future West End Pit Lake.
- Although the pit lake is not expected to spill due to its limited catchment and evaporative balance (USFS 2023b), modeled risks remain if high precipitation or unforeseen inflows occur.
- If untreated pit lake water were to be released, it could reintroduce mercury or other legacy contaminants into lower West End Creek and Sugar Creek. If the water in the Pit Lake rises high enough and there is spill into lower West End Creek, a mobile treatment system is planned to mitigate this risk if it occurs (Brown and Caldwell 2025c), but long-term operation depends on accurate modeling and continuous monitoring.

2.5.3.2.5 Uncertainty in Long-Term Outcomes

Several environmental benefits depend on adaptive management and postclosure performance, which introduces uncertainty:

- Success of riparian revegetation and stream restoration depends on climate conditions, soil stabilization, and long-term funding.
- Predicted reductions in mercury, arsenic, and antimony rely on treatment plant performance and pit lake containment.

2.5.3.2.6 Underlying Conditions for This Assessment

1. Modeling Assumptions Hold True – Water quality, hydrology, and habitat predictions are based on model outputs that assume consistent precipitation, groundwater flow, and treatment effectiveness.
2. All Mitigation and Monitoring Plans Are Fully Implemented – Environmental costs are considered acceptable only with full execution of adaptive management, potential mobile treatment if necessary and long-term restoration funding.
3. IPDES and § 404 Permit Conditions Are Enforced – Regulatory oversight is essential to ensure mitigation is legally binding and corrective actions are triggered if standards are approached or exceeded.
4. Postclosure Site Management Is Funded and Active – Success depends on PRII’S continued ability to maintain treatment systems and monitoring networks long after active mining ends.
5. No Major Geochemical Failures or Unexpected Contaminant Releases Occur – Assumes WTP, backfill, and pit lake systems perform within projected parameters for mercury mobility and water chemistry.

Table 9 compares the costs and benefits of the SGP.

Table 9: Comparison of environmental benefits and costs of SGP.

Category	Environmental Costs	Environmental Benefits
Water Quality	Increases in mercury (up to 5.1 ng/L), antimony (up to 41 µg/L), and temperature (up to 24.5 °C) during operations. Risk of contaminant release from pit lake if not managed.	Long-term reduction in mercury, arsenic, and antimony concentrations postclosure. Arsenic in Meadow Creek reduced >90%. EFSFSR arsenic reduced 40%–47%.
Aquatic Habitat	Stream diversions (e.g., Meadow Creek, West End Creek) affect flow and habitat connectivity. Stream segments eliminated due to mine pit development.	Reconnection of EFSFSR through Yellow Pine pit enables 20+ miles of salmonid habitat restoration. >108,000 feet of restored streams.
Wetlands and Riparian Areas	155 acres of wetlands impacted. Short-term loss of riparian vegetation during construction.	Net increase of 53% in wetlands via compensatory mitigation. Reestablishment of riparian habitat to stabilize streambanks and reduce erosion.
Hydrology	Permanent hydrologic change to upper West End Creek (flow directed into pit lake). Pit lake requires long-term monitoring to avoid downstream impacts.	Streamflow in Meadow Creek restored through reconstructed channel. Groundwater/surface water interactions monitored and adaptively managed.
Wildlife and Ecosystems	Habitat fragmentation and noise disturbance during mine operations. Potential displacement of elk, bear, and aquatic species.	Enhanced habitat diversity and structure in restored streams. ESA species benefit from fish passage restoration and improved water quality.
Legacy Site Conditions	Some uncertainty in full ecological recovery timelines (riparian, instream, pit lake).	Removal of >10 million tons of legacy waste rock and tailings. Elimination of chronic pollution sources from historic mining.
Monitoring and Adaptation	Long-term environmental performance depends on successful monitoring and corrective actions. Risk if funding or regulatory oversight declines postclosure.	Water Resources Monitoring Plan ensures early detection of issues. Mobile WTP deployed if pit lake conditions pose a risk. 5+ years of post-restoration monitoring.

2.5.3.3 Economic Costs of the SGP

2.5.3.3.1 Capital and Operational Expenditures

- Total estimated capital investment: \$1.1 billion to develop the mine, build infrastructure (e.g., WTP, roads, power), and complete environmental mitigation.
- Ongoing operational costs: High costs for labor, materials, fuel, maintenance, and compliance over an approximate 15-year life-of-mine.
- Water treatment and environmental protection costs: Construction and long-term operation of a state-of-the-art WTP, ongoing surface and groundwater monitoring, and potential deployment of mobile treatment systems postclosure.

These expenditures are essential for permit compliance but reduce profit margins and increase upfront financial risk.

2.5.3.3.2 Reclamation and Long-Term Monitoring

- Reclamation bonding and financial assurance are required to guarantee the following environmental restoration postclosure.
 - Stream channel reconstruction
 - Wetland mitigation
 - Vegetation reestablishment
- Long-term monitoring and potential adaptive management (e.g., pit lake containment) may continue for decades, imposing financial obligations even after revenue generation ends.

2.5.3.3.3 Delays and Regulatory Costs

- NEPA and permitting delays (the EIS process has taken nearly a decade) result in:
 - Increased holding costs
 - Lost revenue from deferred operations
 - Increased engineering and legal costs to respond to regulatory or stakeholder concerns
- § 401 certification, IPDES permitting, and litigation risk can result in additional compliance costs, redesigns, or mitigation measures.

2.5.3.3.4 Opportunity Costs and Land Use Tradeoffs

- Mining operations occupy land that could otherwise be used for:
 - Recreation or tourism
 - Conservation or restoration without industrial activity
- The presence of the mine may deter tourism during active operations, particularly in high-amenity areas like Valley County, which markets its outdoor recreation and scenic values.
- Some adjacent public lands may experience restricted access or altered use, affecting outfitters, hunters, and local economies dependent on outdoor recreation.

2.5.3.3.5 Labor Market Disruption and Community Pressures

- Rapid job creation and wage inflation may draw workers from existing businesses, creating labor shortages in hospitality, construction, and seasonal employment sectors.
- Housing demand may rise faster than supply, leading to housing market pressures or increased costs in already constrained communities (e.g., McCall, Cascade).
- Increased demand for public services (roads, emergency response, schools) may outpace local government capacity without state or federal support.

2.5.3.3.6 Financial and Commodity Market Risks

- Gold and antimony prices are subject to global market volatility. If commodity prices fall, the project could become economically marginal or stall, leaving the site in a partially developed state.

- Inflation, fuel costs, or supply chain disruptions could escalate construction and operating expenses, reducing economic returns or forcing cost-cutting that could impact environmental protections.

2.5.3.3.7 Optional Quantified Examples from the 2024 Economics Study

- Total project economic output: \$4.5 billion over the mine life - but requires a \$1.1+ billion investment to realize those gains.
- Up to \$311.7 million in tax payments - but these depend on sustained profitability, commodity markets, and operating conditions.

2.5.3.3.8 Underlying Conditions for This Assessment

1. Project proceeds as proposed, including full buildout, mine operations, and reclamation.
2. Commodity prices (gold and antimony) remain within feasible, modeled ranges.
3. Capital and operating costs (e.g., labor, fuel, materials) remain stable and as projected.
4. Regulatory approvals are secured and maintained without major delays or legal injunctions.
5. Financial assurance and bonding are sufficient to cover all closure and long-term obligations.
6. Regional labor markets are tight, and project hiring may affect existing local employers.
7. Housing markets are constrained, and workforce in-migration may increase local housing costs.
8. Pit lake requires decades of monitoring and potential treatment, adding long-term costs.
9. Local governments may incur indirect costs (e.g., infrastructure, emergency response) beyond projected tax revenue offsets.
10. Opportunity costs and cumulative land use impacts (e.g., to recreation and tourism) are real but difficult to quantify and are not directly internalized in project costs.

Table 10 compares the benefits and costs of the SGP.

Table 10: Comparison of economic benefits and costs.

Category	Economic Benefits	Economic Costs
Employment Impacts	500-600 direct jobs; ~1,700 total jobs including indirect and induced (Brown and Caldwell 2025c, Recon Insight Group, LLC)	
Wages and Benefits	Estimated \$1.3 billion in total wages and benefits over life of mine (Brown and Caldwell 2025e, Recon Insight Group, LLC 2024)	
Tax Revenues	\$311.7 million in projected tax revenue (Recon Insight Group, LLC 2024)	
Public Infrastructure Needs	Indirect benefit from improved access roads and increased emergency response readiness	Increased demand on roads, emergency services, housing, and utilities during operations
Legacy Cleanup Investment	Remediation of >10 million tons of legacy mine waste; long-term water quality benefits	High up-front costs for waste removal, stream restoration, and habitat mitigation
Permit and Compliance Costs		Significant regulatory and legal compliance costs across state and federal agencies
Monitoring and Reporting Costs		Ongoing environmental monitoring and adaptive management costs
PostClosure Liability		Potential costs of pit lake treatment if hydrologic models underestimate outflow
Market Risk (Gold Prices)		Project economics vulnerable to fluctuations in gold prices and operating costs
Local Economic Diversification	New skills, workforce training, and business opportunities in rural Idaho	

2.5.4 Consideration of Duration and Relevance of Impacts

The SGP presents a complex interplay between time-limited economic benefits and a mix of short-term environmental impacts and long-term restoration outcomes. Evaluating the temporal characteristics of both benefit and degradation is essential to determine whether the project meets the threshold of “important social or economic development” under the CWA § 401.

2.5.4.1 Economic Benefits – Timing and Duration

2.5.4.1.1 Job Creation and Income Growth

- Short to Mid-Term Benefit (Construction and Operations Phase) - The most concentrated economic benefits, including job creation, income growth, and regional business activity, will occur during the approximately 15-year period encompassing construction, active mining, and reclamation.

- Peak employment during construction and operations (estimated at 500–600 direct jobs, with an additional 1,200 indirect and induced jobs) is projected to last from MY 2 through MY 12–15.
- Wages and benefits totaling over \$1.3 billion will be delivered over this same period, with multiplier effects felt in Valley and Adams Counties.
- Cyclical Nature of Mining Investment – Like many large-scale extractive projects, the SGP carries a recognizable boom-and-bust pattern. Economic activity is expected to accelerate rapidly during construction and reach peak levels during operations before tapering off during reclamation and post-closure. While this surge brings substantial short-term employment and income gains, it is inherently finite and tied to the life of the mineral resource. Without deliberate planning, such economic pulses can leave rural communities vulnerable to post-closure contraction and workforce displacement. However, the SGP incorporates restoration-related employment, regional hiring strategies, and investments in infrastructure that aim to soften the transition and enhance longer-term community resilience.

2.5.4.1.2 Tax Revenues and Public Sector Gains

- Mid-Term to Long-Term Benefit - Corporate income, property taxes, and royalty payments (totaling up to \$311.7 million) are front-loaded during the mine’s productive years but may enable longer-term public investments in infrastructure and education.
- These revenues are contingent on sustained commodity prices and mine output, with limited economic returns beyond closure.

2.5.4.1.3 Restoration Investments and Environmental Job Creation

- Bridge Between Operations and Postclosure - Post-mining site restoration and monitoring will support continued, though reduced, employment for reclamation contractors, water monitoring staff, and land managers for at least 5–10 years beyond closure, depending on the success of restoration efforts and adaptive management triggers.

2.5.4.2 Environmental Degradation – Timing and Duration

2.5.4.2.1 Stream and Habitat Disturbance

- Short- to Medium-Term Impact with Partial Long-Term Effects - Stream diversion, channel elimination, and wetlands removal occur during active construction and mining (MY 2 - 12). While these are partially offset by compensatory mitigation, full ecological function and habitat maturity in restored streams may take 20–30 years or more to recover (Brown and Caldwell 2025e).

2.5.4.2.2 Water Quality

- Short-Term Impact with Recovery Postclosure - Modeled increases in mercury (to 5.1 ng/L), antimony (up to 41 µg/L), and temperature (up to 24.5°C) are predicted primarily during mining operations (USFS 2023b). These are modeled maximums not sustained

during operations. These exceedances deviate from baseline and are expected to return to or improve upon baseline conditions within 20–50 years.

- Meadow Creek, for example, shows near-baseline temperatures by MY 52.

2.5.4.2.3 Pit Lake and Long-Term Monitoring

- Long-Term to Potentially Permanent Risk -The West End Pit Lake will persist permanently. While it is not expected to spill, the risk of future discharge necessitates indefinite monitoring and contingency treatment infrastructure, extending the duration of environmental oversight well beyond the life-of-mine.

2.5.4.3 Restoration and Environmental Benefits – Timing and Duration

2.5.4.3.1 1. Legacy Waste Removal

- Immediate to Long-Term Benefit - Removal of 10 million+ tons of historic tailings and waste rock will begin during early project years and produce near-term water quality improvements in Meadow Creek and the EFSFSR, with enduring benefits once legacy contamination is removed and isolated (Brown and Caldwell 2025e).

2.5.4.3.2 2. Fish Passage Restoration

- Mid-Term to Permanent Benefit - Reconnecting the EFSFSR via Yellow Pine Pit backfill will restore access to 20+ miles of spawning habitat for ESA-listed species. Once complete (by MY 12), this benefit is considered permanent and critical to long-term species recovery (USFS 2024a).

2.5.4.3.3 3. Wetland and Stream Mitigation

- Long-Term Benefit, Delayed Realization - The establishment of over 108,000 feet of stream restoration and a 53% increase in wetland acreage provides durable ecological gains, though full ecosystem functionality may require decades to mature (USFS 2024a).

2.5.4.4 Conclusion: Temporal Balance and Justification

The SGP delivers significant short- to mid-term economic benefits, concentrated over an approximately 15-year window. In contrast, the environmental costs, particularly to aquatic habitat and water quality, occur in the near term but are designed to reverse or improve over the decades following closure (USFS 2023b; USFS 2024a). In some cases - such as fish passage, legacy waste removal, and restored hydrology - the environmental benefits are permanent and address damage from previous mining activities.

However, the presence of permanent alterations, like the West End Pit Lake, and prolonged timelines for habitat recovery, underscore that the environmental tradeoffs are not uniformly temporary. A finding of important social or economic development under § 401 must be supported not just by short-term job creation, but by the long-term legacy benefits to environmental quality, public revenue, and resource resilience that the project has been structured to deliver.

DEQ's review of the SGP concludes that the proposed activity constitutes an "important social or economic development" under Idaho's antidegradation implementation procedures (IDAPA 58.01.02.052.06). This finding is supported by credible, site-specific data drawn from multiple sources, including the revised SEJ Technical Memo (Brown and Caldwell 2025e), the economics study (Recon Insight Group, LLC 2024), FEIS (USFS 2024a) and associated monitoring and restoration plans, and relevant permitting documents, such as the final § 404 permit. The combined evidence demonstrates that the SGP offers measurable public benefits, including critical mineral production, economic development, and long-term environmental restoration, that justify the limited water quality impacts anticipated during mine operations and are expected to result in improved conditions postclosure.

From an economic perspective, the SGP offers substantial short- to mid-term benefits to the rural communities of Valley and Adams Counties, which have historically faced limited economic diversification, seasonal employment challenges, and declining youth retention. Independent third-party economic modeling prepared by Recon Insight Group, LLC estimates that the project will create approximately 500 to 600 direct jobs during construction and operations, supporting more than 1,700 total jobs when indirect and induced effects are included. Over the course of mine construction, operation, and initial reclamation - estimated to span approximately 15 years - the project is expected to generate \$1.3 billion in wages and benefits. In addition, the project will contribute an estimated \$311.7 million in tax revenues through property, corporate, and sales taxes, with the majority of these benefits accruing to local governments and state agencies (Recon Insight Group, LLC 2024,). These projections are grounded in regionally calibrated labor and tax models using IMPLAN, an industry-standard input-output economic tool, and are considered reliable and transparent.

These benefits are specific to the economic structure of central Idaho and are coupled with enforceable workforce development and local hiring strategies outlined in the SEJ Technical Memo (Brown and Caldwell, 2025e). DEQ finds that these benefits are not only significant in magnitude but also targeted toward communities with limited alternative economic opportunities, lending weight to their relevance under antidegradation review. While DEQ acknowledges the cyclical nature of mining and the inherently time-limited economic stimulus associated with resource extraction, the SGP has been structured to extend local benefits beyond the operational window through restoration employment, infrastructure investment, and durable environmental improvements. This deliberate design mitigates the typical post-closure decline seen in boom-bust cycles and supports DEQ's conclusion that the project constitutes an "important social or economic development" under Idaho's antidegradation implementation procedures.

The project incorporates a comprehensive environmental restoration strategy that is directly tied to legacy contamination in the Stibnite Mining District. Unlike typical extractive projects, the SGP includes integrated restoration activities that are enforceable through federal and state permits and expected to deliver long-term ecological improvements. For example, the project will remove over 10 million tons of legacy tailings and waste rock that currently contribute elevated concentrations of arsenic, mercury, and antimony to the Meadow Creek and EFSFSR watersheds. Modeling presented in the FEIS (Table 7-18) and summarized in the SEJ Technical

Memo (Brown and Caldwell 2025e) indicates that this removal, in combination with rerouting and restoration activities, will result in reductions in arsenic concentrations of more than 90% in Meadow Creek and 40–47% in the EFSFSR, compared to baseline conditions. These water quality improvements will be realized in conjunction with the physical restoration of over 108,000 feet of stream channels, a 53% net increase in wetlands, and the re-establishment of fish passage in the EFSFSR through backfilling of the Yellow Pine pit, which will reconnect more than 20 miles of spawning and rearing habitat for ESA-listed salmonids.

While environmental impacts are predicted during active mining, including temporary increases in mercury and antimony at specific downstream monitoring points (e.g., up to 5.1 ng/L mercury at YP-T-27, up to 41 µg/L antimony at YP-SR-2), modeled maximums remain below applicable Idaho water quality criteria, and water quality is projected to return to or improve beyond baseline levels postclosure (Brown and Caldwell 2025e). Temperature impacts are similarly limited, with short-term warming offset by cooler conditions in other reaches due to hydrologic rerouting and increased groundwater inflow. Long-term restoration, including revegetation and riparian shading, is projected to bring temperatures back to baseline or better within 20–50 years, depending on location (Brown and Caldwell 2025e).

The project's long-term risks - such as the formation of the West End Pit Lake - are addressed through engineering controls and regulatory oversight. The pit lake is not expected to spill due to hydrologic balance, and any potential outflows will be subject to real-time monitoring and treated through mobile systems governed by IPDES permit requirements (FEIS, 2024). Restoration and water quality improvements will be tracked through an enforceable Water Resources Monitoring Plan (Brown and Caldwell 2025d) developed in consultation with DEQ and the USFS, providing confidence that mitigation outcomes can be measured and adjusted through adaptive management.

The benefits associated with the SGP are not only credible and measurable, but durable. While the economic benefits are concentrated in the short-to-mid term, the environmental benefits, such as contaminant removal, fish passage restoration, and hydrologic reconnection, are long-term or permanent. The SEJ Technical Memo (Brown and Caldwell 2025e) and supporting documents present a clear and realistic acknowledgment of these tradeoffs. The short-term degradation of water quality and habitat in certain areas is transparently disclosed, time-limited, and subject to active management and compliance requirements. In contrast, the environmental and public benefits are designed to persist beyond the project's operational life.

DEQ finds that the justification for the SGP as an important social or economic development is supported by independently validated data, detailed site-specific modeling, and enforceable commitments. The project provides significant and measurable contributions to employment, income, and tax revenues in economically constrained regions, while concurrently addressing long-standing environmental degradation through permanent restoration and reclamation activities. The record demonstrates that both the scale and substance of these benefits meet the standard of importance contemplated in Idaho's antidegradation implementation procedures and warrant DEQ'S finding in support of the project under § 401.

2.5.5 Clarity and Verifiability of Claims

The determination that the SGP constitutes an important social or economic development is based on documentation and analysis that are credible, site-specific, and supported by enforceable commitments. This assessment is required under Idaho's antidegradation implementation procedures to ensure that a lowering of water quality is not permitted based on speculative or generalized claims, but rather on clearly demonstrable and measurable outcomes.

Economic and social benefits associated with the SGP are quantified through a third-party economics study conducted by Recon Insight Group, LLC, an Idaho-based firm. This analysis utilizes IMPLAN modeling - an established input-output framework - to estimate employment, wages, and tax revenues based on local and regional economic conditions. The resulting projections include approximately 500–600 direct jobs during peak operations, over 1,700 total jobs including indirect and induced employment, more than \$1.3 billion in total wages and benefits, and approximately \$311.7 million in total tax revenues. These benefits are not generalized assumptions but are grounded in Idaho-specific economic data and transparent model assumptions.

In parallel, the environmental consequences and mitigation measures associated with the SGP have been extensively documented in the FEIS and the revised SEJ Technical Memo (Brown and Caldwell 2025e). These documents provide site-specific modeling of surface water quality, pollutant loading (e.g., mercury, antimony, arsenic), stream temperature, habitat restoration, and aquatic life use support. For example, short-term increases in mercury and antimony (USFS 2023b) are projected to remain below applicable water quality standards and are followed by long-term declines due to legacy waste removal and restoration of hydrologic and habitat functions. Water quality benefits are quantified in specific reaches of Meadow Creek and the EFSFSR and include modeled reductions in arsenic concentrations of over 90% in Meadow Creek and 40–47% in the EFSFSR.

The long-term restoration and mitigation actions are integrated into the regulatory framework through enforceable mechanisms. These include the U.S. Forest Service Record of Decision, conditions of the CWA § 404 dredge-and-fill permit, anticipated IPDES permits, and a Water Resources Monitoring Plan (Brown and Caldwell 2025d) that commits the permittee to ongoing measurement of key water quality parameters. The project's commitment to deploy mobile water treatment systems if postclosure discharge risks emerge, as well as the use of adaptive management triggers tied to water quality and habitat metrics, ensures that mitigation actions are not only enforceable but responsive to site-specific outcomes.

The justification for important social or economic development associated with the SGP is substantiated by the following:

- Validated, third-party economic modeling based on Idaho-specific conditions;
- Site-specific, measurable data on both degradation and mitigation of environmental impacts;

- Enforceable commitments through federal and state permits, monitoring plans, and financial assurance instruments; and
- Transparency regarding the duration, timing, and potential uncertainty of benefits and risks.

This documentation meets the requirements under IDAPA 58.01.02.052.06 and supports DEQ’s finding that the SGP constitutes an important social or economic development that justifies the limited and temporary lowering of water quality that may occur in certain stream segments during the life of the project.

2.5.6 Other Source Controls

Based on the available documents, the SGP demonstrates compliance with IDAPA 58.01.02.052.02 regarding *other source controls*, specifically by implementing the highest statutory and regulatory requirements for point sources and cost-effective, reasonable BMPs for nonpoint sources within the watershed. To meet Idaho’s antidegradation policy under IDAPA 58.01.02.052.02, any degradation of high water quality must be accompanied by assurances that (1) the highest statutory and regulatory requirements are achieved for all new and existing point sources, and (2) cost-effective and reasonable BMPs are implemented for nonpoint source controls.

2.5.6.1 Point Source Controls and Statutory Requirements

The SGP incorporates a range of enforceable point source controls through its anticipated IPDES permit. The May 16, 2025, Technical Memorandum (Brown and Caldwell 2025f) outlines the following relevant updates:

- Contact Water Treatment Plant (CWTP) and Process Water Treatment Plant (PWTP) are engineered to treat mine-related contact and process water to levels consistent with draft IPDES permit limits. These treatment facilities will handle water from construction, pit dewatering, and legacy contamination, ensuring discharge meets stringent standards.
- Leakage Control and Recovery System for the TSF includes a composite liner system and sump collection with underdrains to prevent water quality impacts from leakage. Water quality in underdrains will be monitored and treated before discharge.
- The IPDES permits and requirements will govern surface water discharges, ensuring consistency with water quality criteria and demonstrating enforceable regulatory compliance.

These measures satisfy the “highest statutory and regulatory requirements” for point sources by incorporating site-specific treatment technologies aligned with anticipated permit limits.

2.5.6.2 Best Management Practices for Nonpoint Sources

The project implements BMPs recognized as reasonable and cost-effective through federal and state environmental review:

- The ROD (USFS 2025) and BiOp (NMFS 2024) include specific BMPs, such as construction timing restrictions, sediment control, riparian restoration, and channel regrading.
- A Fugitive Dust Control Plan (Air Sciences 2024) and Dust Monitoring Plan (USACE 2025) are being finalized to reduce airborne deposition of metals into nearby water bodies - addressing a significant nonpoint source pathway.
- The Compensatory Stream and Wetland Mitigation Plan (Tetra Tech 2025) includes removal of historic mine waste, wetland and stream restoration, and riparian planting, all of which reduce sediment, metal, and nutrient loads entering water bodies from nonpoint sources.
- Water Resources Monitoring Plan (Brown and Caldwell 2025d) updates include more frequent sampling of water quality and flow in streams and groundwater. Monitoring ensures BMP effectiveness and informs adaptive management.

These measures reflect widely accepted nonpoint source BMPs in similar mining and restoration projects and align with DEQ’s expectations for cost-effectiveness and environmental benefit.

2.5.6.3 Underlying Conditions for This Assessment

1. IPDES permits for the CWTP and PWTP will be issued and enforce the modeled discharge limits.
2. BMPs identified in the ROD (USFS 2025) and biological opinion (NMFS 2024) are implemented as required and monitored appropriately.
3. Point and nonpoint source controls are geographically targeted to affected watersheds (e.g., EFSFSR, West End Creek, Meadow Creek).
4. PRII’s postclosure commitments (e.g., treatment, monitoring, reclamation) are fulfilled through enforceable permits and agreements.

The SGP incorporates comprehensive and enforceable point source controls through proposed treatment and discharge systems and implements cost-effective BMPs for nonpoint sources in accordance with IDAPA 58.01.02.052.02. This regulatory compliance supports DEQ’s assurance that antidegradation requirements are met in the watershed.

2.5.7 Expanded Socioeconomic Justification for Temporary Degradation in West End Creek

Justification for allowing temporary water quality degradation must demonstrate that the project is necessary to accommodate important social or economic development (IDAPA 58.01.02.051.02, 58.01.02.052.08). The SGP meets this standard based on the following factors:

2.5.7.1 Long-Term Environmental and Water Quality Benefits of Remediation Offset Short-Term Impacts

- Legacy Remediation: The SGP is the only identified opportunity to address cleanup of historic mine waste at the site, including the removal or containment of arsenic- and mercury-laden waste rock historical tailings. Restoration of aquatic and terrestrial habitats will result in substantial, long-term improvements in water quality and habitat.

- Restoration Gains: Significant postclosure improvements in water quality are anticipated. For example, post-mining models forecast up to 90% reduction in arsenic in Meadow Creek, approximately 47% reduction in arsenic in the EFSFSR, and the elimination of mercury discharge into West End Creek. These long-term improvements outweigh the project's short-term operational impacts.
- Fish Habitat Restoration and Hydrologic Reconnection: Reestablishing natural stream flows through restored pit areas will improve ecological integrity and water quality resilience. Restoration of fish passage will re-open 8 miles of steelhead habitat and improve overall habitat for salmonid species, providing permanent ecological benefits.

2.5.7.2 Economic Necessity and Regional Importance of the Mine

- Job Creation and Income: The mine will directly support approximately 580 full-time operations jobs (\$52.8 million in annual wages) and 640 construction jobs (\$66 million in annual wages), plus hundreds of indirect jobs across supporting sectors such as transportation, hospitality, and public services.
- Local Revenue: The SGP expects to generate millions in annual tax contributions at local and state levels during both construction and operations phases.
- Community Investment: Ongoing funding with the establishment of the Stibnite Foundation, will support and provide approximately \$1.75 million during preoperations and \$500,000 annually during operations to support local nonprofits and community programs including education, workforce development, and regional infrastructure.
- Critical Minerals Supply: The project supports domestic sourcing of antimony, a federally designated mineral critical to national security and supply chain resilience.

2.5.7.3 Commitment to Post Mining Water Quality Monitoring and Improvements

- Design for Reclamation: The 2021 MMP reflects a least degrading alternative, with stream restoration, wetland enhancement, and reduced overall disturbance footprint.
- Long-Term Water Treatment: Facilities will operate for up to 25 years post mining, ensuring contaminants like mercury and arsenic are removed, if necessary, through mobile treatment and will not impact or discharge to West End Creek or downstream waters.
- Monitoring and Adaptive Management: Measures required by NMFS under the ESA, including the ITS and RPMs, ensure compliance with environmental protections. Further, extensive long-term monitoring is built into postclosure planning to ensure water quality compliance and adaptive response to any unforeseen impacts.
- Independent Oversight: An Independent Tailings Review Board (Brown and Caldwell 2025f; USFS 2024), consistent with international standards, will oversee the implementation of key environmental controls associated with the project.

The Tier II antidegradation analysis confirms that the mitigated degradation to West End Creek is necessary to enable a project of substantial socioeconomic importance at the state, regional, and national levels including the critical domestic supply of antimony. The SGP offers long-term net benefits to water quality, ecological function, and the local economy. Justification is further supported by PRII's extensive BiOp-approved remediation plan (Brown and Caldwell 2025d,

2025f), alignment with ESA RPMs, long-term water treatment commitments, implementation of BMPs and water quality monitoring, compensatory mitigation, and sustained community investment. These measures collectively advance the restoration of legacy environmental impacts and satisfy the requirements of IDAPA 58.01.02.052.08. The justification is consistent with conclusions reached in the *Final Record of Decision* (USFS 2025) and *Final Environmental Impact Statement* (USFS 2024), *Biological Opinion* (NMFS 2024), and *Record of Decision* (USACE 2025).

Based on the full administrative record - including the USFS FEIS, NMFS BiOp, USACE ROD and DEQ's § 401 Certification - the SGP complies with Idaho's antidegradation policy and CWA requirements. The 2021 MMP avoids and minimizes degradation, implements restoration measures, and delivers long-term environmental and public benefits that support the Tier II review outcome. DEQ's antidegradation review concludes that degradation to high-quality waters, such as West End Creek, is temporary, limited, and justified by substantial social and economic benefits consistent with Tier II provisions (IDAPA 58.01.02.052.08).

DEQ reaffirms that the SGP is supported by important social and economic development consistent with IDAPA 58.01.02.052.06. The project is anticipated to generate approximately \$1.3 billion in labor income over its life, support an annual average of 600+ direct and indirect jobs, and contribute over \$60 million in state and local tax revenue. The restoration of historically degraded lands, re-opening of habitat connectivity, and mitigation of legacy mining pollution offer lasting ecological value. These benefits are specific, measurable, and directly tied to enforceable restoration and mitigation efforts, outweighing the temporary, localized, and limited nature of water quality impacts identified in the project record.

2.6 Big Creek Culvert Replacement Project (BCCRP)

DEQ has reviewed the proposed Big Creek Culvert Replacement Project (BCCRP) (Tetra Tech 2025) that involves removing existing perched culverts on Big Creek (2 culverts) and Hargrave Creek (1 culvert) and replacing them with stream simulation structures to restore natural stream function and improve fish passage. This review was conducted pursuant to CWA § 401 and Idaho's "Water Quality Standards" (IDAPA 58.01.02), with specific consideration given to IDAPA 58.01.02.052.02, which governs restoration projects.

Big Creek is a perennial tributary to North Fork Payette River in central Idaho (AU ID17050123SW004_02). Hargrave Creek is a tributary to Big Creek in this AU. The affected portions of Big Creek and Hargrave Creek lie within the vicinity of the Cascade area along the Warm Lake Road which is part of the SGP haul route and has been historically impacted by road encroachments and undersized culverts that restrict stream continuity and fish passage. Specifically, the culverts targeted for replacement under the BCCRP are perched and do not accommodate natural stream function or allow for passage of all life stages of resident and migratory fish.

The AU - ID17050123SW004_02 - is designated for cold water aquatic life and primary contact recreation and is supporting those uses. The Big Creek AU is classified as receiving Tier I and

Tier II protections under IDAPA 58.01.02.052. Per IDAPA 58.01.02.052.02, changes in water quality may be allowed by DEQ without an antidegradation review where determined necessary to secure long-term water quality improvement through restoration projects designed to trend toward natural characteristics and associated uses to a water body where those characteristics and uses have been lost or diminished. Restoration projects must implement BMPs.

The primary goal of the BCCRP is to restore aquatic organism passage and reestablish natural stream processes at a location currently obstructed by undersized and perched culverts. The culverts in question have been identified as barriers to fish migration and sediment transport, potentially impairing beneficial uses such as cold water aquatic life.

To achieve this, the project will remove the existing barrier and install a stream simulation culvert. This culvert type is designed to mimic natural stream channel conditions, allowing for year-round passage of fish and other aquatic species across a wide range of flow conditions. The replacement structure will restore hydrologic connectivity and bedload movement through the reach, directly supporting the stream's biological integrity (Tetra Tech 2025).

The project also supports broader watershed-scale restoration efforts and compensatory mitigation goals associated with the SGP. As part of the overall compensatory mitigation plan referenced in the USACE ROD and Permit (USACE 2025) the BCCRP is intended to offset temporary and spatially limited impacts to aquatic resources within the Salmon River basin.

Specifically, the project aims to:

- Eliminate a known fish passage barrier;
- Reconnect fragmented aquatic habitat;
- Improve sediment and organic material transport;
- Stabilize streambanks and reduce localized erosion near the road crossing;
- Support beneficial uses as designated under Idaho Water Quality Standards.

The BCCRP is one of several mitigation projects selected for high ecological lift and implementation readiness, contributing both short- and long-term benefits to aquatic life use support and water quality within the Big Creek drainage.

Based on information provided in the approved compensatory mitigation plan (USACE 2025), the project is expected to result in long-term environmental improvements by reestablishing hydrologic connectivity and removing a barrier to fish passage for resident and migratory species. The stream simulation design and associated restoration measures are consistent with DEQ-approved aquatic organism passage standards and are anticipated to enhance stream function and biological integrity in Big Creek.

Temporary construction activities, including instream work, may result in localized increases in turbidity. These construction activities are subject to all appropriate conditions listed in the 2024 Certification Section 3 relating to in-water work, turbidity, erosion and sediment control, culverts, and any other applicable condition. BMPs, such as coffer dams, temporary stream bypasses, erosion control materials, and site stabilization protocols, are expected to prevent

exceedances of Idaho’s numeric and narrative water quality criteria for sediment, turbidity, and other relevant pollutants. No discharge or fill activity associated with this project is expected to result in permanent loss of beneficial uses.

Riparian restoration and site recontouring will be implemented following construction to ensure full functional recovery. These actions, combined with performance monitoring, confirm that any short-term impacts are temporary, limited in spatial extent, and subject to effective mitigation.

DEQ finds that the BCCRP will maintain and protect existing uses in compliance with IDAPA 58.01.02.052.02. The project does not cause a lowering of water quality below levels necessary to protect those uses and qualifies for certification under the CWA § 401.

3 Conditions

In evaluating implementation of the certification conditions and the effectiveness of measures intended to limit thermal loading to affected waterbodies, DEQ considered available modeling information, the operational conditions established by the 2024 Certification, and the monitoring and adaptive management provisions required to ensure protection of water quality standards. This evaluation identified an opportunity to provide additional clarity regarding monitoring expectations and adaptive management responses associated with potential thermal effects. Because the authorized dredge and fill activities include stream realignment and restoration features that may influence thermal conditions in receiving waters, DEQ is requiring temperature monitoring and adaptive management measures to verify that these channel modifications function as intended and remain protective of water quality standards and designated uses.

DEQ is adding the following conditions related to temperature monitoring and adaptive management to further ensure that BMPs function as intended and that water quality standards and designated uses continue to be protected. These additional conditions supplement the existing certification requirements by establishing more specific monitoring and response mechanisms related to thermal conditions.

Based on the available information and the enforceable conditions of the certification, DEQ determined that the existing 2024 Certification conditions remain sufficient to address other pollutants of concern, including sediment and metals, and to ensure continued protection of applicable water quality standards.

Conditions identified here are supplemental to those found in the 2024 Certification (DEQ 2024) and are not intended to replace or supplant any conditions found therein.

- The Permittee must follow all conditions already identified in the 2024 Certification.
- The Permittee must follow all monitoring and data collection required in the ROD and BiOP, and must provide DEQ with data during annual reporting, demonstrating the applicant is following all the required monitoring and reporting.

- The Permittee must provide notice to DEQ of changes to the project that impact surface water quality so DEQ can provide review and comment in the Interested Agency Review Board (IARB) to allow for adaptive management.
- DEQ may require modification of BMPs, monitoring locations, frequency, or methods to improve verification of model performance or to address unanticipated conditions.
- The Permittee must implement an adaptive management program to verify and, as necessary, ensure attainment of modeled temperature recovery predictions for receiving waters affected by the Project; including monitoring and verification, evaluation and reporting, and adaptive response measures.
- If verified monitoring results indicate that stream temperatures have increased by 0.3°C or greater above established baseline conditions, and the increase is reasonably attributable to project activities, the Permittee must notify DEQ within five (5) days and submit an evaluation of the observed conditions to DEQ within fifteen (15) days identifying contributing factors and potential mitigation measures. The evaluation must identify the factors contributing to the observed temperature increase, assess whether thermal mitigation measures are functioning as intended, and identify and implement additional mitigation or restoration measures, such as riparian vegetation enhancement, channel complexity improvements, or other measures designed to improve thermal conditions.
- DEQ may require additional monitoring, operational changes, or engineering controls if necessary to prevent exceedance of water quality criteria.

4 Conclusion

DEQ's supplemental analysis in this 2025 addendum reaffirms and strengthens the basis for Idaho's 2024 § 401 water quality certification for the SGP. Based on the full administrative record, DEQ concludes that the activity authorized under the federal § 404 permit, when implemented in accordance with the conditions of the certification and associated regulatory approvals, provides reasonable assurance of compliance with Idaho water quality standards and protection of existing uses, consistent with the requirements of the Clean Water Act and Idaho's Water Quality Standards (IDAPA 58.01.02). This conclusion is grounded in a comprehensive and credible administrative record that demonstrates compliance with Idaho's antidegradation policy and the substantive requirements of the CWA.

Throughout the certification process, DEQ applied the appropriate legal standards for antidegradation review. Model results were evaluated together with site-specific monitoring data, engineering design information, and the mitigation and treatment measures required by this certification. Model outputs that do not incorporate these enforceable certification conditions do not represent the conditions under which the project will operate. When evaluated under the operational controls, treatment systems, monitoring requirements, and adaptive management provisions required by the certification, the record demonstrates that water quality criteria necessary to support existing uses will be maintained.

For waters subject to Tier I protection, the analysis confirms that existing uses - including cold water aquatic life and contact recreation - will be maintained and protected. Where localized increases in pollutants such as mercury, arsenic, or antimony are predicted, they generally remain below applicable numeric criteria. These findings are supported by site-specific modeling and a suite of enforceable controls, including long-term monitoring and adaptive management plans, that ensure existing uses will not be impaired.

In waters classified as high-quality and subject to Tier II review, DEQ determined that the lowering of water quality is justified by the project's important social and economic benefits. This conclusion is supported by detailed third-party economic modeling and a revised socioeconomic justification that identifies direct and indirect employment, income growth, workforce development, and significant public tax revenue. The project is also designed to provide enduring public value through the removal of substantial legacy mine waste and the restoration of aquatic connectivity, stream function, and water quality in key reaches of the Salmon River watershed. These improvements are integral to the project design and incorporated into enforceable permits and financial assurances.

Potential long-term risks - particularly those related to postclosure conditions such as the West End Pit Lake - have been evaluated through predictive modeling, engineering analysis, and contingency planning. While modeling indicates the pit lake is not expected to discharge under projected hydrologic conditions, the project incorporates monitoring requirements and contingency measures to ensure that, if conditions differ from projections, treatment and adaptive management measures will be implemented to maintain compliance with water quality standards. These mechanisms provide additional assurance that downstream waters will remain protected. These elements, while governed in part by future IPDES permitting, are acknowledged and accounted for in the certification record.

This addendum clarifies DEQ's evaluation and documents the scientific and regulatory basis for its findings. The determination is supported by site-specific data, established modeling techniques, interagency environmental review, and enforceable conditions designed to address uncertainty and ensure protection of Idaho's surface waters. The certification fulfills the responsibilities delegated to the state under the CWA § Section 401 and aligns with Idaho's legal and policy framework for protecting its surface waters.

Accordingly, DEQ concludes that that the activity authorized under the federal § 404 permit, when implemented in accordance with the conditions of the 2024 Certification and this addendum, complies with Idaho's antidegradation policy and provides reasonable assurance that water quality standards and existing uses will be maintained and protected. The project's combination of environmental restoration, regulatory safeguards, and socioeconomic benefits satisfies the requirements of IDAPA 58.01.02 and the responsibilities delegated to the State of Idaho under Clean Water Act §401.

5 Right to Appeal Final Certification

The final § 401 Water Quality Certification may be appealed by submitting a petition to initiate a contested case, pursuant to Idaho Code § 39-107(5) and the “Rules of Administrative Procedure before the Board of Environmental Quality” (IDAPA 58.01.23), within 35-days of the date of the final certification.

Questions or comments regarding the actions taken in this certification should be directed to the Boise Regional Office at (208) 373-0550.



Troy Smith
Regional Administrator
Boise Regional Office

6 Supporting Documentation and References

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Recon Insight Group, LLC. 2024. *The Economics of the Stibnite Gold Project*. Prepared for the Stibnite Advisory Council. Donnelly, ID. https://stibniteadvisorycouncil.com/wp-content/uploads/2024/05/SAC_Technical_Economic_Study_2024.pdf

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USFWS (United State Fish and Wildlife Service). 2024. *Biological Opinion for the Stibnite Gold Project 2024-0084691-001*. Boise, ID.

USFS (United States Forest Service). 2023a. *Stibnite Gold Project Air Quality Specialist Report*. Forest Service, Region 4, Payette and Boise National Forests, Valley County, Idaho. <https://www.fs.usda.gov/r04/payette/projects/50516>

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Appendix A. Response to Comments for Addendum to the Final Section 401 Water Quality Certification, Stibnite Gold Project – Permit No. NWW-2013-00321

1	Citizen
2	Citizen
3	Citizen
4	Citizen
5	Perpetua Resources Idaho, Inc.; Brown and Caldwell (Applicant)
6	Collaborative NGO's; Idaho Rivers United, Earthworks, Idaho Conservation League, Save the South Fork Salmon

Comment Number	Section Title	Commenter	Comment Summary	Response
1	General comments	1	<p>Idaho must act decisively to protect its waters. Toxic algae outbreaks are spreading at popular recreation areas, highlighting the need for a dedicated monitoring program. Quagga mussels remain a looming threat in the Mid-Snake River and require vigilant surveillance and swift response.</p> <p>In North Idaho, coal mine pollution continues to endanger the Kootenai River, with industry efforts actively undermining water quality protection. Meanwhile, half of Idaho's wastewater treatment plants</p>	<p>Thank you for your concerns. We recognize the challenges posed by toxic algae, invasive species, coal mine pollution, wastewater violations, and large projects such as the Stibnite Gold Mine. DEQ remains committed to monitoring, enforcing water quality standards, and working with applicants, communities, and partner agencies to safeguard Idaho's water resources for the future.</p>

Comment Number	Section Title	Commenter	Comment Summary	Response
			<p>reported violations last year—an unacceptable risk to public health and the environment.</p> <p>The recent modified water quality permit for the SGP addresses some concerns but falls short of full protection. Idaho's water is a vital, irreplaceable resource under increasing pressure from pollution, industry, and climate change. Stronger safeguards are essential for the state's communities, economy, and future.</p>	
2	General comment	2	Whether it's Lake Pend Oreille, Hayden Lake, or Payette Lake, these treasured places deserve protection that prioritizes both human health and ecological integrity.	Thank you for your comment. DEQ remains committed to protecting human health and the quality of Idaho's air, land, and water.
3	General comments	3	<p>Toxic algae is rampant throughout Idaho's waterways.</p> <p>Half of Idaho's wastewater treatment plants still recorded at least one effluent violation this past year.</p> <p>YOU must do all you can to PROTECT Idaho's waters.</p>	Thank you for your comment. DEQ remains committed to protecting human health and the quality of Idaho's air, land, and water.
4	General comments	4	<p>DEQ's only goal should be to protect Idaho's water.</p> <p>The Idaho Conservation League identified major issues with the modified water quality permit (401 Certification) for the SGP.</p>	Thank you for your comment. DEQ remains committed to protecting human health and the quality of Idaho's air, land, and water.

Comment Number	Section Title	Commenter	Comment Summary	Response
			Please work with the Idaho Conservation League to address all their concerns. Idaho's water must be protected.	
5	Section 2.1, Clarification of Water Quality Impacts from Atmospheric Deposition (paragraph 5)	5	<p>Revise the assumptions outlined in the 2025 Brown and Caldwell technical memorandum to improve clarity.</p> <p>“Areas of the mine site with water management controls, including those covered by water management plans, IPDES Individual permits, or stormwater permits, were assumed to contribute 0% of their sediment runoff to streams, and thus were excluded from contributing to sediment loading.”</p>	<p>DEQ concurs with the clarification, and has incorporated the following edits into the addendum:</p> <p>“Areas of the mine site with water management controls, including those covered by water management plans, IPDES Individual permits, or stormwater permits, were assumed to contribute 0% of their sediment runoff to streams, and thus were excluded from contributing to sediment loading.”</p>
6	Section 2.1, Clarification of Water Quality Impacts from Atmospheric Deposition (paragraph 6)	5	The draft Addendum reports predicted annual dust-derived metal loads (arsenic, antimony, mercury) for Meadow Creek, EFSFSR, and Sugar Creek. Presentation of relative changes is inconsistent: Meadow Creek and EFSFSR show maximum concentration changes, EFSFSR shows one overall percentage change, and Sugar Creek shows neither. Tables 9–10 in Brown and Caldwell’s 2025 technical memorandum has all data; Perpetua proposes including these tables in the Addendum and adding the additional numbers as suggested.	DEQ concurs with the clarification of the values listed and has updated the text accordingly.

Comment Number	Section Title	Commenter	Comment Summary	Response
7	Section 2.1, Clarification of Water Quality Impacts from Atmospheric Deposition (paragraph 7)	5	<p>Include suggested text to help define the overestimation of the actual contribution of air deposition to surface water.</p> <p>“Even though previous studies indicated that sediment retention at distances greater than 100 meters could be close to zero, the conservative assumptions made by Brown and Caldwell in their analysis meant that about half of the predicted dust-derived sediment load came from distances greater than 100 meters. Thus, load may be overestimated by as much as 200% (Table 7 of Brown and Caldwell 2025 technical memorandum).”</p>	<p>DEQ concurs with the clarification, and has incorporated the following statement into the addendum:</p> <p>“Even though previous studies indicated that sediment retention at distances greater than 100 meters could be close to zero, the conservative assumptions made by Brown and Caldwell in their analysis meant that about half of the predicted dust-derived sediment load came from distances greater than 100 meters. Thus, load may be overestimated by as much as 200% (Table 7 of Brown and Caldwell 2025 technical memorandum).”</p>
8	Section 2.1, Clarification of Water Quality Impacts from Atmospheric Deposition (paragraph 7)	5	Clarify that the summarized conclusions in Brown and Caldwell’s 2025 technical memorandum is referencing Air Sciences Reports.	DEQ concurs with the clarification and has added the Air Sciences Report(s) citation to reflect the correct reference.
9	Section 2.1, Clarification of Water Quality Impacts from Atmospheric Deposition (Table 1)	5	Some Addendum numbers do not match Tables 9–10 of Brown and Caldwell’s 2025 technical memorandum. Perpetua recommends using those tables directly. If Table 1 from the draft Addendum is kept, suggested corrections are provided.	DEQ concurs and Table 1 has been revised to reflect the correct values

Comment Number	Section Title	Commenter	Comment Summary	Response
10	Section 2.2.2.3, West End Creek – Antimony, Arsenic, and Mercury (Table 6)	5	Revise Table 6 to include potential conditions during mining with treatment of diversion, average and maximum values, and revise post mining column headings.	<p>DEQ concurs and has revised Table 6 of the addendum with the following:</p> <p>The addition of a column listing the “Potential Conditions During Mining with Treatment of Diversion”^b</p> <p>(b. Predictions from FEIS Water Quality Specialist Report for mercury concentrations during open pit mining are higher than expected conditions in lower West End Creek if the creek diversion is treated for mercury as required by the NMFS BO; conditions during mining when diversion water is being treated are more likely to be similar to existing conditions at lower West End Creek for mercury concentrations. Arsenic and antimony predicted concentrations are representative under both scenarios).</p>
11	Section 2.2.2.3, West End Creek – Antimony, Arsenic, and Mercury	5	Clarify how the SGP Site-Wide Water Chemistry (SWWC) model mercury predictions differ from expected concentrations in lower West End Creek after NMFS Biological Opinion conditions and Perpetua’s commitments and recommends corresponding text edits.	DEQ concurs that the information provided in the SWWC model for mercury predictions will differ from the expected concentrations in Lower West End Creek after NMFS BO Conditions, due to the BO requesting Perpetua to treat the water within the diversion for mercury prior to discharge.

Comment Number	Section Title	Commenter	Comment Summary	Response
				DEQ has revised the addendum to include the treatment of water in West End Creek with the proposed mercury concentrations in Table 6.
12	Section 2.4, Clarification of Water Quality Impacts Related to the West End Pit Lake (paragraph 7)	5	Clarify that “West End Pit (and therefore West End Pit Lake) that come to exist in the SGP will be in an area that has undergone legacy mining activity, some of which might currently be referred to as West End Pit. The SGP West End Pit, however, will not be completely backfilled like Hangar Flats Pit or Yellow Pine Pit. The development rock removed from the West End Pit will be used for backfill in other areas of the SGP, such as Yellow Pine Pit.” And remove the word “backfilled” to accurately describe SGP activities.	DEQ concurs with the clarification and has removed “backfilled” from activities occurring in the West End Pit area. The addendum states the following: “The SGP proposes a long-term reclamation approach that includes the diversion of part of West End Creek, a currently jurisdictional tributary to the EFSFSR, and the eventual formation of a pit lake within the West End pit.”
13	Section 2.5.1.1, DEQ’s Evaluation of the Socioeconomic Justification Under IDAPA 58.01.02.052.06(d) (paragraph 2)	5	Add the word “additional” before “traffic” at the end of the paragraph and generally refer to the FEIS’s discussion of effects being evaluated in that section.	DEQ concurs with the clarification and has incorporated “additional” before “traffic” in the addendum: “Economic development associated with the SGP may offer..., but also introduces risks related to dust, additional traffic, and altered land use...”.
14	Section 2.1, General Comment – Scope of Activities	6	DEQ’s description of scope (direct/indirect, short/long-term) is unclear and potentially misleading. DEQ misapplies EPA’s May 2025 memo; EPA’s clarified scope is limited to water quality impacts only, not other environmental factors.	DEQ acknowledges that the EPA May 21, 2025, 401 Memorandum clarifies that § 401 decisions are limited to water quality impacts and does not define the temporal scope of those impacts. DEQ evaluates all short- and long-term water quality changes under Idaho standards and antidegradation

Comment Number	Section Title	Commenter	Comment Summary	Response
			<p>DEQ's reference to the EPA's May 21, 2025, memorandum (EPA 401 Memo) should not be construed to support DEQ's position on short and long-term effect.</p> <p>The EPA 401 Memo upholds the 2023 CWA 401 Improvements ("2023 rule") and only attempts to clarify that a 401 water quality certification decision can only be based on water quality-related impacts as opposed to air quality, traffic or noise impacts (something our coalition of groups have not argued for). DEQ should refine its position and avoid overstating its authority on temporal scope of effects.</p>	<p>policy (IDAPA 58.01.02). The final 401 Certification will clarify that Tier I and Tier II compliance applies to all water quality parameters regardless of duration.</p> <p>All predicted changes - regardless of duration - are assessed for compliance with Tier I and Tier II protections, numeric and narrative criteria, and designated uses under IDAPA 58.01.02. References to the US EPA May 21, 2025, Clean Water Act Section 401 Memorandum are included for context on the scope of factors considered in 401 decisions and do not limit DEQ's assessment of the timeframe over which water quality impacts are evaluated.</p>
15	Section 1, General comment – Water Quality Standards	6	<p>The Modified 401 Certification lacks adequate detail and fails to demonstrate how the project's "short-term" pollutants will comply with IDAPA 58.01.02 and Tier I requirements. The certification downplays decades-long exceedances as "short-term" when IDAPA standards are strict (instantaneous to annual). DEQ should clarify how compliance will be met given predicted long exceedances.</p>	<p>DEQ acknowledges the comment regarding the use of the term "short-term" in describing predicted pollutant increases. In the Modified 401 Certification and supporting analyses, "short-term" is used to distinguish temporary or reversible water quality changes occurring during active operations or early post-closure from permanent, long-term degradation of water quality. These modeled increases are expected to diminish as reclamation, hydrologic stabilization,</p>

Comment Number	Section Title	Commenter	Comment Summary	Response
				<p>and natural attenuation processes take effect.</p> <p>IDAPA 58.01.02 establishes both instantaneous and chronic (e.g., 4-day, 30-day, or annual) criteria for protecting aquatic life and other designated uses. DEQ’s evaluation confirmed that predicted pollutant concentrations, including metals and temperature—remain below applicable numeric criteria for the relevant averaging periods, meaning that water quality standards and Tier I protections will be maintained.</p> <p>To improve clarity, DEQ will revise the final 401 Certification Addendum to:</p> <ol style="list-style-type: none"> 1. Define how the term “short-term” is applied in the context of modeling timeframes and regulatory criteria; 2. Distinguish between exceedances that resolve through reclamation and long-term equilibrium conditions used for compliance determinations; and 3. Reiterate that Tier I compliance is determined based on maintenance of existing uses and numeric criteria, not on

Comment Number	Section Title	Commenter	Comment Summary	Response
				<p>whether modeled concentrations temporarily differ from baseline.</p> <p>Based on available modeling and mitigation measures, DEQ concluded and shows in the addendum that the Project will maintain existing uses and comply with applicable provisions of IDAPA 58.01.02 and the Clean Water Act § 401.</p>
16	Section 2.5, General comment – Temporal Considerations and Antidegradation	6	DEQ improperly labels multi-decade impacts as “short-term.” IDAPA defines short-term activity as ≤1 year. EPA guidance also limits “temporary” to weeks or months. DEQ must apply lawful definitions and not excuse decades of degradation.	DEQ acknowledges the comment and clarifies that its use of the term “short-term” in the Modified 401 Certification refers to the operational and early post-closure period during which water quality changes are expected to occur but are projected to diminish as reclamation and hydrologic stabilization take effect. While IDAPA defines short-term activities as ≤1 year, DEQ’s characterization in the Certification is intended to distinguish reversible impacts from permanent, long-term degradation. DEQ evaluates all predicted changes against applicable numeric and narrative water quality criteria, Tier I and Tier II protections, and designated uses, and does not consider any exceedance of criteria as exempt from regulatory review. DEQ conditions the certification of the § 404 permit to require additional actions be taken to provide reasonable compliance with water quality

Comment Number	Section Title	Commenter	Comment Summary	Response
				standards, therefore modeled exceedances in the application and supplementary materials provides the basis for DEQ's determination that conditions in the § 401 certification are necessary.
17	Section 2.2.2.2, EFSFSR and Temperature	6	Modeling indicates long-term exceedances of salmonid spawning and Bull Trout temperature criteria. The Modified 401 Certification and supporting WQ Memo mischaracterize these as "short-term" and "reversible". DEQ should acknowledge this constitutes unlawful degradation under Tier I protections and revise its conclusions accordingly.	<p>DEQ acknowledges that project modeling predicts localized temperature increases that may result in exceedances of applicable criteria for salmonid spawning and Bull Trout rearing and migration. These exceedances are expected to occur during specific operational and early post-closure conditions and are predicted to diminish as reclamation and restoration measures are implemented.</p> <p>DEQ's determination that these effects are "short-term" and "reversible" reflects both modeled predictions and DEQ's expectation that adaptive management measures required under this certification will be effective in ensuring long-term recovery of water temperatures. Adaptive management and monitoring provisions require verification of modeled assumptions and provide mechanisms for corrective actions if observed conditions differ materially from predicted outcomes.</p>

Comment Number	Section Title	Commenter	Comment Summary	Response
				<p>Under Idaho's antidegradation policy (IDAPA 58.01.02.051–052), Tier I protections ensure existing uses and the level of water quality necessary to protect those uses are maintained. DEQ's evaluation concludes that, with implementation of the required permit and certification conditions, BMPs, and mitigation measures, the Project will maintain existing uses and will not result in a permanent loss of cold-water aquatic life support.</p> <p>Pursuant to Idaho's antidegradation policy (IDAPA 58.01.02.051–052), Tier I protections require maintenance of existing uses and the level of water quality necessary to protect those uses. DEQ finds that, with implementation of the required mitigation, monitoring, and adaptive management conditions in this certification, the Project will maintain existing uses and will not result in unlawful degradation of waters protected under Tier I.</p> <p>DEQ further recognizes that some limited degradation may occur during active operations where such degradation is socially and economically justified and does not</p>

Comment Number	Section Title	Commenter	Comment Summary	Response
				<p>preclude attainment or maintenance of existing or designated uses. The temperature increases predicted for the Stibnite Gold Project meet these conditions and are therefore consistent with Idaho's water quality standards and antidegradation policy.</p> <p>DEQ has added additional conditions regarding temperature adaptive management to better monitor effectiveness of BMPs regarding thermal loading to affected waterbodies.</p>
18	Section 2.2.2.1, Meadow Creek and Mercury	6	<p>Modeled mercury levels in Meadow Creek are predicted above baseline for three operational years due to treated effluent discharges from the IPDES-permitted outfall. Predicted mercury levels may appear compliant, but atmospheric deposition and long-term accumulation are not adequately considered. DEQ should require an updated mercury analysis incorporating these factors before determining compliance with Tier I and IDAPA 58.01.02 requirements.</p>	<p>The mercury deposition from the air permit was scientifically reviewed, legally accepted, and supported – and this is the information we based this statement of compliance.</p> <p>See last paragraph and the Mine Year 112 scenario extends well beyond the reasonable predictive capability of current thermal and groundwater models, and the uncertainty in those long-range outputs makes them unsuitable for direct regulatory conclusions. However, targeted model updates could be justified later - for example, once site-specific post-reclamation data are available - to verify long-term stability and thermal</p>

Comment Number	Section Title	Commenter	Comment Summary	Response
				<p>recovery. For the purposes of the 401 certification, the existing modeling and conservative assumptions are sufficient to support DEQ's Tier I findings.</p> <p>Potential response: DEQ acknowledges the comment regarding long-term temperature predictions for upper Meadow Creek. The figure referenced represents model output from a far-future scenario intended to evaluate potential post-closure thermal trends under conservative conditions. As described in the supporting technical memorandum, the apparent temperature increases at Mine Year 112 occur during a simulated transition period when stream channels, vegetation, and groundwater flow paths continue to equilibrate following large-scale landscape reconstruction. These modeled conditions are inherently uncertain at extended time scales and do not reflect stabilized post-reclamation conditions.</p> <p>DEQ's interpretation that modeled temperature effects are temporary and spatially limited is based on the range of modeled results through the primary operational and post-reclamation periods (Mine Years 0–52), when physical and hydrologic restoration</p>

Comment Number	Section Title	Commenter	Comment Summary	Response
				<p>measures are most influential and relevant to aquatic life uses. Under these conditions, temperatures are predicted to recover to or below baseline levels in restored reaches, and long-term attainment of cold-water aquatic life criteria is expected once equilibrium conditions are achieved.</p> <p>Tier I protections require maintenance of existing uses and water quality necessary to support those uses. Based on available modeling and mitigation commitments, DEQ determined that existing aquatic life uses will be maintained and that predicted thermal effects do not constitute permanent or unlawful degradation under IDAPA 58.01.02.051–052.</p>
19	Section 2.2.2.1, Meadow Creek and Temperature	6	<p>Figure 7 shows long-term increases in upper Meadow Creek beginning around Mine Year 112, nearly a century of elevated temperatures above baseline. These exceed Salmonid Spawning and Bull Trout criteria, violating Tier I protections. DEQ’s statements are inaccurate and misleading. DEQ claims that temperatures will return to baseline by Mine Year 52 and that impacts are “temporary” or “spatially limited” are inaccurate and unsupported. DEQ should correct these conclusions and require updated modeling that includes full temperature time-series, segment-specific</p>	<p>The comment mischaracterizes both the modeling results and DEQ’s conclusions regarding temperature in Meadow Creek and the East Fork South Fork Salmon River (EFSFSR). As explained in PR1’s February 24, 2026, submittal, predicted temperature increases are temporary, spatially limited, and tied to specific phases of restoration and mine development, rather than representing persistent, project-wide degradation. In Meadow Creek, modeled temperature increases are associated with restoration of the</p>

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			<p>comparisons, and reassess and uncertainty analysis. The certification should not characterize century-scale exceedances as “short-term” until modeling and biological effects analyses are revised and independently reviewed.</p>	<p>stream channel and floodplain on top of the tailings storage facility, where increased solar exposure occurs until riparian vegetation becomes established. These conditions are transitional and are expected to moderate over time as vegetation matures and shading increases, returning temperatures to approximately baseline or better.</p> <p>Similarly, in the EFSFSR, temperature increases during certain mine years are linked to the temporary rerouting of the stream around Yellow Pine Pit, which removes the current temperature-dampening effect of the pit. These increases are time-limited and are predicted to return to baseline - and ultimately improve relative to existing conditions - following backfilling and the formation of Stibnite Lake, which restores temperature moderation.</p> <p>Project modeling evaluates conditions across the full mine life and post-closure period, including transitional phases of construction, operation, and ecological recovery, and should not be interpreted as continuous or uniform exceedances across all locations or years. As described in the submittal,</p>

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				<p>any increases are time- and location-specific, and long-term conditions are expected to trend toward improved water quality, including reductions in key pollutants and restoration of natural stream functions.</p> <p>Importantly, Idaho law and DEQ's antidegradation framework allow for changes in water quality, particularly where it is necessary to achieve long-term restoration and improvement of degraded systems. The project includes extensive restoration actions - such as reestablishing stream channels, reconnecting floodplains, and restoring access to over 20 miles of upstream habitat - that are expected to result in net long-term environmental benefits, even if short-term deviations occur during implementation.</p> <p>In addition, the project incorporates monitoring and adaptive management measures to ensure that temperature effects are tracked and mitigated if necessary, including the ability to adjust flow routing or implement additional measures if modeled outcomes are not achieved. Please see Section 3 Conditions of the Modified Addendum to review additional conditions to better monitor</p>

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				<p>water quality and the effectiveness of BMPs.</p> <p>For these reasons, DEQ's characterization of temperature effects as temporary and spatially limited is supported by the record. The existing modeling framework appropriately evaluates conditions over the life of the project and does not support the conclusion that there are continuous, century-scale violations requiring reanalysis.</p>
20	Section 2.2.2.3, West End Creek – Arsenic, Antimony, Mercury	6	<p>Tables 6 and 7 in the Modified 401 Certification present conflicting metals data for lower West End Creek. Table 6, sourced from the 2021 SRK SWWC report, shows predicted increases in arsenic, antimony, and mercury (average and maximum) for multiple mine years. Table 7, with no source cited, reports only small average increases and omits predicted maximums, producing more favorable results for demonstrating Tier I compliance. Discrepancies likely arise from differences between the SRK SWWC and the older MG WQSR data sets, reporting methods, or QA/QC practices. Given Table 6 is more recent and aligns with maximum reported values, it provides the more accurate basis for assessing potential degradation. DEQ should rely on Table 6 for Tier I antidegradation analysis, clarify sources for all data tables, and ensure predicted</p>	<p>Tables 6 and 7 has been revised to ensure consistency and to incorporate the most recent and reliable data sources. DEQ acknowledges the discrepancies between the tables and agrees that data source transparency and alignment with current modeling outputs are essential for accurate antidegradation evaluation. The revised tables identify the source of all data, clarify any methodological differences between the SRK SWWC and MG WQSR datasets, and include both average and maximum predicted metals concentrations as appropriate to support Tier I analysis.</p>

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			maximum metals concentrations are included in the Certification.	
21	Section 2.2.2.3, West End Creek – Arsenic, Antimony, Mercury	6	<p>Arsenic: Table 6 of the Modified 401 Certification predicts maximum arsenic in lower West End Creek will increase by 5–6 µg/L from Mine Year 12 through at least Mine Year 112, representing long-term Tier I violations. DEQ attempts to excuse this by citing indirect impacts from disturbed geologic materials and groundwater, claiming short-term, reversible, or localized effects, and linking compliance to maintenance of beneficial uses. These justifications are unsupported: CWAL criteria will be exceeded for decades, design features/BMPs do not exempt violations, and no timeframe is given for arsenic returning to baseline. The Certification also misrepresents Tier I Review under IDAPA 58.01.02.052.07, incorrectly suggesting water quality criteria violations are allowable if beneficial uses remain. The Project clearly causes long-term degradation above standards. DEQ should acknowledge that predicted arsenic increases constitute a Tier I violation, revise or withdraw unsupported conclusions, and ensure the Certification fully complies with IDAPA 58.01.02.052.07 by prohibiting degradation above water quality criteria.</p>	<p>DEQ recognizes that the existing conditions and the predicted post mining conditions for arsenic are exceeding the numeric criteria for human health, 4.3 ug/L (IDAPA 58.01.02.210.01.b). The predicted modeled averages for post mining in years 13-40 and 41-112 remain at 79 ug/L, the same as the modeled existing conditions average for arsenic. The maximum predicted modeled arsenic concentrations are 5-6 ug/L higher than the modeled existing conditions.</p> <p>The predicted arsenic concentrations in lower West End Creek do not reflect new, project-related sources of impairment, and DEQ has updated the explanation in Section 2.2.2.3 to provide further clarity regarding this.</p> <p>Monitoring data indicate that arsenic concentrations in lower West End Creek already exceed the applicable water quality criterion under existing conditions, with observed average and maximum concentrations of approximately 79 µg/L and 88 µg/L at monitoring location YP-T-6, compared to the applicable recreation criterion of</p>

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				<p>4.3 µg/L. These concentrations reflect legacy mining disturbance and naturally occurring geologic sources in the watershed.</p> <p>The updated addendum clarifies DEQ's evaluation of the modeled results relative to these existing conditions. Modeling indicates that average arsenic concentrations remain unchanged relative to existing conditions (79 µg/L), while modeled maximum values increase slightly from approximately 88 µg/L to 94–95 µg/L during certain modeled periods. DEQ determined that this difference falls within the variability associated with baseline conditions and model uncertainty and does not represent a material change in the existing impairment.</p> <p>Because West End Creek already exceeds the applicable arsenic criterion under baseline conditions, DEQ evaluated whether the proposed activity would cause or contribute to a increase in arsenic concentrations relative to existing conditions or otherwise interfere with the water quality necessary to support existing uses, consistent with Tier I antidegradation requirements. Based</p>

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				<p>on the modeling results and baseline data, DEQ determined that the project - as implemented with the various federal and state operational requirements and the conditions of this certification - does not cause or contribute to a material increase in arsenic concentrations relative to current conditions.</p> <p>The certification incorporates multiple conditions that limit the potential mobilization of metals, including stormwater and sediment controls and monitoring with adaptive management. In addition, post-closure conditions are expected to reduce contaminant transport pathways and improve water quality relative to baseline conditions.</p> <p>Please note that DEQ requires routine sampling of arsenic to be reported and included in the yearly report, due on March 31st (Conditions outlined in Section 3.2 Special Conditions, Condition 2 of the 401 certification). The applicant must demonstrate compliance of arsenic concentrations</p>

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				to remain at or below baseline conditions (79 ug/L), based on an annual arithmetic mean concentration (IDAPA 58.01.02.210.01.b).
22	Section 2.2.2.3, West End Creek – Arsenic, Antimony, Mercury	6	<p>Mercury: Table 6 predicts average and maximum mercury in lower West End Creek will increase by 41–51 µg/L from Mine Year –2 through 12, remaining above existing conditions even after criteria are met in Mine Year 14. DEQ incorrectly characterizes this long-term degradation as “short-term,” “reversible,” and “localized.” Fourteen years of elevated mercury clearly violate Tier I antidegradation requirements. DEQ should acknowledge these long-term mercury exceedances, remove the “short-term” justification, and require compliance with Tier I protections and applicable water quality criteria.</p>	<p>The commenter’s interpretation of Table 6 is based on the scenario in which the West End Creek diversion is not treated for mercury. That scenario does not represent the conditions authorized under the certification. The certification requires treatment of the West End Creek diversion for mercury consistent with the NMFS Biological Opinion, and therefore the untreated scenario is not representative of expected project operations.</p> <p>To clarify this point, DEQ revised Table 6 to explicitly present the existing conditions along with the modeled conditions during mining with treatment of the diversion and without treatment of the diversion. When evaluating the modeled conditions during mining with treatment of the diversion, the total mercury estimated concentrations are at 4.3 ng/L average and 5.6 ng/L max rather than the increased values quoted in this comment. This clarification demonstrates that the model is not reflecting 41-51 ug/L increase in total mercury concentrations with the treatment of the diversion. DEQ presumes that the</p>

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				commenter intended ng/L for mercury in Table 6 and not ug/L as stated in the comment.
23	Section 2.2.2.1, Bull Trout Temperature Criteria	6	All waters within the Project boundary meet IDAPA 58.01.02.250.02.g definitions for Bull Trout habitat. Bull Trout are present in EFSFSR and Meadow Creek, yet the Modified 401 Certification does not address how Project-related temperature increases will comply with the 0.5 °C limit for thermal discharges, as required to protect Bull Trout under Tier I protections. DEQ should include a compliance analysis for Bull Trout temperature criteria for all affected waters within the project boundary.	<p>DEQ acknowledges that EFSFSR and Meadow Creek are designated Bull Trout habitat under IDAPA 58.01.02.250.02.g. DEQ also recognizes the USFWS BiOp conclusion that localized adverse effects to Bull Trout may occur within the project area due to temporary increases in stream temperature and construction-related disturbance. However, the BiOp determined that these effects are not expected to result in injury or mortality and that the overall loss is negligible when compared to the estimated statewide Bull Trout population.</p> <p>The Modified 401 Certification does not include a formal temperature compliance analysis for these waters because the project does not propose any permanent thermal discharges to waters of the U.S. Project components that could affect stream temperature are limited in duration and spatial extent. Specifically:</p> <ul style="list-style-type: none"> • Stream impacts during road construction will be short-term and localized.

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				<ul style="list-style-type: none"> • Diversion water is directed to a pit and will not reach downstream waters of the U.S. • No permanent thermal discharges are proposed that would increase stream temperature in Bull Trout habitat. <p>DEQ recognizes that, under 58.01.02.250.02.g.ii, thermal increases up to 0.5 °C are allowable only when socially or economically justified. For this project, stream temperature changes associated with construction are addressed through BMP implementation, temperature monitoring, and adaptive management designed to minimize and respond to potential thermal loading.</p> <p>Based on the controlled and mitigated nature of the proposed activities, DEQ concludes that the Project as authorized under the various federal and state requirements and the conditions of this certification will maintain the water quality necessary to support existing aquatic life uses.</p>
24	Section 2.4, West End Pit Classification	6	DEQ improperly excludes West End Pit Lake from Tier II protections by claiming it is not a WOTUS waterbody. However, under Idaho law, all “Waters of the State,”—including naturally or artificially	DEQ acknowledges the comment regarding West End Pit Lake and the statutory definitions of Waters of the State under Idaho law. Idaho Code §§ 39-3601 and 39-3602(34) provide that

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			<p>formed lakes not wholly private or constructed for water conveyance—must be protected, and DEQ must ensure compliance with applicable narrative, toxic substance, and aquatic life/recreation numeric criteria (IDAPA 58.01.02). Natural background exemptions do not apply because both historical and Project-related human activities drive existing pollutants. The Modified 401 Certification currently provides no demonstration that West End Pit Lake will meet these requirements. DEQ should evaluate West End Pit Lake as a “Water of the State” and demonstrate compliance with all applicable water quality criteria.</p>	<p>the state’s water quality rules are intended to fully implement the goals and requirements of the federal Clean Water Act (CWA) without imposing requirements beyond the CWA, and that “waters or water body” is defined as the navigable waters of the United States as defined in the CWA. Consequently, a water that is not considered a WOTUS is not a Water of the State subject to state law protections.</p> <p>West End Pit Lake is a constructed feature associated with mine operations. While not considered a WOTUS, the permittee has acknowledged the proper permitting, mitigation, reclamation, and adaptive management measures needed to ensure ongoing water quality protection.</p> <p>DEQ has clarified in the Modified Addendum that, while West End Pit Lake is not a Water of the State under Idaho law, anticipated water quality will meet all applicable standards and protect downstream Waters of the State.</p>

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25	Section 2.1, Atmospheric Deposition Includes Non-conservative Conditions	6	<p>The Air Deposition Memo (AD Memo) evaluates atmospheric deposition impacts on water quality, predicting mean metals increases of 0.01–1.5% for mercury, antimony, and arsenic in EFSFSR, Sugar Creek, and Meadow Creek, and concludes these changes are negligible. However, the analysis relies on non-conservative assumptions and does not adequately demonstrate protection of all applicable water quality standards. DEQ should require a revised atmospheric deposition analysis that uses conservative assumptions and explicitly shows compliance with all water quality criteria.</p>	<p>DEQ acknowledges the comment regarding the treatment of atmospheric deposition in the AD Memo. The AD memo's analysis incorporated conservative estimates of project emissions and based deposition rates on mean flow and mean concentration. Using maximum metal concentrations would substantially overestimate the current load of metals and would not be representative of the annual load. Deposition rates are based on current air quality modeling, which includes overestimation of emissions to ensure protective assessment of water quality. Modeled increases in metals concentrations - 0.01–1.5% above baseline - are negligible relative to applicable Idaho water quality criteria for aquatic life, human health, and recreation.</p> <p>While the analysis uses mean predicted concentrations, DEQ determined that these values are protective of applicable water quality standards. The combination of conservative air modeling, rigorous effluent limits, and required mitigation measures ensures that atmospheric deposition will not cause or contribute to exceedances of numeric or narrative criteria under IDAPA 58.01.02.</p>

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				<p>DEQ finds that the existing analysis provides a sufficient basis to support the 401 Certification and does not require a revised atmospheric deposition evaluation at this time.</p>
26	Section 2.1, Atmospheric Deposition Includes Non-conservative Conditions – Baseline flow	6	<p>The AD Memo assumes mean baseline flow to assess atmospheric deposition impacts. While this is acceptable for human health-based criteria (arsenic, antimony), it's inappropriate for cold water aquatic life-based mercury criteria. DEQ should require the AD Memo to reassess mercury deposition impacts using critical low-flow conditions (1Q10, 7Q10, etc.) for assessing cold water aquatic life criteria compliance.</p>	<p>The AD Memo's purpose was to provide a conservative, screening-level assessment of potential incremental increases from atmospheric deposition. Even under mean flow assumptions, modeled increases in mercury concentrations were insignificant (0.01–1.5% above baseline) and well below Idaho's cold water aquatic life criteria for mercury.</p> <p>Given the small magnitude of predicted increases, recalculation under low-flow conditions (1Q10, 7Q10) would not change the conclusion that atmospheric deposition from the Project will not cause or contribute to exceedances of applicable water quality standards.</p> <p>DEQ concludes that the existing analysis is sufficiently protective of cold water aquatic life and meets the requirements of IDAPA 58.01.02, and</p>

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				therefore a revised low-flow assessment is not necessary.
27	Section 2.1, Atmospheric Deposition Includes Non-conservative Conditions – Background Concentration	6	The AD Memo uses mean background pollutant concentrations to assess atmospheric deposition impacts. However, DEQ guidance (ADIP Manual 2024) recommends conservation percentiles (90 th /95 th) to characterize ambient concentrations for aquatic life criteria, ensuring short-term effects are adequately captured. DEQ should require the AD Memo to reassess impacts using conservative background concentrations consistent with ADIP guidance for cold water aquatic life and other short-term criteria.	<p>The memo's analysis incorporated conservative project emission estimates and predicted incremental metals increases of 0.01–1.5% above baseline. Even if higher percentile background concentrations (e.g., 90th or 95th) were applied, the incremental contribution from atmospheric deposition would remain negligible relative to applicable Idaho water quality criteria for mercury, arsenic, and antimony.</p> <p>Therefore, the use of mean background values does not alter the conclusion that atmospheric deposition from the Project will not cause or contribute to exceedances of numeric or narrative criteria under IDAPA 58.01.02.</p> <p>DEQ concludes that reassessment using conservative background percentiles is not necessary, and the existing analysis remains protective of cold water aquatic life and other designated uses.</p>
28	Section 2.1, Atmospheric Deposition Includes Non-	6	IDAPA and DEQ guidance require evaluating water quality under critical	The comment recommends applying "critical conditions" (e.g., low flow,

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	conservative Conditions – Assessing Appropriate Conditions		<p>conditions—low receiving water flow, maximum effluent/discharge concentrations, and high upstream pollutant levels—to assess worst-case impacts. The AD Memo, by using mean flow and mean background concentrations, underestimates short-term mercury exceedances. Critical conditions must be applied to properly evaluate atmospheric deposition impacts and compliance with cold water aquatic life criteria. DEQ should require the AD Memo to reassess mercury deposition impacts using critical conditions for flow, effluent, and background concentrations, replacing mean-value assumptions.</p>	<p>maximum concentrations) to the air deposition analysis. However, this approach is not appropriate for evaluating atmospheric deposition and does not reflect how this pathway affects water quality.</p> <p>The “critical conditions” framework cited in IDAPA 58.01.02.210.03 is designed for developing water quality–based effluent limits under § 402 NPDES/IPDES permits, where there is a continuous point source discharge and the relationship between effluent and receiving water can be directly modeled. In those cases, low-flow conditions represent the period of greatest impact because discharge continues while dilution is minimized.</p> <p>In contrast, the activity evaluated here involves a § 404 permit and potential contributions from nonpoint atmospheric deposition, which behaves fundamentally differently. Air deposition is not a flow-proportional discharge; loading is driven by atmospheric conditions and surface area exposure, not streamflow volume. As a result, reductions in streamflow do not inherently magnify deposition impacts in the same way as a pipe discharge, and the statistical constructs used for</p>

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				<p>effluent limits (e.g., 1Q10, 7Q10, 30Q5) are not transferable to this type of analysis.</p> <p>Importantly, site-specific conditions at the Stibnite Project further demonstrate why applying critical low-flow assumptions would be inappropriate. The lowest streamflows occur during winter, when precipitation is stored as snow and runoff does not occur. Air-deposited mercury is therefore not mobilized to streams during low-flow periods but instead is transported during spring snowmelt when flows are elevated. Because the timing of deposition, mobilization, and streamflow do not coincide, the combination of low flow, maximum loading, and maximum background concentrations does not represent a physically realistic scenario.</p> <p>Consistent with this, the air deposition analysis uses annualized loading (e.g., g/km²/year) and evaluates impacts using mean flow and representative concentration conditions on a comparable temporal basis. This approach reflects how deposition actually enters the aquatic system and avoids introducing unrealistic or internally inconsistent assumptions</p>

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				<p>(such as pairing annual loads with instantaneous maximum concentrations or low-flow conditions).</p> <p>Finally, neither IDAPA nor DEQ guidance requires the application of critical low-flow conditions for nonpoint, diffuse loading mechanisms such as atmospheric deposition, particularly where those conditions are not representative of how pollutants are transported to surface waters. Under § 401, DEQ has discretion to evaluate whether the activity will comply with water quality requirements based on reasonably expected conditions.</p> <p>For these reasons, the methodology used in the AD Memo is scientifically appropriate, consistent with regulatory intent, and does not underestimate mercury impacts. Reanalysis using “critical conditions” is not warranted.</p>
29	Section 2.1, Atmospheric Deposition Includes Non-conservative Conditions – Non-conservative Emissions Estimates	6	The AD Memo uses air emission estimates from the USFS FEIS, which are significantly lower than DEQ’s Permit to Construct (PTC) limits. PTC-authorized emissions are up to 2.4 tpy arsenic, 0.085 tpy antimony, and 0.122 tpy mercury—500–1,600% higher than FEIS estimates—reflecting the legally permitted 180,000 t/day mining rate. The AD Memo’s lower estimates do not	DEQ disagrees that the Atmospheric Deposition Memo (AD Memo) should rely on the higher emission limits in the Permit to Construct (PTC). The AD Memo analysis appropriately relies on the emissions evaluated in the USFS FEIS because those emissions reflect the 2021 Modified Mine Plan (2021 MMP) approved by the USFS in its

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			<p>reflect this reality, underestimating atmospheric deposition impacts on water quality. DEQ should require the AD Memo and Modified 401 Certification to be updated to use PTC-authorized emission rates to accurately evaluate mercury, arsenic, and antimony deposition and compliance with water quality criteria and antidegradation requirements.</p>	<p>Record of Decision. The 2021 MMP represents the actual mining plan authorized for construction and operation, including a maximum mining rate of 99,500 tons per day.</p> <p>In contrast, the PTC emission limits are based on a different legal requirement under Idaho air quality rules and the Clean Air Act. For air permitting purposes, DEQ was required to evaluate the project's maximum potential to emit, which assumes a hypothetical mining rate of 180,000 tons per day. As explained in the USFS FEIS (at 4-28 to 4-29), this higher rate is not representative of the approved mine plan or expected real-world operations.</p> <p>CWA § 401 requires DEQ to evaluate whether the project, as approved, will comply with water quality standards. It does not require analysis of hypothetical maximum emissions that exceed the authorized mine plan. Therefore, DEQ appropriately relied on the USFS FEIS emissions inventory in evaluating atmospheric deposition and antidegradation compliance.</p>

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				DEQ concludes that no revision to use the PTC maximum emission limits is warranted.
30	Section 2.1, Predicted Water Quality Impacts and Atmospheric Deposition	6	Section 1.1 of the AD Memo cites air emissions from the USFS FEIS (0.394 tpy As, 0.017 tpy Sb, 0.007 tpy Hg), but DEQ's Permit to Construct (PTC) shows much higher emissions (2.4 tpy As, 0.085 tpy Sb, 0.122 tpy Hg)—increases of 500–1600%. The FEIS attributes this difference to the PTC using a “hypothetical” 180,000 tpd mining rate, but that rate is the legally authorized limit under the PTC. Because Idaho's water quality standards are evaluated over short timeframes, the AD Memo and 401 certification should be updated to reflect the higher, legally enforceable PTC emission rates.	<p>Thank you for the comment.</p> <p>DEQ appropriately relied on the emissions analyzed in the FEIS because those emissions reflect the actual, approved mine plan (2021 Modified Mine Plan) and are therefore representative of real-world operations and expected conditions. The USFS ROD approved this mine plan as the full scope of project activities, making it the appropriate basis for environmental review and related water quality analyses.</p> <p>The Clean Water Act § 401 does not require DEQ to evaluate worst-case, hypothetical maximum emissions. Rather, the applicable standard is whether there is reasonable assurance the activity “will comply with applicable water quality requirements” (40 C.F.R. § 121.3), which allows the State to evaluate reasonably expected conditions. Accordingly, DEQ has discretion to rely on the FEIS-based emissions as the most appropriate</p>

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				<p>representation of likely impacts to water quality.</p> <p>For these reasons, no revision to the AD Memo or § 401 certification is warranted.</p>
31	Sections 2.5.1.1, 2.5.2.3.1-4, Socioeconomic Justification – Failure to Demonstrate Important Economic or Social Development	6	Many of our initial public comments submitted remain unaddressed. Economic benefits described are generic and not specific to the local (and regional) area as required by IDAPA. DEQ should provide site-specific evidence of importance.	<p>Thank you for your comment. DEQ acknowledges that many initial public comments remain under consideration, including those regarding the need for site-specific economic information. Under IDAPA 58.01.02.250, social and economic justifications for activities in protected waters must demonstrate the local and regional importance of the proposed project.</p> <p>While the Modified 401 Certification summarized general economic benefits, DEQ has incorporated available data on regional employment, local procurement, and community tax revenues to demonstrate the project's specific relevance to local and regional economies. Factors included are quantified to the extent available and the qualitative description of impacts as allowed by IDAPA 58.01.02.052.08.d is acceptable.</p>

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				<p>These data provide the necessary social and economic justification. DEQ also notes that some economic analyses rely on proprietary or ongoing regional studies; where summarized, the Certification reflects the best available site- and region-specific evidence at the time of issuance. DEQ considers the site-specific evidence sufficient to meet IDAPA requirements.</p>
32	Section 2.5, Socioeconomic Justification – Reliance on Speculative Benefits	6	<p>Many “commitments” are unenforceable or vague (e.g., “indicating willingness”). The Modified 401 Certification provides no discussion on their weight and seemingly accepts them as any other Project benefit, reinforcing a common theme of bias throughout the socioeconomic justification. DEQ should weigh speculative claims appropriately or exclude them.</p>	<p>Thank you for your comment. DEQ acknowledges concerns regarding the enforceability and specificity of certain project “commitments” described in the Modified 401 Certification. The addendum clarifies that DEQ distinguishes between formal, enforceable commitments - such as contractual obligations, permit conditions, or regulatory requirements - and informal statements of intent, including expressions of “willingness” by the Project Applicant.</p>
33	Sections 2.5.2.4 and 2.5.3.1-2, Socioeconomic Justification – Failure to Consider Speculative Costs	6	<p>The Modified 401 Certification remains biased in its evaluation by emphasizing speculative environmental and socioeconomic benefits while ignoring equally plausible negative scenarios. Although DEQ acknowledges the potential “boom-bust” cycle of mining, the certification fails to consider the implications of bankruptcy, suspension, or abandonment on reclamation commitments</p>	<p>Thank you for your comment. DEQ acknowledges concerns regarding the balance of speculative benefits and potential adverse outcomes in the Modified 401 Certification. The addendum clarifies that DEQ’s evaluation incorporates both the anticipated benefits and foreseeable risks of the proposed project.</p>

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			<p>and environmental protection. Similarly, the document omits socioeconomic analysis of potential accidents or operational failures (e.g., spills, tailings leakage), reflecting selective speculation that favors the applicant’s assumptions and timelines. DEQ should evaluate a reasonable range of potential adverse outcomes (e.g., bankruptcy, suspension, abandonment, or accidents) and apply a consistent standard of analysis to both speculative benefits and potential costs to ensure objectivity.</p>	<p>Specifically, the Modified 401 Certification recognizes the potential for economic fluctuations, including the “boom-bust” cycle associated with mining activities. To address concerns regarding project suspension, bankruptcy, or abandonment, the Certification relies on enforceable reclamation and financial assurance requirements that remain in effect regardless of operational status, thereby mitigating potential environmental and public risks. Similarly, the Certification incorporates regulatory safeguards, monitoring programs, and contingency measures to reduce the likelihood and consequences of operational failures, such as spills or tailings leakage.</p>
34	Socioeconomic Justification – Incorrect Evaluation of Cumulative Effects	6	<p>The Modified 401 Certification provides a biased, overly optimistic portrayal of the Project’s environmental effects, minimizing degradation and exaggerating benefits. It frames impacts as “short-term” and benefits as “long-term,” creating a false impression of net environmental gain. The USFS Final ROD (January 2025), however, identifies the No Action Alternative as the environmentally preferable option, confirming the Project would cause greater harm than doing nothing. DEQ should incorporate the USFS finding, acknowledge the Project’s net negative environmental and socioeconomic impacts, and revise or</p>	<p>Thank you for your comment. DEQ acknowledges the concern regarding the portrayal of environmental effects in the Modified 401 Certification. The Certification characterizes certain impacts as “short-term” based on modeled predictions and monitoring data; however, DEQ recognizes - and calls out in several sections identifying particular assumptions related to the analysis, e.g., Section 2.5.3.3 - that some impacts may persist beyond initial operational periods and that benefits are not guaranteed without full</p>

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			<p>qualify statements that overstate benefits or imply long-term improvement.</p>	<p>implementation of mitigation and monitoring programs.</p> <p>Under the National Environmental Policy Act (NEPA), the environmentally preferable alternative is defined as the alternative that would cause the least overall environmental disturbance; in many NEPA analyses this is the No Action Alternative because it avoids the direct impacts associated with project implementation. Identification of an environmentally preferable alternative, however, does not preclude selection or authorization of another alternative. The purpose of the NEPA process is to inform federal agency decision-making by disclosing potential environmental effects, not to mandate selection of the least impactful alternative.</p> <p>The Final ROD selected the Modified Project Alternative after considering environmental effects, mitigation measures, and regulatory requirements. The selected alternative incorporates design modifications, mitigation measures, and permit conditions intended to reduce impacts and ensure compliance with applicable federal and state laws. DEQ's evaluation under Clean Water Act § 401 is similarly focused on whether the</p>

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				<p>federally permitted activity, as conditioned by the certification and other regulatory requirements, provides reasonable assurance that water quality standards and existing uses will be maintained and protected.</p> <p>The Forest Service's identification of the No Action Alternative as environmentally preferable was considered during DEQ's evaluation and the FEIS is cited in the addendum.</p>