



September 11, 2023

Wade Foster
Stoel Rives LLP
101 S. Capitol Boulevard, Ste. 1900
Boise, ID 83702

**Re: Expert Report Relating to Perpetua's Financial Capability
In re Applications for Permit Nos. 77-14377, 77-14378, 77-14379; Applications for
Transfer Nos. 85396, 85397, 85398, 85399; and Application for Exchange 85538 in the
Name of
Perpetua Resources Idaho, Inc.**

Dear Mr. Foster:

This expert report describes the water management practices at the Stibnite Gold Project (SGP) utilized to conserve water resources while operating the SGP. This report also describes the appropriateness of the design and location of the raw water intake on the East Fork South Fork Salmon River (EFSFSR). Finally, this report describes the minimum flows for fish passage through the diversion tunnel.

1. Water management at the SGP will conserve water resources while fulfilling the purpose the SGP.

As described in Perpetua's Rule 40.05 Additional Information for Application for Permit by Perpetua Resources Idaho, Inc (October 15, 2021) and the Stibnite Gold Project Water Management Plan (December 2021), water used in ore processing will be supplied first by reclaimed water from the Tailing Storage Facility, then groundwater from pit dewatering, direct use of contact water, and stored water from the contact ponds. Reclaim water and use of contact water (including dewatering water) accounts for approximately 90 percent of the ore processing and dust control water demand in the 14.25 years of mill operation. The remaining demand will be met by the water supply wells and the surface diversion from the East Fork South Fork Salmon River. This practice, along with direct use or containment and treatment of contact water, will minimize impacts on water quality, reduce diversion of freshwater, and reduce associated streamflow impacts. The minimal reliance on freshwater diversion limits impacts to state and federal minimum streamflow water rights.

2. The freshwater intake and diversion tunnel are protective of fisheries resources while allowing Perpetua to divert water to beneficial use.

As part of the mine development plan, the Yellow Pine Pit ("YPP") will be dewatered, and a 0.9-mile-long diversion tunnel will be constructed around YPP diverting the EFSFSR and providing fish passage into the reaches upstream of YPP. The diversion tunnel will have an accessway taking up one side of the tunnel opposite a pool-and-weir fishway.



In times of site-wide water deficit, Perpetua intends to supplement the site water balance with raw water from the EFSFSR. This raw water will be supplied by a new intake and pipeline from the EFSFSR to a booster tank, and will consist of the following elements: (1) an approved National Marine Fisheries Service (NMFS) compliant fish screen, (2) a small wet well and pump house that will house the pumps, valves, controls, and other appurtenances, and (3) a pipeline extending up the adjacent hillside to the proposed location of the booster tank.¹ The fish screen and point of intake will be located in the forebay just south of the diversion tunnel south portal. This location has a controlled minimum water surface elevation that is set by the downstream weir at the upstream end of the fishway. This will aid in maintaining submergence over the top of the fish screen. This location was further identified as a desirable point of intake, because it will be located downstream of the primary sediment trap, the 100-foot-long sediment “drop out” zone, and the floating debris screen structure, all of which will remove bedload and debris entrained in the EFSFSR. This location, therefore, is fairly protected from damage that can result from larger debris striking the screen. Moreover, velocities in the forebay are limited by the downstream fishway weir, which further protects the screen from damage and the potential for development of non-uniform flow distributions across the screen. Finally, it was identified that this area would be readily accessible by equipment for maintenance and cleanout from the tunnel access road, during periods of lower flow, over the short (approx. 4.0-foot) control weir stem wall.

McMillen (formerly McMillen Jacobs) evaluated the diversion tunnel fishway hydraulic design based on Project flow depletions with the proposed water rights conditions in place, using computational fluid dynamics (CFD) modeling.² The updated CFD modeling demonstrates the ability of the tunnel fishway to maintain water depths and velocities meeting the fish passage design criteria for Chinook salmon down to 6.6 cfs of flow, and for bull trout and steelhead down to 5 cfs. Passage may also be possible at lower flow rates, but at water depths that are shallower than the minimum design criteria. In case fish approach the tunnel, but fail to ascend or fall back, trap and haul facilities are included at the north (downstream) tunnel portal to facilitate hauling fish to points upstream for release, should this be necessary.

Sincerely,

A handwritten signature in dark ink, appearing to read "Gene Bosley", is written over a light gray dotted rectangular background.

Gene Bosley, P.E.
Perpetua Resources Idaho, Inc.
405 S. 8th Street, Ste. 201
Boise, Idaho 83702

¹ McMillen Jacobs, 2022. *Raw Water Intake Design Criteria TM*. Technical Memorandum to Perpetua Resources Idaho, Inc. October 23, 2020.

² McMillen Jacobs, 2022. *Supplemental Tunnel Hydraulic Modeling*. Technical Memorandum to Perpetua Resources Idaho, Inc. December 9, 2022.