



Division of Reclamation, Mining, and Safety
1001 E. 62nd Ave
Room 215, c/o Todd Jesse
Denver, CO 80216

September 14, 2023

**RE: Narrative Description of Revision
Bulldog Mine Permit No. M-1977-215**

Technical Revision: TR-25, Dewater 9360 Level with Water Treatment - Surface Discharge to Windy Gulch

Minerals Program,

Rio Grande Silver (RGS) is planning to re-enter the Bulldog Mine to continue rehabilitation work that will allow safe long-term access to the underground development for further rehabilitation, resource confirmation and exploration work to assess the potential for future production.

Existing Conditions:

The Bulldog underground development has two (2) distinct groundwaters that have to be managed in order to conduct underground work.

- 1) Upper Mine Pool (meteoric) in the 9360 Level adit. Pool elevation of 9,382 ft.
- 2) Lower Mine Pool (Submerged Zone). Pool elevation of 9,230 ft elevation.

TR-25 addresses the Upper Mine Pool only.

RGS dewatered the 9360 Level and conducted rehabilitation work from June through September 2022 with the approval of TR-24, Dewater 9360 Level-Water Hauling. Approximately 1,000 feet of rehabilitation of the 9360 Level was completed. RGS determined that trucking water to the evaporation pond was not preferable for two reasons:

- 1) Evaporating the water is 100% consumptive and a waste of water that could be conserved.
- 2) Trucking creates safety, traffic and dust considerations during the summer months and is less feasible during the winter months.

Dewatering and rehabilitation activities were shut down in September 2022 and the 9360 Level is currently inaccessible due to the Upper Mine Pool water re-filling the adit. Surface/meteoric water infiltrates into the tunnel and backs up behind a hydraulic plug near the portal, creating the Upper Mine Pool.

Proposed Action: Water Treatment and Surface Discharge to Windy gulch

RGS determined that the preferred option for dewatering the 9360L is to treat the Bulldog Upper Mine Pool (UMP) water and discharge it to the surface into Windy Gulch. The water treatment and discharge will be temporary and last up to 5 years allowing the required rehabilitation, resource confirmation and exploration work to be done.

The proposed work will be located on the Baker 45 AM-CMC 81428, Baker 55 AM-CMC 81433, and Baker 57 AM-CMC 81435 unpatented mining claims in the M-1977-215 Permit Area "A" and on USFS ground on the approved 2011 Plan of Operations Amendment Underground Exploration at the Bulldog Mine, located in the NW¼, SW¼, Section 25, T42N, R1W, NMPM.

See ATTACHMENT 1-Bulldog Site Map

Discharge Pipeline:

The proposed 4-inch HDPE discharge pipeline (pipeline) will exit the 9400 Portal and run for approximately 230 feet to the Proposed Discharge Point 001. 185 feet of the pipeline will be on the currently permitted 9400 Waste Rock Storage Area. 45 feet of the pipeline will be on previously disturbed and reclaimed USFS ground. The portion of the pipeline that crosses the 9400 Portal Pad will be buried to allow equipment and activities to occur without damaging the pipeline. The remainder of the pipeline will be on the surface with no new disturbance. The pipeline will convey the treated effluent directly into a 24-inch buried bypass culvert installed by Homestake Mining Company during reclamation in the mid-1990s. The bypass culvert runs approximately 1,200 feet along the historic waste rock pile, down Windy Gulch, where the treated effluent will then flow to the surface.

See ATTACHMENT 2-Bulldog Mine Discharge Pipeline Plans

ATTACHMENT 2A-Bulldog Mine Discharge Pipeline specifications

RGS submitted a Modification to the USFS 2011 Plan of Operations Amendment Underground Exploration at the Bulldog Mine on June 30, 2023, for the proposed discharge pipeline and surface discharge of treated water into Windy Gulch. Approval is pending and expected by the end of September 2023.

Water Treatment:

RGS contracted Water Tectonics to conduct bench testing on the Bulldog Upper Mine Pool (UMP) water and design a water treatment system to meet the Windy Gulch and Willow Creek site-specific ambient water quality standards. Water Tectonics completed the testing and treatment plant design in May 2023. The final effluent meets all of the Windy Gulch and Willow Creek site-specific ambient water quality standards. Bulldog UMP water quality results prior to treatment and UMP water sample, water treatment plant locations are included.

See ATTACHMENT 3-Bulldog Mine Treatment Summary-Effluent WQ-SSS (includes Water Quality analytical results of Final Effluent and Site Specific Tiered Standards)

ATTACHMENT 4-Bulldog UMP Location Map-UMP WQ Data

RGS submitted an APPLICATION FOR DISCHARGES ASSOCIATED WITH HARDROCK MINING/MILLING to the Colorado Department of Public Health and Environment on August 1, 2023. Once the permit is approved, it will be active for 5 years. Water treatment and discharge is expected to begin in 2024 and be continuous throughout the rehabilitation, resource confirmation and exploration work.

See ATTACHMENT 5-Bulldog Discharge Permit Application.

The water treatment equipment will be located 1,700 feet underground in the 9400 Level Decline. A pipeline will convey the treated effluent to the Proposed Water Discharge Point 001 directly into Windy gulch.

Average surface/meteoric inflows into the Bulldog 9360 Level UMP average 12 to 15 gpm with seasonal variability up to 50 gpm. Treated effluent outflow is expected to average the same as the inflow with the same seasonal variability.

List of Attachments

ATTACHMENT-1 Bulldog Site Map

ATTACHMENT-2 Bulldog Mine Discharge Pipeline Plans

ATTACHMENT 2A-Bulldog Mine Discharge Pipeline Specifications

ATTACHMENT 3-Bulldog Mine Treatment Summary-Effluent WQ-SSS

ATTACHMENT 4- Bulldog UMP Location Map-UMP WQ Data

ATTACHMENT 5-Bulldog Discharge Permit Application

ATTACHMENT 6-Forest Service Receipt of TR-25

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