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Revenue Virginius Mine
Building Modifications & Bond Update

Technical Revision No. 13
CDRMS Permit No. M-2012032
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1 Introduction

This Technical Revision (TR) requests the following revisions to the Revenue-Virginius Mine (Mine) Division of Reclamation, Mining, and Safety (DRMS) Permit No. M-210-032 (Permit).

1) Approval of a refuge chamber at the top of the Monongahela Raise.
2) Approval to construct an additional equipment storage warehouse at the Revenue Mine site.

This TR request describes the reasoning, characteristics, construction, and reclamation measures associated with the refuge chamber at the Monongahela Raise and equipment storage warehouses at the Revenue Mine. Supporting information is presented under the following sections, background information (Section 2), project rationale (Section 3), construction (Section 4), and reclamation (Section 5).

2 Background Information

The Mine, owned and operated by Ouray Silver Mines Inc. (OSMI), is an active silver mine located approximately 6 miles south west of Ouray Colorado along County Road 26. The Sneffels District has a rich mining history that began with the staking of the Virginius in 1876 in Governor Basin. The Revenue Tunnel was built as a lower access point to the Virginius in 1893. The bulk of mining activity occurred from 1878 through 1912, with intermittent mining since. The Mine is currently permitted to operate under Amendment 1 to DRMS designated mining operations (DMO) permit (Section 112-d) M-2012-032. There are two permitted disturbance areas – one at the Revenue Tunnel and another in Governor Basin. The Mine is in a state of construction and development, moving towards ore production.

Several Technical Revisions (TRs) to Amendment 1 of M2012-032 have been filed over the recent years. These revisions, summarized below, have focused on improved mill functioning, waste reduction, and improved environmental protocols. Recent TRs are summarized below.

TR-12- GW-4 characterization, monitoring, and well replacement. Expected to be submitted March 1, 2021.

TR-11- Updated the water monitoring program. Allowed placement of Pilot Passive Water Treatment Materials withing permit boundary. Updated reclamation plan to incorporate Waste Storage Pad and address minor modifications to topsoil placement.

TR10- Allowed the construction of the five-stage passive treatment system with discharge to surface water as permitted through CDPHE (CO-0000003 Modification 5)

TR09 – Updated groundwater standards, allowed the sale of mixed tailings and waste rock as road base. Allowed for the relocation of buildings and construction of additional sheds.

TR08 – Allowed for infiltration of mine discharge to groundwater following passive treatment in a sulfate reducing bioreactor.

3 Project Rationale

3.1 Monongahela Raise Refuge Chamber

In 2014, the raise for ventilation and secondary escapeway from the Mine to Governor Basin was installed. Permitted under Amendment 1, the raise is an 8 feet diameter hole that was drilled by pilot hole and then raise bore drilling. All cuttings were removed from the Mine to the approved disturbance area at the Revenue Portal area. The new Governor Basin egress equipment and refuge infrastructure still needs to be constructed. MSHA requires (30 CFR § 57.11050) installation of a secondary escapeway for egress in the event of an emergency underground, whereby the workers need to escape through the vent raise using a capsule mechanism that climbs to the surface. Because of the high-altitude mountain environment, a refuge chamber at the secondary escapeway is also needed to ensure the safety of miners, particularly from winter conditions and avalanche, as immediate evacuation from Governor basin is not guaranteed.

This refuge area consists of two Connex placed side by side and will be equipped with survival equipment. The refuge chamber is buried just below the surface to protect the structure from surface disturbances such as avalanches.

Construction of the refuge chambers began in the fall of 2020. The Division of Reclamation, Mining, and Safety (The Division) required a TR addressing the facilities modification at the Monongahela Vent Raise and Secondary Escape way**.**

3.2 Equipment Storage Warehouses

A group of stacked Connex shipping containers on the east end of the Revenue Mine site is currently being used for storage. The storage containers that are being utilized for storage cannot be easily accessed by machinery due to the small dimensions of the containers. The dimensions of the containers also limit the size of materials that can be stored inside of them. Due to these constraints, the containers will be replaced by two equipment storage warehouses to increase storage space and access to items in storage. One of these warehouse storage areas is permitted through TR-11, but the mine is requesting to construct a second storage warehouse.

4 Construction

4.1 Monongahela Raise Refuge Chamber

Work began at the Monongahela Raise to create a secondary escapeway with a refuge chamber on August 25th, 2020. During construction, crews utilized the appropriate storm water control measures, including a berm along the northwest edge of the pad and a diversion ditch along the southeast and southwest edge of the pad.

Crews excavated the Connex placement area using an excavator and loader. The platform where the Connex were buried is composed of waste rock from historic mining. However, some bedrock needed to be removed to make room for the Connex. Material from the excavated waste

rock were stored on site and used to create berms and to prep the bottom of the excavation for the structure to be placed. A 3% grade was made underneath the Connex sloping to the northwest to allow water to drain in that direction where the structure daylights. Connex were set in the excavated area. To provide extra structural integrity to the containers, steel supports were welded into the walls and ceiling of the Connex every 4 feet. A 40-pound rail was also welded onto the ceiling to provide extra support for the earthen material placed on top of the Connex.

The Connex walls and roof were covered in a HDPE liner with a geotextile on top to protect the structure from water and the surrounding material. The doors were left exposed to the northwest on the downhill side of the slope to allow access through the container doors and to allow water to properly drain around the Connex. Water is not expected to accumulate around the structure as the waste rock that surrounds the refuge chamber is extremely porous and the base of the chamber is graded to allow water to drain toward side of the structure is exposed on the hill slope.

A door was cut into the side of the Connex where they daylight and a culvert was connected to allow access to the surface and to serve as a manway in or out of the refuge chamber (Figure 1). The manway was supported with concrete jersey barriers to protect it from avalanches. Work on the refuge chamber is expected to continue in 2021. As the raise is rehabilitated, a 20 ft drift will need to be created to connect the refuge chamber to the raise. An as built drawing of the refuge chamber and manway can be found in Appendix 2.

Figure 1.- Image of manway connected to refuge chamber.

4.2 Equipment Storage Warehouses

To provide more storage space and improved access to supplies, two 50’ 3” x 60’ 3” equipment storage warehouses will be constructed in 2021. The warehouse storage areas will be built in approximately the same location as the Connex storage containers – Updated Map F-1a. The proposed equipment storage warehouse will not have a foundation - they will be supported by

micro-piles. The structures will be covered with sheet metal and a 15’ door will be installed on each structure to access stored supplies. An engineered drawing package of the structures can be found in Appendix 1.

5 Reclamation

5.1 Monongahela Raise

Post mining, the structures that remain in Governor Basin will be removed during the timeframe that other mine structures are removed around the portal area. The headframe will be removed and placed down the Monogahela Shaft prior to capping and backfilling. The culvert to the surface that acts as a manway to the refuge will be cut, collapsed, and placed down the Monogahela Shaft along with the headframe. The Connex which serves as a refuge chamber will be cut, collapsed in place, and backfilled with surrounding waste rock to prevent collapse hazards. An updated reclamation cost can be found in updated Table L-2.

Previously disturbed areas comprised of waste rock at the Monongahela Raise will be regraded as needed to a final 2H:1V maximum slope. No revegetation is planned as part of reclamation at Governor Basin because the area is comprised of steep talus at high elevation with limited ability to support vegetation. Structures to be removed are indicated on Map F-2.

5.2 Equipment Storage Warehouses

The equipment storage warehouse areas will be removed at the same time as other structures around the Revenue Portal. The structures will be dismantled and placed in the underground portal, which is consistent with the updated Reclamation Plan. A list of buildings to be removed from site are provided in updated Table L-2. Buildings are also shown on Updated Map F-1a.

5.3 Bond Adjustment

The $476,269 reclamation bond in place for the Revenue-Virginius mine is currently higher than the estimated reclamation costs. The total reclamation costs calculated for the Revenue-Virginius mine, even with the addition of the refuge chamber and equipment storage warehouse reclamation, remain well below the current bond amount. Therefore, no adjustment to OSMI’s reclamation bond is required for this TR. Revised reclamation cost tables are provided in Appendix 3 – Updated Exhibit L.