Climax Molybdenum
A Freeport-McMoRan Company

Climax Mine
Highway 91 - Fremont Pass
Climax, CO 80429
Phone (719) 486-7718
Fax (719) 486-2251

April 26, 2022

Mr. Dustin Czapla
Environmental Protection Specialist
Division of Reclamation, Mining and Safety
Department of Natural Resources
1001 E 62nd Ave., Room 215
Denver, Colorado 80216

RE: Climax Mine, Permit No. M-1977-493, Technical Revision 34 – Molybdenum Removal Water Treatment Plant (MRWTP)

Dear Mr. Czapla,

Enclosed please find Technical Revision (TR) 34 that describes plans to construct a supplementary process to Climax's existing Property Discharge Water Treatment Plant (PDWTP), previously approved via TR-19, to remove molybdenum from effluent while maintaining current conditions in Climax's discharge. Climax is seeking approval of TR-34 to construct a Molybdenum (Moly) Removal Water Treatment Plant (MRWTP) within the Affected Lands boundary beginning in 2022, with construction completion estimated in 2024. The MRWTP will be an Environmental Protection Facility (EPF). This submittal is intended to provide information regarding design of the plant to satisfy the requirements of Rule 7.3 and to obtain Division approval to initiate construction of the facility. This submittal includes:

- A narrative summary of the MRWTP facility
- Issued for Construction (IFC) drawings (Appendix A of narrative)

The TR materials (electronic files) are attached to this letter. The $1,006.00 fee applicable to a 112d operation has been paid via credit card on the online portal as part of this submittal. We appreciate your review of the TR and look forward to your approval. Please contact me at (719) 486-7633 if you need additional information.

Sincerely,

Eric Detmer, PE
Chief Environmental Engineer

Attachment

Technical Revision - 34

Climax Mine

Molybdenum Removal Water Treatment Plant

April 2022

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A Freeport-McMoRan Company

Contents

Introduction

A feasibility study report was prepared for the Property Discharge Water Treatment Plant (PDWTP) in 2011 by CH2M Hill for the Climax Molybdenum Company. The study was conducted in preparation for initiation of tailing deposition to the Mayflower Tailing Storage Facility (TSF). The project was undertaken when Climax determined existing water treatment and sludge management required updating to include a new mine water treatment facility. It was determined existing water treatment would be supplemented in two phases:

1) Construction of a metals removal plant along with infrastructure to support both phases, and

2) Construction of a molybdenum removal plant, if necessary.

Phase 1 was constructed in 2013 and 2014 and approved by the Division of Reclamation, Mining and Safety (DRMS) in Technical Revision (TR) 19. The Metals Removal Plant (MRP) is a high-density lime precipitation metals removal facility and treats water from within and around the Climax Mayflower TSF for discharge to Tenmile Creek. At the time of permitting, this plant was called the PDWTP. The Phase 2 Molybdenum Removal Water Treatment Plant (MRWTP) is being designed to ensure Climax continues to meet the “current condition” requirement for molybdenum that is applicable under Climax’s temporary modification for molybdenum while also preparing for a future discharge permit requirement for molybdenum to be considered by the Colorado Department of Public Health and Environment (CDPHE). The MRWTP will remove molybdenum from mine-influenced water sources to maintain current conditions. The source of molybdenum is oxidized molybdenum found in the Climax ore. This oxidized molybdenum cannot be recovered in the milling processes and goes out to tailings. Climax has been avoiding mining of the oxidized molybdenum for several years because the discharge to Tenmile Creek would likely exceed the “current condition” as defined by the temporary modification. Climax needs to construct the MRWTP because it must now mine this oxide material to implement a financially viable mine plan. Climax has consulted with CDPHE regarding its intent to proceed with the construction of the MRWTP in connection with anticipated molybdenum water quality standards as well as expected future permit conditions.

The MRWTP is considered an Environmental Protection Facility (EPF); the below narrative describes important elements of the plant including location, process flow paths, chemical usage and storage, secondary containment, associated facilities, avalanche protection, property rights, existing permits and authorizations, additional permits needed for the project, water rights, and financial assurance.

Project Description

MRWTP Location

The MRWTP will be located adjacent to the MRP on the northeast side, as shown in drawing no. 860-1A-C-104 (Appendix A). The location of the planned MRWTP is already disturbed and no new disturbance will be required for this facility.

Process Flow Path

The MRWTP will have a 14,000 gallons per minute (gpm) design flow to match the existing maximum flow rate of the PDWTP. Feed flow to the MRWTP will be routed directly from the Mayflower Tailings Pond to the existing influent feed tank and sent to the Moly Reactor Tanks in the Moly Process Building. Ferric sulfate addition in the Moly Reactor Tanks will be used to encourage iron coprecipitation at pH 5.0. Sulfuric acid will be volumetrically added when influent molybdenum concentrations are at or below approximately 3 milligrams per liter (mg/L). Sulfuric acid and lime feeds will be used for pH control. From the Moly Reactor Tanks, flow will be sent through a Splitter Box that will divert flow evenly to the Moly Thickeners. Clarified overflow from the Moly Thickeners will be sent to the Moly Effluent Vault while sludge will be recycled to the Moly Reactor Tanks or sent to the Moly Sludge Tank for final disposal. The General Arrangement Drawings (Appendix A) show the major equipment, tankage, chemical feed systems, pumps, and mixers, utility water, potable water, and chemicals. The MRWTP consists of one building, two thickeners, and a new utility well:

- Moly Process Building: a 108-foot by 109-foot extension to the north of the existing Metals Removal Building, housing the Moly Reactor Tanks, a reactor effluent Splitter Box, associated chemical feed systems for ferric sulfate, sulfuric acid, and polymer, and an MRWTP effluent vault that houses flocculant dilution pumps and effluent transfer pumps.

- Moly Thickeners: two 160-foot-diameter cone bottom thickeners with domed covers located north of the Moly Process Building, a covered bridge and catwalk accessing the top level of the thickeners, center wells and rake drive mechanisms, and below-grade utility chase corridor accessing the center cones of the thickeners and sludge recycle and wasting pumps.

An additional utility well with appurtenances will be connected to existing utility water feed line to the Metals Removal Building.

Design flows used to size equipment are summarized in Table 1.

Table 1: Water Quantity Influent Design Basis

Description	Criteria/ Value/Type	Comment
Maximum design plant flow	14,000 gpm	The maximum design flow is the flow to the plant in anticipation of spring runoff and is expected to be the flow condition approximately two to three months per year from March to July.
Average design plant flow	6,100 gpm	The average flow through the system used for calculation of annual usages or chemical consumption.
Minimum design plant flow	2,500 gpm	The minimum design flow is the winter flow condition and is expected to be the flow condition approximately four to five months each year from October to March.

Note:
gpm – gallons per minute

Moly Process Building and Moly Thickeners Addition

The Moly Process Building is to be an addition to the existing Metals Removal Building. The building area of the addition is 11,772 square feet (ft^2) at 108 feet by 109 feet and is two stories tall to match the existing building's height. The general arrangement of the Moly Process Building is shown in drawing no. 861-1A-G-100 (Appendix A). The building is a conventional structural steel-framed building with an exterior-insulated metal wall panel system and translucent, fiberglass sandwich panels to match the existing building. Wall bases are cast-in-place concrete with their height to match the existing building. The existing exterior wall of the plant, which will become the adjoining building addition, is appropriately modified to account for expansion joints and man doors for egress. There are a number of insulated, coiling overhead doors and insulated, hollow metal man doors along the exterior walls. The roof is a structurally designed flat roof with a tapered ethylene propylene diene monomer (EPDM) system over continuous rigid insulation on the roof deck.

There are mechanical platforms, electrical and LAN rooms within the building to support the equipment. There are no administrative spaces required. Two chemical storage rooms are provided with one storing ferric sulfate and the other storing sulfuric acid. The ferric sulfate is not considered a hazardous chemical and, therefore the room is not required to be rated. Sulfuric acid is a hazardous corrosive, and approximately 4,000 gallons will be stored in a tank within the room. The quantity being stored is above the maximum limits per code and therefore the room is considered an H-4 hazard occupancy area with 3-hour rated walls and a 3-hour rated floor deck above. The walls of these interior spaces will be built with concrete masonry units (CMU) and the rooms capped with a concrete and metal deck system. There are a mezzanine and associated catwalk system to be laid out around the process equipment and provisions for a full-span bridge crane.

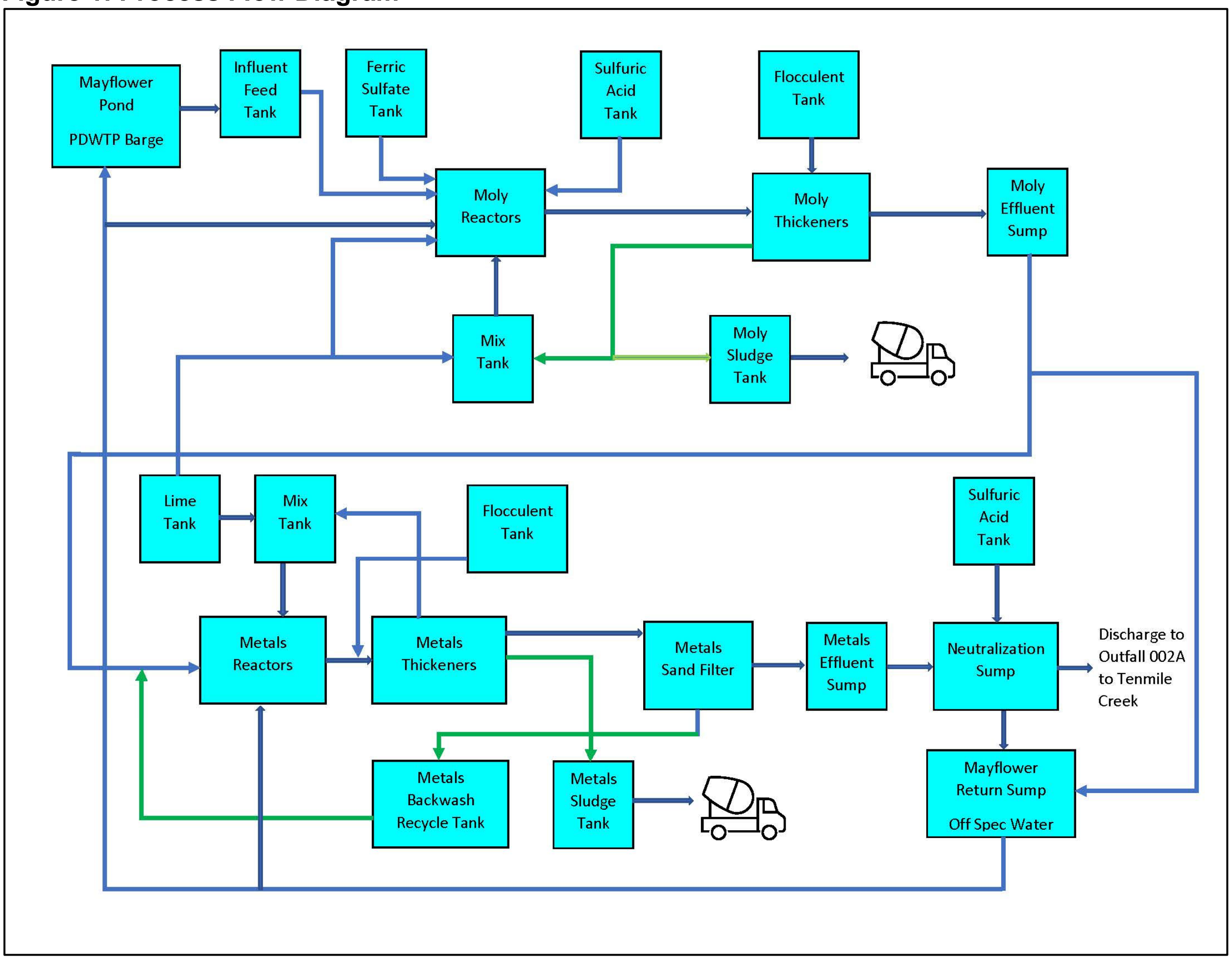
The plant is provided with two exterior thickeners adjacent to the new addition. The general arrangement of the thickeners is shown in drawing no. 864-1A-G-100 (Appendix A). The exterior walls of the thickeners are insulated, on the exterior face, with 4-inches of a spray foam system with an R-value of 6.3 per inch. These thickeners are accessed with an underground concrete utility chase from the building addition. Access to and from the utility chase for life safety is provided as well as a waterproofing membrane system around the exterior of the concrete walls.

Detailed plan views of the Moly Process Building are shown in drawing nos. 861-1A-A-101, 861-1A-A-102, 861-1A-A-103, and 861-1A-A-105 (Appendix A). Detailed elevation and section views of the Moly Process Building are shown in drawing nos. 861-1A-A-301, 861-1A-A-331, 861-1A-A-332, and 861-1A-A-333 (Appendix A).

Process Description and Process Control

The process description for the MRWTP addition to the existing Metals Removal Plant at the Climax is described in the sections below and can be seen in Figure 1.

Figure 1: Process Flow Diagram



Reactor Tanks

The Influent Feed Tank (840-TK-001) will provide water by gravity to Moly Reactor Tank #1 (860-TK-002), which will in turn discharge to Moly Reactor Tank #2 (860-TK-003). The piping will be arranged to allow either reactor to be used alone or in parallel, but the intent is to run the system in series. One reactor tank may be used alone if the other reactor tank is out of service and flows are less than 7,000 gpm. Each reactor will have an agitator. Lime slurry, ferric sulfate, and sulfuric acid will all be dosed into the Moly Reactor Tanks to aid in solids settling and pH control.

Recycled sludge will also be transferred from Moly Thickener #1 (860-TH-005) and Moly Thickener #2 (860-TH-006) to the Moly Mix Tank (860-TK-004) using the Moly Sludge Recycle pumps with the goal of achieving a 50:1 dry weight (wt):wt solids recycle rate. Sludge will then gravity feed to the lead Moly Reactor Tank (860-TK-002/ 860-TK-003) and the piping will be arranged to allow either reactor tank to receive flow from the Moly Mix Tank (860-TK-004).

Other process flows that will supplement flow into the reactor tanks include flow from the Mayflower Return Sump via the Mayflower Return Sump Pump (840-PU-016D) and flow from the Moly Process Building Sump via the Moly Process Building Sump Pump (860-PU-030).

Moly Splitter Box

The reactor tanks discharge by gravity to the Moly Splitter Box (860-SB-001) that equally splits flow to the Moly Thickener #1 and Moly Thickener #2. Operational flexibility is provided for thickener shutdown and maintenance when feed flowrates are low (less than 7,000 gpm) and flow can be diverted to just one of the two thickeners.

Moly Thickeners

Thickener underflow from Thickener #1 (860-TH-005) and Thickener #2 (860-TH-006), made up of sludge thickened to approximately 9 to 25% solids by mass, will be continuously recycled back to the Moly Mix Tank (860-TK-003). The mass of solids in the recycle will target a 50:1 ratio for the mass of the solids recycled to the precipitated solids produced in the plant influent stream as determined by feed rate of ferric sulfate and laboratory testing. Sludge will also be bled out of the system intermittently to the Moly Sludge Tank (860-TK-007) via the Sludge Wasting Pumps (860-PU-005C/D for Moly Thickener #1 and 860-PU-006C/D for Moly Thickener #2). Sludge disposal (bleed stream) schedule/rate will be determined by the operator and set based on input of sludge level in the thickeners as well as level in the Moly Sludge Tank. The Moly Sludge Tank is sized to hold three days' worth of maximum solids production for transmission via the Moly Sludge Transfer Pumps (860-PU-007A/B). Final disposition of the sludge is planned for a sludge cell (similar to how PDWTP sludge is currently managed) or disposed offsite at an appropriate facility; a new sludge cell will require a TR.

Thickener overflow (clarified water) will flow by gravity to the Moly Effluent Vault (860-SU-015). The Moly Thickener Sample Pumps for Moly Thickener #1 and for Moly Thickener #2) will recycle flow through analytical probes to measure the turbidity and pH of the clarifier overflow. If the overflow water does not meet the designated pH or turbidity requirements, the Moly Effluent Supply Pumps (860-PU-015 A/B/C/D) will shut off and effluent will overflow from the Moly Effluent Vault to the Moly Process Building Overflow Vault (860-SU-045). The Moly Process Overflow Vault is located adjacent to the Moly Effluent Vault and the out-of-specification water from the vault will be directed by gravity to the Mayflower Return Sump (840-SU-016) and lime will be dosed at a fixed rate during such an event to bring the pH to 7.0 or higher.

Moly Effluent Vault

Effluent from the Moly Effluent Vault (860-SU-015) will be pumped to the existing Metals Reactor Tanks #1 and #2 (840-TK-002/003) using Moly Effluent Supply Pumps (860-PU-015 A/B/C/D) operating in parallel, based on flow requirements. Three of the effluent sump pumps are sufficient to handle the full plant flow of 14,000 gpm and may be used to manage flow based on vault levels, and the fourth pump may be used as a spare. Overflow from the Moly Effluent Vault to the Moly Process Building Overflow Vault (860-SU-045) will be directed by gravity to the Mayflower Return Sump (840-SU-016) and lime will be dosed at a fixed rate during such an event to bring the pH to 7.0 or higher.

Utility Water

Utility water will be used for chemical make-up of both ferric sulfate and flocculant, seal water for all sludge pumps, and flushing of sludge and flocculant lines. An additional groundwater supply well and pump (860-PU-022H) will be added to the existing utility loop onsite to increase capacity. In addition, Utility Water Transfer Pumps #1, #2, and #3, (860-PU-022J/K/L) and a pressure regulating bladder tank, will be added to the PDWTP to transfer utility water from the MRP to the MRWTP.

Compressed Air

Compressed air will be provided for use at utility air stations. The Moly Process Building Air Compressor (860-CM-023) will provide air to the Moly Thickener #1 Air Receiver (860-AR-024), the Moly Thickener #2 Air Receiver (860-AR-024), the Ferric Sulfate System Baghouse (860-DC-020), and utility air stations spaced throughout each floor of the Moly Process Building. Air will be provided outside the Moly Process Building to the sulfuric acid loadout area to facilitate the offloading of acid from the bulk transfer tanker. A point of use desiccant dryer will provide minus 40°F dew point air for this service.

Chemical Storage and Feed Systems

Chemicals used in the MRWTP process are similar to those used at the existing PDWTP and include lime and ferric sulfate for metals precipitation, flocculant to facilitate the settling of precipitated solids, and sulfuric acid to lower the pH of the treated water to circumneutral prior to discharge. Specific information relative to the storage and use of these chemicals at the MRWTP is provided below.

Chemicals used in the system include:

- Lime ($Ca(OH)_2$)
- Ferric sulfate ($Fe_2(SO_4)_3$)
- Sulfuric acid ($H_2(SO_4)$)

- Flocculant (DAF-30 anionic polymer)

Lime Storage and Slaking

The new MRWTP will utilize the existing lime slaking facility that is part of the PDWTP. Calcium oxide (CaO), as pebble lime, is delivered in bulk to the project site and stored in a vertical storage silo (approximately 100 tons of dry storage capacity). Lime is fed from the silo to the Metals Removal Building in an enclosed screw conveyor, fed to the lime slaker where the lime is hydrated, mixed with water to create a slurry, and then fed into a lime slurry tank for transfer from the existing PDTWP pumped loop system via Lime Slurry Pumps (840-PU-021A/B) to the Moly Mix Tank (860-TK-004) in the Moly Process Building (or to the reactor tanks for the metals removal process), see Figure 1. In the Moly Mix Tank, the lime will be mixed by an agitator with the returning recycled sludge and fed to the lead reaction tank to provide additional solids to aid in settling.

Any lime slurry spilled will be contained within the Metals Removal Building trench drain and Plant Sump (840-SU-016) or the MRWTP Moly Process Building trench drain system and Moly Process Building Sump (860-SU-030), and ultimately returned to the plant feed or reaction tanks. The lime slaking system is designed for adequate dust control and grit handling. Additionally, because the lime system may become caked with deposits, adequate redundancy is provided using redundant lime recirculation pumps.

Ferric Sulfate

Ferric sulfate will be delivered in bulk as a granular product to the project site and stored in the Ferric Sulfate Silo (860-SI-020). This granular ferric sulfate will be fed from the silo into the Ferric Sulfate Mix Tank (860-TK-020) via an enclosed screw conveyor (860-CV-020), mixed with water to create a slurry, and pumped to the Ferric Sulfate Storage Tank (860-TK-021). This tank sits on a concrete apron that acts as a foundation to the ferric sulfate silo and contains the Ferric Sulfate Silo Sump (860-SU-020) that will capture any spilled material and transfer it to the Moly Process Building Sump (860-SU-030).

Ferric sulfate will be dosed by the Ferric Sulfate Metering Pumps (860-PU-021A/B) to the reactor tanks to encourage co-precipitation of iron. For influent molybdenum concentrations within the range of average conditions, 1 to 5.5 mg/L, ferric sulfate is added at a 4:1 iron to molybdenum ratio (by weight) and will be added into the lead reactor tank. Ferric sulfate can be added at up to a 6:1 iron to molybdenum ratio when the influent molybdenum is greater than average conditions based on regular laboratory testing.

The made-up ferric sulfate slurry will be stored in a fiberglass reinforced plastic (FRP) tank (approximately 3,800-gallon capacity). The ferric sulfate storage is in an isolated room on the southeast side of the Moly Process Building. The tank will be located over an epoxy coated secondary containment area that can hold over 110% of the volume of the storage tank, isolated from the plant-wide sump system. The ferric sulfate storage room will also be equipped with appropriate ventilation and fire protection systems to maintain a safe working environment. The ferric sulfate will be pumped to Moly Reactor Tank #1 (860-TK-002) and Moly Reactor Tank #2 (860-TK-003) using the positive displacement metering pumps referenced above.

Sulfuric Acid Storage and Distribution

Sulfuric acid will be used for pH control in the reactor tanks. Sulfuric acid will be delivered in bulk to the project site and stored in the Sulfuric Acid Tank (860-TK-044) in the sulfuric acid chemical storage room. Sulfuric acid will be dosed by the Sulfuric Acid Pumps (860-PU-044A/B), which will pump sulfuric acid from the Sulfuric Acid Tank (860-TK-044). The Sulfuric Acid Tank (860-TK-044) is filled from the loadout area located adjacent to, and just north of, the Ferric Sulfate Silo. This chemical is expected to be used whenever ferric sulfate addition and sludge recycle are not sufficient to lower pH to 5.0. If the ferric sulfate addition brings the pH of the system below the setpoint, additional lime will be added to reach the target pH setpoint of 5.0. Additional sulfuric acid metering pumps (860-PU-044C/D) will pump sulfuric acid to the reaction tank on a volumetric basis when molybdenum concentrations are at or below approximately 3 mg/L to assure the addition of lime solution which enhances water chemistry for molybdenum coprecipitation per pilot benchwork.

The sulfuric acid will be unloaded into a dual-contained crosslinked polyethylene tank (approximately 4,400-gallon capacity). The sulfuric acid storage is in an isolated room on the southeast side of the Moly Process Building. The tank will be located over an epoxy coated concrete secondary containment area that can hold over 110% of the volume of the storage tank, isolated from the plant-wide sump system. The sulfuric acid storage room will also be equipped with appropriate ventilation and fire protection systems to maintain a safe working environment. The tank and truck unloading areas will also have containment for spills. The sulfuric acid will be pumped to the Moly Mix Tank (860-TK-004), Moly Reactor Tank #1 (860-TK-002), and Moly Reactor Tank #2 (860-TK-003) using the positive displacement metering pumps referenced above.

Flocculant

Flocculant is used to enhance sludge densification in the thickeners. Flocculant will be delivered to the project site as a solid powder in 2,000 pound (lb) super sack bags and polymer will be made in batches as necessary. Any flocculant spill will be contained within the MRWTP Moly Process Building trench drain system and Moly Process Building Sump (860-SU-030), and ultimately returned to the reaction tanks.

The Moly Splitter Box (860-SB-001) can be supplied with a flocculant solution pumped from two of the Moly Flocculant Pumps (860-PU-016A/B/C), each dosing at a rate set by the operator and proportional to the flow through each side of the Splitter Box (860-SB-001). This flocculant solution will join a stream of process effluent water via Flocculant Dilution Pump #1 and #2 (860-PU-015E/F) to promote mixing of the flocculant before it enters the splitter box.

Flocculant will typically be dosed at the centerwell of each Thickener. Up to six dosing locations are provided in the centerwell piping of each Thickener. This flocculant solution will join a stream of process effluent water via Flocculant Dilution Pump #1 and #2 (860-PU-015E/F) to promote mixing of the flocculant before it enters the centerwell.

Containment Measures

General Building Containment Measures

The floors of Moly Process Building are sloped away from the entrances to the building and towards the trench drains that feed the Moly Process Building Sump (860-SU-030). All components located inside the Moly Process Building, or in the utility chase that runs under the Moly Thickeners, are contained in and/or pumped to the Moly Process Building Sump. The exception to this is the Ferric Sulfate Storage and Sulfuric Acid Storage, both of which are in isolated rooms on the southeast side of the Moly Process Building kept hydraulicly separate from the rest of the MRWTP flows. The building apron and associated containment was also designed to withstand equipment, snow, wind, impact, and seismic loading. A corrosion resistant concrete was used at the entrances to the building to prevent corrosion during the winter when salt is applied to walkways.

Outside of the footprint of the Moly Process Building are the Ferric Sulfate Silo and mix tank, which are contained within the Ferric Sulfate Silo Sump (860-SU-020) and the sulfuric acid truck unloading containment sump.

Sumps, Vaults, Drains, and Trenches

The Moly Process Building includes a general Moly Process Building Sump (860-SU-030) which will receive flow from the following sumps, drains, or trenches:

Moly Process Building Floor Drains/Trenches (Trench layout plan and sections included in drawing no. 861-1A-S-103, 861-1A-S-104, 861-1A-S-105, and 861-1A-S-106 (Appendix A))

- Ferric Sulfate Silo Sump (860-SU-020) via the Ferric Sulfate Silo Sump Pump (860-PU-020C)
- Moly Thickener #1 Sump (860-SU-032) via the Moly Thickener #1 Sump Pump (860-PU-032)
- Moly Thickener #2 Sump (860-SU-033) via the Moly Thickener #2 Sump Pump (860-PU-033)
- The plant feed line from the Feed Water Tank (840-TK-001) drain
- Other associated system drains

Liquid that accumulates in this sump are pumped back to the lead Moly reactor tank. If the pumps fail, the sump will overflow through an underground pipe to the Moly Process Building Overflow Vault, which routes water via gravity to the Mayflower Return Sump in the PDWTP.

The Moly Process Building also includes the following containment sumps that are not hydraulicly connected to any other systems:

- Ferric Sulfate Containment Sump (860-SU-021)
- Acid Containment Sump (860-SU-044)

The containment facilities provided in the MRWTP and their design details are included in Table 2.

Table 2: Containment Facilities in the MRWTP

Sumps and Vaults	Equipment ID	Working Volume
Moly Effluent Vault	860-SU-015	71,500 gal
Moly Process Building Sump	860-SU-030	10,000 gal
Moly Process Building Effluent Overflow Vault	860-SU-045	4,750 gal
Ferric Sulfate Silo Sump	860-SU-020	400 gal
Ferric Sulfate Containment Sump	860-SU-021	4,250 gal (110% of maximum tank volume)
Moly Thickener #1/2 Sump	860-SU-032/033	350 gal
Acid Containment Sump	860-SU-044	4,825 gal (110% of maximum tank volume)
Acid Unloading Containment Sump	860-SU-044A	3,300 gal (110% of maximum truck volume)

Avalanche Protection

The proposed avalanche mitigation is a flexible fence-like structure. The barrier will be the Geobrugg RXI-200 system, or similar, and consists of a ring net of high-tensile steel wire with a tensile strength of at least 1770 Newtons (N) per square millimeter (mm^2) and a diameter of 3 mm, attached to a wire mesh. The structure height will be a minimum of 4 meters and anchored by steel posts in a concrete foundation at approximately 5-meter spacing. Additional support is provided by wire ropes anchored to base plates in a concrete foundation. The structure will be installed upgradient of the existing PDWTP and proposed MRWTP process buildings, including upgradient of the transformers for both facilities. The location is shown on Drawing 860-1A-C-104.

Property Rights, permits, and other approvals

The PDWTP is located within the “affected land” boundary as classified under Climax’s existing Mine Reclamation Permit (Permit # M-1977-493), issued by the Colorado Division of Reclamation, Mining and Safety (DRMS). Affected land is defined by DRMS as the surface of an area where a mining operation is being or will be conducted, which surface is disturbed because of such operation.

Climax Mine operates under numerous specific regulatory permits. Permits pertaining to environmental controls are regulated by the State of Colorado and are public information. Copies of these permits and authorizations are available at the agencies listed. Table 3, below, includes the permits, licenses and authorizations for the Climax Mine relative to the PDWTP and MRWTP.

Table 3: Climax Mine Permits and Authorizations Relative to the PDWTP and MRWTP

Agency	Item	Description	Status	Term
Colorado Division of Reclamation, Mining and Safety	Reclamation Permit M-1977-493, Amendments and Technical Revisions	All aspects of construction, operations and reclamation	Current	Life of Mine
Colorado Department of Public Health and Environment; Water Quality Control Division	CDPS #CO-0000248	Discharge of process and storm water from Outfall 001 to Tenmile Creek	Current	5-year permit term, Renewal Application submitted 9/22/2017, Administratively Extended
Colorado Department of Public Health and Environment; Water Quality Control Division	Molybdenum Temporary Modification	Temporary Modification to the Molybdenum Standard on Blue River Segment 14 (COUCBL14) in the Upper Colorado River Basin, Regulation 33	Current	Expires June 2023
Colorado Department of Public Health and Environment; Water Quality Control Division	Storm Water Permit # COR-040178	General Permit associated with metallic mining operations	Current	Renewed every five years. Renewal application submitted 7/19/2011, Administratively Extended
Colorado Department of Public Health and Environment; Water Quality Control Division	Potable Water System ID #C00233300	Non-transient, Non-community potable water treatment system	Active	Life of System
Colorado Department of Public Health and Environment; Air Quality Control Division	Air Quality Operating Permits – Synthetic Minor #04LK0877	Construction Air Permit – Initial Approval. Climax Mine/Mill	Current	Modification 6 issued 2/3/2021
Colorado Department of Public Health and Environment; Hazardous Materials and Waste Management Division	Hazardous Waste EPID No. COD - 0730407421	Accumulation and storage of hazardous waste and materials	Current	Updated Annually
Colorado Department of Public Health and Environment; Radiation Control Division	Radiation License CO 917-02, Amendment 11	Use and storage of items containing radioactive elements	Current	5-year license, expires 1/31/2026

Agency	Item	Description	Status	Term
U.S. Department of Transportation	Hazardous Materials Transportation Registration	Management of shipped and received hazardous materials	Current	Renewed annually

Permits Required for the MRWTP

The federal, state, and local permits and approvals that will be required specifically for the MRWTP, in addition to the Summit County 1041 permit, are described below.

<u>Technical Revision to Mine Reclamation Permit</u>
After approval of this TR, Climax will submit a certification and PE stamped/signed as-builts from the Engineer of Record to DRMS as required by Rule 7.3. upon completion of construction. Climax will also update its Environmental Protection Plan (EPP) during the next update cycle to include this facility.

<u>Summit County Building Permits and Grading, Excavation and Access Permits</u>
Building permit applications will be submitted to the Summit County Building Department for the MRWTP. The building permit applications will include a site plan, floor plans, exterior elevations, foundation and framing plans, and all other required materials. The grading and excavation permit application will be submitted to Summit County with the building permit applications.

<u>Construction Storm Water Permit</u>
Climax will submit a general permit application for Storm Water Discharges Associated with Construction Activities (Storm Water Construction Permit) at least 10 days prior to the start of construction activities. A Storm Water Management Plan (SWMP) will be prepared prior to the submittal of the storm water permit application and will include BMPs for controlling erosion and sedimentation associated with site construction.

<u>Construction Dewatering</u>
In accordance with the provisions of the Colorado Water Quality Act and the Clean Water Act, Climax will submit an application to the WQCD of CDPHE for construction dewatering at least 30 days prior to the anticipated date of discharge. The permit will allow construction discharge from an approved location to Tenmile Creek, in accordance with effluent limitations, monitoring requirements, and other conditions to be set forth in the permit.

<u>Other Permits Reviewed, But Determined to Not Be Required</u>
Climax reviewed other permit requirements as they related to the MRWTP for air quality, wetland, septic, and potable water and determined that no additional permitting is required for these aspects of the project.

Water Rights

Although Climax intends to maximize the recycling and reuse of water within the system, the water balance for the site is such that under certain conditions there is a need to introduce fresh water into the system for use in the milling process. If necessary, fresh water can be diverted into the system, at several diversion points within the basin, identified as the Climax Water Supply System under a readjudication decree (Case Nos. 92CW233 and 92CW336) approved by the Water Court in 2001. The readjudication decree allows flexibility so that water can be diverted at multiple locations on the Climax property. Water that fills the reservoirs, TSF water pools, and the underground levels of the existing mine are accounted for as part of the streamflow depletion pursuant to the decree. The terms and conditions of the readjudication decree limit the amount of water Climax is allowed to deplete from Tenmile Creek and the upper Eagle River each month and each year.

The PDWTP (and by extension the MRWTP) does not or will not cause or create a diversion. Water to be delivered for treatment is essentially an extension of the pipeline that currently delivers water from the Mayflower TSF to Tenmile Creek. Consumptive uses at the PDWTP are negligible. The small amount of water consumption associated with domestic use (bathrooms, eye washes, etc.) or other evaporative losses is included in the Climax decree in Paragraph 6.1.4.e (cited below) as 2.3 acre-feet per month:

> "Miscellaneous water consumption includes water consumed in product moisture and stream loss, water consumed in mill dust collectors, water used in concrete production, domestic water use, and evaporation from various process facilities and holding tanks."

The water to be treated at the PDWTP has already been diverted at other Climax facilities in accordance with the existing decree and will merely be treated at the PDWTP before discharge. Paragraph 6.1.1.b of the decree states:

> "Notwithstanding the cumulative diversion limitations described above, water may be temporarily detained by the Applicant as is necessary for water pollution and flood control emergencies at the Climax Mine. Such water shall be released, without diminution in volume, after temporary detention and/or treatment."

Financial Assurance

Currently, Climax accounts for operation and maintenance (O&M) costs for water treatment at closure in its reclamation bond calculation. Climax will include O&M costs for this plant in its next reclamation plan and bond update in 2024 prior to commissioning the MRWTP.

Climax is subject to a temporary modification for molybdenum, which requires it to meet current conditions. The temporary modification has been granted by the Water Quality Control Commission in recognition of the uncertainty about this molybdenum standard. The current mine plan requires Climax to take the interim step of constructing a water treatment plant to treat molybdenum during operations, until the uncertainty about the standard can be resolved by the Water Quality Control Commission.

Appendix A – IFC Drawings

- **00 – 2022 IFC GENERAL**
- **01 – 2022 IFC CIVIL**
- **02 – 2022 IFC ARCHITECTURAL**
- **03 – 2022 IFC PROCESS**
- **04 – 2022 IFC STRUCTURAL**