Climax Molybdenum Company – Climax Mine, CO
Permit M-1977-493
2024 Reclamation Cost Estimate Update

1 General Reclamation Update 1

2 Site-Specific Reclamation Planning 1

2.1 Storke Complex 2

2.2 Open Pit 2

2.3 Mine Mill Complex 2

2.4 North 40 OSF 3

2.5 McNulty OSF 3

2.6 Tenmile TSF 4

2.7 Tenmile Tunnel 4

2.8 3 Dam 4

2.9 Pond Shop 5

2.10 Mayflower TSF 5

2.11 East Side Channel 5

2.12 Mayflower Seepage Collection Ponds and Pumpback Building 5

2.13 Robinson TSF 5

2.14 1 Dam 6

2.15 Roads 6

2.16 Robinson Lake 7

2.17 5 Dam 7

2.18 Revegetation 7

2.19 Seal Underground Mine Openings 8

2.20 Mobilize and Demobilize 8

2.21 Buffer Zone 8

2.22 Impacted Water Treatment 8

2.23 Demolition – Former Mine 8

2.24 Demolition – Linear Facilities 10

2.25 Disposal of Reagents 10

2.26 Maintenance and Environmental Control 10

2.27 Monitoring 10

3 RECLAMATION COSTS 11

3.1 Indirect Costs 11

3.2 Repurposing 11

4 COST MODEL INSTRUCTIONS 11

4.1 General Inputs 11

4.2 Project Inputs 12

5 REFERENCES 13

1 General Reclamation Update

There are many areas of the Climax property that have been disturbed during the past approximately 100 years of mining activities. This reclamation plan for the Climax Mine continues to outline specific reclamation strategies for all existing and anticipated new disturbances towards a focus of long-term water management and treatment. As agreed with DRMS, this update uses the interim 5-year mine plan as its basis (end of 2028).

This update to the Climax reclamation cost estimate approved by DRMS as AM-06 (2011) was developed in response to Climax's 5-year cost revision (2023). The following key elements have been evaluated for this update:

- 2028 projected facility limits for the North 40 Overburden Storage Facility (OSF), McNulty OSF and Mayflower Tailings Storage Facility (TSF).
- Conceptual regrade designs and stormwater channel layouts for the OSFs based upon the projected mine plan (see Exhibit F, Figures F-01 to F-07).
- Current plan for the proposed East Side Channel extension and East Side Pipeline alignments (see updated Exhibit G, Figure G-04).
- Updated construction approaches for Tenmile Tunnel, Roads, and Revegetation.
- Updated unit rates, production calculations, and correction factors using past Climax and Henderson project experience, specific industry quotes, CostMine (2023), the Caterpillar Handbook (2018), and RSMeans (2023).
    - All earthwork quantities are neat line quantities ~~and do not account for swelling, shrinking, or bulking~~. All earthwork material is from stockpiles that have been previously excavated and placed in stockpiles. ~~Therefore, no swell is expected in the volumes provided.~~Swell factors were applied:
        - Cover material 1.2
        - Overburden 1.3
    - Productivity factors minimally vary between facilities. The Cost Model Excel file (Attachment A) presents the factor for each facility ~~for each facility~~.
    - For the vast majority of facilities, the following assumptions were used:
        - Load and haul material consistency factor: 1.~~0~~ 1 (roughly equivalent to consolidated stockpile).
        - Dozer productivity spreading the cover material;1.2 (loose stockpile).
        - Regrading the mill complex: 0.8 (dry non-cohesive).

2 Site-Specific Reclamation Planning

As specified in the permit amendment AM-06, specific reclamation strategies have been outlined for all areas of the mine. This narrative describes reclamation plans for all areas including the Open Pit, Robinson Lake, the mill area, the 4 tailing dams, the 2 OSFs, and the 3 TSFs. It also refers to the long-term strategy for site-wide water management and demolition of structures upon cessation of mining. Figures F-01 to F-07 in Exhibit F and Figures G-01 to G-09 in Exhibit G were utilized as the basis for the proposed final reclamation design and

illustrate the final facility layout with respect to post-mine land use. Since the approval of the 2019 Reclamation Cost Estimate, five key Technical Revisions (TRs) have been approved (TR-31, TR-22, TR-33, TR-34, and TR-35) for which closure components have been referenced herein as part of this reclamation cost update.

Quantities used in the cost model are measured from AutoCAD files for the figures included in Attachment F and G. Table 1 presents a summary of the quantities used for each facility.

2.1 Storke Complex

Most of the Storke Complex has been reclaimed and the bond released. No costs are included in this update.

It is assumed that, with improvements to the interceptor channels, the drainage area that reports to the existing Storke Wastewater Pump Station (SWPS) could be reduced from the current 93 acres to about 30 acres (Exhibit G).

2.2 Open Pit

The open pit will not be revegetated due to accessibility and safety concerns. Thus, most of the open pit will be designated a talus community. The final slopes will likely remain at their existing configuration. Weathering, raveling, and ice action will cause natural reshaping of the benches and highwalls over time which will soften visual impacts. Administrative controls will be maintained to control public access via approximately 40 “No Trespassing” signs which will be installed approximately every 300 feet around the perimeter, where access is reasonable.

It is assumed that the open pit would be allowed to fill with water to a level well below the top of the Mosquito Fault (11,113 feet), which provides containment of the impacted water. The water in the pit would be impacted and require treatment prior to release to Tenmile Creek. It is assumed that the elevation of the water level in the pit lake would be approximately 11,000 feet, which results in a water surface area of about 77 acres (Exhibit G).

Approximately 2,354,000 cubic yards (cy) from the overburden pile located south of the mill area along and below Ceresco Ridge in the Arkansas River basin will be excavated and hauled to the pit bottom.

On the margins of the pit, where slopes are less steep, some revegetation may be possible (per DRMS requirements). In these cases, up to an estimated ~~27~~26,~~000~~ 560 cy of reclamation cover will be hauled from the McNulty OSF stockpiles to the open pit periphery and revegetated with the alpine seed mixture.

The AM-06 cost for this project area included the installation of a 2,800 linear feet (lf) pipeline as part of a pit dewatering system. Climax will construct a pit dewatering system as part of production operations and it will remain in place after mining ceases (per TR-24).~~, therefore, T~~the post mining cost for this item ~~has been~~is included.~~ eliminated.~~

2.3 Mine Mill Complex

Buildings, utilities, processing equipment, and other above-ground structures and materials no longer required during the post-reclamation period will be demolished. The Mine Mill Complex area will then be regraded and reclaimed. Demolished material that is not practicably recycled will be disposed by burial on site. Based on a new 5-year mine plan, footprints for the North 40 and McNulty OSFs have been revised. As such, approximately 117 acres with steep slopes will be regraded in the Mine Mill Complex at year end 2028 for a total of approximately 950,000 cy. This area and adjacent flat area (241 acres) will then be covered with a minimum of 24 inches reclamation cover and revegetated with the alpine seed mixture. Reclamation cover will be hauled from the Southeast and North McNulty topsoil stockpiles (Figure F-02). It is assumed that surface drainage from this reclaimed area would eventually be clean water (Exhibit G). Demolition costs for the structures in the Mine Mill Complex are addressed in Sections 2.23 and 2.24; revegetation costs are addressed in Section 2.18.

It is assumed that surface drainage from this reclaimed area would eventually be clean water. The regrading design includes drainage channels to collect the surface runoff and convey it to the East Side Channel (ESC). It is also assumed that subdrains will be required to collect impacted water that is expected to be present. The collection channel and subdrain configurations shown on the figure are conceptual. Impacted water would be conveyed to the East Side Pipeline and clean water would be conveyed to the East Side Channel (Exhibit F, Figure F-03).

The work involves the construction of approximately 10,100 lf of lined diversion channel using riprap. The impacted water from this system would be conveyed to the East Side Pipeline via 12,400 lf of impacted surface water channel. In addition, stormwater controls will include 11,500 lf of impacted water pipeline, and 4,800 lf of impacted water collection drains.

2.4 North 40 OSF

Climax expects the low-grade ore in the North 40 OSF will have been removed and processed prior to closure. However, the cost estimated conservatively assumes the material will remain at the end of mining and requires reclamation.

The North 40 OSF final reclamation will not be completed until the OSF is no longer required for production and will occur over a period of 5 years. By 2028, it is anticipated that the North 40 OSF may have reached its life of mine (LOM) limits. Regrading of the OSF for closure will be no steeper than 2H:1V interbench (per TR-22) with some areas considerably less steep, for a total of approximately 1,919,000 cy. Surface water channels will be constructed every 55 vertical feet on the benches to convey surface runoff to downdrains, resulting in 45,600 lf of vegetated bench channels.

A collection drain system will be installed on the south and north ends to collect impacted seepage from the facility. The impacted water from this system would be conveyed to the East Side Pipeline. In addition, stormwater controls will include 3,200 lf of impacted water pipeline, and 4,100 lf of impacted water collection drains.

Reclamation cover to be salvaged from the ultimate footprint of the McNulty OSF will be stockpiled at two stockpiles to the immediate north and northeast of the North 40 OSF. As such, approximately 235 acres will be covered at the North 40 OSF for a total of 760,000 cy of reclamation cover which will be hauled and placed over the regraded surface for a total of 24 inches of growth medium to be revegetated with the alpine seed mixture.

The work involves the construction of approximately 8,300 lf of lined diversion channel using riprap. The riprap unit cost is from RSMeans (2023) and adjusted for Western Colorado. An additional 4,500 lf of articulating concrete block (ACB)-lined down drains will be constructed on the reclaimed dump surface (per TR-25). The ACB (articulated concrete block) unit rate is based on actual costs for similarly constructed reclamation channels (Miami Mine, Arizona 2023). The unit rates are adjusted for local material costs and contractor rates.

2.5 McNulty OSF

Some portions of the McNulty OSF may be reclaimed concurrently with production, but final reclamation will not be completed until the OSF is no longer required for production. By 2028, it is anticipated that the McNulty OSF will be regraded in a similar manner as the North 40 OSF which includes 2H:1V interbench slopes (per TR-22) for a total of approximately 9,253,000 cy (see Exhibit F, Figure F-03). Approximately 132,400 lf of vegetated collection channels will be constructed on the benches at 55-foot vertical intervals.

Reclamation cover to be salvaged from the regraded footprint of the McNulty OSF will be stockpiled in one of four adjacent locations. According to the 2028 mine plan, approximately 683 acres will be covered at the McNulty OSF for a total of 2,187 ~~206~~,000 cy of reclamation cover which will be hauled and placed over the regraded surface

for a total of 24 inches of reclamation cover. After reclamation cover placement, all areas that received reclamation cover will be seeded with the alpine seed mixture.

Figure F-04 (Exhibit F) illustrates the final LOM configuration for the stormwater controls on the OSF to be constructed during the reclamation project. These include down drains, bench channels, and perimeter diversion channels, a portion of which will be needed under the 2028 closure plan scenario. Fresh water intercepted from above the McNulty OSF would be conveyed by open channel to the East Interceptor or the ESC (see Figure G-06).

The work involves the construction of approximately 16,100 lf of lined diversion channel using sized riprap, 7,300 lf of ACB-lined down drains, impacted water surface channels, 3,400 lf of impacted water collection drains and 1,300 lf of impacted water pipeline.

2.6 Tenmile TSF

Tenmile TSF will be reclaimed after it is no longer required for production operations. Tenmile TSF will be reclaimed with a dry cover. The majority of the surface will be capped. A small depression will remain in the southwest corner. The surface of the TSF will drain towards the southwest, where surface runoff will flow to the Tenmile Riser tunnel (Exhibit G, Figure G-08).

The dry tailings area will be capped with a minimum of 24 inches of reclamation cover material over 625 acres for a total of approximately 2,077,000 cy. Approximately 3 percent of the total TSF area will be capped with a minimum of 48 inches of reclamation cover material to promote tree growth. It is assumed that the surface runoff from Tenmile TSF will eventually be clean and discharge into the Tenmile Tunnel Extension (north).

The tunnel north portal is too low to discharge into the West Interceptor. Therefore, Figure G-08 shows a new pipeline/channel across 3 Dam to convey the clean runoff to the ESC. This system would also intercept clean surface water runoff from the reclaimed (or downstream) face of 3 Dam.

A surface flood emergency spillway (1,700 lf) will be required that would discharge to the east side of the valley into the ESC. A conceptual location of a spillway channel is shown on Figure G-08. The work involves the construction of approximately 13,500 lf of lined clean water diversion channel using sized riprap, and 7,000 lf of impacted water pipeline.

2.7 Tenmile Tunnel

The Tenmile Tunnel will be used as the operational water control and spillway off the TSF. It is assumed that the original Tenmile Tunnel (south) will be decommissioned and plugged with a concrete bulkhead (Exhibit G). It is assumed that the surface runoff from Tenmile TSF will eventually be clean and discharged into the Tenmile Tunnel Extension (north). Bulkhead dimensions are presented in Attachment A:

10 ft X 10 ft X 15 ft

Closure costs for this facility have either come from the AM-06 estimate or from recent similar projects. Each bulkhead will be constructed with reinforced concrete keyed into the ribs and back.

2.8 3 Dam

3 Dam was reclaimed in its current configuration during the mid-1990s. Reclamation is partially complete on 3 Dam, and the bond has been released on those completed areas. The lower portion of Dam 3 will be inundated by expansion of the Mayflower TSF. The dam has been raised since the 1990s. Approximately 29 acres will be covered with 2 feet of reclamation cover material and revegetated with the standard upland seed mix.

The tunnel north portal is too low to discharge into the West Interceptor. Therefore, Figure F-05 shows a new channel (2,800 lf) across 3 Dam to convey the clean runoff to the ESC. This system would also intercept clean surface water runoff from the downstream face of 3 Dam.

2.9 Pond Shop

The Pond Shop itself will be demolished under a different task. However, some basic soil reclamation will still be required at the Pond Shop site. This will include a minor amount of regrading and import of just over 500 cy of cover material. The upland standard seed mixture will be applied to the cover material.

2.10 Mayflower TSF

A portion (701 acres) of Mayflower TSF will be reclaimed when it is no longer needed for production. However, the southwest portion of Mayflower TSF where the existing decant pool is located will be used for water treatment as long as it is necessary to provide detention storage for the water treatment system. A detention storage area and several sludge cells will remain on the surface of Mayflower TSF as the operation of the PDWTP continues into the post-closure period. The bonding estimate assumes that water treatment will continue for 10 years (see Section 2.22 Impacted Water Treatment), so the pool area and sludge cell will be reclaimed in year 10 post closure.

The Mayflower TSF will be reclaimed with a cover system similar to that constructed on Tenmile TSF. The cover areas will be capped with a minimum of 24 inches of cover material. Approximately 3 percent of the total TSF area will be capped with a minimum of 48 inches of reclamation cover material to promote tree growth, resulting in an import of approximately 2,933,000 cy of material for the 5-year mine plan at year end 2028. Reclamation cover will come from the nearby stockpiles. The dry cover will be seeded with the upland seed mixture.

A clean water surface channel will be constructed on the TSF surface to convey runoff to an emergency spillway that will flow to the East Side channel extension. This could be the existing Mayflower Tunnel or a new surface spillway channel that would discharge to the east side of the valley into the ESC. Both systems are shown on Exhibit G, Figure G-09. For bonding, we have assumed the surface spillway will be constructed. The ESC will be extended resulting in 21,300 lf of clean water channel, 26,300 lf of impacted water pipeline and 2,200 lf of spillway.

2.11 East Side Channel

The East Side Channel system diverts un-impacted stormwater run-on along the east side of the affected areas from Camp (Mine Mill Complex) to Tenmile Creek below the Mayflower TSF Seepage Collection Ponds. The work involves the construction of an additional 14,800 lf of lined diversion channel using sized riprap. Costs for this channel are included in the Tenmile (5,100 lf) and Mayflower (9,700 lf) TSF estimates.

2.12 Mayflower Seepage Collection Ponds and Pumpback Building

The Mayflower Seepage Collection Ponds and Pumpback Building itself will be demolished under a different task. However, some basic soil reclamation will still be required at this building site. The upland standard seed mixture will be applied to the reclamation cover material. This closure task also includes backfilling and capping the Seepage Collection Ponds. In total, this will include approximately 34,000 cy of regrading and import of just over 2,700 cy of reclamation cover for the area.

2.13 Robinson TSF

Robinson TSF reclamation began in the 1980s and is ongoing. The majority of the surface has been capped with overburden rock and covered with a compost generated on site to attempt to create suitable growth media

and most of that area has been revegetated. Climax ultimately intends to close Robinson TSF with a dry cover. It is currently estimated that approximately 457 acres will be covered with reclamation cover at 24 inches thick. Approximately 3 percent of the total TSF area will be capped with a minimum of 48 inches of reclamation cover material to promote tree growth, resulting in a total reclamation cover volume of 1,530,000 cy. However, portions of that 455 acres to be reclaimed will require additional soils cover to eliminate the low spot where the decant pool was situated for a thicker total cover, therefore, this cost update accounts for a total of 380,000 cy of fill material that will be sourced from reclamation cover stockpiles. This fill volume is separate from the 1,~~576~~530,000 cy of reclamation cover placed on the finish grade surface of the TSF.

The existing pool area (approximately 60 acres) will be dried out, regraded, and covered appropriately. The surface would be sloped to drain east to the ESC to achieve a positive drainage configuration.

The compost production area is on the Robinson TSF and will be reclaimed once the existing composting operation is complete. In addition, there are several roads on the surface of the Robinson TSF that are still required for production and reclamation activities.

A clean water surface channel will be constricted on the TSF surface to covey runoff to the ESC. This will require in 9,700 lf of clean water channel and 8,200 lf of impacted water pipeline.

2.14 1 Dam

Reclamation on the remaining unreclaimed portions of the 1 Dam face requires a reclamation cover (24 inches) over a 127-acre area (410,000 cy) for revegetation.

It is assumed that 1 Dam will continue to generate impacted seepage for an extended period of time post closure. Therefore, the existing seepage collection system and Warren's Pump System would continue to be required at closure (Exhibit G). A clean water surface channel will be constructed as shown on Figure G-07 (Exhibit G). The open channel would intercept clean surface water runoff from the face of the dam and convey it around the seepage collection system. Approximately 5,900 lf will be constructed.

2.15 Roads

Roads not to be retained for post-mining land use will be reclaimed after they are no longer needed for mining and reclamation purposes. Roads which are not permanent will be regraded as necessary to blend with the adjacent terrain and to meet natural drainage patterns. Following regrading, reclamation cover will be applied and seed will be spread. The seed mixture will be the alpine mixture for roads east of State Highway 91 and upland seed mixture for roads west of State Highway 91. The entrances to reclaimed roads will be blocked by barriers of native rock or earthen berms to prevent vehicular access but allow wildlife access. The following roads are most likely to be reclaimed: switchbacks on Little Bartlett Mountain (which are scheduled for haul truck access improvements over the next few years); access roads at the toes of 1 Dam and 4 Dam; various roads between 3 Dam and Mayflower TSF; various roads northeast and southeast of 5 Dam; and various roads northwest of Mayflower TSF (Figure F-04 and F-05). Approximately 365,000 cy of cover material will be hauled to the road locations for reclamation purposes.

Culverts on roads that are closed will be removed and disposed of in the pit. Table 2 provides a list of culverts to be removed, including diameter, length and material. Removal costs have been added to the cost model Demolition Linear Facilities tab.

2.16 Robinson Lake

Robinson Lake is currently used for process water storage, but it will be reclaimed after it is no longer needed for mineral production operations and converted to a freshwater reservoir. Final reclamation will follow the methods utilized during 2008-2011 by various contractors, including removal of an estimated final 645,000 cy of impacted sediment and sludge to expose a native footprint around the margins of the lake to encourage development of hydric vegetation communities. These areas will also be seeded with the hydric seed mixture.

The AM-06 cost for this project area included some general work items such as mobilization and demobilization, and sediment and erosion control. This update includes these general costs grouped for all areas (see Sections 2.20 and 2.26). Pre-excavation work includes installing diversions and dewatering ($519,326). Finish work includes final recontouring at Robinson Lake. The cost is a lump sum estimate based on actual contractor costs for similar work in 2010. The 2010 costs have been escalated to 2024 costs for inflation based on the increase tin the CPI (37%). No detailed designs are available. A more detailed estimated will be prepared prior to the actual closure date.

Unit rates for the 645,000 cy sludge cleanout for this unique project are partially based on activities during Skanska's successful sludge cleanout during summer and fall 2010. Waste rock will be hauled from the McNulty OSF to construct temporary haul road platforms. 30,000 CY is the quantity that will be hauled from McNulty OSF to Robinson Lake to construct access and work platforms. The cost to load, haul and place the waste rock back to McNulty OSF is included in the cost model. The 645,000 cy of sediment and soil will be excavated and hauled to the Robinson TSF.

Approximately 3,100 lf of clean water channel will be constructed between Robinson Lake and Eagle Park Reservoir and from Chalk Mountain Reservoir to Robinson Lake. Approximately 1,720 lf of impacted pipeline will be constructed between the toe of 1 Dam to Tim's Pond.

2.17 5 Dam

The lower benches of 5 Dam have been reclaimed and bond released. However, an increase in the height of 5 Dam during the course of the current production operations will require reclamation at the completion of the dam construction. 24 inches of reclamation cover will be applied to 61 acres of the dam face for a total of approximately 197,000 cy. After cover application, the upland standard seed mixture will be applied. A surface water collection channel (2,98~~8~~00 lf) would convey clean water to the east for discharge into Tenmile Creek and the existing Mayflower seepage collection and pumping system would continue to operate. Impacted water will be conveyed directly to the PDWTP once converted to 2-stage treatment. Approximately 8,200 lf of impacted water pipeline will connect the existing Mayflower pipeline and the 5 Dam Seepwater Pump Station to the PDWTP.

2.18 Revegetation

Revegetation at Climax has included seeding with three seed mixtures, as well as direct transplanting of trees, shrubs, and herbaceous vegetation.

Revegetation activities which meet the approved approach provided in AM-06 will be followed. This cost includes seeding, mulching and crimping site wide, an area of approximately 3,200 acres or 5 square miles. For approximately 3 percent of the TSF reclaimed surfaced offset at minimum 200 feet from the dam crests, the cover material thickness will be 48 inches to promote tree growth. For cost estimating, planting 450 seedlings per acre has been assumed.

Unit rates are based on recent 2024 contractor bid rates, rates from RSMeans (2023) and seedling cost from CostMine (2023).

In accordance with a recent DRMS requirement, Climax has added a reseeding cost. Based on research and experience conducted by a Climax consultant, a reseeding rate of 10 percent is considered to be a reasonable and supported assumption for reseeding at the site. A replanting rate of 20% is included for tree seedlings.

2.19 Seal Underground Mine Openings

No. 3 Gallery is currently blocked off to prevent access. Upon cessation of mining operations, it would require further work to prevent long-term access. A 2-foot-thick concrete bulkhead is proposed for the No. 3 Gallery closure. Storke Portal currently has ventilation access to the 600 level of the underground workings. Similarly, upon cessation of mining operations, it would require further work to prevent long- term access. A 2-foot-thick concrete bulkhead is proposed for the Storke Portal closure.

The Phillipson Portal will be closed at cessation of by placing a 2-foot-thick concrete bulkhead. The concrete bulkheads are not hydrostatic. They are installed to prevent access by the public.

The dimensions of the openings are:

- Storke Portal: 12 feet X 14 feet
- No. 3 gallery: 8 feet X 8 feet
- Phillipson Portal: 10 feet X 15 feet

2.20 Mobilize and Demobilize

Prior reclamation cost estimates included a minimal total cost for total project equipment mobilization and demobilization. For this cost estimate update, we have assumed mobilization cost will be 5 percent of total direct costs. The percentage is based on federal guidance (USFS 2014).

2.21 Buffer Zone

The concept for a reclamation Buffer Zone around impacted facilities is no longer being required by DRMS.

2.22 Impacted Water Treatment

Water management and site-wide water treatment will continue at Climax long after the cessation of production operations. The AM-06 reclamation cost estimate for hydrologic protection has been updated using actual costs from 2022-2023, which are reflective of a successfully operating downstream water treatment facility, the PDWTP. These baseline costs are based upon a current treatment footprint of approximately 10,000 acre-feet. The post-closure annual volume (currently 3,206 MG/year) is estimated to decrease by approximately 60 percent (1,282 MG/year [see Exhibit G]). Unit costs are based on actual 2022 costs. Estimated additional costs are based on predicted unit cost for the Molybdenum Removal Water Treatment Plant which will come online in 2025. Cost to haul PDWTP water treatment sludge to an approved landfill in Golden, Colorado, is calculated based on a December 2023 estimate (RADPR 2023). The bonding estimate provides for 10 years of water treatment plant operation post-closure.

2.23 Demolition – Former Mine

Asbestos-containing materials (ACMs) will be abated and other regulated materials (universal waste, fire extinguishers, etc.) will be removed prior to commencing demolition. Costs included to abate ACMs is based on a limited site-wide asbestos survey performed in 2018 and 2019. The majority of confirmed ACMs, such as window glaze, caulk, floor tile/mastic, will be abated via glovebag techniques. Surface material, including wall texture, will

require a negative air enclosure. ACMs will be disposed off-site. A comprehensive regulated material survey has not been conducted previously and costs included for this are based on WSP USA Inc.'s (WSP) experience for similar facilities. Regulated materials will be removed, properly packaged, and disposed or recycled (as regulations apply) off site.

Above grade buildings, utilities, processing equipment, and other miscellaneous structures and materials no longer required during the post-reclamation period will be demolished. In accordance with AM-06, Exhibit E, Section E-11.5.2, concrete floors, walls, equipment pedestals, and foundations which are at or near grade will be pulverized in place and buried as part of the mass regrade work. Buried pipe, wire, etc. will be left in place during reclamation if it does not interfere with regrading activities and is non-toxic or not hazardous.

Salvageable materials within structures and facilities, such as equipment, will be retrieved and sold as market conditions allow. All remaining recyclable materials (unwanted equipment, structural steel, paneling, concrete, etc.) will be transported off site for recycling, though no salvage costs are included in this estimate. Material that is not practicably recyclable will be disposed of by on-site burial. Mass regrade will include 2 feet of cover material as discussed in the Mine Mill Complex reclamation of Section 2.3; revegetation is included as part of the site-wide effort in Section 2.18.

Several new structures constructed since the restart of production in 2012 will no longer be required during the post-reclamation period and will be demolished. These structures include the Mayflower Coherex Station constructed in 2014, the Supply Canal No. 2 Pipelines constructed in 2012, the Mayflower Flood Bypass Tunnel constructed in 2012-14 (see TR-21), and a portion of the Mill Return Pipeline in Searle Gulch constructed in 2013. A limited asbestos survey performed in 2018 and 2019 did not identify any ACMs of these features. Other regulated materials (universal waste, fire extinguishers, etc.) will be removed prior to commencing demolition. A regulated material survey has not been conducted previously and costs included for this are based on WSP's experience for similar facilities. Regulated materials will be removed, properly packaged, and disposed or recycled (as regulations apply) off site.

Similar to the former mine structures, above grade portions of the new structures will be demolished. In accordance with AM-06, Exhibit E, Section E-11.5.2, concrete slabs, equipment pedestals, and foundations which are at or near grade will be pulverized in place and buried as part of the mass regrade work. Buried pipe, wire, etc. will be left in place during reclamation if it does not interfere with regrading activities and is non-toxic or not hazardous.

Salvageable materials within structures and facilities, such as equipment, will be retrieved and sold as market conditions allow. All remaining recyclable materials, (unwanted equipment, structural steel, paneling, concrete, etc.) will be transported off site for recycling. Material that is not practicably recyclable will be disposed by on-site burial.

Mass regrade will include 2 feet of cover material as discussed in the Mine Mill Complex reclamation of Section 2.3; revegetation is included as part of the site-wide effort in Section 2.18.

The water treatment plant and SDP are permanent structures, and no bonding is included for removal.

The 4 Dam Seep Pump Station, Robinson Seep Pump Station will be removed at the end of water treatment. ~~,~~ Storke Wastewater Treatment Plant, 5 Shaft Pumping System, and Warren's Pump Station, amongst others, will remain post closure for either continuation of water management. 3 Dam Pump Station is scheduled for demolition on or before 2026 as Mayflower TSF rises.

2.24 Demolition – Linear Facilities

Several linear facilities at Climax will not be needed following cessation of production operations. These include substations and powerlines, pipelines, and similar historic structures. A limited asbestos survey performed in 2018 and 2019 did not identify any ACMs of these features. Regulated materials, such as transformer oils, will be removed and recycled offsite prior to demolition.

Similar to the former mine structures, above grade portions of the features will be demolished. In accordance with AM-06, Exhibit E, Section E-11.5.2, concrete slabs, equipment pedestals, and foundations which are at or near grade will be pulverized in place and buried as part of the mass regrade work. Buried pipe, wire, etc. will be left in place during reclamation if it does not interfere with regrading activities and is non-toxic or not hazardous. Recyclable materials will be transported off site for recycling. Material that is not practicably recyclable will be disposed of by on-site burial.

The tailings disposal pipeline is non-hazardous. Below ground sections of the tailings disposal pipeline will be left in place. There are two types of pipe, HDPE and RCP. Approximately 12,808 LF of above ground RCP sections will be removed and hauled to the pit for disposal. Approximately, 31,594 LF of HDPE pipe will be hauled to an offsite landfill, located in Golden, Colorado. The cost is included in the Demolition tab of the attached cost model.

2.25 Disposal of Reagents

TR-24 Section T-3.5 describes that all chemicals not to be used in the long-term water treatment operations "would be used or removed from the site. Mixed chemicals such as Nokes Reagent in solution would be used in the milling process until depletion of the supplies. The distributor [will] be contacted to assume possession of unmixed and uncontaminated chemicals, and the material [will] be transported off-site in the same manner that it was received at the site." Further, TR-28 presents a current list of reagents being used at the mine. Table T-A-1 provides chemical types, specific product names, storage container types and volumes. For the purposes of this cost estimate update, we ~~have assumed that 100 percent of all chemicals would be used in the milling process until depletion of the supplies once closure has been announced.~~included estimated cost to return reagents to the supplier.

2.26 Maintenance and Environmental Control

AM-06 provided for a significant amount of general maintenance and environmental control activity site-wide during the post-production 4-year reclamation process. This cost item remains unchanged even though some activities are included on a facility-specific basis for some of the other site reclamation projects. Costs are included for continued maintenance for 30 years.

2.27 Monitoring

Costs for water quality monitoring are included in this update. The annual cost $8,800 is based on Climax's current labor to collect samples analytical cost. Per DRMS guidance, the annual cost is escalated by approximately 4 percent per year to account for inflation. The inflation rate is based on the change in Consumer Price Index from December 2018 to December 2023.

The cost to abandon monitoring wells at the end of monitoring is included using unit costs from RSMeans (2023). Thirteen water quality wells will be abandoned with 4-inch polyvinyl chloride (PVC) casing for a total depth of 2,040 lf.

3 RECLAMATION COSTS

The estimated costs for the reclamation activities include the Direct Costs associated with each of the sites described above and the Indirect Costs as discussed below, most of which are a percentage of Direct Costs as required by DRMS. The estimated costs are detailed in the Excel file (Attachment 1).

3.1 Indirect Costs

Approved AM-06 Indirect Cost allocations for Insurances, Bonds, and Contractor Profits are fixed DRMS Direct Cost percentages at 2.02 percent, 1.05 percent, and 10 percent, respectively. The cost for a Job Superintendent "team" was calculated using the labor rates for a period of 3 years. The Financial Warranty Fee of $500 was a rate fixed by DRMS. The final two Indirect Cost categories for Engineering, Bidding, Contracts and Management, Administration have been set to 2 percent and 5 percent, respectively, of the total of Direct Costs, Overhead, and Profit, per DRMS requirements.

3.2 Repurposing

The Climax Mine does not currently propose to pursue the repurposing of select industrial facilities and buildings for use by other entities post closure. Although we anticipate that some building demolition material can be resold, we have conservatively included no credit for salvage value.

4 COST MODEL INSTRUCTIONS

This section describes the system of inputs required by this update to the Climax Mine reclamation cost model.

4.1 General Inputs

The first six worksheets require direct input of the model's operating assumptions. The majority of the cells which require modification have been shaded in green or yellow. Items which change include, but is not limited to:

- Indirect Cost percentage allocations for Insurances, Bonds, and Contractor Profits which are fixed DRMS Direct Cost percentages at 2.02 percent, 1.05 percent, and 10 percent, respectively.
- A 20 percent contingency allowance is included to cover unanticipated costs resulting from unexpected natural events and uncertainties associated with the assumptions that form the basis for the operation and reclamation plans and reclamation cost estimates.
- The cost for a Job Superintendent has been calculated using the labor rates and assuming an on-site presence of 4.5 years.
- The Financial Warranty Fee of $500 is a rate fixed by DRMS.
- The final two Indirect Cost categories for Engineering/Bidding/Contracts and Management/Administration have been set to 2 percent and 5 percent, respectively, of the total of Direct Costs, Overhead, and Profit, in accordance with DRMS requirements.
- Equipment unit rates are obtained from CostMine and RSMeans which obtains Colorado rental rates (generally Caterpillar models).
- The sources of the update to the Materials List are referenced in the table.
- Demolition unit rates are largely provided from the latest RSMeans' *Heavy Construction Cost Data* book, in this case published in 2023.

4.2 Project Inputs

On the Summary tab, the buttons at the top will automatically create new tabs or outputs, as follows:

- Add a GENERAL worksheet: adds a new worksheet for reclamation of a facility or area.
- Add a DEMOLITION worksheet: adds a new worksheet for demolition of a facility or building.
- GO TO Last Active SHEET: returns the user to the previous active worksheet.
- Create PDF copy: allows the user to select which tabs to print to an Adobe Acrobat file.

On the individual project tabs, the buttons at the top of each sheet will automatically create activities and line items, as follows:

- GO TO "SUMMARY" SHEET: returns the user to the Summary worksheet described above.
- Insert a new task HAUL/LOAD: adds new cost line items for a loader-haul truck fleet combination.
- Insert a new task SPREAD (CUYDS): adds a new cost line item for a motor grader (spreading of cover material).
- Insert a new task GRADING (ACRES): adds a new cost line item for a motor grader (grading of haul routes).
- Insert a new task WATER: adds a new cost line item for a water truck (dust control of haul routes).
- Insert a new task MATERIALS: adds a new line item for materials only.
- Add new equipment to look up: takes the user to the Equipment List tab to add a new piece of equipment.
- Add new material to look up: takes the user to the Materials List tab to add a new material.

At each of these prompts, green shaded cells typically indicate where user input is required. In some cases, a Production Table will automatically be created below the Calculations Table from which calculated data will be pulled back into the reclamation cost line item. However, the Production Table must be modified by the user with consideration for two production categories. First, Figure 1 should be consulted (in AutoCAD format) to calculate haulage distances and average road grades, if required. This data should then be taken into consideration for the calculation of haul times between the proposed borrow areas and the reclamation sites. Second, the Caterpillar Handbook, in this case Edition 48 dated June 2018, should be consulted to determine actual production factors for each fleet of equipment generated, including estimates for material swell factors, altitude deration factors (critical at the Climax Mine), average dozer pushes, time trial study methods, equipment operator efficiency ratings, blade correction factors, to name but a few. The green-shaded cells generally require research using the Caterpillar Handbook and sound engineering judgment for reclamation construction projects. Most unshaded cells are either calculated automatically or have been provided with direct input by the user in the Equipment List tab. Finally, the Production Table will indicate an appropriate number of haul units (articulated haul trucks) to be balanced against one loading unit (default for the Climax Mine model is a wheeler loader). This number of haul units should be considered carefully based on reclamation project experience and common sense given the haul distance, road configuration, mine elevation, seasonal impacts, and reasonableness given other site-specific constraints. This haul unit "gut check" should then be modified in the Calculations Table accordingly.

5 REFERENCES

CostMine. (See Infomine USA, Inc.).

Infomine USA, Inc. 2023. Equipment Cost Calculator, 2022 – 2023. https://calc2022.costs.infomine.com. Accessed December 2023.

Caterpillar, 2018. Caterpillar Performance Handbook, Ed. 48

Gordian, 2023, 2024. RSMeans online. https://www.rsmeansonline.com/SearchData. Accessed December 2023 and January 2024.

RS Means (see Gordian).

US Forest Service (USFS). 2020. Cost Estimating Guide for Road Construction. ESDA Forest Service Northern Region Engineering. September 8, 2020

US Department of Labor. 2023. Prevailing Wage Rates (Davis-Bacon). General Decision Number CO20230003. 12/22/2023.

Model Outputs

Attachment A

Requested Data Backup (provided separately)

Davis Bacon rates for Colorado – General Decision Number: CO20230003 09/01/2023

CostMine Equipment rental rates (2023)

RSMeans material and equipment rates (Gordian 2023)

Revegetation Unit rate – RS Means 2023

Table 1 Climax Cover and Grading Closure Quantities

CLIMAX COVER AND GRADING CLOSURE QUANTITIES ESTIMATE			
Date	18-Jan-23	Made by:	MP
Project No.:	31404505.029	Checked by:	AJS
Subject:	Climax Closure Cover and Grading Quantities	Approved by:	RS

Item No.	Item Description	Units	Quantity
100	***Earthworks***		
101	*1 Dam*		
101.1	Closure Cover: Standard Vegetation (2 ft thick)	yd^3	409,051
101.2	Closure Cover Tree Islands (4 ft thick)	yd^3	0
101.3	Access Road Reclamation (Not Including Reclamation Cover)	ac	0
101.4	Fertilize Closure Cover	ac	127
101.5	Seed Closure Cover (Standard Mix, Steep slope)	ac	127
101.6	Mulch on Closure Cover	ac	127
101.7	Clean Water Surface Channel	ft	5,900
101.8	Clean Water Pipeline	ft	0
101.9	Impacted Water Surface Channel	ft	0
101.10	Impacted Water Pipeline	ft	0
101.11	Impacted Water Collection Drain	ft	0
102	*3 Dam*		
102.1	Closure Cover: Standard Vegetation (2 ft thick)	yd^3	94,000
102.2	Closure Cover Tree Islands (4 ft thick)	yd^3	0
102.3	Access Road Reclamation (Not Including Reclamation Cover)	ac	0
102.4	Fertilize Closure Cover	ac	29
102.5	Seed Closure Cover (Standard Mix, Steep slope)	ac	29
102.6	Mulch on Closure Cover	ac	29
102.7	Clean Water Surface Channel	ft	2,800
103	*5 Dam*		
103.1	Closure Cover: Standard Vegetation (2 ft thick)	yd^3	196,170
103.2	Closure Cover Tree Islands (4 ft thick)	yd^3	0
103.3	Closure Cover: Mayflower Seepage Collection (2 ft thick)	yd^4	2,690
103.4	Access Road Reclamation (Not Including Reclamation Cover)	ac	0
103.5	Fertilize Closure Cover	ac	61
103.6	Seed Closure Cover (Standard Mix, Steep slope)	ac	61
103.7	Mulch on Closure Cover	ac	61
103.8	Clean Water Surface Channel	ft	2,900
103.9	Clean Water Pipeline	ft	0
103.10	Impacted Water Surface Channel	ft	0
103.11	Impacted Water Pipeline	ft	8,200
103.12	Impacted Water Collection Drain	ft	0
104	*Robinson TSF*		
104.1	Closure Cover: Standard Vegetation (2 ft thick)	yd^3	1,418,633
104.2	Closure Cover Tree Islands (4 ft thick)	yd^3	109,916
104.3	Access Road Reclamation (Not Including Reclamation Cover)	ac	6
104.4	Fertilize Closure Cover	ac	457
104.5	Seed Closure Cover (Standard seed Mix Flat Areas)	ac	457
104.6	Mulch on Closure Cover	ac	457
104.7	Imported Fill	yd^3	380,000
104.8	Clean Water Surface Channel	ft	9,700
104.9	Clean Water Pipeline	ft	0
104.10	Impacted Water Surface Channel	ft	0
104.11	Impacted Water Pipeline	ft	8,200
104.12	Impacted Water Collection Drain	ft	0

CLIMAX COVER AND GRADING CLOSURE QUANTITIES ESTIMATE

Date	18-Jan-23	Made by:	MP
Project No.:	31404505.029	Checked by:	AJS
Subject:	Climax Closure Cover and Grading Quantities	Approved by:	RS

Item No.	Item Description	Units	Quantity
100	***Earthworks***		
105	*Tenmile TSF*		
105.1	Closure Cover: Standard Vegetaion (2 ft thick)	yd^3	2,000,530
105.2	Closure Cover Tree Islands (4 ft thick)	yd^3	120,502
105.3	Access Road Reclamation (Not Including Reclamation Cover)	ac	7
105.4	Fertilize Closure Cover	ac	625
105.5	Seed Closure Cover (Standard Seed Mix Flat Areas)	ac	625
105.6	Mulch on Closure Cover	ac	625
105.7	Clean Water Surface Channel	ft	13,500
105.8	Clean Water Pipeline	ft	0
105.9	Impacted Water Surface Channel	ft	0
105.10	Impacted Water Pipeline	ft	7,000
105.11	Impacted Water Collection Drain	ft	0
105.12	Decant Pool Spillways	ft	1,700

CLIMAX COVER AND GRADING CLOSURE QUANTITIES ESTIMATE

Date	18-Jan-23	Made by:	MP
Project No.:	31404505.029	Checked by:	AJS
Subject:	Climax Closure Cover and Grading Quantities	Approved by:	RS

Item No.	Item Description	Units	Quantity
106	*Mayflower TSF*		
106.1	Closure Cover: Standard Vegetation (2 ft thick)	yd^3	2,248,108
106.2	Closure Cover Tree Islands (4 ft thick)	yd^3	127,733
106.3	Sludge Cell Closure Cover: Standard Vegetation (2 ft thick)	yd^3	108,000
106.4	Sludge Cell Closure Cover: Tree Islands (4 ft thick)	yd^3	7,000
106.5	Pool Area Closure Cover: Standard Vegetation (2 ft thick)	yd^3	464,000
106.6	Pool Area Closure Cover: Tree Islands (4 ft thick)	yd^3	29,000
106.7	Access Road Reclamation (Not Including Reclamation Cover)	ac	29
106.8	Fertilize Closure Cover	ac	883
106.9	Seed Closure Cover (Standard Seed Mix Flat Areas)	ac	883
106.10	Mulch on Closure Cover	ac	883
106.11	Clean Water Surface Channel	ft	21,300
106.12	Clean Water Pipeline	ft	0
106.13	Impacted Water Surface Channel	ft	0
106.14	Impacted Water Pipeline	ft	26,300
106.15	Impacted Water Collection Drain	ft	0
106.16	Decant Pool Spillways	ft	2,200
107	*Robinson Lake Area*		
107.1	Closure Cover: Standard Vegetation (2 ft thick)	yd^3	138,000
107.2	Closure Cover Tree Islands (4 ft thick)	yd^3	0
107.3	Access Road Reclamation (Not Including Reclamation Cover)	ac	18
107.4	Fertilize Closure Cover	ac	43
107.5	Seed Closure Cover (Wetland Seed Mix)	ac	43
107.6	Mulch on Closure Cover	ac	43
107.7	Clean Water Surface Channel	ft	3,100
107.8	Clean Water Pipeline	ft	0
107.9	Impacted Water Surface Channel	ft	0
107.10	Impacted Water Pipeline	ft	1,720
107.11	Impacted Water Collection Drain	ft	0
108	*North OSF*		
108.1	Closure Cover: Standard Vegetation (2 ft thick)	yd^3	760,000
108.2	Closure Cover Tree Islands (4 ft thick)	yd^3	0
108.3	Access Road Reclamation (Not Including Reclamation Cover)	ac	0
108.4	Fertilize Closure Cover	ac	235
108.5	Seed Closure Cover (Alpine Seed Mix, Steep Slopes)	ac	235
108.6	Mulch on Closure Cover	ac	235
108.7	Cut/Fill for Regrading Slopes to 2H:1V Between Drainage Benches	yd^3	1,919,000
108.8	Clean Water Surface Channel	ft	8,300
108.9	Clean Water Pipeline	ft	0
108.10	Impacted Water Surface Channel	ft	0
108.11	Impacted Water Pipeline	ft	3,200
108.12	Impacted Water Collection Drain	ft	4,100
108.13	Downdrain	ft	4,500
108.14	Bench Channels	ft	45,600

CLIMAX COVER AND GRADING CLOSURE QUANTITIES ESTIMATE

Date	18-Jan-23	Made by:	MP
Project No.:	31404505.029	Checked by:	AJS
Subject:	Climax Closure Cover and Grading Quantities	Approved by:	RS

Item No.	Item Description	Units	Quantity
111	*Pit Area*		
111.1	Closure Cover: Standard Vegetation (2 ft thick)	yd^3	27,000
111.2	South Waste Rock Pile Removal to Pit Backfill	yd^3	2,354,000
111.3	Impacted Water Surface Channel (Optional)	ft	12,400
112	*Miscellaneous Roads*		
112.1	Closure Cover: Standard Vegetation (2 ft thick)	yd^3	365,000
112.2	Closure Cover Tree Islands (4 ft thick)	yd^3	0
112.3	Fertilize Closure Cover	ac	113
112.4	Seed Closure Cover	ac	113
112.5	Mulch on Closure Cover	ac	113

CLIMAX COVER AND GRADING CLOSURE QUANTITIES ESTIMATE

Date 18-Jan-23 Made by: MP
Project No.: 31404505.029 Checked by: AJS
Subject: Climax Closure Cover and Grading Quantities Approved by: RS

Item No.	Item Description	Units	Quantity
110	*Mill and Pit Areas*		
110.1	Closure Cover: Standard Vegetation (2 ft thick)	yd^3	778,000
110.2	Closure Cover Tree Islands (4 ft thick)	yd^3	0
110.3	Access Road Reclamation (Not Including Reclamation Cover)	ac	0
110.4	Fertilize Closure Cover	ac	241
110.5	Seed Closure Cover (Alpine Seed Mix, Flat Areas)	ac	241
110.6	Mulch on Closure Cover	ac	241
110.7	Cut/Fill for Mill Area Regrading (5 ft Depth over 117 acres)	yd^3	950,000
110.8	South Waste Rock Pile Removal to Pit Backfill	yd^3	2,354,000
110.9	Clean Water Surface Channel	ft	10,100
110.10	Clean Water Pipeline	ft	0
110.11	Impacted Water Surface Channel (Optional)	ft	12,400
110.12	Impacted Water Pipeline	ft	11,500
110.13	Impacted Water Collection Drain	ft	4,800
111	*Miscellaneous Roads*		
111.1	Closure Cover: Standard Vegetation (2 ft thick)	yd^3	365,000
111.2	Closure Cover Tree Islands (4 ft thick)	yd^3	0
111.3	Fertilize Closure Cover	ac	113
111.4	Seed Closure Cover	ac	113
111.5	Mulch on Closure Cover	ac	113

https://wsponlinenam-my.sharepoint.com/personal/mike_bellitto_wsp_com/documents/31404505.029 climax closure update 2023/2023 wsp estimate/june rev 3/31404505.029-002-rpt-2-co_permit_update_10-year_aug02.docx/https://wsponline.sharepoint.com/sites/global-climaxosfeor/project files/6 deliverables/31404505.029-reclamation_plan_update/002-rpt-co_permit_update/rev1/31404505.029-002-rpt-1-co_permit_update_10-year_27mar24.docx

Table 2 Culverts to be Removed

Figure	*Northing**	*Easting**	*Length (ft)*	*Diameter (in)*	*Material*
F-04	7564.20	860.02	43.8	24	CMP
F-05	9413	-221	75	30	CMP
F-05	9878	-643	65	34	Wood
F-05	9937	-716	66	42	HDPE
F-05	10930	-1196	51	18	CMP
F-05	11654.51	1646.32	58.7	18	CMP
F-05	18942	-3945	66	24	CMP
F-05	18717	-2943	25	24	CMP
F-05	18878	-2695	45	36	CMP
F-05	21150	-1080	50	36	CMP
F-05	22425	-337	45	24	CMP
F-06	23682	500	40	18	Steel
F-06	24340	894	30	18	ADS
F-06	24001	917	50	18	ADS
F-06	23608	859	65	18	CMP
F-06	23473	791	80	18	HDPE
F-06	24779	239	50	24	ADS
F-06	24764	-103	140	24	ADS
F-06	25009	-251	40	18	HDPE
F-06	25676	12	50	18	ADS
F-06	26159	-96	60	18	ADS
F-06	27450	-275	400	42	HDPE
F-06	25391	701	120	40	ADS
F-06	25755	611	40	18	ADS
F-06	25968	613	30	18	ADS
F-06	26000	608	30	18	ADS
F-06	26580	1089	60.65	18	ADS
F-06	27505	2317	40	24	ADS
F-06	26501	1104	81.3	18	ADS
F-07	15031	-6030	25	42	CMP
F-07	17447	-6445	92	12	Steel
F-07	17550	-6513	225	42	HDPE
F-07	17744	-7243	25	24	CMP

ATTACHMENT A

COST MODEL OUTPUT