FREEPORT-MCMORAN
Freeport-McMoRan Chino Mines Company
P.O. Box 10
Bayard, NM 88023

October 30, 2024

Hand Delivered

David Ennis, Program Manager
Mining and Minerals Division- EMNRD
Mining Act Reclamation Program
1220 South St. Francis Drive
Santa Fe, NM 87505

Dear Mr. Ennis:

Re: Freeport-McMoRan Chino Mines Company, Closure- Closeout Plan Renewal, Mining Act Permit No. GR009RE

Freeport-McMoRan Chino Mines Company (Chino) is providing this Closure-Closeout Plan (CCP) update for the Chino Mine facility to the Mining and Minerals Division (MMD). Chino is submitting the updated CCP, to revise permit GR009RE by replacing the prior version of the CCP. The updated CCP revised the scope of work for closure-closeout of the Chino Mine facility under the New Mexico Water Quality Act, the Copper Mine Rule and the New Mexico Mining Act.

Two hard copies of this renewal application are attached. Enclosed is the check in the amount of $9,000 for the processing fee of this application in accordance with 19.10.2.201.K(5) NMAC. Please note that Tables 12-15 and certain sections of Appendices B, F and G are currently blank. We will finalize the RCE once the agencies approve the technical scope of the CCP.

Chino appreciates the time and effort spent by the agencies in reviewing this CCP update. If you have any questions or would like to schedule time to review these application documents, please contact me at (575) 694-0013 or Mariana Lafon at (575) 519-9572.

Sincerely,

Tyler R. Johnson, Chief Engineer
Environmental Services

TRJ:ml
Enclosures
20241023-002

ec: Kevin Barnes (MMD)
Joseph Fox (NMED)
Brad Reid (NMED)

Chino Mine Closure/Closeout Plan Update 2024

Prepared for:

New Mexico Environment Department, Ground Water Quality Bureau, Mining Environmental Compliance Section
1190 St. Francis Dr. Santa Fe, New Mexico 87505

and

New Mexico Energy, Minerals, and Natural Resources Department, Mining and Minerals Division

1220 S. St. Francis Dr. Santa Fe, New Mexico 87505

Prepared by:

Telesto Solutions Inc.
750 14th Street SW
Loveland, Colorado 80537

Submitted by

Freeport-McMoRan
Chino Mines Company
Box 10
Bayard, New Mexico 88023

October 2024

TELESTO SOLUTIONS • INCORPORATED

Engineering Analytics, Inc.

Signature Page

Chino Closure/Closeout Plan Update 2024

October 2024

Report Authors and Contributors

Telesto Solutions, Inc.

Walter L. Niccoli, PE–Responsible

Jon Cullor, PE–Report Review

Thomas L. Shelley, PE–Report Review

Engineering Analytics, Inc.

Christopher Durant, PE–Report Review

Contributors:

Bailey Jo Hubner (Telesto)	Jay Blythe (EA)	Wendy Niccoli (Telesto)
Connor Cole (Telesto)	Scott Norsen (Telesto)	Dena Mawlawi (Telesto)

Table of Contents

List of Tables

List of Figures

List of Appendices

List of Abbreviations and Definitions

AF	Acre feet
AOC	Administrative Order on Consent
Agencies	MMD and NMED
BLM	Bureau of Land Management
BMP	Best management practice
BOY	Beginning of Year
AOPHC	Area of Open Pit Hydrologic Containment
CDQAP	Construction Design and Quality Assurance Plan
CQAP	Construction Quality Assurance Plan
CQAR	Construction Quality Assurance Report
CQARCP	Construction Quality Assurance and Reclamation Completion Plan
CQA/CQC	Construction Quality Assurance and Construction Quality Control
CWMTS	Closure water management and treatment system
DP	Discharge permit
EOY	End of Year
FA	Financial Assurance
gpm	gallons per minute
in/yr	inch per year
LFES	Lampbright Far East Sump
MLSA	Main Lampbright stockpile area
MMD	New Mexico Mining and Minerals Division
NA	Information not available
NMA	North Mine Area
NMED	New Mexico Environment Department, Ground Water Quality Bureau, Mining Compliance Section
NMMA	New Mexico Mining Act
NMOSE	New Mexico Office of the State Engineer
NRCS	Natural Resources Conservation Service
O&M	Operations and maintenance
OHP	Old high-head pumps
OPSDA	Open Pit Surface Drainage Area
PLS	Pregnant leach solution
PMLU	Post Mining Land Use
RCM	Reclamation Cover Material
SMA	South Mine Area
SS	Stainless steel
SX/EW	Solution Extraction-Electrowinning Plant
TDRW	Tailing decant return water
WSA	West stockpile area
WTP	Water Treatment Plant

1.0 INTRODUCTION

Freeport-McMoRan Chino Mines Company (Chino) operates the Chino Mine approximately 10 miles east of Silver City in Grant County, New Mexico (Figure 1). The Chino Mine consists of: 1) an open-pit copper mine, 2) mill, concentrator, and associated tailings impoundments, 3) a solution extraction-electrowinning (SX/EW) plant and associated leaching facilities, and 4) all the required maintenance and associated environmental compliance features.

Chino operates under multiple State of New Mexico (State) and United States Government (Federal) permits. Table 1 lists all Chino's federal and state permits. Table 2 summarizes NMED Discharge Plans (DPs) associated with the Chino Mine.

Two State permits pertinent to this Closure/Closeout Plan (CCP) update include:

- Supplemental Discharge Permit 1340 (DP-1340) issued by the New Mexico Environment Department, Ground Water Bureau, Mining Environmental Compliance Section (NMED) under 20.6.2 and 20.6.7 New Mexico Administrative Code (NMAC) (NMED, 2020)
- Mining reclamation permit GR009RE issued by the New Mexico Mining and Minerals Division, Energy, Minerals, and Natural Resources Department (MMD) under 19.10.2 NMAC (MMD, 2020)

This CCP update (2024 CCP) is also pertinent to Chino's approved Mine Plan of Operations (MPO). Chino's MPO is continually updated, evaluated, and approved by the US Bureau of Land Management (BLM) under Title 43, Subpart 3809 (surface management) of the Code of Federal Registry (43 CFR Subpart 3809). The goal of both State and Federal permitting is to limit undue degradation to private and public lands after mining is complete, and to provide financial assurances (State) and/or guarantees (Federal) for reclamation of lands should Chino fail to do so.

1.1 The 2024 CCP's Purpose

The 2024 CCP has a primary purpose, which is to present a conceptual plan (i.e., technical scope of work) for reclaiming mining disturbed areas, and managing mining influenced

waters, that supports an engineering cost estimate for estimating financial assurance required by State and Federal laws, regulations, and permits. Thus, the 2024 CCP helps Chino comply with:

- DP-1340 Condition C115
- The CCP update submittal requirement E.11 in GR009RE Revision 18-1
- 19.10.5.506, 19.10.12, 20.6.2.3107, 20.6.7.11(T), and 20.6.7.11(U) NMAC
- 43 CFR Part 3809[1]

1.2 Plan Organization

The 2024 CCP consists of the following sections:

- **Section 1.0** provides an overview of the 2024 CCP and summarizes Chino's pertinent permits
- **Section 2.0** describes Chino Mine's existing facilities, and current environmental setting including geology, fauna, flora, mine history, and current disturbances
- **Section 3.0** describes the ongoing and completed reclamation projects at Chino, including reclamation projects planned through the end of year (EOY) 2025
- **Section 4.0** describes characteristics of the major facilities planned for reclamation and performance objectives for closure/closeout of Chino Mine facilities
- **Section 5.0** describes the proposed reclamation design criteria for surface reclamation, and for water management and treatment
- **Section 6.0** provides details on the reclamation plans for Chino's North and South mine areas
- **Section 7.0** describes the closure and post-closure monitoring plans along with contingency plans and reporting schedules
- **Section 8.0** provides details of the proposed post-mining land uses (PMLUs), and the associated requirements for individual areas
- **Section 9.0** presents a summary of the material take-offs applied in the reclamation cost estimate (RCE) for reclamation activities described presented in Sections 6.0 and 7.0 once the Agencies approve the reclamation scope
- **Section 10.0** presents the proposed reclamation schedule

[1] This CCP update meets the criteria required of 3809.401(3) which requires a description of reclamation in the MPO and subsequent modifications. It also helps establish a financial guarantee amount for which BLM and the State hold jointly (per agreement and acceptance by BLM). The remainder of this document focuses on meeting state requirements as they are as strict or stricter than BLM's.

- **Section 11.0** summarizes the GR009RE permit modification requests
- **Section 12.0** lists pertinent references

1.3 Description of Updated Plan

The MMD and NMED require that existing mines prepare a CCP and the entity responsible for the mine must post financial assurance "*sufficient to assure the completion of the performance requirements of the permit, including closure and reclamation, if the work had to be performed by the director or a third-party contractor.*" (State of New Mexico, 2005, pp. 69-36-7.Q NMSA)

This 2024 CCP revises the 2018 CCP update with refined closure/closeout conceptual engineered designs that account for changes in:

- Site-specific conditions
- Ongoing and completed reclamation projects
- Data collected and information gained through the studies performed under the permit conditions and ongoing monitoring
- Mine plans

This CCP update is based on the existing or a projected mine configuration representing a "snapshot in time" that reflects the most expensive closure scenario within the five-year period covered by this CCP based on the Chino mine plans and site conditions. Details of facility changes that have occurred since the last CCP and those projected in the subsequent planning period are provided in this CCP.

Sections 6.0 and 7.0 describe the proposed reclamation and post-closure monitoring plans for the principal mine facilities in the operational DP areas. This CCP and associated RCE updates will support financial assurance estimates for closure/closeout based on the EOY 2030 mine plan. Use of the EOY 2030 mine plan is consistent with the snapshot in time philosophy that was adopted by Chino and the Agencies early in the closure planning process and represents the year of highest closure/closeout liability between 2025 and 2030 (Appendix A). Thus, the EOY 2030 plan is expected to represent the most onerous reclamation and closure conditions from a cost perspective. The NMED and MMD

approved the use of the EOY 2030 configuration for the current CCP update on July 19, 2024 (Appendix A).

This updated CCP utilizes two distinct time periods throughout the document:

- Reclamation or closure period: the time beginning at the EOY 2030 until all of the earthwork, demolition, and infrastructure is in place for the long-term closure water management system. It also corresponds to when the PMLU conditions are satisfied
- Post-reclamation of post-closure period: any time after the reclamation or closure period

The CCP update uses these time periods in context to describe the state of individual facilities or the entire mine site.

1.4 Development Reclamation Cost Estimate

This CCP update provides the basis for a third-party RCE of proposed reclamation, closure, and post-closure under 19.10.12.1205 NMAC, Permit GR009RE and DP-1340. The CCP basis includes descriptions of the:

- Reclamation scope of work
- Reclamation schedule
- Federal and state permit requirements
- Topography of the current and future surface conditions
- Monitoring schedules
- Other pertinent information required by specific rules and permit conditions

The CCP update relies on the knowledge and experience of site-specific studies, reports and CCP submittals, and closure and reclamation work performed on portions of the Chino Mine. Following Agency approval of the CCP designs and plans (scope of work), Chino will finalize the RCE, consistent with the principles agreed to in letters dated January 11 and 16, 2019. Chino will submit current and net present value calculations of the estimated closure costs for Agency approval. Once approved, Chino will update its posted financial assurance consistent with 19.10.12.1201 New Mexico Mining Act (NMMA).

2.0 EXISTING FACILITIES AND CONDITIONS

Chino's Master Documents (Chino, 2021; Chino, 2024) provide detailed descriptions of the current mine facilities, operations, and the environmental setting–general information required by its New Mexico Permitting efforts. Sections 2.1 through 2.3 summarize the master documents and provide information for the Chino Mine facilities and operations, past and current land uses, environmental setting, and mine material characteristics.

2.1 Description of Current Mine Facilities

For the purposes of this CCP update, the Chino Mine is separated into three geographical areas (Figure 2)–the North Mine Area (NMA), Pipeline Corridor Area (PCA), and South Mine Area (SMA):

The NMA (Figure 3) is associated with mining and copper extraction and includes:

- The Santa Rita Pit
- Stockpiles
- Maintenance facilities
- SX/EW Plant
- Ivanhoe Concentrator
- Process and stormwater management systems

The PCA (Figure 4) also referred to as the Middle Whitewater Creek Area (MWWCA), extends from the Ivanhoe Concentrator (in the NMA) to the north end of Lake One and the Hurley Operation Area (in the SMA), and includes the pipelines associated with the tailings, concentrate, and fresh water.

The SMA extends from the north end of Lake One to the confluence of Whitewater Creek with San Vicente Arroyo (Figure 4), approximately 10.5 miles to the south, and includes areas associated with:

- Tailings deposition
- Concentrate management
- Water pipelines

Sections 2.1.1 through 2.1.10 describe the principal mine facilities and main mine components and include:

- Santa Rita Open Pit
- Waste Rock, Reclamation Cover Material (RCM), and Leach Ore Stockpiles
- Mine Maintenance Facilities
- SX/EW Plant
- Ivanhoe Concentrator
- Filter Plant
- Reclaimed Groundhog Mine
- Active Tailing Pond 7
- Reclaimed Lake One, Older Tailing Ponds 1, 2, 4 East, 4 West, B, and C
- Partially Reclaimed Older Tailing Ponds 6 East and 6 West
- Axiflo Lake
- Water Management System (including reservoirs)
- Ancillary Infrastructure (roads/railway, pipeline corridors, fuel storage tanks, power lines, stormwater controls)

Chino's discharge permits (Table 2), on file with the NMED, provide additional information concerning the site facilities and operations.

2.1.1 Santa Rita Open Pit

The Santa Rita Pit includes the East and Estrella pit areas (Figure 3). The uppermost level of the pit rim is on the south side at an elevation of approximately 6,500 feet, and the lowest level in the pit is near the East pit area at a current elevation of approximately 5,100 ft (Chino, 2024). The pit was developed in stepped benches with 50-foot near-vertical highwalls. The Santa Rita Pit consists of three pit areas–the 1) Lee Hill Pit, 2) East Pit, and 3) Estrella Pit. The Estrella and East pits currently contain water, and they are being pumped/managed to prepare for the next phase of mining.

The Santa Rita Open Pit is a passive hydrologic evaporative sink in which evaporation exceeds the water inflow, and the surrounding and underlying ground water is hydraulically contained (i.e., no water leaves the pit via groundwater). Chino currently operates a system of collection sumps and booster stations that remove inflowing groundwater, excessive incidental precipitation, and stored process water.

The Santa Rita Open Pit displaced the historical town of Santa Rita, and intercepted Santa Rita and Whitewater creeks. Water from the head of Santa Rita Creek is diverted around the north side of the pit where it discharges into the Hanover Creek basin. Water from the head of Whitewater Creek is managed as stormwater inflows into Chino's water management system.

2.1.2 Waste Rock, Leach and Reclamation Cover Material Stockpiles

The NMA contains several stockpiles in and near the Santa Rita Open Pit. The stockpiles generally fall into three categories:

1. Leach stockpiles, which are used to extract copper ore from the host rock
2. Waste rock stockpiles, which store excavated rock removed to access the ore body
3. Reclamation Cover Material (i.e., Overburden, RCM) stockpiles, which contain materials suitable for future reclamation purposes

In addition to the stockpiles listed in Table 3, Chino plans three unconstructed stockpiles (in planning, permitting and development process). The following sub-sections describe Chino's stockpile areas.

Lampbright Stockpiles

The Lampbright Stockpiles are located east of the Santa Rita Open Pit and consist of three adjacent leach stockpiles and two waste rock stockpiles. They are constructed within Tributary 1 of Lampbright Draw (Figure 5).

Stockpiling low grade copper ore on the Main Lampbright began in 1973. The Main and South Lampbright Stockpiles have side-slopes at the angle of repose with relatively flat top surfaces. Pregnant Leach Solution (PLS) collection occurs mainly from the seepage face near Reservoir 8. Three sumps on the north side of the Main Lampbright Stockpile have historically collected PLS and impacted stormwater. Chino started construction on the lined North Lampbright Leach Stockpile, and its seepage collection facilities replaces these three sumps. The Lampbright Far East Sump is another collection point from the Main

Lampbright. Chino recently completed designs to upgrade the facility to enhance operations, improve capture, and meet requirements of DP-376.

The Southwest Lampbright Waste Rock Pile is on the northeast-facing slope of the Kneeling Nun Ridge and has angle-of-repose slopes. The Lampbright Infill Stockpile is a buttressing of the South Lampbright and Southwest Lampbright stockpiles to ensure long-term stability. The Lampbright Infill stockpile is designed with 3-horizontal to 1 vertical (3H:1V) side slope and a flat top surface. The proposed Kessel Stockpile will merge with these stockpiles.

South, West, and 3A Stockpiles

The South, West, and 3A stockpiles are located south and west of the Santa Rita Open Pit (Figure 6). The South stockpile and the east half of the West stockpile are leach stockpiles. Stockpiling low-grade copper ore on the West Stockpile began in 1969. Mined rock was placed on the South Stockpile as early as 1940. PLS from the West and South Stockpiles is collected in a combination of launders, tanks, ponds, and reservoirs (the unlined PLS launder, South Side PLS Tank, PLS collection pond, and/or Reservoirs 2 and 4A). The PLS collected from the stockpiles is then pumped to the PLS Feed Pond located at the SX/EW Plant for copper recovery. Runoff and seepage containment dams and sump along the base of the west side of the West Stockpile prevent seepage flows and stormwater runoff from entering Hanover Creek.

The 3A Reservoir served as a buffer to manage process and storm water. Reclamation of the 3A Reservoir began in 2015. The 3A Stockpile construction began at the end of 2016 and is in the approximate location of the former 3A Reservoir. The stockpile contains waste rock and is located entirely within the area of open pit hydrologic containment (AOPHC)

STS2 and Upper South Stockpiles

The STS2 and Upper South Stockpiles (Figure 6) contain waste rock and rock suitable for RCM. Chino has dedicated the upper lifts of the STS2 and Upper South stockpiles for

storage of RCM for future reclamation. The RCM was generated from rock mined along the south and east sides of the mine. The Agencies approved the STS2 and Upper South stockpiles as cover material. The Agencies also approved material from the Whitehouse Stockpile, which Chino recently moved to the STS2 Stockpile to allow for a pushback in the East Pit.

Santa Rita Open Pit Stockpiles

Five stockpiles currently exist within and along the perimeter of the Santa Rita Open Pit (Figure 7):

- Northwest Stockpile
- North Stockpile
- Northeast Stockpile
- Lee Hill Stockpile
- Santa Rita Stockpile

Chino began stockpiling waste rock for the Northeast Stockpile in 1969. Stockpiling waste rock for the Lee Hill Waste Rock Pile began in 1998. The Santa Rita Stockpile was constructed circa 2019. The North, Northwest, and Northeast waste rock piles contain both overburden and waste rock. Chino is currently mining out the North Stockpile for a mine pushback. The Lee Hill leach Stockpile contains low grade ore. PLS from the Lee Hill stockpiles is collected in a combination of sumps and tanks (5900 Sump and 6250 Tank) and pumped to the PLS Feed Pond located at the SX/EW Plant. These stockpiles are located entirely within the AOPHC.

Unconstructed Stockpiles

The 9 Waste Rock Stockpile is fully permitted with the Agencies and BLM. Its permitted footprint is approximately 156 acres. Chino does not plan to place waste rock within the 9 Waste Rock Facility within the five years described in this CCP and plans continuing

operations of an expanded[2] Reservoir 9 as a process and stormwater holding facility. It is fully inside the Santa Rita Pit's open pit surface drainage area (OPSDA).

The Kessel Stockpile is a proposed stockpile that Chino is in the initial stages of permitting. Its planned footprint covers the Southwest Lampbright stockpile, extends to near the confluence of Tributaries 1 and 2 of Lampbright draw, and covers the eastern flank of Rubio Peak (Figure 8).

The MMD conditionally approved the Rubio Peak borrow as approved cover (MMD, 2020). The Rubio Peak test plots performed well, and based on Golder's recommendation, Chino requests that MMD approve the Rubio Peak borrow as RCM. The proposed Kessel Stockpile will cover the Rubio Peak borrow area, and thus Chino will strip the Rubio Peak RCM from the footprint and stockpile it for future reclamation. Chino proposes to construct the Rubio Peak RCM stockpile upgradient and adjacent to the Kessel Stockpile (Figure 8)

2.1.3 Main Mine Facilities

The Maintenance Facilities Area for mine operations is located west of the Santa Rita Open Pit between the West and South stockpiles (Figure 3). Several offices and storage facilities are located in this area, including mine operations; environmental building; security; geology, safety, mine engineering and planning departments; vehicle and electrical maintenance shops; primary crusher; and conveyor. Three small retention basins along the southeast side of this area collect surface water. The surface water flows southwest and is incorporated into the West and South stockpile water collection systems.

[2] Chino is studying expanding the footprint of Reservoir 9 to 47 acres and increasing capacity to 15,000 acre-feet for operations and closure. As with the Kessel Stockpile, Chino is preparing permitting applications for other agencies to follow this CCP update submittal.

2.1.4 SX/EW Plant

The SX/EW plant is located northeast of the Santa Rita Open Pit, between the Northeast Waste Rock Pile and the North Lampbright Leach Stockpile (Figure 3). Chino's SX/EW plant was constructed in 1987 and became operational in 1988. PLS is conveyed to the SX/EW feed pond via pumps and pipes, where it is processed to extract copper. An organic reagent in the PLS is reacted with an acidic solution to release the copper from the reagent. The copper in solution is then electroplated into a copper cathode. The barren copper leach solution (known as raffinate) is recycled to the top of leach stockpiles. The process water is continually recycled via pumps, pipes, and reservoirs. The Master Documents (Chino, 2021; Chino, 2024) provide pond sizes and piping capacity associated with the SX/EW and leaching circuit.

2.1.5 Ivanhoe Concentrator

The Ivanhoe Concentrator is located north of the South Stockpile and produces copper concentrate from milled sulfide ore (Figure 3). The Ivanhoe Concentrator was constructed in 1982 and became operational in 1983. Chino ships the copper concentrate off-site for processing and refining. Tailing slurry produced from this process is transported to Tailing Pond 7, located in the SMA. Facilities around the Ivanhoe Concentrator include the coarse ore storage area, crushers, laboratory, concentrate and tailing thickeners, maintenance shop, guard house, process water tanks, and storage yard.

2.1.6 Reclaimed Groundhog Mine Area

The Groundhog Mine Area is a historical mining area approximately 0.6 miles southwest of the Ivanhoe Concentrator and east of San Jose Mountain (Figure 9). Site reclamation is addressed under the Hanover/Whitewater Creeks Investigation Units of the Administrative Order on Consent (AOC). The former facilities and workings associated with the mine occupied the saddle between Bayard Canyon and an unnamed tributary of Whitewater Creek to the northwest and extended southwest down Bayard Canyon and southeast into Lucky Bill Canyon. The Groundhog Mine Area is currently comprised of the reclaimed Groundhog Stockpile Area and the reclaimed Groundhog No. 5 site (i.e., Lucky Bill). The

Groundhog Stockpile Area was part of the Groundhog Mine complex, which consisted of four additional shafts and other mine openings and waste rock piles. The Groundhog No. 5 site is an abandoned mine shaft and waste rock pile that covers less than two acres. Completed and ongoing reclamation activities at the Groundhog Mine Area are discussed in Section 3.1.

2.1.7 Hurley Operation Area

The primary facilities within the Hurley Operational Area include the Filter Plant and the Maintenance Shop [Figure 3-F, (Chino, 2021)]. At the Filter Plant, the concentrate slurry from the Ivanhoe Concentrator is filtered, which produces a dry concentrate and recycled process water. The process water is sent to the No. 2 Metal Recovery Unit (MRU), which discharges to Tailing Pond 7. The dry concentrate is loaded into rail cars or trucks and shipped offsite.

2.1.8 Tailings Impoundments, Lake One, and Axiflo Lake

In the SMA, Chino reclaimed Tailing Ponds 1, 2, B, C, 4 East, 4 West, Lake One, and reclaimed most of Tailing Ponds 6 East and 6 West (Figure 4 and Table 4). An active tailing delivery pipeline corridor (Pipeline Corridor) traverses the surface of Ponds 1, 2, B, 4 and 6. Axiflo Lake and Tailing Pond 7 remain active for water management and active tailings deposition. Tailings slurry generated during the ore concentration process is pumped to Tailing Pond 7 where it is deposited by crane-mounted cyclones. Table 5 summarizes the footprint areas for the SMA facilities.

Historical Tailings Impoundment Area

The Historical Tailings Impoundment Area includes reclaimed Tailing Ponds 1, 2, 4 East, 4 West, B, and C; Tailing Ponds 6 East and 6 West (all but the tailing pipeline corridor, and the southern portion of Pond 6 are reclaimed); reclaimed Lake One (and slag stockpile), Axiflo Lake; and other ancillary facilities. Beginning in 1910, tailings generated by the now decommissioned Hurley Concentrator were deposited in a series of ponds (Tailing Ponds 1, 2, B, C, 4, and 6). Tailing Pond 6 (East and West) received tailings from the

Ivanhoe Concentrator starting in 1982. The southern portions of Pond 6 East and 6 West areas are currently available for upset conditions of tailings and stormwater management.

Lake One Area

The reclaimed Lake One area is located east of the reclaimed Hurley Mill and Smelter. The smelter was built adjacent to Lake One in 1939, and slag was deposited on the northwestern side of the lake. The Chino Smelter was demolished in June 2007, and the area was subsequently covered and revegetated.

Lake One was constructed in 1910 to collect and store water for use in the Hurley Mill. The lake was created by constructing an earth-fill dam southeast of the Hurley Operation Area. Over time, Lake One gradually filled with sediment from Whitewater Creek and tailings from the milling operations. The mill ceased operating in 1982. In 1984, Chino constructed the Whitewater Creek diversion to divert stormwater around the eastern side of Lake One. In 2003, to improve stormwater management, Whitewater Creek was again diverted farther to the east into James Canyon Reservoir. Chino mined tailings from Lake One for copper recovery between 2003 and 2009. Chino reclaimed Lake One in early 2014 and completed slag-pile reclamation in late 2014.

Axiflo Lake

Axiflo Lake, located south of reclaimed Tailing Pond 2, was constructed in 1919 as a process water reservoir. It historically stored tailings decant water, and currently receives tailings during upset conditions from the Tailing termination tank or the Chino Tailing Pump Station, located just north of Axiflo Lake on top of the reclaimed Pond 2. Axiflo also receives makeup water from process water from the ELMS tank (including process water from the MRU, impacted stormwater from the Lower Lined and Upper Lined Ponds, Chino septic effluent and Tri-Cities sewage effluent). Water stored in Axiflo Lake is pumped to Tailing Pond 7. The SMA Master Document (Chino, 2021) provides specific information on Axiflo Lake.

Tailing Pond 7

Constructed in mid-1988, Tailing Pond 7 is the only tailing impoundment currently operating. Tailings generated by the Ivanhoe Concentrator are conveyed through a set of 9-mile-long pipelines and deposited in Tailing Pond 7. Tailing Pond 7 is permitted to receive discharges from the termination tank, which includes:

- Tailings slurry from the Ivanhoe Concentrator
- Process water from Axiflo Lake
- Incidental and adjacent stormwater
- Process water from Ivanhoe Concentrator

It also is permitted to receive stormwater runoff from the southern portions of Tailing Ponds 6 East and 6 West and groundwater from the Interceptor Well System south of Tailing Pond 7.

As tailing solids drop from the tailing slurry discharged onto the perimeter of Tailing Pond 7, water accumulates in the decant pond on the north side of Tailing Pond 7 near the toe of Pond 6. Water is pumped from this decant pond north back to the Ivanhoe Concentrator via the Decant Return line (Figure 4).

Tailing Pond 7 has a free-draining, stable, sand embankment ensuring structural stability. The water in the embankment drains primarily to the decant pond. DP-484 permits the remaining drainage to discharge to groundwater where the Interceptor Well System recovers the process water and controls the permitted discharge. The Interceptor Well System lies along the southern/southwestern edge of Tailing Pond 7. The interceptor system consists of 18 pumping wells.

2.1.9 Water Management System and Ponds

Figure 10 presents a generalized schematic of Chino's water supply and use cycle. Chino's water management system is designed to contain process solutions and divert non-contact stormwater not required for mine operations. As part of, and for operational activities, Chino recycles process and stormwater throughout the mine. The system consists of the following facilities:

- Production wells that supply process water
- Interceptor wells and systems
- Reservoirs and impoundments for storage of process water and stormwater runoff
- Pipeline from the Continental Mine
- Various tanks and sumps that collect and store process solutions
- Diversion structures for rerouting natural drainage channels around operational facilities
- Pipelines and pumping stations for transferring water from one location to another.

Several well fields supply much of the water used to operate the mine. These well fields include production and interceptor well systems in the Santa Rita Open Pit area, interceptor wells south of Tailing Pond 7, and production wells south and east of the tailings impoundments. Groundwater has also been pumped from underground workings in the Santa Rita Open Pit area and the Continental Mine. A summary of the existing well fields and monitoring wells at the mine are presented within the individual DPs and in the Master Document (Chino, 2024).

In the NMA, several reservoirs serve to control process water and stormwater runoff throughout the mine site (Figure 3). The NMA Master Document (Chino, 2024) lists the reservoirs, impoundments, sumps, and storage tanks in operation at the mine. Chino practices water conservation through the recirculation of process water and from the capture and reuse of stormwater runoff, which reduces the amount of groundwater that is utilized in the process circuit.

Major diversion channels associated with the Chino stormwater management system include:

- The North Diversion Channel
- Several operational SMA stormwater diversions

The North Diversion Channel routes non-contact stormwater around the Lampbright Stockpiles to Lampbright Draw. The North Lampbright Leach Stockpile will replace the North Diversion Channel once constructed.

In the SMA, a series of diversions were constructed along the east side of the tailing ponds:

- The 1911 diversion around the historical tailing area
- The 1984 diversion around Lake One
- The 1988 and 1998 diversions around Tailing Pond 7.

In 2003, the James Canyon Diversion was constructed to capture Whitewater Creek surface water north of Lake One and route it through Bolton Draw. The Whitewater Creek diversions from Lake One to most of Tailing Pond 6 are maintained and used to convey non-contact stormwater. The Whitewater Creek Diversion along Tailing Pond 7 remains in operation.

Various surface impoundments store process water and stormwater. Surface impoundments at Chino were identified as part of the Reservoir and Impoundment Study (M3, 2004) and in the 2007 CCP update (Chino, 2007). The locations of the existing surface impoundments and reservoirs at Chino have been further updated based on information compiled as part of the Stage 1 Abatement revised FSIR (Golder, 2016), and more recently within the Master Document (Chino, 2024). Figures 3 and 4 show the locations of the surface impoundments and reservoirs at the mine, and the Master Documents (Chino, 2021; Chino, 2024) also show locations and provide storage volumes.

Figure 8 shows three planned stormwater management facilities at the proposed Kessel Stockpile:

- Kessel Stormwater 1 (KSW1) with the following specifications:
  - Single lined stormwater pond
  - To receive direct and routed stormwater from the Kessel Stockpile
  - Approximately 80 acre-feet lined storage capacity
  - Pump collected stormwater to Reservoir 8 to Chino process
- Kessel Stormwater 2 (KSW2)
  - Concrete headwall and single lined storage
  - Receive direct runoff from lower portion of Kessel Stockpile below elevation of KSW1
  - Approximately eight acre-foot lined storage capacity
  - Pump collected stormwater to Kessel Reservoir
- Kessel Stormwater 3 (KSW3) with the following specifications

  - Concrete headwall and single lined storage
  - Receive direct runoff from lower portion of Kessel Stockpile below elevation of Kessel Reservoir
  - Approximately one acre-foot lined storage capacity
  - Pump collected stormwater to KSW2

2.1.10 Other Ancillary Facilities, Structures, and Systems

In addition to the major mine components, there are several key ancillary facilities dispersed across the mine that support the operations at Chino. Some of the more important ancillary facilities that require consideration at closure are as follows:

- Administrative/office facilities
- Outdoor lighting systems
- Haul and access roads
- Electrical power transmission lines and substations that will not be used after mining ceases
- Explosive, fuel, and reagent storage areas
- Storm water structures for drainage, diversion, and sediment control
- Fencing and security systems
- Miscellaneous pipelines and pipeline corridors

2.2 Past and Current Land Uses

Mining has been the principal land use and economic support for the area since mining of the Santa Rita copper deposits began in the early 1800s. Current surrounding land uses include private residences, livestock grazing, mining, recreation, and wildlife habitat. Recreation in the area includes camping, picnicking, hunting, off-road vehicle use, hiking, horseback riding, and bicycling.

2.3 Environmental Setting

Chino's Master Documents (Chino, 2021; Chino, 2024) and the 2018 CCP (Golder, 2018) include detailed information regarding climate monitoring, topography, geology, hydrology, soils and vegetation, wildlife, and material characteristics. A summary of Chino's environmental setting from the Master Documents and 2018 CCP is as follows:

- Climate:
  - Average precipitation of around 16 inches per year (in/yr)

    - Typically less than one inch per month October through May
    - Two to three inches per month July through September
  - Mean annual temperature of 50°F
  - Annual average lake/surface evaporation rate of 63 inches per year
- Topography:
  - Peak elevation in the NMA is around 7,700 ft
  - Lowest elevation is in the SMA at around 5,250 ft
- Geology:
  - NMA
    - Near surface sedimentary formations of the Paleozoic era and Cretaceous period (lower Mesozoic is absent)
    - Tertiary intrusive formations including stocks, dikes, and extrusive formations of ash-flow tuffs
    - Minimal Quaternary deposits exist except in the bottoms of arroyos and creek beds
  - SMA
    - Dominated by the Tertiary Gila Conglomerate and Tertiary ash flow tuff formations and basalt layers
    - Quaternary deposits along the drainages
- Surface Water Hydrology:
  - The entirety of the mine falls within the San Vicente creek watershed, a watershed that contributes to the Mimbres River that terminates in a closed basin in southern New Mexico near Deming
  - The NMA is at the headwaters of Whitewater Creek. It diverts Santa Rita Creek and lies adjacent to Hanover Creek and Lampbright Draw (which flows south to San Vicente Arroyo)
  - The SMA resides in the Whitewater Creek watershed, which flows south from the tailing ponds to its confluence with San Vicente Arroyo
  - All streams are ephemeral with intermittent stretches, and exhibit flow during the monsoon season
- Groundwater Hydrology:
  - NMA:
    - Depth to groundwater from a few feet in drainages to several hundred feet in the mountain areas
    - Santa Rita Pit acts is a terminal sink to groundwater
    - Low hydraulic conductivity
    - Recharge from distributed precipitation and concentrated flows in ephemeral streams
    - Groundwater discharge to the surface with associated evapotranspiration in major drainages
    - Typical well capacity is 0.25 to 2 gallons per minute (gpm)
  - SMA:

- ◊ Depth to groundwater tens of feet below the native ground surface
- ◊ Moderate hydraulic conductivity in the Gila Conglomerate, high hydraulic conductivity in the Quaternary alluvial sediments, and lower in surrounding and underlying bedrock
- ◊ Recharge from precipitation and concentrated ephemeral flows in Whitewater Creek
- ◊ Discharge through the Tailing Pond 7 interceptor system and groundwater flow south to the closed Mimbres basin

- Soils and Vegetation
  - U.S. Natural Resources Conservation Service soil descriptions:
    - ◊ Complexes of various soil series
    - ◊ Thin in the north (< 20 inches deep) with significant fraction of silts and clays with high rock fragment content
    - ◊ Slightly acidic pH
    - ◊ Upland soils are generally thin with dominant fine texture with a significant rock fraction
    - ◊ Valley bottom soils are deeper and vary widely in texture but typically more coarse than upland soils
    - ◊ Soils in SMA are generally medium to coarse textured and calcareous
  - U.S. National Vegetation Classification System, alliances in and surrounding Chino Mine include[3]:
    - ◊ Mixed-Grama Herbaceous (13%)
    - ◊ Mesquite/Mixed Grama Shrubland (17%)
    - ◊ Fluvial Fores and Shrubland (3%)
    - ◊ Alligator juniper-Oak/Grama Woodland (19%)
    - ◊ Alligator juniper-Oak Woodland (8%)
    - ◊ Mountain mahogany Shrubland (19%
    - ◊ Ponderosa pine-Oak Forest (3%)
    - ◊ Mine Facilities/Urban (19%)
- Material Characteristics:
  - Waste and Leach Stockpiles:
    - ◊ Primarily consist of Cretaceous metasediments, and skarn
    - ◊ Dominant minerals: quartz, illite, and K-feldspar with lesser amounts of kaolinite, plagioclase, chlorite, epidote, magnetite, garnet, alunite, pyrite, jarosite, and amorphous silica
    - ◊ Sulfate content increases with age due to pyrite oxidation
    - ◊ The silicate matrix is geochemically stable
    - ◊ Leach stockpile materials and waste rock stockpile materials are

[3] Values from DBS&A (2000)

typically acid-generating with similar reactivity

- Tailings:
  - Historical tailings constructed with coarse grain materials near outer banks grading to fine grained materials in the center
  - Gangue minerals make up the bulk of the materials
  - Principal sulfide mineral is pyrite
  - Pyrite oxidation function of available oxygen
- Reclamation Cover Material and RCM Stockpiles
  - Native soils, alluvium, Gila Conglomerate, and approved Agency-approved, mined overburden materials
  - Paste pH generally greater than 4.5 (consistent with natural soils)
  - Proven with test plots
  - 10 to 20% fine fraction, 35 to 65% rock fragment

3.0 DESCRIPTION OF COMPLETED AND PLANNED RECLAMATION PROJECTS

Chino has conducted a substantial amount of reclamation since the issuance of DP-1340 and MMD Permit GR009RE. Facilities where reclamation is complete include:

- The Groundhog Mine (Figure 9)
- Historical Tailing Ponds 1, 2, 4 East, 4 West, B, C, and portions of older Tailing Ponds 6 East and 6 West (Figure 4)
- Former Hurley Smelter Area (Figure 4)
- Lake One and Slag Pile area (Figure 4)

The following sections describe the ongoing and completed reclamation activities that have occurred since the issuance of DP-1340 and MMD Permit No. GR009RE, and planned reclamation projects scheduled to be initiated prior to the EOY 5.

3.1 Groundhog Mine Reclamation

Chino completed reclamation and remediation of the Groundhog Mine Stockpile Area in accordance with previous action plans under the AOC. The construction activities included removal of stockpile materials (both from the site and pipeline corridor), placement of RCM and revegetation on areas excavated to bedrock, removal of building foundation materials adjacent to the stockpiles, closure of mine shafts, diversion of stormwater run-on, and containment of impacted stormwater. In 2009, Golder prepared a Completion

Report detailing the removal of stockpile material, shaft closure, cover construction, and surface reclamation activities completed under the IRA (Golder, 2009; Golder, 2011).

3.2 Groundhog No. 5 Stockpile Reclamation

The Groundhog No. 5 Stockpile is a small waste rock stockpile (footprint of less than 2 acres) associated with the Groundhog No. 5 Shaft located on the north wall of Lucky Bill Canyon near its confluence with Bayard Canyon. Chino reclaimed it in accordance with the standards prescribed in the AOC agreement and the NMMA Rules. The reclamation work included regrading the stockpile, removing structures, covering the mine shaft opening, re-routing runoff and constructing drainage and seepage controls.

In 2022, Chino submitted a final Construction Quality Assurance and Construction Quality Control (CQA/CQC) report (Telesto, 2006; Telesto, 2022) and addressed MMD comments in 2023.

3.3 Former Hurley Smelter Area

The Hurley Mill shut down in 1982. The Hurley Smelter stopped operating in January of 2001, and was demolished in the summer of 2007. The 25-acre site lies east of Hurley, New Mexico. Chino performed reclamation between October 2007 and February 2008 in accordance with DP-1340 and DP-214. A minimum three-foot RCM derived from designated borrow sources covers the top surfaces and sloped areas. Long-term storm water management structures include riprap lined channels, a detention pond, and drainage pipelines and culverts designed for peak flows from the 100-year 24-hour storm. Telesto (2008) details the Hurley smelter area reclamation.

3.4 Historical Tailing Ponds 1, 2, 4, 6, B, and C Reclamation

Except for small areas necessary for operational activities, the majority of the historical tailing ponds are reclaimed. Chino submitted a Construction Design and Quality Assurance Plan (CDQAP) to the NMED and MMD in support of the reclamation of Ponds 1, 2, B, C, 6 East, and 6 West on May 1, 2007 (Golder-URS, 2007). The CDQAP fulfilled the requirements of DP-1340 and Permit Revision 01-1 to the MMD Permit GR009RE.

Chino issued a number of revision inserts between May and September 2008 and submitted the detailed design drawings in May, 2008. NMED and MMD approved the CDQAP on October 6, 2008. The original CDQAP reclamation designs did not include Tailing Pond 4 because Pond 4W was designated for contingency tailings deposition. Chino subsequently submitted the Pond 4W Closure Design Report, Revision 1, (Golder-URS, 2010) to the NMED, MMD, and the New Mexico Office of the State Engineer (NMOSE) as Addendum 1 of the Chino Tailing Reclamation CDQAP (Golder-URS, 2010). The Pond 4E Closure Design Report for the closure and reclamation design of Pond 4E was submitted as Addendum 2 of the Chino Tailing Reclamation CDQAP, Revision 1, dated May 19, 2011 (Golder-URS, 2011).

Reclamation of the historical tailing ponds consisted of grading to achieve positive drainage, construction of surface water diversions and drainage channels, and placement of RCM. The individual Construction Quality Assurance Reports (CQARs) detail reclamation of the historical tailing ponds ((Golder-URS, 2011; Golder-URS, 2013a; Golder-URS, 2013b; Golder-URS, 2013c; Golder-URS, 2013d). Table 5 provides summary details of the reclamation and reporting associated with each of these facilities.

3.5 Lake One and Slag Pile Reclamation

The MMD and NMED received the Lake One reclamation CDQAP (EMC2, 2012), which covers both Lake One and the Slag Pile, in September 2012 and subsequently approved it on December 12, 2012. April 2013 through August 2014 marked the Lake One reclamation work in accordance with the design requirements included in the CDQAP.

Subgrade regrading began in April 2013. Slag Pile top and slope subgrade surface regrading began in May 2013. Final regrading of the Lake One and Slag Pile subgrade finished in June 2014. Placement of RCM from designated borrow sources began in August 2013 and was fully completed in July 2014. Surface water channel construction, riprap, ACB mats placement and Channel P1 HDPE liner began in August 2013 and finished in August 2014. Seeding and mulching occurred between March 2014 and June

2014. EMC^2 (2014) details the Lake One and Slag Pile area reclamation in September 2014.

4.0 EXPECTED FACILITY CHARACTERISTICS AND RECLAMATION PERFORMANCE OBJECTIVES

This section presents the characteristics of the major facilities planned for reclamation and performance objectives for closure/closeout of Chino Mine facilities. The performance objectives are based upon current requirements of Permit GR009RE and DP-1340 with the intent of meeting rules and requirements associated with the:

- NMWQA
- NMWQCC Regulations
- 19.6.7 NMAC, Supplement Rules for Copper Mines (Copper Rule),
- NMMA
- Applicable parts of 40 CFR Part 3809 (for the mine areas located on federal public lands)

The primary performance objectives for closure closeout of the Chino Mine include:

- Re-establishment of a self-sustaining ecosystem (SSE)
- Stabilization of the reclaimed areas
- Management of stormwater and sediments
- Management of process waters

Section 4.1 describes the facilities covered by the closure plans, and Section 4.2 provides the performance objectives and reclamation design criteria for facility closure/closeout. Section 4.2.4 describes performance objectives for the closure/closeout water management and treatment systems.

4.1 Facility Characteristics and Classification

This CCP describes facilities with common closure characteristics and mine function in this section including stockpiles, tailing ponds, open pit, surface impoundments, disturbed areas, and industrial facilities. Sections 4.1.1 through 4.1.6 provide general reclamation descriptions of these facilities. Appendix B summarizes the reclamation/closure

characteristics of individual stockpiles, tailing ponds, open pit, surface impoundments and reservoirs, and other disturbed areas.

4.1.1 Stockpiles

This CCP update targets stockpile surfaces for reclamation. Stockpile surfaces include the top surfaces and side slopes of all stockpiles except for side slopes located inside both the OPSDA and areas covered by the conditional pit waiver. The conditional pit waiver requires reclamation of top surfaces of stockpiles within the waiver boundary (if they are not used for another PMLU such as water management/treatment). Appendix C, Sheet 18 shows the stockpile areas this CCP update considers for reclamation.

4.1.2 Tailing Ponds

This CCP update contemplates reclaiming Tailing Pond 7, Axiflo Lake, and the southern end of Tailing Ponds 6E and 6W. Appendix C, Sheet 28 shows the targeted areas for planned reclamation.

4.1.3 Santa Rita Open Pit

On December 18, 2003, MMD granted a conditional waiver from the requirements to achieve a PMLU for the Santa Rita Open Pit (MMD, 2003). MMD's evaluation focused on the economic infeasibility of reclaiming the open pit and some stockpile side slopes. MMD also determined that the environmental benefits of reclaiming the open pit and some stockpile side slopes located at the rim of the open pit are not significant in relation to the cost. Due to mining since 2003, portions of the open pit lie outside the geographic area defined when MMD granted the conditional waiver in 2003. Chino contemplates that all of the open pit will continue to qualify for a waiver, as the economic and environmental analysis that supported the 2003 waiver decision are still valid. Consequently, this CCP update provides for covering stockpile top surfaces if they are not utilized in another PMLU such as water management. Appendix C, Sheet 18 shows the areas contemplated for reclamation and post-mining water management/treatment within the open pit.

4.1.4 Surface Impoundments

The Master Documents (Chino, 2021; 2024) and Table 6 summarize the existing and planned surface impoundments for EOY 5, respectively. Surface impoundments include:

- Storage tanks for process, seepage collection, and extracted ground water/pit water
- Stormwater catchments
- Dams
- Reservoirs

This CCP update contemplates utilizing existing surface impoundments throughout the post-closure period (Table 7) to intercept contact stormwater, seeps, and direct flows to permanent impoundments or treatment facilities. The CCP update proposes reclaiming surface impoundments without a post-mining use at the appropriate time following cessation of operations.

4.1.5 Disturbed Areas

This CCP update groups miscellaneous disturbed areas (e.g., roads exterior to the open pit that are not needed for post-closure monitoring and maintenance, borrow areas, disturbed areas within various facilities) for reclamation estimating. The cumulative area for the miscellaneous group is 150 acres (Chino, 2018). In addition to the known miscellaneous disturbed areas, this CCP update includes a 200-acre contingency area to facilitate minor changes to disturbances that may occur over the next five years.

4.1.6 Industrial Facilities

In addition to the areas required for post-reclamation water management and treatment, Industrial PMLU areas include the:

- Ivanhoe Concentrator
- Main Mine Facilities
- SX/EW
- Tailings Interceptor Well System and Maintenance Areas

Appendix D summarizes a recent building inspection and identifies which buildings would remain for an Industrial PMLU. The CCP update assumes that associated infrastructure (e.g., roads, and utilities) remain for non-mining industrial applications.

4.2 Closure Performance Objectives

The following sections present the closure performance objectives for the major facilities at the mine. Overall, the objectives for reclamation include public and worker safety, protection of groundwater and surface water, and reclamation to a self-sustaining ecosystem or other approved PMLU. Three PMLUs are designated for the Chino site: 1) Industrial, 2) Wildlife Habitat, and 3) Water Management.

4.2.1 Stockpiles, Tailing Impoundments, and Disturbed Areas

Primary closure performance objectives for the stockpiles, tailings impoundments and associated mining disturbed areas include:

- Re-establishment of a self-sustaining ecosystem for a Wildlife PMLU
- Establish stable slopes and prevent excessive erosion of reclaimed areas

4.2.2 Open Pits

The Santa Rita Open Pit is considered a hydrologic evaporative sink and, in accordance with Section 20.6.7.33.D NMAC, the groundwater quality standards in Section 20.6.2.3103 NMAC do not apply within the AOPHC. Chino received a conditional waiver from the requirements of achieving a self-sustaining ecosystem for the Santa Rita Open Pit pursuant to Section 3.H of MMD Permit GR009RE (MMD, 2003). However, this CCP update proposes significant reclamation activities for the open pit area to meet overall closure/closeout criteria. The closure water management and treatment plan utilizes portions of the pit long term, and these are part of the Water Management PMLU. The primary closure performance objectives for the Santa Rita Open Pit are to:

- Provide a hydraulic sink for capture of process waters
- Control run-on and public access
- Maintain operational access for water treatment work

- Minimize adverse impacts to waterfowl and other wildlife resulting from ponding or water impounded in the pit areas

4.2.3 Surface Impoundments

The closure performance objectives for surface impoundments are to retain, evaporate or convey process waters, seepage collection waters, extracted groundwater and pit water, and surface water. Surface impoundment are the last facilities closed following the establishment of vegetation and site stabilization on the reclaimed facilities. Impoundments that serve PMLU functions or are associated with the stockpile toe perimeter and groundwater control systems are considered permanent parts of the reclamation system and are maintained throughout the post-closure period.

4.2.4 Water Management and Treatment Performance Objectives

The primary performance objective of the water management and treatment system is to control the discharge of water borne contaminants specific to copper mine facilities to meet the NMWQA regulations. The water treatment plant, interceptor well systems, water conveyance pipelines, evaporation systems are all designated as parts of the Water Management PMLU. Related performance objectives are to:

- Separate clean stormwater from contact stormwater
- Release clean stormwater wherever practicable
- Minimize resource (e.g., power, chemicals, labor) usage in moving and treating water

5.0 RECLAMATION PLAN DESIGN CRITERIA

Design criteria set the basis for the associated engineering conceptual designs required for reclamation planning. Design criteria are how this CCP update will meet the performance objectives outlined in Section 4.2.

5.1 Stockpiles and Tailing Ponds

Reducing erosion and ensuring stockpiles and tailing ponds are geotechnically stable are two of the overarching objectives in the closure plan. Meeting these objectives also helps

establish a self-sustaining ecosystem (SSE). General design criteria to meet these and other objectives are as follows:

- Erosion Reduction:
  - For 3H:1V inter-bench slopes, maximum slope length of 200 feet
  - For 2.5H:1V inter-bench slopes, maximum slope length of 175 feet
  - Provide for adequate gravel and rock percentage in cover materials (Appendix E) and vegetation establishment
  - Average bench channel velocities < 5 fps (Chow, 1959)
- Mass Stabilization:
  - Maximum of 2.7H:1V overall stockpile slopes
  - Allow drain down of interstitial waters from leach stockpiles and tailing ponds
- Reduce stockpile seepage:
  - Three feet of approved cover that meets the water holding criteria of 20.6.7.33.F(2) NMAC

Table 8 provides additional design criteria specific to each facility.

5.2 Water Management and Treatment

To meet the water management and treatment objectives, the CCP update has the following design criteria:

- Water treated for discharge shall meet NM groundwater surface water standards for wildlife
- Minimize pit water management sump surface area and allow flexibility to efficiently manage storm events
- The water treatment plan will conform to previous settlement agreements
- Segregate waters that meet applicable standards from those that do not
- Segregate process water into a high total dissolved solids (TDS) circuit and a low TDS circuit
- Store evaporative salts within the Santa Rita Open Pit and OPSDA as a potential future resource
- Treated water released to the watershed shall meet NMMA surface and groundwater standards or any applicable groundwater abatement standard

6.0 RECLAMATION PLAN

Section 6.0 summarizes the reclamation plan for the earthwork and water management system under this CCP update for the facilities described in Section 2.0. This plan is based on the current mine plan for the EOY 2030, for which Sheets 2 and 19 (Appendix C) show the planned EOY 2030 topography. Appendix F and Appendix G detail reclamation activities and quantities (e.g., materials moved, capital required, energy expended, cover borrow sources, costs).

This CCP update utilizes existing components and related engineering controls during reclamation activities. These include:

- Existing berms at the toes of the stockpiles
- The existing stormwater diversion south of the South Lampbright Leach Stockpile into several catchments to reduce peak flows into the Reservoir 8 area
- Existing groundwater pump-back well/interceptor system within the Lampbright stockpile area (Chino, 2021)
- Existing groundwater pump-back well/interceptor system within the West Stockpile area
- Existing toe control and conveyance systems at the West Stockpile, including the collection systems along the western portion of West Stockpile (Chino, 2021)
- PLS collection systems and associated pumps, pipelines, impoundments, and application systems associated with the leach stockpiles

This CCP update utilizes the following existing components and related engineering controls post-reclamation:

- Planned stormwater diversion north of the North Lampbright Leach Stockpile
- Select, existing surface impoundments, berms, sumps, collector pipes, seepage and PLS collection systems, and ground water interceptor systems (See Section 6.4)
- Maintenance of existing monitoring wells that are used for post-closure groundwater monitoring

Reclamation steps common to all stockpiles and tailing ponds are:

- Grading of steeper operational slopes to slopes meeting the design criteria (Section 5.1) with a balance of cut and fill within each stockpile
- Placement of benches and bench channels to:
  - Limit slope lengths to that in the design criteria
  - Safely collect and convey stormwater from the reclaimed surface
- Installation of down drains and dissipator to safely move stormwater from the bench channels back into the watershed
- Placement of three feet of approved cover material and subsequent vegetating activities (e.g., scarify, seed, mulch) as shown in Sheets 15 through 18, and in Sheets 25 through 28 (Appendix C) for the NMA and SMA, respectively
- Collection of remaining toe seepage and conveyance into the closure water management system

6.1 North Mine Area

6.1.1 Waste Rock Stockpiles

Kessel and Southwest Lampbright Stockpiles

By EOY 2030, the Kessel Stockpile and an Infill between the South Lampbright and Southwest Lampbright (Sheet 2) buttress the Southwest Lampbright Stockpile. The Infill eliminates the majority of the Southwest Lampbright out slopes. The Infill portion of the stockpile is built at reclamation slopes. The planned Kessel Stockpile has 3.5H:1V overall out-slopes at the EOY 2030. Thus, the out-slopes grading is limited to a relatively short downslope distance between benches compared to older stockpiles built at an angle of repose. Most of the combined area consists of flat tops. The tops require only fine grading prior to cover placement. Sheets 6 and 8 in Appendix C, respectively, show the reclaimed topography, drainage plan, and grading plan for the Kessel and Southwest Lampbright Stockpiles. Appendix F considers dozer push-down as the preferred grading method for these stockpiles.

West Stockpile

The West Stockpile has an angle of repose slope at the beginning of closure. Due to the constraints on the reclamation toe limits by Hanover Creek and the height of the stockpile, there is excess cut on the western side that is hauled to the south and east sides where extra fill is needed. As described in Appendix F, the height also makes hauling and placing the

material the most efficient grading procedure. Sheets 9 and 10 in Appendix C show the grading plan for the West Stockpile.

North, North In-Pit, and Northeast Stockpiles

Between now and EOY 2030, the North and North In-Pit Stockpiles show no topographical change. Because the top is flat and the out slope is inside the OPSDA and the Pit Waiver Area, the updated CCP contemplates placing cover and vegetating the top while leaving out-slopes at their current grade. Similarly, the updated CCP considers only reclaiming the top of the Northeast Stockpile, as shown in Sheet 11.

6.1.2 Leach Stockpiles

South Stockpile

The east side of the South Stockpile is in the OPSDA and Pit Waiver area. Thus, the CCP update contemplates no reclamation east of the OPSDA and Pit Waiver boundary. Sheet 4 (Appendix C) shows the planned reclamation-grade surface, while the cross sections in Sheet 5 depict the grading plan. Due to its height and angle-of-repose slopes, stockpile grading requires moving distances much farther than is economical with a dozer push, and the RCE utilizes large scrapers and dozer assists in accomplishing rough grades (Appendix F).

Lampbright Stockpiles

Sheet 6 (Appendix C) depicts the reclamation topography and drainage plan for the North, Main, and South Lampbright Leach Stockpiles. The final height of the Main and South Lampbright Stockpiles is about 150 feet lower than the operational stockpile height. Sheets 7 and 8 show the grading plan for the Lampbright Stockpiles.

6.1.3 Surface Impoundments

The closure/closeout plan for surface impoundments involves using them to manage storm and process water during reclamation. Post-closure, some remain as a PMLU to support the water management system. Those that do not remain are closed by ripping any liner, removing dams or headwalls, covering with three feet of cover material, and vegetating the

disturbed area. Appendix F lists and describes the closure of the impoundments used during the reclamation period and Appendix G lists those utilized for the closure water management system post-closure.

6.1.4 Santa Rita Open Pit

The Santa Rita Open Pit is key during the closure and post-closure periods. It:

- Houses the high TDS water management infrastructure
- Collects the salts produced from the evaporative treatment system (for subsequent disposal)
- Remains a hydraulic sink, protecting surrounding groundwater
- Controls the OPSDA and defines the bounds of the Pit Waiver area

Thus, the following areas within the pit have a Water Management PMLU:

- Flat areas provide access for spray evaporator systems
- Sumps provide collection points for incidental rainwater runoff and impacted water collected from stockpile toes
- Roads provide access for long-term maintenance and operation

Pit Waiver applies to the pit highwalls. The earthwork closure for the Santa Rita Open Pit is limited to long-term maintenance on access roads and the flat area on the east/southeast side of the pit rim (see Sheet 18, Appendix C). Section 6.4 and Appendix G describe the closure Water Management PMLU within the pit.

6.1.5 Industrial PMLU Areas

In the NMA, the CCP update slates an Industrial PMLU for the Ivanhoe Concentrator, Main Mine Facilities, and the SX/EW areas (Figure 3). Additionally, the update includes a Water Management PMLU for the tailings thickeners and buildings for an equalization tank, and lab, and office space, respectively. The closure/closeout for these areas is to leave the buildings intact except for the Pump House (CP-06) and the Sewer Plant (CP-36), both in the Concentrator area (Appendix D), which require demolition. The closure/closeout includes removal of an assumed three feet of existing soil around all the buildings and placement of three feet of cover and revegetation. Cover and revegetation also occur over all building demolition sites.

6.1.6 Miscellaneous Areas

Additional areas considered in this CCP update include the:

- Northwest Haul Road (4.8 acres)
- East Pit Access Disturbed Area (3.67 acres)
- Chino part of Cobre Haul Road (3.21 acres)
- Highway to Heaven Haul Road (32 acres)
- Disturbed Area Around Reservoir 5 (32 acres)

These areas have limited access after closure.

6.1.7 Unplanned Disturbance

This CCP update considers 200 acres of "unplanned disturbance," which could be anywhere in the NMA where disturbance occurs within the mine permit boundary that the EOY 2030 did not capture. Ripping and revegetating are the planned reclamation steps for these areas.

6.2 Pipeline Corridor Area

Pipelines

The interim and long-term water management systems require using approximately 50% of the existing pipelines throughout the mine site. The other 50% are flushed and the sludge appropriately disposed. Surface pipelines are cut and buried in place, with three feet of cover material placed on top and vegetation established.

Roads

The haul road from the NMA to Lake One is approximately 120 feet wide. Post-closure, only 24 feet are needed for maintenance and operations. The remaining 96 feet of the road width are ripped and revegetated along the entire length.

Groundhog Mine

Chino reclaimed the Groundhog Mine with various steps over the last 16 years. The latest maintenance step was the additional cover added and an upgrade to the drainage around

the Ground Hog No. 5 Stockpile (Telesto, 2022). The closure/closeout plan for the Groundhog Mine area includes the scope to continue monitoring and performing necessary maintenance on vegetation establishment and erosion controls until MMD releases the financial assurance on this portion of the mine. Chino expects financial assurance to be released during this CCP update period. Prior to the MMD release, a Record of Decision (ROD) for the site under the Chino AOC is required.

6.3 South Mine Area Reclamation Plan

Appendix C, Sheets 19 and 20 show the EOY 2030 and reclamation topography, respectively, for the SMA. The main components under consideration for closure/closeout planning include Tailing Pond 7, Axiflo Lake, and the non-reclaimed portions of Tailing Pond 6. Sheets 25 through 28 (Appendix C) show the cover and revegetation plan for the SMA.

6.3.1 Tailing Pond 7

Most of the out slopes for Tailing Pond 7 are at reclamation grade and therefore require no rough grading. The closure/closeout plan for Tailing Pond 7 is to allow drain down to occur over a 15-year period. The closure plan covers the tops and sides with three feet of reclamation cover and revegetates the resultant surface. A designed channel on the northeast side will cut through the embankment and discharge excess top surface stormwater to the stormwater channel that parallels Tailing Pond 7's east side and flows to Whitewater Creek. Sheet 23 (Appendix C) shows the drainage plan and reclaimed topography while Sheet 24 shows the grading plan.

6.3.2 Axiflo Lake

Appendix C, Sheet 21 shows planned reclamation grading and drainage conveyance for Axiflo Lake. Prominent is a diversion channel that breaches the dam on the southwest corner to carry excess stormwater to the parallel stormwater along the east side of Tailing Pond 7, which discharges to Whitewater Creek. As with Tailing Pond 7, rough grading is minimal (Sheet 22). The closure/closeout plan calls for three feet of RCM and vegetation establishment over the entire Axiflo footprint.

6.3.3 Remaining Tailing Pond 6 East and West

The CCP update calls for three feet of RCM placement over the not-yet-reclaimed portion of Tailing Pond 6 (Figure 4), followed by vegetation establishment. No grading is necessary in this area.

6.3.4 Reclaimed Tailing Ponds

Reclamation in the SMA began with the Hurley Smelter Area in 2008, concluding with Lake One in 2014 (Table 5). Chino received financial assurance release on Tailing Pond 1, 2, and 4 in March 2014, and anticipates release on the remaining areas listed in Table 5 in the period covered by this CCP update.

6.3.5 Industrial PMLU Area

Appendix D identifies that the buildings in the Tailing Operational Area (Figure 4) are fit for an Industrial PMLU. The long-term water management plan (Section 6.4 and Appendix G) also utilizes a small area to house the SMA water equalization tank for pumping to the treatment plant in the NMA, and maintains the Tailings Operational Area for water management facilitation. .

6.3.6 Miscellaneous SMA Reclamation Areas

Wind-blown tailings were identified east and south of Tailing Pond 7 within the Tailing Investigation Unit under the Chino Administrative Order on Consent (AOC). The AOC investigation and feasibility study based on 2007 and 2011 sample data determined that there are no ecological or human health risks, nor are there communication of constituents to groundwater. However, the tailing deposition sources from the currently active Tailing Pond 7 operations, and those affected acres fall under the operational and closure permit boundaries. These deposition sources are not part of the AOC's definitions for investigation. Thus, this CCP update includes removing an average of 6 inches of windblown tailing from the affected area, ripping the exposed substrate, and revegetating.

6.3.7 Unplanned Disturbance

This CCP update considers 200 acres of unplanned disturbance in the SMA within the permit boundary. Unplanned disturbance is potential, future disturbance that is unknown at the time that the mine planners developed the EOY 2030 mine plan (e.g., unplanned access road, test pits, drill pad). It does not include new facilities, which would require a modification to Chino's permit. Ripping and revegetating are the planned reclamation steps for these areas.

6.4 Closure Water Management System

This closure/closeout water management and treatment plan describes the cost basis for the updated post-closure mine water management and treatment system (CWMTS). It provides a conceptual-level engineering plan that describes the processes and methods for Chino's long-term management and treatment of process water. The CWMTS plan includes a description of each water management and water treatment system throughout the post-closure period, and includes:

- Locations of key components
- Cost estimating basis for
  - Capital
  - Operations and maintenance

Appendix G provides detailed information for this CWMTS plan. The plan:

- Begins with the estimated water inventory at the EOY 2030 (Section 6.4.1)
- Eliminates the process water inventory over a five-year time frame through evaporation in the existing leach stockpile circuits (Section 6.4.2)
- Continues with a long-term enhanced evaporation system in the Santa Rita Pit for NMA high TDS waters that include:
  - Santa Rita Pit runoff
  - Long-term toe seepage from waste rock and leach stockpiles
- Utilizes an ultra-filter (UF) prefilter with a reverse osmosis (RO) polishing step to treat relatively low TDS water long-term including:
  - NMA groundwater intercepted prior to entering the open pit
  - Continental mine inflows
  - Tailing Pond 7 interceptor well water

6.4.1 Process Water Inventory and Water Quality

Chino maintains a site-wide water balance through a GoldSim model. Chino utilized the GoldSim model to estimate the water inventory at EOY 2030. The Closure Water Treatment and Management System (CWTMS) manages all water present at the EOY 2030 (Appendix G, Table 1) through EOY 100 as contemplated in this CCP update.

The CWTMS assumes that the current process water quality collected from the individual sources remains constant throughout the closure and post-closure periods. Sulfate and TDS drive the treatment portion of CWTMS and are thus the focus of the analysis and discussion. Appendix G, Table 3 lists the sulfate and TDS concentrations of the seepage, runoff, and interceptor wells and other sources sampled.

6.4.2 EOY 1 through EOY 5 Evaporation System

The year one through five evaporation plan for the NMA includes the recirculation of all process solutions utilizing existing infrastructure on the Lampbright Stockpiles (Appendix G, Figure 2). Most evaporation occurs on these stockpiles and, to a lesser extent, at the surface impoundments, ponds, and pit sumps. During the first five years, all solutions, including the groundwater inflow into the open pit, and the NMA interceptor wells (as they come online), are directed to the NMA evaporation system. Once the inventory of process water is evaporated:

- Reclamation proceeds on leach stockpiles
- Interstitial moisture drains from the stockpiles
- Stockpile seepage diminishes to reduced, steady-state flow rates

Appendix G, Section 7.1 presents the details of the flow rates and evaporation rates for this part of the plan. Tailing Pond 7 interceptor wells and the flow from the Continental mine inflows evaporate on Tailing Pond 7 until the water treatment system is operational in year six (Appendix G, Table 5 and Figure 3). Appendix G, Sections 9.1 and 9.2 detail existing and new infrastructure required for these evaporation systems.

6.4.3 Year 6-100 CWMTS Plan

The year 6-100 plan includes the separation of high TDS and low TDS process waters. The enhanced evaporation system within the Santa Rita pit disposes of high TDS process water, and the NMA water treatment plant treats low TDS process water for release. High TDS process water sources include steady-state stockpile seepage and runoff, Santa Rita Pit area runoff, and any other high TDS water sources. Low TDS process water sources include intercepted pit groundwater, Tailing Pond 7 interceptor wells, and long-term flows from the Continental Mine.

The Santa Rita Pit enhanced evaporation system utilizes proven technology consisting of forced spray evaporation and wetted surface evaporation areas. A network of mechanical spray systems installed in available flat areas in the pit make up the forced evaporation system. Wetted surface evaporation areas include pit-wall runoff areas, roads, sumps, and areas surrounding the forced evaporation system.

An important component of the CWMTS plan is the periodic removal and stockpiling of salts generated from the enhanced evaporation system (See Appendix G for details). Both the enhanced evaporation and the salt storage are proposed within the post-closure OPSDA.

6.4.4 Water Treatment Plant

The primary objective for the water treatment plant (WTP) is to meet the applicable NMWQCC criteria for discharge. The planned WTP includes an UF prefilter with a reverse osmosis polishing step. One of the Tailing Thickener Tanks at the Ivanhoe Concentrator serves as a collection and equalization tank for lower TDS inflows from the NMA and the existing 750,000-gallon tank provides equalization in the SMA area. From the equalization tanks, water is pumped to the UF/RO system, which removes most metals, sulfate, and TDS. UF/RO system effluent is then mixed with some lower TDS SMA water that bypasses the treatment process prior to discharge to Whitewater Creek. RO/UF reject is sent to the high TDS evaporation system in the Santa Rita pit. Appendix G, Section 10 details the design and operation of the water treatment plant.

7.0 CLOSURE & POST-CLOSURE MONITORING, REPORTING, AND CONTINGENCY PLANS

Under its current permits, Chino conducts monitoring and reporting. When mining facilities transition into the post-closure period, DP-1340 and GR009RE dictate monitoring and reporting requirements to ensure that closure steps:

- Perform as designed
- Protect water quality
- Create an approved PMLU and/or establish an SSE

Closure water quality and quantity reporting includes all groundwater monitoring wells, surface water, seep, spring, and piezometer monitoring data under the appropriate discharge permit (DP). During the post-closure period, the DP-1340 sampling and analysis plan (SAP) dictates sampling location and frequency.

This CCP update considers both the MMD guidelines that require revegetation monitoring during the 12-year post-closure monitoring period to evaluate revegetation success, and the WQCC Regulation 3107.A.11 that requires the development of post-closure monitoring and contingency plans that are consistent with the terms and condition of applicable DPs. Permits GR009RE and DP-1340 supply additional, specific closure/closeout monitoring and reporting requirements associated with public health and safety, vegetation, wildlife, meteorology, erosion and CQC/CQA plans. This CCP update considers ongoing inspections, reporting, and sampling until MMD releases lands per the NMMA. The following sections summarize the general approach used to meet permit conditions and regulatory requirements, in addition to those covered under the DP-1340 SAP.

7.1 Erosion and Drainage Control Structures

Erosion and drainage control structures require inspection when rainfall exceeds one inch in a 24-hour period, as recorded by the Chino Mine weather stations. Inspections occur monthly in the first post-closure year and quarterly thereafter until vegetation establishes.

Erosion monitoring on reclaimed facility surfaces includes identifying substantial rill, gully, or sheet erosion. The U.S. Natural Resource Conservation Service (NRCS) provides nationally recognized definitions of these erosional features and standards that indicate when such features become problematic. Reporting to the MMD and NMED occurs when substantial erosion is identified. A corrective action plan (CAP), submitted within 30 days of problem identification, alerts the Agencies to the restorative steps planned.

7.2 Water Control Facilities

7.2.1 Groundwater

Groundwater control facilities[4] planned during the closure and post-closure periods include:

- Princess and Oswaldo Shaft dewatering systems
- Santa Rita Pit dewatering wells (see Appendix G)
- The DP-376 interceptor system
- Dam 16 contingency capture system
- Tailing Pond 7 Interceptor wells

The Princess, Oswaldo Shaft, and Santa Rita Pit dewatering wells are key to the CWTMS as they prevent inflowing groundwater to the pit from degrading due to pit mineralization and oxidation. Monitoring includes depths to water and water quality sampling at the discharge point into the WTP's equalization system. The final WTP design dictates the required water quality parameters and monitoring frequency. The DP-1340 SAP controls the reporting frequency to the NMED.

Interceptor systems operate during the closure and post-closure periods. Current DPs dictate the interceptor reporting requirements during closure. Post-closure, all water reports to the WTP equalization tanks, where automated equipment measures flow rates and certain water quality parameters. The final WTP design dictates additional water

[4] Does not include any groundwater control facilities regulated as part of an approved groundwater abatement plan

quality parameters and monitoring frequency. The DP-1340 SAP controls the reporting frequency to the NMED.

7.2.2 Surface Water

Chino's surface water control features are the Rustler Canyon Dam and the James Canyon Diversion. Both remain throughout the closure period, and operational DPs dictate monitoring and reporting. During the post-closure period, Rustler Canyon Dam is removed (Appendix F), and James Canyon continues to operate, diverting Whitewater Creek flows around the tailing pond areas. Post-closure monitoring and reporting for James Canyon Dam follows current DP-484 requirements.

7.2.3 Contingency Plan

Currently, Chino's emergency response plan (Chino, 2023) describes how Chino responds to emergency shut-down conditions. The closure period will rely on this operational emergency response plan. Post-closure engineering designs dictate changes to the emergency response plan once completed. Likely elements of the post-closure emergency response plan(s) will include:

- Sizing of water storage structures to contain the 100-year, 24-hour precipitation event
- Backup power and/or pumping stations, where determined necessary, that rely on diesel or other local power sources
- Procedures to implement the contingency plan

7.3 Revegetation Success Monitoring and Contingency

All versions of Permit GR009RE specify vegetation monitoring, triggers, and contingency measures for reclaimed areas. Revegetation monitoring includes:

- Canopy cover
- Vegetation diversity
- Woody stem density

The MMD provides survey techniques for the canopy cover and woody stem density surveys. The revegetation monitoring schedule is:

- The third year after seeding
- The sixth year after seeding
- For two consecutive years prior to bond release

At least 90 days before conducting vegetation monitoring, MMD approves the vegetation monitoring plan considered by this CCP update. The CCP update includes submittal of the vegetation monitoring results to MMD for review and follow up.

7.4 Wildlife Monitoring

Pursuant to permit GR009RE, Chino documents wildlife use of reclaimed areas through monitoring, which include, but are not limited to, deer pellet group counts and bird diversity surveys. The purpose of the surveys is informational, and thus there are no contingency or mitigation measures associated with wildlife monitoring results. Similarly, Financial Assurance (FA) release is independent from the results of the wildlife surveys.

7.5 Public Health and Safety

A common goal of Chino and regulatory agencies is to protect public and worker safety and health. This CCP update ensures this is accomplished in the following ways:

- Restrict access by unauthorized personnel into the mine site which includes industrial areas, water management and treatment PMLU areas etc.
- Maintain safety features such as fences and berms
- Visually inspect the pit highwalls of the open pit to identify potential failure areas quarterly
- Communicate inspections and maintenance activities to the MMD yearly

7.6 Construction Quality Assurance Plan and Report

MMD requires that 180 days prior to implementing any part (or all) of the reclamation plan described in Section 6.0, they receive a CDQAP for their approval. The CDQAP provides detailed engineering to implement the reclamation plan, and the quality assurance steps that the mine, or engineering representative, plans to implement to assure that reclamation proceeds per design. 180 days after finishing reclamation activity, MMD requires a CQAR for their review and approval. The CQAR documents reclamation activities and provides information that final reclamation meets the intents of the reclamation design.

7.7 Administrative Order on Consent and Groundwater Abatement

This CCP update presumes that the AOC and Groundwater Abatement (GWA) process continue before, during, and after closure. Future CCP updates may consider elements of the AOC or GWA in the reclamation plan as this one considers wind-blown tailing reclamation as described in Section 6.3.6.

8.0 POST-MINING LAND USE DESIGNATIONS

This section describes the planned PMLUs for the entire permit area and for specific facilities. GR009RE 18-1 lists the currently approved PMLUs as industrial, wildlife, and waiver (i.e., areas of the pit that are waived from the requirement). This CCP update presents a new PMLU, water management, to accommodate the long-term, post-reclamation water management. The selection of the wildlife habitat, water management, and industrial PMLUs for purposes of the NMMA does not preclude multiple beneficial uses (e.g., grazing, recreation, and watershed) in the post-closure period by the surface landowners (e.g., BLM and USFS). Wildlife habitat is the primary PMLU for much of the permit area, with an Industrial PMLU designated for the SX/EW Plant Area, the Mine Maintenance Facilities Area, and the Ivanhoe Concentrator Area, and water management for portions of the Santa Rita Pit, and Tailing Pond 7 Interceptor areas. The proposed PMLU for the PCA is water management, and Figures 11 and 12 show the PMLUs for the NMA and SMA, respectively.

8.1 Wildlife Habitat Post-Mining Land Use

Planned reclamation develops an early-stage grass/shrub community to provide a locally important increase in community-level diversity. Native-species vegetation established on the reclaimed areas increases erosion protection, improves habitat, and reduced net infiltration of water into the underlying materials. Table 9 presents the proposed reclamation seed mix and seeding rates, which are in accordance with Appendix A of GR009RE 18-1. These species have broad ecological amplitudes and provide structural diversity. Table 10 lists some of the major attributes of the vegetation selected for use.

The selected vegetation provides erosion control, promotes soil development, and provides forage, seeds, and cover for small mammals and birds, thus, promoting ecosystem reestablishment. The seed mixes include several valuable, nutritious forage and browse species to support wildlife.

The plan relies upon retaining some ancillary features to manage wildlife PMLU areas (e.g., maintaining roads for access, and modifying mine adits for use by ringtail cats, bats, and other wildlife).

8.2 Industrial Post-Mining Land Use

Appendix D lists the buildings capable of supporting an industrial PMLU. The NMA holds all the Industrial PMLU areas (Figure 11), with the exception of a few in the Ivanhoe Concentrator area, for which the reclamation plans calls for demolition. The areas approved for Industrial PMLU have the infrastructure necessary to support a variety of future industrial uses. The buildings are currently being used and are well maintained and most of the areas have significant shop facilities and warehouse storage capacity. The Maintenance Facilities Area is accessible by roads and the Ivanhoe Concentrator Area has railroad access. Electrical power is available in each area. Stormwater runoff from the areas is contained within the on-site reservoir system.

The closure plan maintains erosion controls, structures, equipment, and utilities within the Industrial PMLU areas until they are occupied by tenants. The areas identified for the Industrial PMLU are currently used for industrial purposes such as water treatment, warehousing, heavy equipment repairs, metals recovery, electrical distribution and repairs, welding, machining, plumbing, and training. Although the Industrial PMLU will continue the existing type of use, the specific industry may change.

8.3 Water Management Post-Mining Land Use

The Water Management PMLU is key to the successful implementation of the Chino Mine closure. It provides for the area needed to move, temporarily store, evaporate, and treat water, which is a long-term, post-closure prospect. The largest Water Management PMLU

area is a portion of the Santa Rita Pit, where long-term evaporation requires surface area to manage water and the resulting salts from evaporation. The second largest Water Management PMLU area is the Tailing Pond 7 Interceptor system (Figure 12) and pipeline to the NMA along the existing pipeline corridor (Figure 2). The water treatment plant itself, along with all water management pipelines, are also designated as part of this PMLU. Existing seepage areas along the toes of the West, South and Lampbright stockpiles are minor Water Management PMLU areas post-reclamation.

8.4 Site-Specific Revegetation Success Guidelines

Section 507.A of the NMMA rules (MMD, 1996) requires that the permit area of an existing mine be reclaimed to a condition that allows the establishment of a self-sustaining ecosystem appropriate for the life zone of the surrounding area unless it conflicts with the approved PMLU. Demonstration of the establishment of a self-sustaining ecosystem is made by comparison of the vegetation on the reclaimed areas to vegetation attributes on a reference area and/or technical standards (MMD, 1996). The MMD recognizes that replication of the pre-mining plant communities after mining is not practical (MMD, 1996). The reference area characterization provides a site-specific, quantitative basis for determining revegetation success. More importantly, the reference area provides an "ecological barometer" that integrates normal climatic variations to aid in the evaluation of temporal changes or trends in the reclaimed ecosystem. Thus, the reference areas do not represent model plant communities that will be replicated in detail, but rather local indications of the ecological potential of the reclaimed plant communities.

The reclamation success guidelines required by the MMD vary depending on the PMLU. Canopy cover, shrub density, and vegetation diversity are the revegetation success guidelines used to measure revegetation success on lands designated as wildlife habitat. The vegetation success guidelines include numerical standards to address the canopy cover and shrub density requirements of the NMMA. The plant diversity guidelines are addressed through a technical standard and are complemented by a qualitative assessment of plant colonization and regeneration to corroborate the establishment of a self-sustaining ecosystem. Site-specific revegetation success guidelines for each of the PMLU areas

(Figures 11 and 12) are based on the vegetation cover and shrub density requirements listed in GR009RE. The proposed numerical diversity guidelines for the Chino mine are listed in Table 11.

This CCP update and associated RCE accounts for post-closure monitoring to ensure vegetation success. Recently, the MMD conditionally approved Chino's proposed hybrid method of measuring reclamation success, which incorporates drone imaging and remote sensing (Chino, 2024; MMD, 2024).

9.0 CAPITAL, AND OPERATION AND MAINTENANCE COST ESTIMATES

This section summarizes the RCEs that form the foundation for the financial assurance (FA) calculations. Chino will propose the net present value calculation upon the Agencies' approval of the scope and cost basis described in this CCP update. Appendix F (earthwork) and Appendix G (water treatment and management) details the cost estimates associated with each facility's proposed reclamation. The RCEs are divided into capital costs, and operation and maintenance (O&M) costs. The following sections summarize the bases used in establishing the RCEs.

9.1 Capital Cost Estimates

Tables 12 and 13 summarize the capital costs for earthwork, and water management and treatment, respectively.

9.1.1 Basis for Earthworks Capital Cost Estimates

Earth moving and reconfiguration from operational slopes (many which are at the angle of repose) to stable reclamation slopes drives the bulk of the capital earthwork cost estimate. The reclamation plan shown in Appendix C is the basis for the material quantities needed achieve reclamation slopes. Estimated earth moving energy consumption derives from the physics of moving material up or down slopes and documented equipment fuel consumption and efficiencies. Unit rates are from a myriad of sources to which the

Agencies, and Freeport-McMoRan Chino Mines Company agreed (Chino, 2019; MMD and NMED, 2019). Appendix F details the bases of the earthwork capital cost estimate.

9.1.2 Basis for Water Management and Treatment Capital Cost Estimates

The water management plan relies on existing infrastructure, and thus, the capital cost for water management is small compared to the water treatment capital costs. The water treatment plant drives the water treatment capital cost estimate. Appendix G details the bases for the water management and treatment capital cost estimates.

9.2 Operation and Maintenance Cost Estimates

Tables 14 and 15 provide the O&M cost estimates for earthwork, and water management and treatment, respectively.

9.2.1 Basis for Earthworks Operation and Maintenance Cost Estimates

O&M costs include erosion control, road maintenance and revegetation maintenance. O&M costs are based on efforts diminishing with time:

- Erosion Control
  - Reclamation years 0-12: 12 days/year
  - Reclamation years 13-39: 4 days/year
  - Reclamation years 40-99: 1 day/year
- Road Maintenance
  - Reclamation years 0-19: 4 months/year at 24 hours/month
  - Reclamation years 20-39: 2 months/year at 24 hours/month
  - Reclamation years 40-99: 1 month/year at 24 hours/month
- Water Quality Monitoring and Reporting
  - Reclamation years 0–19: 4 days/year
  - Reclamation years 20–39: 2 days/year
  - Reclamation years 40–99: 1 day/year
- Revegetation Maintenance
  - Reclamation years 0-11: Based on observations of previously reclaimed areas, the annual vegetation failure is conservatively estimated to be 2% failure every year for a total of 12 years, starting the year reclamation is completed

9.2.2 Basis for Water Treatment Operation and Maintenance Cost Estimates

Bases for the water management and treatment O&M costs include: power, labor, and water treatment reagents. Water treatment reagents account for the largest portion of the O&M costs. Appendix G provides the specifics for the water management and treatment O&M cost estimates.

10.0 CLOSURE SCHEDULE

This CCP update bases the closure schedule upon:

- An average 200-acres per year reclamation
- Eliminating the highest sulfate and TDS sources first (Appendix G)

The schedule in the NMA generally starts on the far east of the mine site and moves west towards the WTP located near the Ivanhoe concentrator. The SMA area is reclaimed last due to the time required to drain and allow settlement of the Tailing Pond 7. Table 16 summarizes the construction, reclamation and O&M schedule for various closure components.

11.0 SUMMARY OF GR009RE PERMIT MODIFICATION REQUESTS

This CCP update describes new mine components and requested modifications to GR009RE throughout the document. This section summarizes the new mine components and requested modifications:

- Design limit change driven by the Kessel Stockpile and Rubio Peak RCM Stockpile (Figure 13)
- Reservoir 9 expansion within permitted 9 Stockpile footprint
- Southwest Lampbright Waste Rock Stockpile Buttress per recent modification
- Additional PMLU of Water Management
- Pit safety: rely on the Water Management PMLU for the pit and utilize existing berms, active monitoring, and restricted/controlled access
- Rubio Peak materials changed from a conditional to an approved RCM
- OPSDA and AOPHC updates pending groundwater model update/completion in 2025

- Pit Waiver modified to accommodate Water Management PMLU and encompass all highwalls and stockpiles slopes within the OPSDA

12.0 REFERENCES

Chino, 2007. *Chino Closure/Closeout Update,* Hurley, New Mexico: Chino Mines Company.

Chino, 2018. *Freeport-McMoRan Chino Mines Company–Updated Closure Closeout Plan. Submittal Letter from Thomas L. Shelley (Chino) to Bruce Yurdin (NMED) and Fernando Martinez (MMD).* Bayard, New Mexico. February 18, 2018: Freeport-McMoRan Chino Mines Company.

Chino, 2019. *Freeport-McMoRan Chino Mines Company - Continental mine Financial Assurance, Permit GR002RE Discharge Permit 1403. Letter to Messrs. Shepherd (MMD) and Vollbrecht (NMED) from Sherry Burt-Kested, Mgr (Chino),* Bayard, New Mexico: Freeport-McMoRan Chino Mines Company. January 11, 2019.

Chino, 2021. *Chino Ivanhoe Concentrator Operations Application Requirements for a Copper Mine Facility's Discharge Permits 20.6.7.11 NMAC. Prepared for New Mexico Environment Department,* Bayard, New Mexico: Freeport-McMoRan Chino Mines Company.

Chino, 2023. *Stormwater Management and Emergency Response Plan for the Chino North Mine Area (NMA) Groundwater Discharge Permits 376, 459/1568, 591, 526, 213 (NMAC 20.6.7.17(4)),* Bayard, New Mexico: Freeport-McMoRan Chino Mines Company.

Chino, 2024. *Chino North Mine Area Application Requirements for a Copper Mine Facility's Discharge Permits 20.6.7.11 NMAC. Prepared for New Mexico Environment Department,* Bayard, New Mexico: Freeport-McMoRan Chino Mines. July 2024.

Chino, 2024. *Hybrid Ground and Remotely-Sends Data Acquisition for Vegetation Success Monitoring Work Plan,* Bayard, New Mexico: Freeport-McMoRan Tyrone and Chino Mines. May 23, 2024.

Chow, V., 1959. *Open-Channel Hydraulics,* New York, New York: McGraw-Hill.

DBS&A, 2000. *Comprehensive Vegetation Survey of the Chino Mine, Grant County, New Mexico,* Albuquerque, New Mexico: Daniel B Stephens & Associates, Inc. June 5, 2000.

EMC2, 2012. *Construction Design Quality Assurance Plan, Lake One Reclamation, Chino Mines Company,* Hurley, New Mexico: s.n.

EMC2, 2014. *Construction Quality Assurance Report Lake One Reclamation Chino Mines Company,* Hurley, New Mexico: s.n.

Golder, 2009. *Completion Report, Interim Remedial Action, Groundhog Stockpile, Hanover and Whitewater Creeks Investigation Unit. Prepared for Freeport McMoRan Chino Mines Company.*, s.l.: s.n.

Golder, 2011. *Groundhog Mine Site Completion Report Addendum - Pipeline Removal, Sampling, and Reclamation. Prepared for Freeport-McMoRan Chino Mines*, s.l.: s.n.

Golder, 2016. *Draft Site-Wide Stage 1 Abatement Plan Revised Final Site Investigation Report,* Vanadium, New Mexico: Submitted to Freeport-McMoRan Chino Mines Company.

Golder, 2018. *Chino Mine Closure/Closeout Plan Update,* Albuquerque, New Mexico: Golder Associates, Inc. February 14, 2018.

Golder-URS, 2007. *Construction Design Quality Assurance Plan, Chino Tailing Reclamation, Chino Mine,* s.l.: s.n.

Golder-URS, 2010. *Addendum 1, Pond 4 West Closure Design Report (Revision 1), Construction Design Quality Assurance Plan, Chino Tailing Reclamation, Chino Mine, Grant County, NM. Submitted to Chino Mines Company,* Hurley, New Mexico: s.n.

Golder-URS, 2011. *Addendum 1, Pond 4 East Closure Design Report, Construction Design Quality Assurance Plan, Chino Tailing Reclamation, Chino Mine, Grant County, NM. Submitted to Chino Mines Company,* Hurley, New Mexico: s.n.

Golder-URS, 2013a. *Chino Mines Tailing Pond B/C Construction Quality Assurance Report, Chino Tailing Reclamation Project-Chino Mine. Submitted to Chino Mines Company*, Hurley, New Mexico: s.n.

Golder-URS, 2013b. *Chino Mines Tailing Dam No. 6 File Number D-508 Construction Quality Assurance Report, Chino Tailing Reclamation Project-Chino Mine. Submitted to Chino Mines Company,* Hurley, New Mexico: s.n.

Golder-URS, 2013c. *Chino Mines Tailing Dam No. 4 File Number D-507 Construction Quality Assurance Report, Chino Tailing Reclamation Project-Chino Mine. Submitted to Chino Mines Company,* Hurley, New Mexico: s.n.

Golder-URS, 2013d. *Chino Mines Tailing Pond 1&2 Construction Quality Assurance Report, Chino Tailing Reclamation Project-Chino Mine. Submitted to Chino Mines Company*, Hurley, New Mexico: s.n.

M3, 2004. *Reservoir and Impoundment Study for Chino Mines Company,* Hurley, New Mexico: Prepared for Chino Mines Company.

MMD and NMED, 2019. *Approval of Cost Estimate Resolutions (Agreement) and Request for Schedule. Letter from Messrs. Shepherd (MMD) and Vollbrect (NMED) to Sherry Burt-Kested, Mgr. (Chino),* Santa Fe, New Mexico: New Mexico Department of Mining and Minerals. January 16, 2019.

MMD, 1996. *Closeout Plan Guidelines for Existing Mines,* Santa Fe, New Mexico: MMD Mining Act Reclamation Bureau .

MMD, 2003. *Conditional Approval of Waiver Request, Santa Rita Pit and Portions of North Mine Area Stockpiles,* Issued December 18, 2003: Chino Mines Company, Permit GR009RE.

MMD, 2020. *Permit revision 18-1 to Permit No. GR009RE Chino Mine Existing Mining Operation,* Santa Fe, New Mexico: New Mexcio Mining and Minerals Division. September 29, 2020.

MMD, 2024. *Agency Conditional Approval on Hybrid Ground and Remotely-Sensed Data Acquisition for Vegetation Success Monitoring Work Plan – Freeport-McMoRan Tyrone and Chino Mines, dated May 23, 2024,* Santa Fe, New Mexico: New Mexico Mining and Minerals Division. July 11, 2024.

NMED, 2020. *Ground Water Quality Control Bureau (GWQCB) Discharge Permit Renewal and Modification Existing Copper Mine Facility Issued under 20.6.2 and 20.6.7 NMAC (DP-1340).* Santa Fe, New Mexico. May 21, 2020: New Mexico Environment Department, GWQB.

State of New Mexico, 2005. *Mining Act, Article 36 New Mexico Statutes Annotated 69.36.1 to 69.36.20.* Santa Fe, New Mexico: State of New Mexico.

Telesto, 2006. *Groundhog No. 5 Stockpile Construction Quality Assurance and Reclamation Completion Plan,* Silver City, New Mexico: Telesto Solutions, Inc..

Telesto, 2008. *As-Built Report for Cover Placement and Storm Water Runoff Control for the Chino Smelter Site prepared for Chino Operations Freeport-McMoRan Copper & Gold,* Silver City, New Mexico: Telesto Solutions, Inc. September 2008.

Telesto, 2022. *Groundhog No. 5 Stockpile Construction Quality Assurance and Construction Quality Control Final Report,* Loveland, Colorado: Telesto Solutions, Inc. July 2022.

Tables

Table 1 Chino's Active Federal and State Permits

Permit or Requirement	Agency	ID Number	Area Covered
Mining Act Permit	New Mexico Mining Minerals Division	GR009RE	Chino Mine
Groundwater Discharge Plans	New Mexico Environment Department: Ground Water Quality Bureau	DP-459,DP-484, DP-591,DP-526, DP-213, DP-1340, DP-376	Operational DP's North and South Mine areas Supplemental DP for Closure
Water Rights	New Mexico Office of State Engineer	M-129, M-1591, M-3527, M-4425, M-5010 through 5019, M-6724	North and South Mine Area
Air Quality	NMED Air Quality Bureau U.S. EPA (Region 6)	0298-M11 0376-M4 P066-R3	Chino and Cobre Mines Hurley Smelter Title V Mine-Wide
SARA Title III			
Hazardous Waste Generator/ Hazardous Materials Inventory	U.S. EPA/New Mexico Department of Public Safety State and County Emergency Response Commission	NMD007396930	Chino Mine
Plan of Operation	Bureau of Land Management	Submitted in 1981 and 1997	All federal land

Table 2 Discharge Permit Summary

Discharge Plan	Area Description	Primary Facilities/Discharges Permitted
213	Ivanhoe Concentrator and Associated Pipelines	Ivanhoe Concentrator and associated infrastructure – Three Tailings Pipelines (conveying slurry) – Process Water Pipeline. Copper Concentrate Pipeline – Discharges (tailing slurry, mine process water, domestic water, copper concentrate)
376	Lampbright Leach System	Main and South Lampbright Leach Stockpiles – Southwest Lampbright Waste Rock Stockpile – Lampbright Leach System – Discharges (raffinate, PLS, seepage, groundwater from interceptor systems, stormwater) – Proposed North Lampbright Waste Rock Stockpile Extension
459	Main Pit, North In-Pit Leach System, and 3A, North, Northwest, Northeast, and Lee Hill Waste Rock and Leach Stockpiles, and Reservoir 5	Main Pit (Santa Rita Open Pit) – North Pit Leach Stockpile – 3A, Northwest, Northeast, and North Waste Rock Stockpiles – Reservoir 5 – Discharges (raffinate, PLS, seepage, pit water, stormwater)
484	Tailing Pond 7	Tailing Pond 7 – Interceptor well system south of Tailing Pond 7 – Segment of the 1988 Whitewater Creek diversion channel –Tailing termination tank pipeline system – Discharges (tailing slurry, domestic wastewater, treated mine water, stormwater, groundwater from interceptor system)
526	Whitewater Leach System	Whitewater leach system (South, Upper South, and West stockpiles)
591	Solution extraction/electrowinning Plant and Reservoirs 6 and 7	Solution extraction/electrowinning Plant and associated facilities – Reservoir 6 and Reservoir 7 – Discharges (raffinate, PLS, groundwater from pumping well SXIW-2, stormwater, domestic wastewater, Cobre waters, mine water)
1340	Mine-Wide	Supplemental discharge plan for closure

Table 3 Summary of Existing Stockpile Areas EOY 2030

Stockpile Facility	Stockpile Type	Total Area (acres)
Upper South	RCM and Waste Rock	151
STS2	RCM and Waste Rock	77
Northeast (Perimeter of Santa Rita Pit)	Waste Rock	91
Northwest (Perimeter of Santa Rita Pit)	Waste Rock	16
North (Perimeter of Santa Rita Pit)	Waste Rock	110
Southwest Lampbright	Waste Rock	115
Southwest Lampbright Buttress	Waste Rock	53[5]
3A	Waste Rock	215
Santa Rita (inside Santa Rita Pit)	Leach	71
Lee Hill (inside Santa Rita Pit)	Leach	32
Main Lampbright	Leach	683
North Lampbright	Leach	63[6]
South Lampbright	Leach	182
South	Leach	610
West	Waste Rock and Leach	522
Kessel	Waste Rock	243
Rubio Peak	RCM	49
Total		**3,079**

Table 4 Summary of Tailings Impoundment Areas EOY 2030

Facility	Total Area (acres)
Lake One	249
Tailing Pond 1	159
Tailing Pond 2	150
Axiflo Lake One	95
Tailing Pond B)	395
Tailing Pond C)	
Tailing Pond 4	420
Tailing Pond 6 West	449
Tailing Pond 6 East)	470
Tailing Pond 7	1,643
Tailing Borrow Areas	626
Total	**4,656**

[5] Not included in total
[6] Not counting overlap of Main North Lampbright

Table 5 Summary of Reclaimed Areas

Facility	Start of Reclamation	Completion of Reclamation	Financial Assurance Release Approval Year[7]
South Mine Area			
Hurley Smelter Area	October 2007	April 2008	---
Lake One and Slag Pile	April 2013	August 2014	
Tailing Pond B	June 2008	December 2012	2013
Tailing Pond C	June 2008	December 2012	2013
Tailing Pond 1	January 2012	June 2013	2014
Tailing Pond 2	January 2012	June 2013	2014
Tailing Pond 4	May 2010	February 2013	2014
Tailing Pond 6E	June 2008	December 2012	2013
Tailing Pond 6W	June 2008	December 2012	2013
North Mine Area			
Groundhog Mine Stockpile Area	December 2003	August 2008/ March 2011	---
Groundhog No. 5 Stockpile	2006	May 2014	2023

[7] Some FA still held for vegetation monitoring and mitigation/repairs should conditions necessitate

Table 6 Surface Impoundments by Discharge Permit, EOY 2030

Reservoir	Reservoir Size	Dam Type	Location	Water Source	Discharge Location
Discharge Permit 213					
Tailing Thickener 1	2.6 acres	Aboveground concrete tank	West of Ivanhoe Concentrator	Flows from Freshwater tank, Ivanhoe Concentrator	Flows to Tailings Pond 7, under upset conditions flow can go to Reservoir 17
Tailing Thickener 2	2.6 acres	Aboveground concrete tank	West of Ivanhoe Concentrator	Flows from Freshwater tank, Ivanhoe Concentrator	Flows to Tailings Pond 7, under upset conditions flow can go to Reservoir 17
Discharge Permit 484 (previously 214)					
Axiflo Lake	55 AF	Earthen	South of Tailings Impoundment 2	Use discontinued	Tailing Pond 7
James Canyon Reservoir	12 acres	Earthen	East of Lake One	Stormwater flow from Upper Whitewater Creek watershed	To Whitewater Diversion Channel
750 Process Water Tank	750,000 gal	Stainless steel tank	Hurley Operations Area	Axiflo Reservoir and Clearwater Reservoir	Flows to Ivanhoe Concentrator process water tank
Lower Lined Pond	2.2 acres	HDPE lined	Southeast Corner of Reclaimed Slag Pile	Upper Lined Pond, Stormwater runoff and MRU	ELMS Tank
Upper Lined Pond	0.4 acres	HDPE lined	South Corner of Reclaimed Slag Pile	Stormwater runoff	ELMS Tank
Elmo's Pond	1.2 acres	HDPE Lined	Southwest Corner of Reclaimed Lake One	Stormwater runoff and Hurley Lift Station Overflow	ELMS Tank
Discharge Permit 376					
Reservoir 8	39 AF	HDPE lined, earthen	MLSA: South of Main Lampbright Stockpile	PLS collection, overflow from PLS tank, stormwater from setting ponds	Pumped to Reservoir 7 or PLS Tank
LFES Infiltration Basin	~400,000 gal	Concrete headwall, Gravel and HDPE lined	East of Main Lampbright Leach stockpile	Stormwater runoff from east face of Main Lampbright – filters sediments	Gravity to LFES Stormwater Pond
LFES Stainless Steel PLS Tank	1,000,000 gal	Stainless Steel	East of Main Lampbright Leach stockpile	PLS from Lampbright leach stockpile captured	Gravity to SS Tank at Reservoir 8 or Pumped to Reservoir 7
LFES Stormwater Pond	5,074,000 gal	Concrete headwall, HDPE lined	East of Lampbright leach stockpile	PLS from Lampbright leach stockpile captured	Gravity to Reservoir 8 or Pumped to Reservoir 7

Table 6 Con'd

Reservoir	Reservoir Size	Dam Type	Location	Water Source	Discharge Location
Discharge Permit 591					
Reservoir 6	285 AF	Earthen	SSA: Northwest of SX/EW Plant	Process water overflow and storm runoff flows from Reservoir 7, Lee Hill Booster Station #2, Princess Shaft and Reservoir 4A	Pumped to SX/EW or Reservoir 7
Reservoir 7	252 AF	Earthen	SSA: Southwest of SX/EW Plant	Stormwater, process water, and contaminated groundwater from the SX/EW Plant, Reservoir 4A, the South leach ore stockpile PLS tank, Reservoir 6, Reservoir 8, Princess Shaft and Well SX-IW-2	Pumped to Reservoir 6, and the SX/EW Plant
PLS Feed Pond	1,400,000 gal	HDPE lined	SX/EW Plant	PLS from Lampbright and North In- Pit leach systems	SX/EW Plant
Raffinate Tank	900,000 gal	Stainless steel	SX/EW Plant	Raffinate from SX/EW Plant	Dispersed onto the Lampbright, In-Pit leach stockpiles, South, and West stockpiles
Raffinate Pond	7 AF	HDPE lined	SX/EW Plant	Stormwater flows from SX/EW plant area, upset flows from raffinate tank	Pumped to raffinate tank
New Fleming Pond	0.22 acres	Earthen	Northwest of Main Lampbright Stockpile		Lampbright waterspout
East Headwall Impoundment	1.4 AF	Concrete headwall, HDPE lined	Northeast of Main Lampbright leach stockpile	Stormwater and seepage captured	Pumped to SX PLS Feed Pond or to Reservoir 7
PLS Tank	371,846 gal	Stainless steel tank	Northwest of Reservoir 8	PLS from Reservoir 8	SX/EW plant, Reservoirs 6 and 7, or South Stockpile. Flow to Reservoir 8 during upset conditions
Northeast Lampbright Booster Station	400,000 gal	Stainless steel tank	Northeast corner of Main Lampbright Stockpile	From SX/EW plant	Discharged to Main or South Lampbright leach stockpiles

Table 6 Con'd

Reservoir	Reservoir Size	Dam Type	Location	Water Source	Discharge Location
Discharge Permit 459					
Reservoir 5	233 AF	Concrete faced earthen dam with concrete spillway and outlet channel	North of Northeast Stockpile	Storm runoff from Upper Santa Rita Creek and process water storage. Stormwater and process water separated by a small internal berm in all but wet years when berm would become submerged	Gravity discharge to Reservoirs 6 and 7
5900 PLS Sump	1.53 AF	HDPE lined	Santa Rita Pit south of In-Pit leach stockpile	PLS from In-Pit leach stockpile	Pumped to 6250 PLS Booster Station
6250 PLS Booster Station	0.003 acre	Stainless steel tank	Santa Rita Pit	PLS from 5900 PLS Sump	Pumped to SX PLS Feed Pond
East Pit Sump	1.4 acres	Open pit sump	Santa Rita Pit	Groundwater inflow, stormwater runoff, process water	Pumped to the Estrella Pit Sump
Estrella Pit Sump	28 acres	Open pit sump	Santa Rita Pit	Groundwater inflow, stormwater runoff, process water	Pumped to the Reservoirs 6 and 7, and South Stockpile
Lee Hill Pit Sump	3.8 acres	Open pit sump	Santa Rita Pit	Groundwater inflow, stormwater runoff, process water	Pumped to the Estrella Pit Sump
Estrella Booster	60,000 gal		Santa Rita Pit	Water for the Estrella Pit Sump	Pumped to the PLS Feed Pond
Lee Hill #2 Booster	60,000 gal	HDPE lined	Santa Rita Pit	Booster station to help dewater Lee Hill Pit. Currently not in use	Pumped to the Estrella Booster and then to the PLS Feed Pond
Lee Hill #1 Booster	100,000 gal	HDPE lined	Santa Rita Pit	Booster station to help dewater Lee Hill Pit. Currently not in use	Pumped to the Estrella Booster and then to the PLS Feed Pond

Table 6 Con'd

Reservoir	Reservoir Size	Dam Type	Location	Water Source	Discharge Location
Discharge Permit 484					
Termination Tank	0.004 acres	Stainless Steel Tank	Adjacent to Axiflo Lake (West)	Tailing slurry from Concentrator	Tailing Pond 7
Discharge Permit 493					
Rustler Canyon Containment	4 AF	HDPE lined	North end of Rustler Canyon, south of Highway to Heaven	Stormwater and seepage from Highway to Heaven	Pumped to Reservoir 9
Reservoir 9	47 AF	Concrete/ earthen	East of former Reservoir 3A	Storm runoff from Upper South Stockpile and haul road, dewatering of Reservoir 3A	Make-up water source, as necessary, drains to Estrella Pit
Discharge Permit 526					
Reservoir 2	3.5 AF	Concrete	SSA: South of Ivanhoe Concentrator; Between Res. 4A and Res. 17	Seepage and overflow from Res. 4A, storm runoff from P-Plant and Concentrator; upset conditions from the PLS tank. Receives discharge from Last Chance, Dam 16, and Res. 17	Water can be pumped to Reservoir 4A. Emergency overflows into Last Chance
Reservoir 4A	15,000,000 gal.	Concrete/ earthen	SSA: Adjacent to South Stockpile and upgradient of Reservoir 2	PLS seepage from stockpiles and PLS collection pond, storm runoff from concentrator and mine shop area, overflow from PLS Pond, and PLS Tanks. Receives discharges from Last Chance, Res. 2 and 17, and Groundhog	Water can be pumped to Reservoirs 6 and/or 7 via two 16-inch pipes and to the PLS Tank
Dam 10	2.58 AF	Concrete, synthetic lined	WSA: West side of West Stockpile, northernmost large dam	Stockpile runoff and seepage	Water is pumped via 12-inch pipe to Reservoir 4A

Table 6 Con'd

Reservoir	Reservoir Size	Dam Type	Location	Water Source	Discharge Location
Discharge Permit 526 (con'd)					
Dam 11	2.8 AF	Concrete, synthetic lined	WSA: West side of West Stockpile, southernmost large dam	Stockpile runoff and seepage	Water is pumped via 12-inch pipe to Reservoir 4A
Dam 12	~10,000 gal.	Concrete, synthetic lined	WSA: West side of West Stockpile, northernmost structure	Stockpile runoff and seepage	Gravity discharges via a 22-inch pipe to Dam 10
Dam 13	1.0 AF	Concrete, synthetic lined	WSA: 300 feet north of Dam 14, near middle of West Stockpile	Stockpile runoff and seepage	Pumped to Reservoir 4A and connects via pipe to Dam 14
Dam 14	4.7 AF	Concrete, synthetic lined	WSA: West side of West Stockpile, 1,000 feet north of Dam 11	Stockpile runoff and seepage	Pumped to Reservoir 4A and connects via pipe to Dam13
Dam 14-1	~10,000 gal.	Concrete	WSA: West side of West Stockpile, 700 feet north of Dam 13	Stockpile runoff and seepage	Gravity discharges via pipe to Dam 14
Dam 14-2	~10,000 gal.	Concrete	WSA: West side of West Stockpile, 500 feet north of Dam 13	Stockpile runoff and seepage	Gravity discharges via pipe to Dam 14
Dam 14-3	~5,000 gal.	Earthen, French drain	WSA: West side of West Stockpile, 400 feet north of Dam 13	Stockpile runoff and seepage	Gravity discharges via pipe to Dam 14-2
Dam 15	~10,000 gal.	Concrete, earthen	WSA: South of mine entrance road, 500 feet west of lay down yard by Concentrator	Stockpile runoff and seepage	Pumped to Concentrator thickeners overflow tank
Dam 16	NA	Underground coffer dam	SSA: 2,200 feet down Whitewater Creek from Last Chance Dam	Alluvial flow from Whitewater Creek	Reservoir 4A
Reservoir 17	46.8 AF	Concrete, synthetic lined	SSA: Directly downgradient of Reservoir 2	Seepage in Whitewater Creek, runoff from Concentrator area, overflow from Reservoir 2A	Pumped to Reservoirs 4A, PLS tank, or south thickener

Table 6 Con'd

Reservoir	Reservoir Size	Dam Type	Location	Water Source	Discharge Location
Discharge Permit 526 (con'd)					
Dam 18	~0.5 AF	Concrete, earthen	WSA: West side of West Stockpile, 300 feet west of Dam 11	Seepage from Dam 11	Pumped to Dam 11
Dam 19	~0.5 AF	Concrete, earthen	WSA: West side of West Stockpile, 200 feet west of Dam 13	Seepage from Dam 13	Pumped to Dam 13
Dam 20	~10,000 gal	Earthen	WSA: Adjacent to north side of mine entrance road by abandoned guard shack near Concentrator	Storm runoff	Pumped to Reservoir 4A
6525 Raffinate Tank	100,000 gal	Stainless steel	SSA: Northwest end of South Stockpile	Water from SX/EW raffinate tanks or SX/EW PLS tank, pit bottom	Dispersed on top of South Stockpile
PLS pond and launder	NA	Concrete, earthen	SSA: Adjacent to South Stockpile and upgradient of Reservoir 4A	PLS collection from South and West Stockpiles and storm runoff from stockpiles and mine shop area	Gravity drains to PLS tank, or Reservoir 4A
PLS Tank	500,000 gal	Concrete and stainless steel	SSA: Between Reservoir 4A and Reservoir 2	PLS from South and West stockpiles and emergency overflow from Reservoir 4A	PLS is pumped to SX/EW or 6225 Raffinate Tank, overflows to Reservoir 4A or OHP
Frog Pond	1,500,000 gal	HDPE lined	WSA: East side of West Stockpile		Dust suppression or make-up water
Last Chance Dam	NA	Coffer dam	Between Reservoir 4A and Reservoir 2	PLS from PLS Pond, emergency overflow from PLS Tank and water pumped from Reservoir 2 and Reservoir 4A	Pumped to Southside booster, emergency overflows to PLS Tank, Reservoir 2 and Reservoir 4A

Table 7 Post-Closure Surface Impoundments

Impoundment	Surface Area (acres)	Post-Closure Use	Liner	Status
DP-213				
Tailing Thickener 1	2.60	Water Treatment/Conveyance	Concrete	Existing
Tailing Thickener 2	2.60	Water Treatment/Conveyance	Concrete	Existing
DP-484				
James Canyon Reservoir	11.74	Stormwater Control	Earthen	Existing
Dam 21	1.72	Stormwater Control	Earthen	Existing
Process Water Tank	0.11	Water Treatment	Stainless Steel	Existing
Elmo's Pond	1.24	Stormwater Control	Synthetic	Existing
Lower Lined Pond	2.23	Stormwater Control	Synthetic	Existing
Upper Lined Pond	0.41	Stormwater Control	Synthetic	Existing
DP-376				
Reservoir 8	0.51	Seepage Collection/Conveyance	Synthetic, Earthen	Existing
LFES Infiltration Pond	0.51	Stormwater sediment control	Synthetic lined, concrete	Planned
LFES SS PLS Tank	0.11	Seepage collection and conveyance	SS	Planned
LFES Stormwater Pond	1.30	Stormwater Runoff	Earthen, Synthetic lined	Planned
East Headwall Impoundment	0.46	Stormwater Runoff and Seepage Collection	Synthetic	Existing
SS PLS Tank	0.08	Seepage Collection/Conveyance	Stainless Steel	Existing
Northeast Lampbright Booster Station	0.07	Seepage Collection/Conveyance	Stainless Steel	Existing
DP-459				
Reservoir 5	6.4	Upgradient Runoff Control	Concrete Faced Earthen Dam	Existing
5900 PLS Sump	0.57	Stormwater Runoff and Seepage Collection	Synthetic	Existing
6300 PLS Booster Station	0.03	Stormwater Runoff and Seepage Collection	Synthetic	Existing
East Pit Sump	NA	Pit Dewatering/ Water Treatment	Earthen	Existing
Estrella Pit Sump	NA	Pit Dewatering/ Water Treatment	Earthen	Existing
Lee Hill Pit Sump	NA	Pit Dewatering/ Water Treatment	Earthen	Existing
Lee Hill #1 Booster	0.14	Pit Dewatering Collection/Conveyance	Synthetic	Existing
Lee Hill #2 Booster	0.14	Pit Dewatering Collection/Conveyance	Synthetic	Existing
DP-459				
Rustler Canyon Containment	0.64	Stormwater Control	Synthetic with Seep Collection	Existing
Reservoir 9	2.66	Stormwater Control	Earthen Dam	Existing

Table 7 Con'd

Impoundment	Surface Area (acres)	Post-Closure Use	Liner	Status
DP-591				
Reservoir 2	0.22	Stormwater Control, Runoff and Seepage Collection	Concrete	Existing
Reservoir 4A	1.50	Stormwater Control, Runoff and Seepage Collection	Concrete Faced Earthen Dam	Existing
Dam 10	0.23	Stormwater Runoff and Seepage Collection	Concrete	Existing
Dam 11	0.5	Stormwater Runoff and Seepage Collection	Concrete	Existing
Dam 12	0.43	Stormwater Runoff and Seepage Collection	Concrete Faced Earthen Dam	Existing
Dam 13	0.04	Stormwater Runoff and Seepage Collection	Earthen	Existing
Dam 14	1.07	Stormwater Runoff and Seepage Collection	Synthetic	Existing
Dam 14-1	0.02	Stormwater Runoff and Seepage Collection	Earthen	Existing
Dam 14-2	0.01	Stormwater Runoff and Seepage Collection	Earthen	Existing
Dam 14-3	0.01	Stormwater Runoff and Seepage Collection	Earthen	Existing
Dam 15	0.01	Stormwater Control	Concrete Faced Earthen Dam	Existing
Dam 16	NA	Alluvial Flow Collection	Coffer Dam	Existing
Reservoir 17	3.36	Stormwater Control, Runoff and Seepage Collection	Synthetic	Existing
Dam 18	0.05	Seepage Collection/Conveyance	Concrete Faced Earthen Dam	Existing
Dam 19	0.01	Seepage Collection/Conveyance	Concrete Faced Earthen Dam	Existing
Dam 20	0.3	Stormwater Control	Earthen	Existing
6525 Raffinate Tank	0.05	Water Treatment/Conveyance	Stainless Steel	Existing
PLS pond and launder	0.26	Water Treatment/Stormwater	Concrete Faced Earthen Pond	Existing
PLS Tank	0.05	Water Treatment/Conveyance	Stainless Steel	Existing
Frog Pond	0.63	Water Management	Earthen	Existing
Last Chance Dam	NA	Pond Seepage Collection/Overflow	Coffer Dam	Existing

Table 7 Con'd

Impoundment	Surface Area (acres)	Post-Closure Use	Liner	Status
		DP-591		
Reservoir 6	11.50	Stormwater Collection & Conveyance	Earthen	Existing
Reservoir 7	7.41	Stormwater Collection & Conveyance	Earthen	Existing
New Fleming Pond	0.78	Water Supply for Reclamation	Earthen	Existing
PLS Feed Pond	0.49	Industrial PMLU	Synthetic	Existing
Raffinate Tank	0.11	Industrial PMLU	Stainless Steel	Existing
Overflow Stormwater Pond	0.44	Industrial PMLU	Synthetic	Existing

Table 8 Reclamation Design Criteria by Facility

Facility/Area	Reclamation Activities	Criteria			
		Grading	Channels and Stormwater Conveyance	Cover/Ripping/Vegetation	Notes
North Mine Area					
West Stockpile	∞ Rough grade to reclamation slopes – tops and out-slopes ∞ Haul and grade cover material ∞ Grade in out-slope benches/channels ∞ Complete surface water channels to route stormwater ∞ Rip and revegetate covered areas	∞ 200-foot maximum inter-bench slope length ∞ Maximum 3H:1V inter-bench slopes ∞ 1% minimum top surface slope ∞ West side: ~ 175-foot maximum inter-bench slope length, ~ Maximum 2.5H:1V inter-bench slope to preserve Hanover Creek located at the toe of the stockpile	∞ Top surface sheet flow ∞ Out-slope channels: 30-foot wide (20-foot on west side), 5.0% maximum cross-bench slope, 2.0% longitudinal bench slope (max 5%) ∞ Down-drains: up to 1,000 cfs flow,, spaced to maintain freeboard in out-slope channels	∞ 36-inch top and out-slope cover thickness ∞ Placed cover loosened by ripping to promote vegetation growth	∞ Store sludge from treatment within OPSDA ∞ Store salts from evaporation system within OPSDA ∞ Reduce seepage
Kessel Stockpile	∞ Rough grade inter-bench slopes to reclamation slopes ∞ Haul and grade cover material ∞ Grade in out-slope channels ∞ Complete surface water channels to route stormwater ∞ Rip and revegetate covered areas	∞ 200-foot maximum inter-bench slope length ∞ Maximum 3H:1V inter-bench slopes ∞ 1% minimum top surface slope	∞ Top surface sheet flow ∞ Out-slope channels: 30-foot wide, 5.0% maximum cross-bench slope, 2.0% longitudinal bench slope (max 5%) ∞ Down-drains: up to 1,000 cfs flow, spaced to maintain freeboard in out-slope channels	∞ 36-inch top and out-slope cover thickness ∞ Placed cover loosened by ripping to promote vegetation growth ∞ Approved Native seed mix	∞ Stockpile constructed at rough reclamation grades ∞ Benches pre-constructed
Southwest Lampbright Stockpile	∞ Rough grade to reclamation slopes – tops and out-slopes ∞ Haul and grade cover material ∞ Grade in out-slope benches/channels ∞ Complete surface water channels to route stormwater ∞ Rip and revegetate covered areas	∞ 200-foot maximum inter-bench slope length ∞ Maximum 3H:1V inter-bench slopes ∞ 1% minimum top surface slope	∞ Top surface sheet flow ∞ Out-slope channels: 30-foot wide, 5.0% maximum cross-bench slope, 2.0% longitudinal bench slope (max 5%) ∞ Down-drains: up to 1,000 cfs flow, spaced to maintain freeboard in out-slope channels	∞ 36-inch top and out-slope cover thickness ∞ Placed cover loosened by ripping to promote vegetation growth ∞ Approved Native seed mix	
Northeast Stockpile	∞ Rough grade to reclamation slopes – tops and first bench north side ∞ Haul and grade cover material ∞ Rip and revegetate covered areas	∞ 200-foot maximum inter-bench slope length ∞ 1% minimum top surface slope	∞ Sheet flow only	∞ 36-inch top and out-slope cover thickness ∞ Placed cover loosened by ripping to promote vegetation growth ∞ Approved Native seed mix	∞ Stockpile entirely within the OPSDA
South Stockpile	∞ Circulation of process fluids to reduce inventory ∞ Allow drain down of interstitial fluids ∞ Rough grade to reclamation slopes – tops and out-slopes ∞ Haul and grade cover material ∞ Grade in out-slope benches/channels ∞ Complete surface water channels to route stormwater ∞ Rip and revegetate covered areas	∞ 200-foot maximum inter-bench slope length ∞ Maximum 3H:1V inter-bench slopes ∞ 1% minimum top surface slope	∞ Top surface sheet flow ∞ Out-slope channels: 30-foot wide, 5.0% maximum cross-bench slope, 2.0% longitudinal bench slope (max 5%) ∞ Down-drains: up to 1,000 cfs flow, spaced to maintain freeboard in out-slope channels	∞ 36-inch top and out-slope cover thickness ∞ Placed cover loosened by ripping to promote vegetation growth ∞ Approved Native seed mix	∞ No reclamation within OPSDA (northeast side of stockpile)

Table 8 Con'd

Facility/Area	Reclamation Activities	Criteria			
		Grading	Channels and Stormwater Conveyance	Cover/Ripping/Vegetation	Notes
North Mine Area					
North, Main and South Lampbright Stockpiles	∞ Circulation of process fluids to reduce inventory ∞ Allow drain down of interstitial fluids ∞ Rough grade to reclamation slopes – tops and out-slopes ∞ Haul and grade cover material ∞ Grade in out-slope benches/channels ∞ Complete surface water channels to route stormwater ∞ Rip and revegetate covered areas	∞ 200-foot maximum inter-bench slope length ∞ Maximum 3H:1V inter-bench slopes ∞ 1% minimum top surface slope	∞ Top surface sheet flow ∞ Out-slope channels: 30-foot wide, 5.0% maximum cross-bench slope, 2.0% longitudinal bench slope (max 5%) ∞ Down-drains: up to 1,000 cfs flow, spaced to maintain freeboard in out-slope channels	∞ 36-inch top and out-slope cover thickness ∞ Placed cover loosened by ripping to promote vegetation growth ∞ Approved Native seed mix	
Surface Impoundments	∞ Retain until closure period complete for water management ∞ Retain key impoundments for post-closure water management ∞ Rip liners and bury in place ∞ Grade to drain ∞ Haul and grade cover material ∞ Rip and revegetate covered areas	∞ Positive drainage	∞ Sheet flow	∞ 36-inch top and out-slope cover thickness ∞ Placed cover loosened by ripping to promote vegetation growth ∞ Approved Native seed mix	
Santa Rita Open Pit	∞ Maintain access for water management PMLU	∞ Maintain sumps	∞ N/A	∞ N/A	
Miscellaneous Areas	∞ Rip and revegetate roads and miscellaneous areas	∞ Positive drainage	∞ N/A	∞ 36-inch cover where native material is acid generating ∞ Placed cover or compacted native material loosened by ripping to promote vegetation growth ∞ Approved Native seed mix	
Pipeline Corridor Area					
Pipelines	∞ Maintain for PMLU water management	∞ N/A	∞ N/A	∞ N/A	
Roads/Disturbed areas	∞ Rip and revegetate leaving approximately 24-foot plus berms for maintenance access	∞ N/A	∞ N/A	∞ Approved Native seed mix	

Table 8 Con'd

Facility/Area	Reclamation Activities	Criteria			
		Grading	Channels and Stormwater Conveyance	Cover/Ripping/Vegetation	Notes
South Mine Area					
Tailing Pond 7	∞ Allow drain down of interstitial fluids ∞ Fine grade to reclamation slopes – tops and out-slopes ∞ Cut top surface discharge channel ∞ Haul and grade cover material ∞ Grade in out-slope benches/channels ∞ Complete surface water channels to route stormwater ∞ Rip and revegetate covered areas	∞ 200-foot maximum inter-bench slope length ∞ Maximum 3H:1V inter-bench slopes ∞ 1% minimum top surface slope	∞ Top surface sheet flow ∞ Out-slope channels: 30-foot wide, 5.0% maximum cross-bench slope, 2.0% longitudinal bench slope (max 5%) ∞ Down-drains: up to 1,000 cfs flow, spaced to maintain freeboard in out-slope channels	∞ 36-inch top and out-slope cover thickness ∞ Placed cover loosened by ripping to promote vegetation growth ∞ Approved Native seed mix	
Axiflo Lake	∞ Allow drain down of interstitial fluids ∞ Fine grade to reclamation slopes – tops and out-slopes ∞ Cut top surface discharge channel ∞ Haul and grade cover material ∞ Grade in out-slope benches/channels ∞ Complete surface water channels to route stormwater ∞ Rip and revegetate covered areas	∞ 200-foot maximum inter-bench slope length ∞ Maximum 3H:1V inter-bench slopes ∞ 1% minimum top surface slope	∞ Top surface sheet flow ∞ Out-slope channels: 30-foot wide, 5.0% maximum cross-bench slope, 2.0% longitudinal bench slope (max 5%) ∞ Down-drains: up to 1,000 cfs flow, spaced to maintain freeboard in out-slope channels	∞ 36-inch top and out-slope cover thickness ∞ Placed cover loosened by ripping to promote vegetation growth ∞ Approved Native seed mix	
Remaining Tailing Pond 6 East and West	∞ Fine grade to reclamation slopes – tops ∞ Rip and revegetate covered areas	∞ N/A	∞ Top surface sheet flow	∞ 36-inch top cover thickness ∞ Placed cover loosened by ripping to promote vegetation growth ∞ Approved Native seed mix	

Table 9 Proposed Seed Mix and Rates

Species[a]	Life-Form	Duration[b]	Seasonality	Rate[a,c]
Primary				
Blue grama (Bouteloua gracilis)	Grass	Per	Warm	0.50
Side-oats grama (Bouteloua curtipendula)	Grass	Per	Warm	1.50
Black grama (Bouteloua eriopoda)	Grass	Per	Warm	0.10
Green sprangletop (Leptochloa dubia)	Grass	Per	Warm	0.25
Plains lovegrass (Eragrostis intermedia)	Grass	Per	Intermediate	0.05
Apache plume (Fallugia pardoxa)	Shrub	Per	NA	0.10
Mountain mahogany (Cercocarpus montanus)	Shrub	Per	NA	1.50
Winterfat (Eurotia lanata)	Shrub	Per	NA	1.00
White prairie clover (Dalea candida)	Shrub	Per	NA	0.25
Globe mallow (Sphaeralcea sp.)	Forb	Per	NA	0.10
Blue flax (Linum lewisii)	Forb	Per	NA	0.25
Total PLS (lb/ac)				**5.60**
Alternate				
Sand dropseed (Sporobolus cryptandrus)	Grass	Per	Intermediate	ND
Tobosa (Hilaria mutica)	Grass	Per	Warm	ND
Bush muhly (Mohlenbergia porteri)	Grass	Per	Warm	ND
Squawberry (Rhus trilobata)	Shrub	Per	NA	ND
Fourwing saltbush (Atriplex canescens)	Shrub	Per	NA	ND
Prairie coneflower (Ratibida columnaris)	Forb	Per	NA	ND
White sweet clover (Melilotus alba)	Forb	Ann	NA	ND

Notes:
The seed species list and associated mix will be included in the vegetation monitoring work plan and may be amended with MMD approval. Any proposed changes to the seed mix will be provided to the MMD no less than 60 days before any seeding occurs.
[a] Seed mix and rates are subject to change based on future investigations
[b] Per – Perennial; Ann = Annual
[c] Rate is in pounds of pure live seed per acre; substitutions may change seeding rates
lb/ac = pounds per acre
NA = Not applicable
ND = Not determined
PLS = Pure live seed

Table 10 Functions and Attributes of the Proposed Primary Plant Species

Species	Character[a]	Attributes and Function
Blue grama (Bouteloua gracilis)	N,P,W,G	Sod and bunch grass providing ground cover and forage
Side-oats grama (Bouteloua curtipendula)	N,P,W,G	Bunch grass providing ground cover and forage
Black grama (Bouteloua eriopoda)	N,P,W,G	Bunch grass providing ground cover and forage
Green sprangletop (Leptochloa dubia)	N,P,W,G	Erect bunch grass; aggressive short-lived nurse plant with forage value
Plains lovegrass (Eragrostis intermedia)	N,P,C,G	Bunch grass providing ground cover and early spring forage
Apache plume (Fallugia pardoxa)	N,P,S	Mid-height shrub providing browse, cover, and erosion control
Mountain mahogany (Cercocarpus montanus)	N,P,S	Mid-height to tall shrub providing browse and cover
Winterfat (Eurotia lanata)	N,P,HS	Low shrub providing winter browse
White prairie clover (Dalea candida)	N,P,S	Early season legume providing ground cover and forage
Globe mallow (Sphaeralcea sp.)	N,P,F	Persistent mid-height forb providing browse
Rubber rabbitbush (Chrysothamnus nauseosus)	N,P,S	Mid-height shrub providing cover and erosion control
Blue flax (Linum lewisii)	N,P,F	Persistent forb with a pretty blue flower

Notes:
The seed species list and associated mix will be included in the vegetation monitoring work plan and may be amended with MMD approval. Any proposed changes to the seed mix will be provided to the MMD no less than 60 days before any seeding occurs.
N = Native
I = Introduced
P = Perennial
A/B = Annual or biannual
W = Warm season
C = Cool season
G = Grass
S = Shrub HS = Half shrub
F = Forb

Table 11 Proposed Diversity Guidelines

Class	Seasonality	Number	Minimum Occurrence (% cover)
Grasses	Warm	3	1.00
Shrubs	NA	2	0.50
Forbs	NA	2	0.10

NA = Not applicable

Table 12 Earthwork Capital Costs

Table 13 Water Management and Treatment Capital Costs

Table 14 Earthwork O&M Costs

Table 15 Water Management and Treatment O&M Costs

Table 16 Reclamation Schedule

Component	Construction/Reclamation		O&M	
	Start	End	Start	End
Leach Stockpiles				
North, Main and South Lampbright	3	6	7	19
West (east half)	1	3	4	16
South	7	10	11	23
Waste Stockpiles				
West Stockpile (west half)	11	12	13	25
3A	11	12	13	25
Northeast	10	11	12	24
Southwest Lampbright	10	11	12	24
Kessel	9	10	11	23
SMA				
Tailing Pond 7	15	20	21	32
Remaining Tailing Pond 6 East and West	21	21	22	34
Axiflo	21	22	23	35