



Tyrone Operations
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November 21, 2022

Certified Mail #70150640000476263797
Return Receipt Requested

Mr. David Otori
Energy, Minerals and Natural Resources Department
Mining and Minerals Division
Mining Act Reclamation Program
1220 South St. Francis Drive
Santa Fe, NM 87505

Dear Mr. Otori:

**Re: Response to Public Hearing Comments, Tyrone Mine Emma Project,
Freeport McMoRan Tyrone Inc., Revision 21-1 to Permit No. GR010RE**

Freeport-McMoRan Tyrone Inc. (Tyrone) submitted an application to revise Permit No. GR010RE to authorize a new unit at the Tyrone Mine known as the Emma Project, on October 22, 2021, and submitted the Closure/Closeout Plan (CCP) on November 12, 2021. The Mining and Minerals Division (MMD) held a public hearing in Silver City, New Mexico on August 16, 2022, for the Emma Project and received written comments from the public during the post-hearing comment period that ended on September 15, 2022. In a letter dated October 21, 2022, MMD requested that Tyrone respond to the post hearing public comments. Tyrone appreciates the comments and the opportunity to respond (below). As stated in the permit application, the Emma project is an important part of Tyrone's ten year mine plan.

Several comments are repeated from one commenter to another, so Tyrone has organized this response letter to respond by topic rather than repeat responses where appropriate. Several of the comments or questions posed are answered by information in the application itself and correspondence submitted to MMD. Rather than repeat information in this letter, Tyrone has provided references to specific locations where adequate information for a response may be found.

Water Quantity/Supply:
(Cole, Griffin, Chulik, Hess, Ratcliffe, Wallet-Ortiz, Miller, and GRIP)

Concerns were raised about water supply and potential drawdown impacts to neighboring wells. Tyrone acknowledges all concerns and appreciates the recommendations provided. Regulations that protect water rights and supply fall under the jurisdiction of the Office of the State Engineer

(OSE). Tyrone submitted an application to the OSE for changes in its water rights to facilitate the Emma Project. The OSE reviews such applications to consider whether there will be any impairment of water rights held by others, and state law allows other parties to protest an application and to request a hearing. That process is underway with regard to the Emma Project. It would not be appropriate for MMD to duplicate OSE's review or add conditions regarding these concerns in the Mining Act permits. See 19.10.13.1303 NMAC.

As stated explicitly in the hearing, there will not be "increased pumping" required for the Emma project. Tyrone currently exercises its water rights at its Mimbres basin water supply wells and Tyrone has applied to the Office of the State Engineer for an alternate point of diversion within the Mimbres Basin for Emma Pit dewatering. Tyrone is not applying for more water rights than it already exercises, so there will be no net additional water diverted for this project than Tyrone already pumps. The effect of pumping from the alternate point of diversion has been modeled.

GRIP's consultant acknowledges that Tyrone has followed all typical requirements and methods for evaluating potential impacts to water supply. Tyrone agrees. As stated in Attachment 3 to Tyrone's application, these matters are appropriately addressed under the direction and process of the OSE to ensure that neighboring water rights are protected in accordance with law. Moreover, Tyrone contends that the information it has provided shows that the Emma Project will minimize impact to the hydrologic balance and that Tyrone's plans incorporate most appropriate technology and best management practices. The aspects of hydrologic balance pertinent to the Mining Act new unit regulations are specifically spelled out in 19.10.5.508 B (4) and Tyrone's permit application addresses all of these aspects.

The report relevant to fulfill the hydrology requirements of the Emma mining act revision application is the Hydrologic Report for Proposed Open Pit at Emma Expansion Project (Oct 22, 2021, DBS&A 2021b). It was submitted as part of the DP-396 Modification Application Attachment IIC-3 Facility Site Conceptual Model. This report is cited in the Mining Act application Attachment 1, page 2 of 5 and Attachment 2, page 6 of 19 and other places.

This report fulfills the hydrology aspects of the mining act application for the Emma project for both existing mine and new unit aspects. From a hydrologic perspective, this report addresses the site assessment and assessment of impacts to local communities under the Mining Act rules.

Figure 5 of Appendix G of DBS&A 2021b provides a long-term drawdown prediction for the regional aquifer. Neighbors from the Loma Blanca-Cullum subdivision (southeast of Apache Mound and significantly further away from the Emma site) requested their communities also be evaluated for drawdown. Predicted drawdown at this subdivision is less than 1 foot. While the Loma Blanca-Cullum subdivision is located just beyond the domain of the DBS&A (2021) groundwater flow model, the model simulates drawdown to 1-foot drawdown contour. The subdivision is located beyond this contour. Please see Attachment A for the figure that shows these areas.

GRIP references a different report submitted by Tyrone to the OSE in support of the alternate point of diversion application. The OSE requires their own model for the purposes of their permitting process. The OSE's model is not part of this permit application and the differences are easily explained, but this topic will be left to its proper venue under the OSE process. The DBS&A (2021b) predictions are considered more representative of current and anticipated future conditions than the OSE model which has been demonstrated repeatedly at other Tyrone projects. GRIP's recommendations that MMD duplicate work and decisions that are clearly the jurisdiction of another agency are unwarranted. Tyrone agrees with Miller's perspective on this matter, and it relates to a number of other comments below as well.

Water Quality:
(GRIP, Cox, and Chulik)

Water quality concerns are addressed under the Water Quality Act and its implementing rules, including the Copper Rule, 20.6.7 NMAC, and permit conditions established thereunder. Tyrone's application to the New Mexico Environment Department (NMED) for review of its plans and permit authorization under the applicable rules is pending before NMED. Under the Mining Act and the Mining Act Rules, issuance of a permit for the Emma Project will require a determination by NMED that applicable environmental standards, including water quality standards, are expected to be met. See 19.10.5.506.J(5) NMAC. On October 22, 2021, Tyrone submitted to NMED, an application for the renewal and modification of Discharge Permit 396 (DP-396). The renewal and modification application addresses mining at Emma. It is common that in the process of review, agencies request additional information and ask questions requiring the applicant to respond. Tyrone responded to NMED's first request in a July 8, 2022 letter and is currently preparing responses to NMED's second request. The second set of responses will be submitted to NMED by December 5, 2022. Tyrone's responses address many of the concerns raised by commenters. Tyrone will provide MMD a copy of these responses. As stated above, the aspects of hydrologic balance pertinent to the Mining Act new unit regulations are specifically spelled out in 19.10.5.508 B (4) and Tyrone's permit application addresses all these aspects.

Some comments and questions regarding water quality, sulfuric acid discharge, and monitoring of wells surrounding the Emma Project were received. An overview and update of the measures surrounding these topics are provided below. It would not be appropriate for MMD to duplicate NMED's review or add conditions regarding these concerns in the Mining Act permits. See 19.10.13.1303 NMAC. Tyrone also reiterates that no leaching operations will take place at the Emma project site and overburden materials stockpiled in this area will be non-acid generating.

Documents submitted to NMED as part of the DP-396 renewal and modification process include (1) a facility monitoring plan (FMP) that describes DP-396 surface water and groundwater monitoring, (2) a monitoring well network installation plan (MWNIP) that describes the installation of five additional monitor wells at Emma, and (3) a sitewide water management plan that was prepared to satisfy the requirements of 20.6.7.30.K NMAC (interim emergency water

management plan), 20.6.7.17.C(4) NMAC (stormwater management plan), and 20.6.7.24.C NMAC (mine operation water management plan). Groundwater and surface water monitoring will be conducted in accordance with these plans to ensure that Tyrone is protective of neighboring water quality.

A few commenters appear to be under the false impression that Tyrone's understanding of the geology and hydrogeology at Emma is based solely on older documents, such as the Trauger (1972) report and Hedlund (1978) geologic map of the White Signal quadrangle. While much of the information provided in these documents is still relevant, Tyrone has collected a substantial amount of data at the site since about 2020. Much of these data were evaluated and presented in the reports used to support the applications for the renewal and modification of DP-396 and Revision 21-1 to Permit No. GR010RE. The mapped surface geology at Emma has been updated based on Tyrone's exploration activities, which have included the advancement of numerous exploration boreholes and site reconnaissance to confirm the presence of faults, such as the Sprouse-Copeland Fault.

Tyrone is currently monitoring groundwater conditions at six wells in the area of Emma in order to establish baseline groundwater levels, flow direction, and quality at the site. Five of the monitor wells (396-2021-01, 396-2021-02, and 396-2022-01 through 396-2022-03) were installed between 2021 and 2022. The sixth location, MB-44, is an existing monitoring well located to the northeast of Emma. Well MB-44, was installed in 2001 and has been monitored since its installation.

Tyrone has also proposed the construction of five additional monitor wells, as described in the MWNIP, which NMED has approved. The installation of four of the additional monitor wells began in November 2022. The fifth additional monitor well will be located in the area of the open pit, so it will be installed after the open pit is advanced. One of the additional monitor wells will be installed on the opposite side of the Sprouse-Copeland Fault from an existing monitor well (i.e., 396-2021-02) to better characterize groundwater flow in the vicinity of the fault.

The groundwater flow direction at Emma is to the northeast and not toward the Apache Mound Subdivision (Attachment B). The Apache Mound Subdivision is cross gradient of Emma. The Emma project will not degrade the neighbors' water supply.

Tyrone will pump water from the Emma Water Management Sump to prevent a pit lake from forming and to provide containment and removal of impacted water. Tyrone has also installed a monitoring well between Emma and Apache Mound Subdivision to monitor water quality south of the Emma Project and additional monitor wells are being installed along the southern perimeter of the pit. Tyrone will monitor groundwater quality downgradient of the Emma Water Management Sump and EMW stockpile, which will be a non-discharging stockpile (i.e., it is not expected to generate acid rock drainage [ARD]), in accordance with our FMP. NMED's

regulations require a diligent review of scientific facts that control protection of groundwater. State water quality regulations fully address requirements for contingencies in the form of corrective actions and/or the abatement regulations stipulated in 20.6.7.30 and/or 20.6.2.4000 et seq. NMAC.

Well 396-2021-01 was installed between Emma and the Apache Mound Subdivision to serve as a sentinel monitoring location between the two sites. The first sample collected from the well, which was on May 21, 2021, exceeded groundwater standards numerated in Section 20.6.2.3103 NMAC (Section 3103 standards) for fluoride, sulfate, total dissolved solids (TDS), and several metals. With the exception of iron and manganese, the metal concentrations of the subsequent six samples (to date) met Section 3103 standards. The elevated fluoride, iron, manganese, sulfate, and TDS concentrations at 396-2021-01 are attributed to natural (background) conditions.

Tyrone is monitoring groundwater level at a well within the Apache Mound Subdivision. Water elevations have been recorded at this residential well for approximately one year. The data that are currently being collected will help to establish baseline groundwater levels and temporal trends at the closest subdivision before mining at Emma begins. The residential well that is being monitored is pumped and natural fluctuations are expected also. Pumping from residential wells located in Apache Mound is far more likely to impact the water levels within the subdivision than the pumping at Emma. In addition to water level data, Tyrone has collected water quality samples at the residential well for laboratory analysis.

A groundwater flow model has been developed to predict future groundwater conditions due to mining at Emma (DBS&A 2021b). The model was developed in MODFLOW, a U.S. Geological Survey (USGS) numerical modeling platform that is commonly used to simulate and predict groundwater conditions under a variety of hydrogeologic regimes, including fractured rock. Precambrian granite is the primary rock type at Emma. Groundwater is present in the granite and other igneous rocks near Emma. Groundwater flow within the rocks is governed by secondary permeability (i.e., presence of joints and fractures). The groundwater flow model accounts for fractured flow by treating the fractured granite and other igneous rocks as equivalent porous media with simulated hydraulic conductivity and storage coefficient values representative of the igneous rocks. Outcrops and exposures of the rocks show that they generally consist of joints and numerous irregular fractures. Groundwater flows through the intersecting sets of joints and fractures, taking a tortuous pathway as it moves. The joints and fractures create an irregular but well-connected secondary permeability through which groundwater flows and can be simulated as an equivalent porous media, especially at the scales of the MODFLOW models. It is common for the secondary permeability of fracture rocks to be appropriately simulated with homogenous hydraulic conductivity and storage coefficient values. Pumping tests have been performed at some of the monitor wells installed at Emma to help define the hydraulic conductivity and storage coefficient values. Results of the pumping tests are presented in the Hydrogeologic Report for Proposed Emma Expansion Project.

Air Quality:
(Hess and GRIP)

Regulations protecting air quality fall under the jurisdiction of the NMED Air Quality Bureau (AQB) and are not to be duplicated under the Mining Act. *See* 19.10.13.1302 NMAC. MMD consults with agencies primarily responsible for compliance with environmental laws, and a permit under the Mining Act requires a determination by NMED that mining operations are expected to achieve compliance with all applicable air quality standards, 19.10.5.506.J(5) NMAC. Tyrone has obtained the required NMED Air Quality Bureau NSR and Title V permits for the Emma project. During operation at Emma, Tyrone will implement regulatory measures required by Tyrone's NSR and Title V permits. Furthermore, as a precondition to issuing these permits, the AQB requires air dispersion modeling to demonstrate facility operation complies with existing New Mexico and EPA particulate matter standards for the protection of human health and the environment. The air permit conditions require the development and implementation of an air quality fugitive dust control plan, limitations on operations and activities to minimize fugitive dust, and visible emission monitoring measures to monitor dust generated by mining operations. Tyrone will continue to utilize best available management practices to minimize fugitive dust impacts to local residents.

Grievance Management:
(Martin and GRIP)

Freeport-McMoRan maintains a site-level grievance mechanism where anyone, including community members, can register their complaints. Our community grievance mechanism is available in local languages, with management protocols tailored to local culture, and serves as the system for documenting, tracking, and resolving complaints or impacts. The mechanism tracks the type of grievance, status, and timeliness of our response. We work with community members directly to acknowledge the grievance, gather further information, provide updates, address the impact or problem, and where appropriate, provide remedy. To balance transparency and confidentiality, Freeport-McMoRan aggregates and anonymizes grievances for external reporting. Our community hotline is available in English and Spanish 24/7, contact information is available on Freeport websites (freeportinnewmexico.com, freeportinmycommunity.com, fcx.com), and is routinely shared during community and other stakeholder meetings, along with a report of the number of grievances by topic received each quarter. We also routinely provide contact information for site personnel, so neighbors have known points of contact at our operations.

Material Management:
(Griffin and GRIP)

Comments were made regarding the lining requirements of stockpiles and material characterization and handling procedures. These matters are governed by the Water Quality Control Commission and NMED, but Tyrone would like to provide further clarification. The two new stockpiles associated with Emma (6HW and EMW) will be non-potentially acid generating (NPAG) overburden rock and dirt that do not create acid rock drainage (inert

materials that will not discharge constituents in excess of environmental standards). Based on this characteristic, they do not require liners (20.6.7.21.B NMAC). Both stockpiles will be used as reclamation cover material (RCM) for reclamation purposes due to their inert nature and suitability to support vegetation. Potentially acid generating (PAG) rock will be transported to existing, permitted rock stockpiles at the Tyrone mine, where containment measures are in place to prevent discharges or groundwater contamination.

Tyrone provided a Material Characterization and Handling Plan with the submittal of the Discharge Permit 396 (DP-396) Renewal and Modification application that describes material characterization, handling, and reporting procedures that ensure the stockpiles are constructed as non-discharging units. That plan will be reviewed and approved by the NMED to support their determination that the stockpiles are non-discharging units and by MMD, to support their determination that the material is suitable for use as RCM.

Wildlife:
(Martin)

The response below addresses the comment made about whether the Emma site contains water sources capable of supporting aquatic species such as bullfrogs.

The Emma Project site has been repeatedly surveyed since 1994. The report titled *Emma Project Wildlife and Habitat Impact Assessment* produced by Westland Engineering & Environmental Services, Inc referenced bullfrogs “in the vicinity of the Assessment Area” which was noted in a previous study completed in 2010 by Tierra Environmental Consultants LLC (Tierra EC). The document being referred to, *Little Rock Mine – Determination of NEPA Adequacy Analysis*, identified this bullfrog population near the Mangas Creek and Gila River confluence. This location is approximately 25 miles northwest of the Emma Project site and approximately 21 miles from the Little Rock Mine. There are no water sources within the Assessment Area including intermittent or perennial streams, wetlands, seeps/springs, or other aquatic sites.

Emma Pit and Pit Water Management Sump:
(Wallet-Ortiz and GRIP)

Questions were again raised on whether Tyrone plans to line the pit and how the pit water will be handled. There are no plans to line the new pit because such an action would defeat its valuable long-term function as an environmental control to capture affected water and function as a water management sump (where water is allowed to flow upward and from the sides). Tyrone will not allow a pit lake to form and instead will use a water management sump so water that accumulates in the pit can be pumped to Tyrone. A liner would be counter-productive to these goals.

Tyrone has proposed to use this proven, environmentally sound method to manage water in the mine environment and maintain the water level at the lowest practical water level. A primary

goal is to maintain a hydrologic sink. A pit water management sump must remain in place post-mining for water management and treatment purposes. Tyrone's plan does utilize partial backfilling to promote water flow and minimize the size of the pit water management sump. Tyrone has in fact, proposed to eliminate the small remaining area of exposed water surface at the pit water management sump, by covering it with a floating barrier.

GRIP has recommended a different method to eliminate the small remaining exposed water surface, but they ignore operational weaknesses and deficiencies of their unproven method. While GRIP claims that their method eliminates a surface expression of water, they lack supporting evidence and Tyrone does not believe that it will do so. The floating barrier is a sound compromise between GRIP's idea and post-closure operations and maintenance realities. Neither GRIP nor the Agencies have ever implemented GRIP's alternative idea, while Tyrone has decades of experience maintaining pumping systems within fills and with floating barriers. Tyrone's proposal accomplishes the same goal and is protective of human health, the environment, and wildlife and therefore fulfills the requirements of state regulations.

Tyrone has had great success in implementing the proposed method to protect wildlife at its facilities. Neither GRIP nor the Agencies have identified a deficiency in Tyrone's proposal to protect wildlife by covering the very small remaining exposed water surface. There is no requirement in the rules to utilize different technologies (or to provide a menu of options with pros and cons) simply because that is preferred by GRIP. Tyrone does not agree that GRIP's proposal is a best management practice or a proven sound technology in a mine environment. Tyrone met all the conditions that the Agencies communicated in working sessions prior to submitting the application. Tyrone's proposal meets the standard of the rules.

Climate and Hydrologic Design for Closeout, 4.1 EMW Waste and 6HW Waste Stockpiles, Stockpile Erosion and Drainage Control, 5.1 Stockpiles, & Climate Models vs NOAA Atlas Data: (GRIP)

A climate study report is being prepared to submit to the agencies as required in Tyrone permits. GRIP implies that NOAA Atlas information (based on statistical analysis of actual precipitation records and typically used by hydrologist and engineers for channel designs) to be inferior to climate models or anecdotal representations of precipitation. Actual precipitation data may or may not support such claims about storm frequency, but Tyrone and the agencies are required to honor real data. Nonetheless, Tyrone's current study evaluates site specific precipitation data and regional climate models. This report will summarize climate model projections related to precipitation events that can be used in the engineering hydrology/hydraulic analysis of FMTI facilities at closure. An allowance, in addition to the currently specified design criteria for closure may be warranted, but that will be determined based on the findings of the study. Freeport New Mexico Operations are on track to complete this study on time, and the results will be submitted to the agencies upon completion.

Closure/Closeout Plan and Application:
(Chulik, Griffin, Hess, Martin, Wallet-Ortiz, and GRIP)

Reclamation Seed Mix

Tyrone's seed mix is made up of plant species native and common to the desert southwest region. The seed mix was developed by regional experts and approved by the MMD with input from the New Mexico Department of Game and Fish. Furthermore, the seed mix is designed to promote the colonization process by adjusting the seeding rate to optimize the balance between initial cover and potential domination of the site by a single species. The approved seed mix at Tyrone was selected based on the post-mining land use designation for wildlife use. This allows Tyrone to meet the requirements of the New Mexico Mining Act which requires reclamation to meet an approved post-mining land use rather than restoration to pre-existing conditions. The scientific and practical basis for mine reclamation is to establish a diverse complement of native and adapted species to provide ground cover to stabilize the site. Once stabilized, the vegetation on the site will change in character as species from the surrounding undisturbed area colonize the reclamation and successional process progresses.

Cost Estimate/Contingencies

The criteria to establish the amount of financial assurance (FA) are stated in 19.10.12.1205 NMAC, which details the costs that must be included in a cost estimate. The Emma project CCP and cost estimate must be integrated with Tyrone's recently updated and approved CCP and cost estimate. Tyrone has followed the same methods and procedures to keep them both consistent. The cost estimate for the Emma Project CCP to establish the amount of financial assurance is based upon the year during the life of the project with the highest estimated reclamation cost. The Emma Project CCP includes all cost elements for reclamation of the Emma Project area, including reasonable contingencies based upon the agency-approved methodology. Tyrone's proposed operation and maintenance (O&M) cost is conservative and based on current practices and 2021-dollar costs.

Water Treatment

During operations, the collected water from Emma will be conveyed to Tyrone and used in the Tyrone Mine process water management system. During closure, Tyrone will implement the water management and treatment plan found in the Emma CCP, which includes conveying the collected water from Emma to the Tyrone Mine closure mine water management and treatment system. The water will be treated at the Tyrone Mine closure mine water management and treatment system to meet applicable standards.

The Tyrone CCP Update that was approved by NMED in September 2021 with the issuance of DP 1341, includes details of the Tyrone water treatment system and monitoring of that system. The sample frequency and disposition of treated water is all discussed in detail in that approved CCP and cost estimate. The Emma project scope and cost is consistent with the approved Tyrone CCP and cost. Changes to the Tyrone water treatment system required to accommodate

the Emma project have been described and included in the Emma project CCP and financial assurance cost estimate

For the remaining questions regarding the calculations of evaporation and metal concentration rates, please see sections 3.1.1.1, 3.1.1.2, and the attachment titled *Addendum for Emma Pit Closure/Closeout Plan Water Management Plan* in the CCP. More information on the process of dewatering can also be found in sections 3.1, 3.6, 5.6, and 6.3 of the CCP.

Community Impacts Assessment; Lighting, Noise, and Viewshed

For a new unit such as Emma, the original site assessment is to be updated. In the case of Tyrone, the original site assessment was submitted in 1994 (see Attachment 3 to the Emma Mining Act permit application). The agency found this assessment and its supporting documentation to be appropriate and acceptable for the entire Tyrone Mine when it was submitted in 1994. For the permit application currently under consideration by MMD, Tyrone updated the relevant information from that assessment in every aspect. In addition to the updated site assessment, Tyrone has met with neighbors on other impacts of importance to them. Neighbors identified dust, water supply, noise, lighting and viewshed. Two key areas of concern, water supply and dust, are being addressed in their appropriate regulatory scope. Tyrone has also voluntarily completed studies on the three issues identified by neighbors that fall outside of the scope of the Mining Act rules – lighting, noise and viewshed (and which have never been required by MMD before, even for recent permits). The studies go beyond requirements and were completed out of respect and courtesy for our neighbors and in accordance with our responsible mining practices.

GRIP's recommendation for a "socioeconomic impact assessment" has only been raised recently in these comments and is not a requirement under the Mining Act rules. The addition of new requirements to suit GRIP's request goes beyond the scope of regulatory requirements and conflicts with past practices of MMD for similar permitting actions.

Tyrone also provided data on Freeport's positive economic impact to the local community along with state economic impact data. This analysis was conducted by a third-party, the Arizona State University L. William Seidman Research Institute, and shows Freeport's Operations in Grant County resulted in direct impacts of \$3.4 MM in business taxes, \$104.1 MM in compensation, and vendor purchases of \$5.4 MM. New Mexico Operations employed over 950 people in 2021, with approximately 360 people currently employed by Tyrone Operations.

Multiple commenters raised concerns about noise, light, and viewshed changes that would take place during the Emma expansion. Many of the impact questions are addressed in the studies that were performed by Golder Associates USA Inc. The impact of lighting on the dark skies was questioned multiple times but was addressed in the Lighting Study under Section 3.0 Project Impacts. This section describes how the classification zone will remain the same, there will be little to no impact on sky glow, and light trespass is not anticipated due to the distance between

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the Emma site and neighboring properties. To clarify further, light visibility and light trespass are not equivalent. Visible lights may become classified as light trespass if they are close enough to a neighboring property such that they illuminate that property and cause a nuisance. Light can be visible over great distances that will not impact receptors and cause light trespass. None of the lights required for worker safety on the Emma project will be close enough to a neighbor's property to create light trespass. For further clarification and anticipated changes, please refer to the studies here:

https://www.emnrd.nm.gov/mmd/mining-act-reclamation-program/pending-and-approved-mine-applications/mining-applications-regular-existing/gr010re-tyrone-revision-21-1/?et_fb=1&PageSpeed=off

Tyrone has also provided additional information to MMD regarding these studies and certain aspects like lighting plans, mitigation practices, and noise impacts from blasting. Please refer to that letter using the same link above and select the document titled "2022-06 FMI Response Letter".

Tyrone will continue to use best management practices that have shown to be effective at other operational sites such as the Little Rock Mine. In the past, if lighting issues were brought to the attention of the mine, they were promptly addressed with neighbors through the grievance management process. Tyrone continues to use the modifications implemented in those processes to ensure that the measures used to successfully mitigate the concerns continue. That will be the case at the Emma project. Please see the section above for more information on Grievance Management.

GRIP also raised the concern that "*The lighting plan assumed that the closest residence to the Emma project is 1 mile away, when in actuality it is a half mile away*" and questioned whether this variable influenced the results of the studies. For clarification, the point location referred to as the "Emma site" in both the lighting and noise studies corresponds to the approximate center of the Emma project area and is associated with the 24-hour monitoring location shown on Figure 2-1 of the Lighting Study and Figure 6-1 of the Noise Study. Because both the lighting and noise impact assessments are based on a combination of various lighting and noise source layouts throughout the project area during Emma operations, the actual reference of the "Emma site" distances have no bearing on the results of either study. It is simply a reference to the location of the Emma site and was chosen as the approximate center of the project area. In actuality, the lights on stockpiles (which are the only somewhat stationary lights of the project site that would likely be visible to passers-by) will be even further than one mile away from the neighbors due to the stockpile locations. Safety lights for the open pit may be visible only briefly at the beginning of the project because once the first bench is established, the lights will be blocked by highwalls.

Blasting is an instantaneous noise and would not amount to a noise level that would affect human health nor cause exceedances of time weighted standards. Blasting is a short-duration event compared to other rock removal methods such as track rig drills, rock breakers, jack hammers, rotary percussion drills, core barrels, and/or rotary rock drills. This instantaneous noise is typically less than 1 second in duration and at a maximum no longer than a few seconds and blasting events would not occur continuously or more than 2 times a day (see Emma Blasting Plan). As such, these events will have little impact on the overall time-weighted average at offsite residential receptors. Additionally, at 1,000 feet, a typical open pit detonation sound level would attenuate to 84 dBA and would further attenuate with distance from the blast area (closest resident is three times that distance). As such, these events will have little impact on the overall time-weighted average at offsite residential receptors.

2.3.7.3 Borrow Materials; 3.2 EMW Waste Stockpile, 3.3 6HW Waste Stockpile, 4.1 EMW Waste and 6HW Waste Stockpiles; and 4.1 EMW Waste and 6HW Waste Stockpiles, Stockpile Cover and Revegetation (GRIP)

The reclamation cover system proposed for the Emma Project (for FA purposes) is a minimum of 3 feet thick, not 1 foot. The reclamation cover system is comprised of 1-foot of salvaged soil materials overlying a minimum of 2-feet of suitable non-PAG overburden stockpile material. The proposed stockpiles will be composed of RCM themselves (see pages 21 and 22 of CCP). This configuration closely resembles the shallow native soils, particularly on slopes in the project area, that are formed in weathering granite and granodiorite overlain by thin pedogenic A and B soil horizons. To be clear, Tyrone's FA proposal is to cover stockpiles that are made of RCM with locally salvaged soil. Therefore, the actual cover thickness is the thickness of the stockpile or fill material with an additional one foot of topsoil (for FA purposes, i.e., actual thickness will typically be much thicker than 3 feet).

Tyrone provided a description of the advantages of this proposal in a response to comment letter dated June 9, 2022 to MMD. In summary, Tyrone has proposed the most logical, common-sense approach/sequence for reclamation at the site utilizing the very same soil and subgrade that exists at the site now and supports a self-sustaining ecosystem. That is the key example of why it will work; however, Tyrone has also shown at the USNR test plot that 4 inches of finer grained RCM is constructable and more than sufficient to provide a highly successful seed bed over run-of-mine RCM.

One foot of salvaged soil is not necessary to utilize the EMW Waste and 6HW Waste stockpile materials for reclamation successfully. Tyrone has successfully constructed soil covers using non-PAG waste rock at the USNR site. The construction successfully utilized large equipment and employed material handling procedures to remove large and excessive rock fragments in the ROM. The USNR site has a well-established plant community and is stable from an erosional perspective. Therefore, the financial assurance proposed is more than enough to achieve success.

The Emma CCP also states that the configurations EMW and 6HW waste stockpiles (shown on Figure 2-1 of the CCP) are significantly larger than the amount of clean waste rock currently estimated to be placed within them. It is difficult to predict exactly how much non-PAG material will be stored in the stockpiles post-closure because this is affected by many variables including market conditions that affect actual sequencing and mining. The Emma CCP also projects a significant amount of non-PAG being routed for reclamation purposes, rather than being routed to a stockpile. For example, the about 5 million tons of non-PAG material is projected to be used for the various partial backfills in the Emma pit rather than be placed on the EMW stockpile. For these and other reasons, a material mass balance is premature at this time. However sufficient financial assurance has been proposed to reclaim the larger stockpile configuration, i.e., greater than what is likely necessary to successfully reclaim what will likely be a smaller footprint with shorter slopes.

Most likely, the majority of the 6HW stockpile will be used to reclaim the leach and waste rock stockpiles that it is constructed on or near and a significant amount of the EMW stockpile will also be used to reclaim the nearby leach and waste stockpiles. Utilizing this material that has been segregated according to a robust material handling plan, will be a very significant cost savings over the cost of hauling cover material to the leach and waste stockpiles from Gila borrow sources on the north side of the Tyrone mine. Having material pre-positioned for reclamation and reducing disturbances to native Gila borrow sources is an advantage that MMD and GRIP should encourage, and it will not cause an impact to the community.

In the RCM characterization and salvage plan (Appendix D) of the Emma CCP, Tyrone has explained that additional grain size characterization of the EMW and 6HW materials will be conducted once mining commences – the logical time to do so. But Tyrone has ample experience with Little Rock materials to expect that Emma materials will be largely suitable.

3.1.1.1 Water Balance Modeling Results (GRIP)

The data and the methods used for water balance modeling are all presented in the hydrology report (DBS&A 2021b). DBS&A developed the GoldSim water balance model to determine whether a pit lake would form in the Emma open pit at closure without dewatering. This was done to determine the need for future pumping (i.e., is evaporation sufficient to consume water inflows). There is potential for both groundwater and stormwater to accumulate in the Emma open pit. The water balance includes three sources of inflow to the Emma open pit: direct precipitation onto the lake surface, stormwater runoff, and groundwater. Evaporation from the lake surface is the one outflow simulated in the water balance model. Results of the water balance model show that a pit lake would form without dewatering (i.e., evaporation is insufficient to remove all water). Because the quality of the accumulated water is expected to be poor, Tyrone will not allow a pit lake to form, but rather will continue to dewater from the Emma Water Management Sump at closure.

DBS&A used daily precipitation data in the water balance model. Direct precipitation and stormwater runoff are calculated using a 100-year synthetic series of daily precipitation values that was developed from the historical precipitation record of the Tyrone G.O. meteorological station (1990 - 2021). The synthetic precipitation series was created by randomly selecting a month of daily precipitation data from the G.O. historical record for the corresponding month in each year of the synthetic precipitation series. This method maintains seasonal precipitation patterns by using January G.O. precipitation records for January synthetic precipitation values, February G.O. precipitation records for February synthetic precipitation values, and so on. Average annual rainfall of the observed G.O. precipitation record is 16.1 inches per year (in/yr). The annual rainfall of the synthetic precipitation series ranges from 8.4 to 28.2 in/yr, with an annual average of 16.0 in/yr (Attachment C). The synthetic precipitation series includes both wet and dry years and thereby simulates climate variability.

4.1 EMW Waste and 6HW Waste Stockpiles, Structural Stability; Geomorphic Design (GRIP)

Figure 2-1 and Drawings 002 through 009 of the CCP (Golder, November 12, 2021) show very clearly what the end of mining stockpile configuration will be (in both plan and cross-section) as well as what the conceptual regraded configuration would be. The configurations will be completely stable (as demonstrated by over 65 years of experience for operational stockpiles at Tyrone) and Appendix E of the CCP provides complete details of the post-closeout stability.

Tyrone stated that geomorphic design could be considered at final design in the June 2022 response letter. Please consider the following site-specific factors as it relates to the question of geomorphic design at this time:

- The Emma CCP and permitting configuration is based on optimistic market and economic conditions, but it is likely to be smaller than what is presented when it is actually constructed.
- Space constraints - To take this configuration and apply geomorphic principles will yield a much larger stockpile footprint that is unnecessary, unrealistic, and is constrained by features like Oak Grove and surrounding State land positions.
- The terrain also does not lend itself to significant benefits from geomorphic design.
- There will likely be significantly less material in the EMW Waste stockpile at closure as explained in a previous section of responses.
- A geomorphic design will not eliminate the need for armored conveyances, so the current design provides a rational basis for financial assurance.
- Tyrone's proposal provides the basis for a viable closeout method for the stockpiles that has been shown to be effective and sustainable in this environment.

- By applying the financial assurance estimate to a larger stockpile configuration, there would be flexibility to consider geomorphic enhancements for a smaller facility/stockpile volume at final design.

Tyrone believes material improvements are not likely achievable by applying a geomorphic design at this site and at this time, for the reasons stated above.

6.1 Erosion and Drainage Control Structures (GRIP)

The CCP does include the scope and the RCE includes the cost for inspection and maintenance of Emma cover system. The CCP provides citations to the current GR010RE permit wherein MMD included the language “NRCS professionally-recognized standards”. The standards are not in dispute with the agencies after many years of inspections and maintenance at Tyrone and they are well understood by inspectors and the scope for Emma includes these practices. These inspections evaluate erosion indicators on a practical scale for thousands of acres of reclamation originally developed by the Soil Conservation Service (now the NRCS) and refined by other federal agencies including the Bureau of Land Management and the Forest Service.

6.2 Groundwater and Surface Water Control Facilities (GRIP)

Contingency and Emergency Response plans fall under the purview of NMED. During operations, FMTI’s discharge permits require, and it is FMTI’s internal standard operating procedure to, ensure that all facilities and structures are maintained frequently, especially before the monsoon season, and after significant rainfall events. After closure, the reclamation cost estimate provides estimate for monitoring of groundwater and surface water control facilities for 100 years. Thus, there is no need for MMD to double regulate and require preventative maintenance. NMED already regulates this process, and FMTI performs it as part of standard operations.

6.4 Revegetation Success Monitoring, 6.5 Wildlife Monitoring (GRIP)

This is a confusing comment because all monitoring is post-closure monitoring. The minimum period for vegetation and wildlife monitoring is 12 years. However, Tyrone conducts monitoring surveys until the unit has met all revegetation success standards and meets the applicable Mining Act Rule criteria for a “self-sustaining ecosystem” as determined by MMD. Tyrone will maintain O&M for revegetation until the reclaimed site meets the requirements of the Mining Act Rules, as determined by MMD. *See 19.10.12.1204.A NMAC.*

8.4 Operation and Maintenance Cost Estimates (GRIP)

1. Diminishing Costs Over Time

Vegetation and erosion control monitoring are based on observations and almost 20 years of experience of O&M at the Tyrone and Chino Mines.

Tyrone has successfully reclaimed thousands of acres of formerly mined areas around the Tyrone Mine using similar methods and materials as proposed for the Emma Project. This experience provides a reasonable basis upon which to estimate future maintenance costs. The cost estimates for the Emma Project draw on this experience and use conservative approaches to estimate O&M costs. Based on these observations, using a 2% failure every year for 12 years is a conservative approach to planning for vegetation maintenance. Tyrone has completed thousands of acres of successful reclamation and never needed to reseed at the assumed 2% rate – thus that assumption is conservative.

Note that road maintenance costs and groundwater monitoring costs for Emma are not assumed to diminish with time over 100 years. Water treatment O&M does not diminish over time.

2. Road Maintenance

Sheet 4 in Appendix A-2 of the CCP shows the maintenance roads outside the Emma open pit. Haul roads located in the Emma pit on Drawing 003 in Appendix A-1 will have a 30-foot maintenance corridor associated with them, and the remaining haul road surfaces will be reclaimed at closure.

The Revision 09-1 of permit GR010RE FA, already includes cost to maintain roads at Tyrone. In the Emma RCE, FMTI only includes reclamation costs for the new Emma maintenance roads utilized during reclamation, maintenance, and water management and treatment (approximately 40 acres). Tyrone successfully maintains miles of mine roads around the closed facilities of the Tyrone Mine, similar to those planned to remain for the Emma Project. This experience provides a reasonable basis upon which to estimate future road maintenance costs. The road maintenance cost estimates for the Emma Project draw on this experience and are thus, conservatively reasonable.

3. Erosion Control and Monitoring & Water Quality Monitoring

The comment and the similar comments on vegetation maintenance are arbitrary and provide no basis for the proposed failure rates. Such failure rates are not justified based upon Tyrone's substantial experience to date on reclaimed areas.

4. Vegetation Maintenance

As required by the Mining Act, and as is consistent with the proposed post-mining land use, Tyrone maintains O&M for revegetation until the reclaimed site meets applicable criteria for a 'self-sustaining ecosystem' that typically requires a minimum of 12 years after reclamation and seeding is completed and after the last year of augmented seeding, fertilizing or

irrigation, before all of the financial assurance is released. 19.10.12.1204 A. NMAC. A self-sustaining ecosystem, by definition, is self-renewing and does not allow for any soil amendments or enhancements. MMD reviews the materials proposed for use as cover for suitability to establish vegetation prior to reclamation, and wholesale replacement of cover materials is not anticipated. Cover maintenance is covered under erosion control earthwork O&M costs.

5. Water Quality Monitoring

Tyrone will propose and work with NMED for approval of the post-closure monitoring and update the CCP and cost estimate accordingly.

6. Contingency Plans and Emergency Response Plans

The Mining Act and Mining Act Rules require Tyrone to prepare and submit a cost estimate for reclamation work as described in an approved closeout plan. 19.10.12.1201.A, .1202.A, and .1205.A and .B NMAC. The Mining Act and the Mining Act Rules do not require a cost estimate or financial assurance for a “Contingency Plan and Emergency Response Plan” or based on “worst-case cost scenarios” for implementation of such contingencies. Consequently, this request falls outside the scope of the Act and Rule requirements regarding cost estimates and financial assurance. In addition to the Mining Act, the Mining Act Rules, and permit conditions established under the Mining Act, Tyrone complies with numerous environmental laws, rules and permit conditions intended to minimize the need for potential events that could result in the need for emergency response and/or implementation of contingency plans. This is particularly true for the Emma Project because ore will be transported to the Tyrone Mine, where leaching and recovery of copper through the SX-EW process takes place in its existing permitted facilities.

7. Public Safety

See response to topic No. 6 above. In addition, under the Mining Act and Mining Act Rules, public safety concerns are addressed through the installation of fencing, signage, berms and other features designed to prevent public access to the mining area during and after completion of mining operations. Changes in condition of the open pit that could occur over time would affect only the area where public access is precluded and, consequently, pose no risk to public safety.

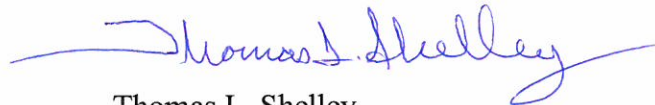
That said, GRIP’s assumption that the pit does not include costs to monitor public safety is incorrect because the pit water management system will be maintained for the long term and will have regular inspections that are included in the cost estimate. These same inspections and maintenance activities will monitor that the public is not accessing the pit area as well.

Mr. David Otori
November 21, 2022
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Tyrone appreciates the opportunity to respond to these comments and looks forward to continued progress to approve the necessary permits for the Emma Project.

Please contact Ms. Raechel Roberts at (575) 956-3290 if you have any questions.

Sincerely,



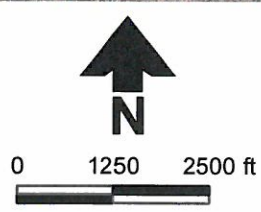
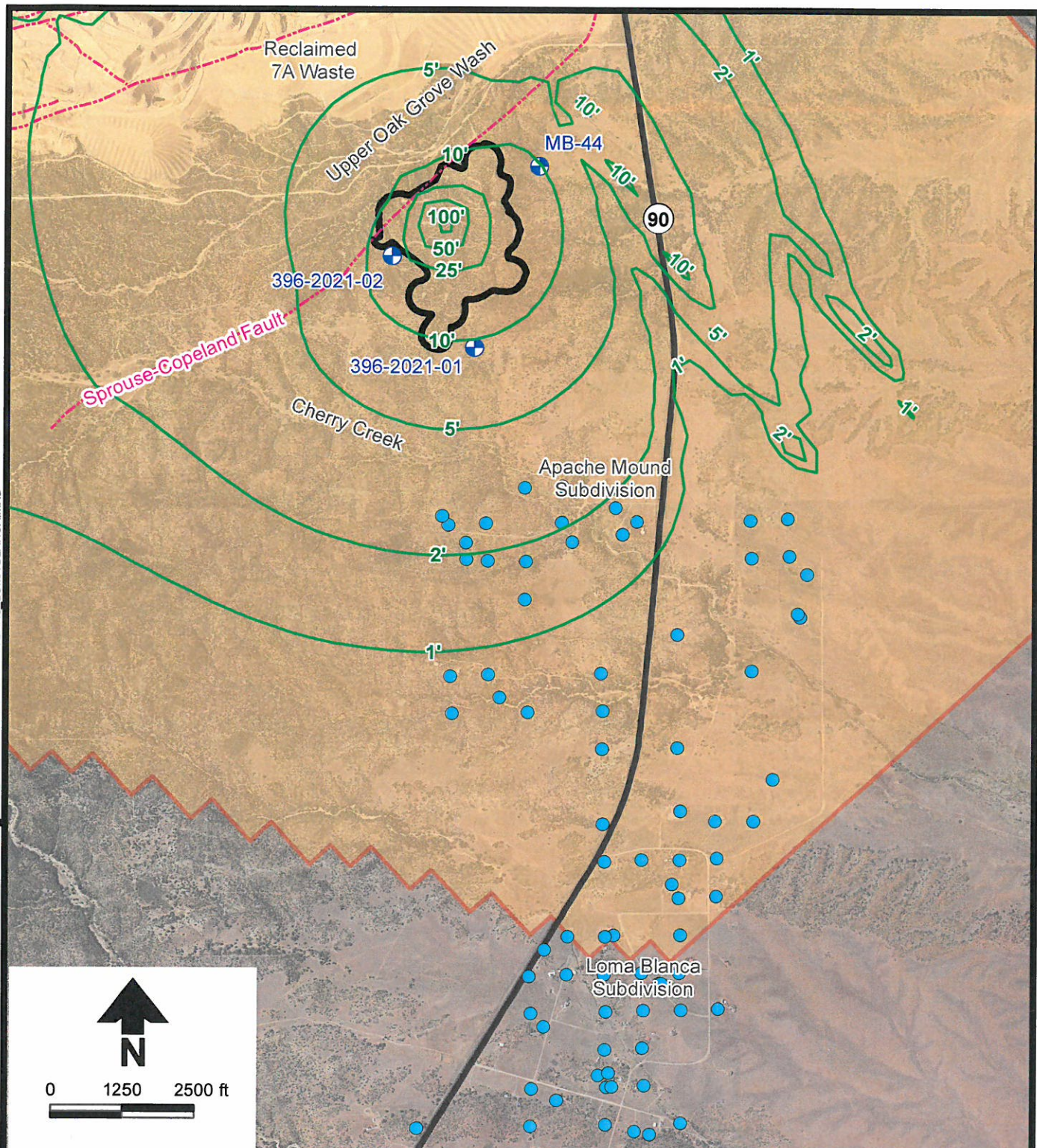
Thomas L. Shelley
Environmental Services Manager

TLS:rnr
Attachments
20221121-100

c. Holland Shepherd – MMD
Brad Reid – NMED

Attachment A

S:\PROJECTS\MINE_TYRONE\PROJECTS\DP_SUPPORT_2022\GIS\MXD\DP-396\PUBLIC COMMENTS\FIG05_SIMULATED DRAWDOWN - 40 YEARS_LOMA BLANCA.MXD



Explanation

- Proposed Emma pit topographic extent
- Model domain
- Monitoring location
- Domestic well
- Fault
- Predicted drawdown (ft)

Source: 1. Aerial imagery (NAIP, 2020)
 2. Emma pit topographic extent represents EOY 2026 pit configuration.
 3. Domestic Wells (New Mexico Office of State Engineer, 2021)

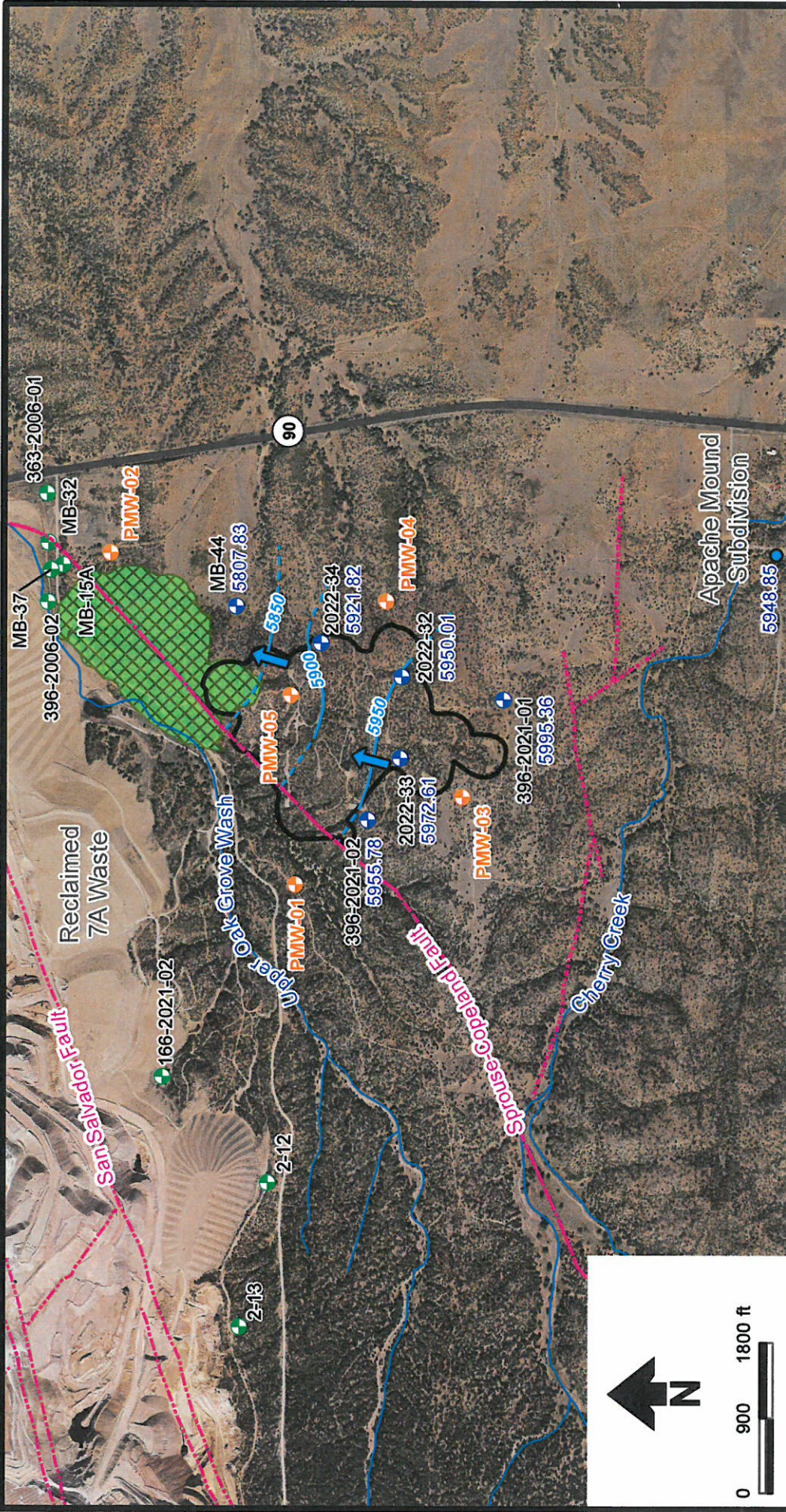


Predicted Drawdown at 40 Years from Open Pit Dewatering at Emma



Figure 5

Attachment B



Explanation

- MB-44 5807.83 Water level elevation (ft msl)
- Proposed regional monitor well
- Existing regional monitor well
- Well Location
- Proposed EMW stockpile
- Apache Mound Subdivision well
- Groundwater flow direction
- Proposed Emma pit topographic extent
- Water level elevation contour (ft msl), dashed where inferred (contour interval 50 ft)
- Fault
- Streams

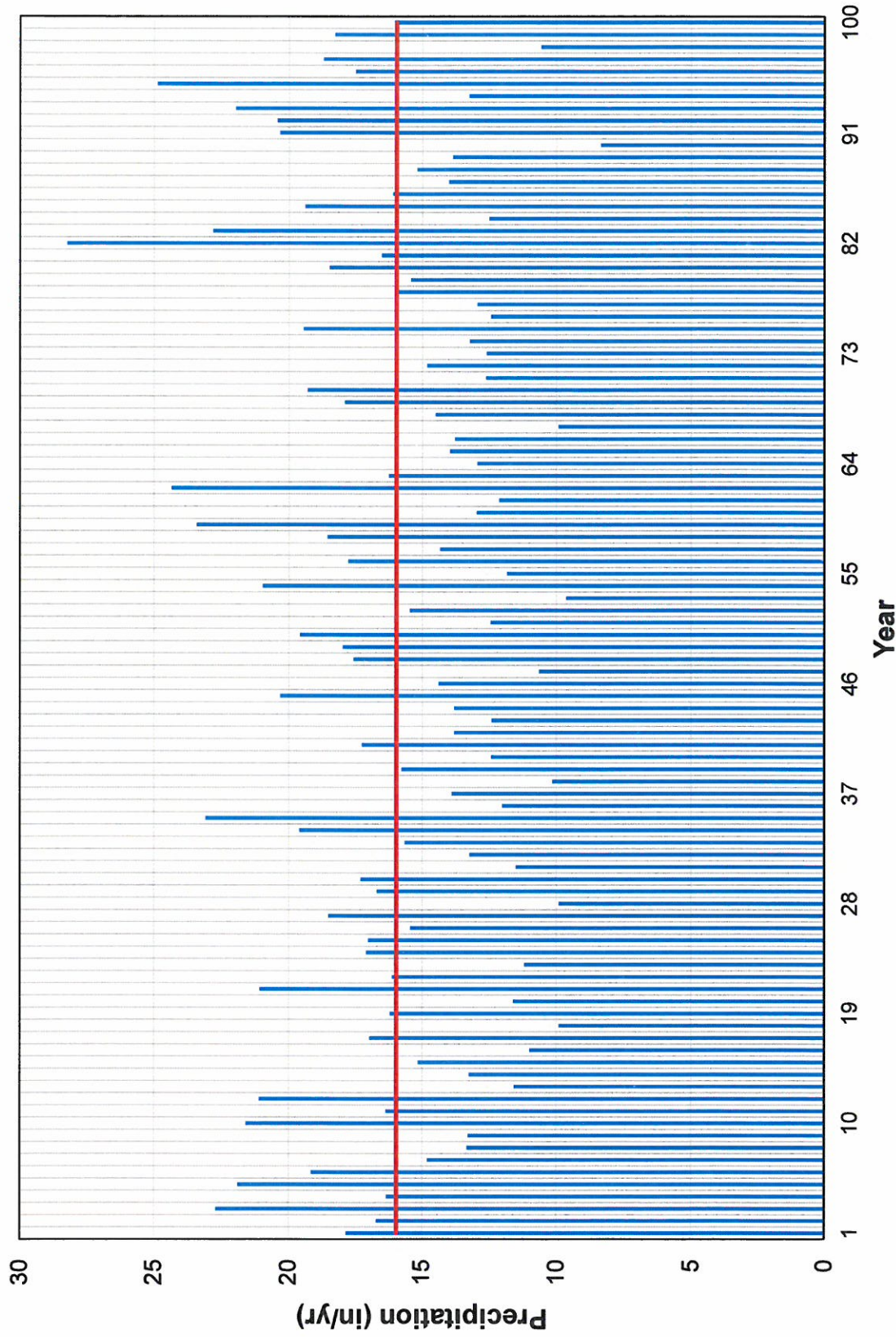
Source: 1. Aerial imagery (NAIP, 2020).
 2. Water level elevation data are from April 2022.
 3. Emma pit topographic extent represents the EOY 2026 pit configuration.
 4. USGS, National Hydrography Dataset (NHD)

FREEPORT-MCMORAN
 TYRONE MINE

Emma Expansion Project
Regional Groundwater Level Elevations
and Flow Direction, April 2022

DBS&A
 Daniel B. Stephens & Associates, Inc.
 11/1/2022
 DB22.1005

Attachment C



— Synthetic Precipitation — Average Synthetic Precipitation

TYRONE MINE
EMMA EXPANSION PROJECT
100-Year Synthetic Precipitation Series



DB22.1005

Figure 1