

**STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
MINING AND MINERALS DIVISION**

**IN THE MATTER OF REVISION 20-1 FOR THE
CUNNINGHAM HILL MINE RECLAMATION PROJECT,
SANTA FE COUNTY, NEW MEXICO
PERMIT NO. SF002RE**

HEARING OFFICER REPORT

Introduction

Applicant LAC Minerals (USA) LLC ('Applicant' or 'LAC') submitted to the Mining and Minerals Division (MMD) of the Energy, Minerals and Natural Resources Department (EMNRD) an application to update the Closure/Closeout Plan (CCP) for the Cunningham Hill Mine ('CH' or 'Mine') and request for a waiver for the open pit because the original CCP had not accurately predicted the pit lake elevation there. Cunningham Hill is a gold mine located approximately six miles south of Cerrillos, in Santa Fe County, New Mexico.

On November 2, 2022, the undersigned Hearing Officer accepted technical testimony and public comment during a hybrid event in person at the Harold Runnels Building Auditorium in Santa Fe and on a virtual platform as part of continued information gathering necessary for the MMD Director to reach a decision on the permit revision application under Section 19.10 NMAC.

The hearing was conducted pursuant to Section 19.10.9.905 NMAC, Hearing Procedures. Following introductory remarks by the Hearing Officer, all comment was taken under oath and subject to questioning by others present. Written comment was also submitted and accepted.

The hearing, which was recorded and transcribed by Cheryl Arreguin of Albuquerque Court Reporting Services, Certified Court Reporter, started at 5:00 p.m. and continued for nearly 4 hours. Approximately 25 people, including Applicant's representatives, EMNRD staff, and representatives of the Friends of Santa Fe County (FSFC), participated in person in Santa Fe, and approximately 20 people joined the hearing by telephone or computer on the Webex platform. Gabriel Wade appeared on behalf of MMD as General Counsel; Jon Indall of Maldegen, Templeman & Indall appeared on behalf of LAC; Eric Jantz and Mara Yarbrough appeared for FSFC.

Notice of the hearing and opportunity to provide comment was sent by mail, email, and posted on the EMNRD webpage. The Hearing Officer also announced that following the hearing, written public comment would be accepted by MMD through November 18, 2022. A request to extend the deadline to a date following the Mine's response to the state agencies' October 25 comments was taken under advisement until the following day. The request was declined as beyond the time of the Hearing Officer's assignment for purposes of this report. The Hearing Officer nevertheless clarified that MMD would accept comments on LAC's response up to 30 days after receipt for the purposes of the administrative record upon which the Director's decision on the Application will be based. (See attached email.)

The MMD Director did not request a recommendation for action from the Hearing Officer under Section 19.10.9.905.A(3) NMAC. This report summarizes the testimony offered at hearing and the issues delineated in subsequent written submittals by LAC and FSFC for the Director's consideration.

Hearing Testimony from the Mining and Minerals Division

Carmen Rose, MMD Permit Lead for the CH Mine Permit Revision 20-1

Application (Application), testified while presenting a slide show, which is now part of the administrative record. The Application proposes to update the CCP and requests a pit waiver. The CCP is essentially a reclamation plan in which the mine operator describes the reclamation activities they will conduct when mining is complete. MMD considers public comment in reviewing the Application. Tr. 13-15.

Ms. Rose offered a brief permit history for the CH Mine, which was originally permitted in September 1995. A change to a permit that would significantly depart from the nature or scale of the original permit is processed as a revision; a less significant change would be processed as a modification. The Application was originally submitted in October 2020. Subsequently, technical responses were made by state agencies; the Mine replied to those responses and submitted an amended Application in October 2021. All of these documents are on the MMD website. Tr. 16-19.

MMD reclamation requirements addressed in the CCP include LAC's obligation to reclaim the site to a self-sustaining ecosystem and/or an appropriate and beneficial post-mining land use (PMLU). A self-sustaining ecosystem, which is the real goal of reclamation, is site-specific and life zone-appropriate. MMD typically considers vegetation communities, site stability, and human and wildlife health and safety in its assessment. The approved PMLU for the Mine are generally wildlife habitat, and industrial use for the portion of the site where the office building is located. Tr. 19-20.

An application for a pit waiver is allowed under the New Mexico Mining Act Rules if reclamation is considered technically or economically infeasible or is environmentally unsound. LAC must also demonstrate that obtaining a pit waiver will result in compliance with all federal and state laws, and applicable environmental regulations and standards, and pose no risk to human health and safety. Tr. 20.

LAC also submitted proposed surface reclamation cost estimates as part of the CCP Application. This cost is based on what it would take a third party to complete the reclamation described in the CCP. LAC is currently proposing \$1.16 million in financial assurance for surface reclamation at the Mine; this amount is subject to change as MMD reviews it closely to meet its regulatory responsibilities in Part 12. Tr. 20-21.

Moving forward, MMD will consider the public comment received at and after the hearing, and continue its technical review of the updated CCP and pit waiver request. This will include consultation with other agencies. The CCP requires an environmental determination from the New Environment Department (NMED) stating that the application has demonstrated that the activities authorized are expected to achieve compliance with all applicable air, water quality, and other environmental standards. The MMD Director will then determine whether the Application is technically approvable and request that LAC submit a financial assurance proposal, including a financial instrument. The permit will then be drafted. In addition to ensuring that LAC is complying with all requirements in the New Mexico Mining Act, MMD can condition the permit to address site-specific environmental concerns, monitoring, reclamation, and

public health and safety. Finally, MMD reviews permits every five years, including the CCP and financial assurance. Tr. 21-23.

On questioning, Ms. Rose confirmed that the proposed CCP and pit waiver request will not alter the two permits issued by NMED, discharge permit DP-55 and abatement plan AP-27. There are activities under DP-55 associated with the CCP, so NMED is reviewing the application in conjunction with MMD. There is financial assurance for surface reclamation and financial assurance for groundwater remediation; MMD and NMED consult on the cost estimates. Tr. 23-25.

As to the recent erosion and rilling that was discovered at the waste pile, the repair work is being handled as a corrective action plan jointly by MMD and NMED. LAC is doing spot repairs, which does not currently reset the 12-year time clock for release under the Mining Act. The spot repairs include a contingency requirement for 8 acres worth of soil covering 1 foot. The 8-acre figure was calculated by taking half of the acreage of the waste rock pile slopes. If this is not sufficient, MMD can always reassess the calculation in the future. In their conditional approval of LAC's design package, MMD included a contingency that LAC must reassess the East Groin area and soil cover performance at the waste rock pile following repair by July 1, 2024. MMD and NMED jointly hold financial assurance for the site until LAC demonstrates that the site is stable and that they have achieved a self-sustaining ecosystem there. If they get to that point, and all that remains is water quality concerns, financial assurance is shifted to NMED. Aside from the NMED discharge permit and abatement plan, it is MMD's position that the Water Quality Act still applies to the pit lake. Tr. 25-33.

The pit walls will be exposed to rain, wind, and runoff, and erosion will occur. A 1994 slope stability report by Call and Nichols concluded that slope instability in the pit is not expected, but conceded that the analysis would require more fieldwork to meet governmental requirements. The agencies have discussed internally a pit stability report and what that would mean. Ms. Rose does not know whether survey monuments have been installed to document slope movement. Tr. 33-36.

Livestock grazing is still among the post-mining land uses. Tr. 37.

Hearing Testimony from the NMED Groundwater Bureau

Anne Maurer works in the Mining Environmental Compliance Section of the NMED Groundwater Quality Bureau (Bureau). She is currently acting as the groundwater permit lead for the CH Mine, which is regulated under the Water Quality Act in addition to being regulated under the Mining Act. The Bureau regulates the Mine through DP-55, which covers the waste rock pile, the residue pile, and all associated water management systems. It also covers abatement specific to waste rock pile and residue pile discharges. The Bureau also regulates the Mine through AP-27, which is specific to the open pit, open pit water body, and groundwater downgradient of the open pit. Although this hearing is a Mining Act hearing, Ms. Maurer stepped up to answer a few NMED-related questions and invited people to reach out to her directly for additional information. NMED holds joint financial assurance with MMD to cover costs for activities and facilities being closed under the CCP. NMED also holds its own financial assurance for abatement activities under AP-27. This financial assurance will be held until standards are met. As to the ponds, NMED renewed DP-55 in 2020, and one condition requires

LAC to provide a pond liner evaluation and work plan to address long-term liner integrity in addition to sludge removal. The Bureau is still in the process of reviewing the work plan and it has not yet been approved. The pond maintenance covered under DP-55 is also addressed in the CCP cost estimate. Tr. 47-50.

Hearing Testimony from Permittee LAC for the Cunningham Hill Mine

Daniel Lattin is the senior program manager for Barrick Gold of North America, speaking on behalf of LAC. Mr. Lattin provided an overview of the mine site, mine units they manage, regulatory oversight, completed reclamation work, and the path forward to finalize reclamation as he proceeded through his slides, now part of the administrative record. The site has a rich history in mining; it was Santa Fe County, not California, that had the first western gold rush; the first stamp mill was operating by 1865. LAC's focus is the modern-day mining between 1979-1987. Tr. 55-57.

The CH Mine site is located on approximately 3,000 acres of private land at an elevation of 7,000 feet. The mine boundary originally permitted was approximately 4,350 acres of land; Barrick donated 1,300 acres to the Santa Fe Botanical Garden for the Ortiz Mountains Educational Preserve. While the mine was operated in 1979-1987, waste rock materials were placed in Dolores Gulch. Ore mined from the open pit was crushed and placed on an impervious asphalt leach pad where it was leached with a dilute cyanide solution to extract recoverable gold. The spent ore was then rinsed with fresh water and relocated to the residue pile. Barrick acquired LAC Minerals in 1994, seven years after mining had ceased. Barrick's involvement at this property has been solely focused on site reclamation. Tr. 57.

The Mine is subject to broad regulatory oversight. NMED regulates the Mine through DP-55, for the waste rock pile and residue pile; and through AP-27, for the open pit. MMD's permit SF002RE regulates the reclamation of surface disturbance. They also have permits with the New Mexico Office of the State Engineer for water rights and the Environmental Protection Agency for their open pit discharge and the national stormwater discharge permit. There is reporting for each of these permits to assure compliance. DP-55 requires quarterly groundwater monitoring of 27 wells and three springs, monthly inspections, and quarterly and annual reports. AP-27 requires quarterly groundwater monitoring of four wells, open pit depth sampling, and quarterly reports. MMD requires post-storm event inspections for erosion or rilling, monthly inspections, annual inspections, and an annual report. Tr. 58-59.

Mining at this site, concluded in 1987, created a total disturbance of approximately 363 acres. Successful reclamation occurred in the mid-1990s, after Barrick acquired LAC. The reclamation was recognized by MMD Excellence in Reclamation awards in 1996 and 1998. Of the 332 acres to be reclaimed, approximately 326 acres, or 98%, have been completed. Specifically, for the open pit, approximately 34 acres were disturbed by the mining, and approximately 15 acres have been successfully reclaimed. Consistent with the state-approved reclamation plan, reclamation activities have created a stable and steady-state condition, including exclusion berms and fencing, source controls and storm controls to reduce acid wall seeps, and periodic water treatment. The open pit is compliant with AP-27 surface water standards. Tr. 59-61.

The previous closure plan projected that stormwater would fill the pit to an elevation of approximately 6,945 feet above sea level, which would inundate a significant portion of the pit vertical walls and benches. That plan was based upon precipitation data at the time, pre-1998, with an annual precipitation of 17 inches and past watershed conditions. Currently the steady-state surface water elevation is approximately 6,795 feet, significantly lower than anticipated. Changes in the climate have been observed, average annual precipitation is approximately 13 inches, and watershed vegetation is significantly different. It has become apparent that the pit is likely not to fill to 6,945 feet as predicted, and the pit walls and benches will not be covered by water as planned. As a result, LAC considered alternate reclamation. Four reclamation options for achieving a self-sustaining ecosystem were evaluated for technical feasibility, economic feasibility, and environmental soundness. The first option was to fill with stormwater, which is not technically feasible. The second option was to fill with groundwater, which is not technically feasible, or economically feasible, or environmentally sound. Partial or full backfill of the pit is not technically feasible, economically feasible, or environmentally sound. These conclusions led them to request the pit waiver in accordance with the regulation. The area of vertical rock wall, benches, and the pit water surface is 3 acres and 16 acres, a total of approximately 19 acres. The pit waiver only modifies the requirement for physical reclamation of surface disturbance area. Water quality will continue to be regulated and maintained to meet AP-27 requirements. Tr. 61-63.

At the waste rock pile, approximately 72 acres were disturbed, and 68 acres have been successfully reclaimed. The activities that created a stable and steady-state condition included the interceptor wall and treatment system to capture and treat impacted waters, re-contouring, cover placement and revegetation of the surface, including planting 15,800 trees and shrub seedlings, design and implementation of storm water diversions and controls, and the Dolores Gulch residual groundwater plume cleanup. The result is successful revegetation and a compliant facility with diminished impacted water flows, and blending of the trees into the natural viewshed. As to the ore treatment unit and surface facilities, approximately 75 acres were disturbed and 75 acres have been successfully reclaimed. Reclamation activities performed to create a stable and steady-state condition included demolition and removal of the crushing facility, ore conveyor system, process plant and asphalt heap leach pad; removal of impacted subsoils; recontouring, cover placement and revegetation; and stormwater controls and diversions. This area has been released by MMD. Tr. 63-65.

At the residue pile, approximately 49 acres were disturbed, and 49 acres have been successfully reclaimed. Reclamation activities included recontouring, cover placement and revegetation, stormwater versions and controls, and an accelerated cleanup of the residual groundwater plume, which continues to be regulated under DP-55. This area has also been released by MMD. What remains at the site for reclamation are the ponds, the pit, and some of the treatment facilities associated with the ponds. Besides the pit waiver for surface reclamation, they plan water treatment and maintenance of the source controls as needed. For reclamation of the water treatment

ponds at the waste rock pile, which are about 4 acres, they plan residual groundwater plume cleanup, maintenance of the cover as needed, and reclamation of the ARD treatment system and associated ponds, about 2 ½ acres. Many of these activities are related to requirements under DP-55 and AP-27; under the Mining Act approximately 6 acres must still be reclaimed. Finally, LAC has invested voluntarily in a forest management plan to reduce the risk of uncharacteristic fire; over 200 acres have been thinned in the past several years and they will be continuing that program. Tr. 65-67.

Steven Finch, Jr. is a registered professional geoscientist and has been conducting work at the Mine since 1991. He addressed the open pit reclamation, the waste rock pile reclamation, site-wide monitoring, and the CCP update while pointing out key features for each on his slides, which are part of the administrative record. The requested pit waiver is for 19.37 acres. Mining stopped 35 years ago, so there's a nice data set to work with on the open pit. The Upper Cunningham Gulch watershed is the watershed that currently flows into the open pit. The Golden fault zone created the ore body at the open pit where the gold was mined out. When mining started, wells at the pit were used to dewater the area. There are 2 places where acid wall seeps emerged after mining, and it took a while to figure out the path of the stormwater through the fracture system; the original plan was to flood them out. As part of AP-27, source controls were required to improve water quality: repairs were made to Upper Cunningham Gulch where stormwater was seeping underground before it got to the open pit; there were stormwater controls for the runoff area west of the pit and in-pit controls to keep stormwater off the benches and roads; and repairs were made to

access roads by installing caliche base and a caliche cap on one of the largest remaining bench areas. Tr. 68-75.

As to open pit wall stability, the 1994 Call and Nichols report concluded that the rock is competent and will remain in stable condition. Although this was a long time ago, he has been out to the site many times since then and has not seen any kind of unraveling or failure of the pit walls. He believes the initial geotechnical evaluation was partly correct; additionally, there have been reclamation efforts that have stabilized the south and west slopes, including stormwater controls. They have stability even after a 100-year event in 2019, when more than 2 ½ inches of rain fell in less than 30 minutes. There is sediment in the bottom of the pit from stormwater runoff; it is not from slope failure of the pit wall. Tr. 75-76.

A good history of the investigations of the reclaimed waste rock pile performed under DP-55 has been provided to NMED and MMD. Between 2007 and 2019 there have been many evaluations of the cover and its performance in protecting groundwater. In 2011 they installed a soil moisture monitoring network to understand how the cover was performing and to determine the source of the acid rock drainage occurring at the toe of the pile. They found that the cover was performing as designed but stormwater was entering the pile, so they implemented stormwater controls, including a diversion program along the West Groin and channel repairs to the East Groin. It has shown to be a very successful mitigation measure, and in the last several years, except for a little blip in 2019, there has been a negligible amount of flow, currently zero, even after the heavy rains this summer. Tr. 76-78.

The sitewide monitoring conducted for the CCP, AP-27, and DP-55 includes monthly visual inspections of the facilities, even the ones that have been reclaimed. The weather stations on site, one on the waste rock pile and one by the residue pile remediation ponds, collect data continuously. They record meter readings for all stormwater diversions, groundwater pumping, anything required for DP-55, and for the water rights permit. There is also an extensive groundwater monitoring network for water quality constituents of concern covered under DP-55 and AP-27. For AP-27, the open pit water currently meets surface water quality standards. As to the groundwater standards, the open pit water body has elevated total dissolved solids (TDS) and sulfate that's currently being treated. The reclaimed residue pile plume has some residual nitrate and cobalt near final phase of cleanup. Dolores Gulch, below the waste rock pile, still has some pockets of elevated TDS, sulfate, suppressed pH, and in a few areas, aluminum, manganese, iron, and cadmium. There are two wells that provide downgradient monitoring. When they were installed, they were clean, and they are currently clean; the site is not affecting offsite properties. Tr. 79-80.

The CCP specifically addresses the waste rock pile, the open pit, and some of the ponds. There is a very small area left to be reclaimed. The previous plan had a projected water surface elevation 6,945 feet. They believe the pit water level will remain where it is now. Even with a pit waiver, they must still meet all applicable surface water and groundwater standards. Reviewing alternatives to the pit waiver, they evaluated technical feasibility, economic feasibility, and environmental soundness. Considering the post mining land use and the MMD self-sustaining ecosystem requirements, they landed

on the best course of action. There are no pit-filling alternatives that are technically feasible, economically feasible, and environmentally sound. A pit waiver will allow for the applicable permit requirements to be achieved, and will be in the best interest of wildlife, stakeholders, adjacent communities, and the landowner. Tr. 81-85.

Mr. Lattin and Mr. Finch were questioned as a panel. They do not know how long they will continue the forest management plan; it depends on the availability of resources, including the firefighters who work in the off-season to do the tree thinning. They are not aware of any survey monuments that have been installed on the pit walls other than the prism on the south wall. They do inspections after each major rainstorm, and have not identified any other areas of acid wall seeps, or see risk for further acid wall seeps at the site. The stormwater control systems were designed by Daniel B. Stephens. The Call and Nichols study was a geotechnical evaluation, not a water balance evaluation, and to their knowledge has not been reevaluated considering more frequent storm events due to climate change. The pit waiver alternatives were evaluated individually; see Exhibit 5. But the numbers available for stormwater and groundwater combined still would not fill the pit to the point needed for reclamation. Tr. 87-92.

Following the hearing, LAC timely submitted written comment for the administrative record responding to concerns raised and supporting its testimony.

Hearing Testimony on Behalf of Friends of Santa Fe County (FSFC)

James Kuipers, FSFC's technical consultant, has 40 years of experience in the mining industry, and 25 years of experience working on mining issues in New Mexico, where there is a great deal of interest in ensuring that mines are addressed in a long-

term way. The public interest groups he has worked with in New Mexico have a history of reaching various points of agreement and settlement with the mining companies and with state agencies. His comments are offered for further discussion with LAC and the state agencies; they have not yet had a good opportunity for close discussion about this site. He would emphasize that, under the Mining Act, a pit waiver waives only the requirement for PMLU or self-sustaining ecosystem, not other applicable laws, regulations, and standards. This mine is not Questa, Chino, or Tyrone, but it is not a walkaway mine, as evidenced by the fact that we are discussing it 35 years after the mine closed, and 25 years after reclamation was completed. He spoke while proceeding through his slides, which are part of the administrative record. Tr. 93-97.

The Friends' goal is to eliminate or minimize sources and the need for long-term monitoring and maintenance, but there are some site-specific challenges. First, the source controls, stormwater controls, and covers intended to limit infiltration has been good work, but we need to make sure those continue to perform over the long run, hundreds if not thousands of years into the future. Water treatment is ongoing at the site, and periodic treatment for the pit will be necessary. Seepage is still coming from the waste rock pile and will need to be addressed. Everyone has done their best to predict what might happen in the future, but there is a lot of uncertainty in those predictions, and that needs to be assured. Financial assurance should be in place to carry out this work long after the company is gone and for as long as it is possible or probable that the regulatory agencies in the state would be responsible for that. We are talking about the need to go out 100 years, even as long as 500 years. There is

precedent in Nevada with the Bureau of Land Management where they take monitoring and maintenance long-term out to 500 years. Tr. 98-100.

It is important to know that we are talking about both pit stability and mass wasting. Large areas of pit instability can occur without a lot of warning due to faults. Mass wasting occurs more slowly as pit walls slough and degrade, but can be significant. It would be good to have something that allows for an assessment at the beginning of significant movement. High wall failures are not typically triggered by a storm event, but rather by geologic phenomena. Regulatory safety and public safety can be addressed, but as the pit becomes unstable, the stormwater diversions and source controls are impacted, which are important from a water quality standpoint. These should be included in the designs and financial assurance, and the waiver should be understood not to waive the need to address water quality. Mr. Kuipers displayed an example of a rapidly degrading mine site in Montana, and discussed the changing understanding of the pit walls at the Questa mine in New Mexico. Tr. 100-105.

There is reason to be concerned about water quality, and with evapo-concentration it will not take much for some constituents to reach the aquatic life standard, copper, for example. Reclamation was completed in 1996, and yet all the way through the present there has been a need for ongoing repairs, maintenance, and monitoring. These activities will be required for as long as there is material in the pile that will result in exceedances of the standards if the engineered controls are not maintained. He expects that to be hundreds of years into the future. It is important to stay ahead of the necessary preventive maintenance. Tr. 105-109.

There are low acid rock drainage leachate rates coming out of the pile at the site, which can be treated effectively using evaporation, but it does require long-term monitoring, maintenance, and replacement, including the maintenance of bird netting. Predictions for the Southwest are that climate change will cause heavier rainfall events and more intense periodic annual precipitation. We should recognize that 100-year, 200-year, 500-year, and 1,000-year events are going to become more common. The event that occurred at Yellowstone in Montana was a 1,000-year event in some parts. He recommends that the company and the state think about these things from a standpoint of robustness, resiliency, and the real cost of considering long-term liabilities. We need to look at not only extreme drought, but wet periods, because this is what drives drainage from the pile. We do not have a lot of information here on the designed storm events used for the various stormwater channels and other things on site. We should talk about increasing the capacity of those channels. The standard in Canada is to design for a 200-year, 24-hour storm event. He would recommend using a 500-year, 24-hour storm event as an additional measure of conservatism. Tr. 110-114.

As they have tried to figure out how the Mining Act interacts with the Water Quality Act, they have come to realize that because of the way the process works, after 12 years, MMD will release the site and it all becomes NMED's responsibility. Tasks involved in long-term monitoring, maintenance, and replacement need to be clearly articulated for the purpose of the CCP. They recommend that all aspects of AP-27 and DP-55 be combined and included in the CCP. He understands that AP-27 is not necessarily part of the CCP process, but he thinks it is very difficult as a technical person

who works with laypeople to have two separate permits being renewed at different times in different ways. It would be advantageous to have the DP renewal process at the same time. He wants to emphasize a conservative approach, assuming reasonable worst scenario. We need to address all factors potentially impacting water quality, and preventative maintenance of the cover. The difficulty in addressing issues at the site is that there is a lot of uncertainty, and the only way to really address uncertainty is to have a contingency plan for things both anticipated and unanticipated. One of their concerns is that NMED does not do financial assurance as frequently as MMD, and does not have the same requirements and guidelines. There are provisions in AP-27, created more than 20 years ago, which are a good starting place. He would suggest a net discount rate of something around 2%, especially considering inflation. He would like the company to consider the idea of 500 years of financial assurance instead of 100 years. He suggested 25 years to show compliance for water quality, but 25 years may not be long enough into the future. All of these things should be discussed. Tr. 115-120.

Following the hearing, FSFC timely submitted written comment for the administrative record supporting and amplifying its testimony at hearing.

Public Comment

Public comment was offered during the hearing.

Charles de Saillan, longtime resident of Santa Fe County and an environmental lawyer with long experience in hardrock mining cases, noted that although the Mining Act allows the MMD Director to approve a waiver for an open pit or other mining unit if it is not technically or economically feasible or is environmentally unsound to

reestablish a self-sustaining ecosystem, there is an important caveat. The Director can approve a waiver only if measures will be taken to ensure that the open pit or waste unit will meet all applicable federal and state laws, regulations and standards for air, surface water, and groundwater protection following closure, and it will not pose a current or future hazard to public health or safety. Mr. de Saillan does not oppose the waiver LAC is seeking from these requirements for the open pit at the mine, but he believes it is essential that the Director impose appropriate conditions on his approval if approval will be given. Mr. de Saillan recommends four types of conditions:

- 1) continued monitoring of the site, including monitoring of water quality for the foreseeable future, and monitoring of other mine features, particularly the covers on the waste rock piles. Water quality monitoring should include both total chromium and hexavalent chromium, which is more toxic and more bioavailable.
- 2) treatment of contaminated water. The pit lake currently exceeds water quality standards for sulfate and TDS, which may become a problem over time due to evapoconcentration or normal erosion of the pit walls.
- 3) continued maintenance, including the water treatment system, covers and vegetation, stormwater controls, and other reclamation components.
- 4) adequate financial assurance to ensure funding for water treatment, monitoring, maintenance, and any necessary repairs, covering a period of at least 100 years into the future and adequate to address any potential failures in the closure plan.

Mr. de Saillan also stressed that the climate models predict that New Mexico will be warmer and drier in the coming decades, and that precipitation will come in increasingly violent summer thunderstorms. Warmer temperatures will likely mean more evaporation from the pit and more evapoconcentration of contaminants there. More violent summer storms will likely result in greater erosion of soil covers and of pit walls. Pursuant to the Governor's Executive Order on climate change, 2019-003, all state agencies must evaluate the impact of climate on their programs and operations and integrate climate change mitigation and adaptation practices. Tr. 40-45.

Rachel Conn is Deputy Director for Amigos Bravos, a statewide water conservation organization dedicated to protecting and restoring New Mexico's waters. Adequate financial assurance is essential to protect New Mexico's water, land, communities, and taxpayers. Without it, the public and the environment ultimately pay the bill in the form of impact or financial liability to cover reclamation, closure, and cleanup costs. Amigos Bravos urges MMD to demand the most protective cost estimates for the Mine's financial assurance; a protective approach is necessary because of the substantial uncertainties and associated variables. The current CCP depends on a 1994 study of pit wall stability and financial assurance needs; a lot has changed since then, including climate change and variability. Additional studies should be required to determine pit wall stability and the adequacy of financial assurance. Additional monitoring requirements to address surface water, groundwater, and requirements for the treatment of contaminated water must be included in the final CCP. Tr. 52-54.

Tom Parker thanked MMD for compiling all pertinent information about the Mine on its website, and thanked LAC for a tour and follow-up communication. He does not oppose the issuance of the pit waiver; suggestions for appropriate conditions on that waiver have been made by others. His perspective is that the level of detail in the information presented by LAC is insufficient to disqualify the surface water diversions as technically infeasible. LAC has conceded that it would be both economically feasible and environmentally sound. LAC has invested in a watershed restoration program that involves selective thinning, but it is unknown how much additional watershed yield can be generated by watershed restoration and management. LAC owns only a fraction of the watershed that contributes to the pit; the majority is owned by Santa Fe County and the Lone Mountain Ranch. That means that it is not technically feasible to fully implement restoration programs for increasing watershed yield. MMD and NMED may not be able to require it, but he asks that LAC voluntarily and publicly commit to cooperating with its neighbors in the watershed. Tr. 122-124.

Reviewing Table 2 from Appendix H of the CCP, it appears that there is a lot of effect from thinning of the trees in the watershed. LAC thinned approximately 90 acres in 2017 and 2018. In 2016, before the thinning, approximately 13 inches of total precipitation produced only 0.15 acre-feet of flow at the measurement weir. After the thinning, approximately the same amount of rainfall in 2021 produced 5.24 acre-feet of flow. As a retired employee of an environmental consultant, he knows things are not that simple and that there are numerous variables, but LAC has extensive data available they have chosen not to present. On page 21 of Appendix H, it says that on-site

stormwater would be economically feasible if there were an adequate quantity for pit filling. LAC thinned 90 acres at a cost of approximately \$1,500 per acre. Restoration of the entire watershed would cost roughly \$2 million, which may be economically feasible if enough stormwater was generated. Additional sources of funding could be found if LAC cooperated with its watershed neighbors, and this is orders of magnitude better than any of the other alternatives. He doubts the environmental community would unanimously agree that the stormwater alternative is environmentally sound, but he believes it's an idea worthy of additional consideration. The pit is fortuitously situated between two drainages, Cunningham Gulch and Dolores Gulch, and there is the possibility of reducing the effects of tree thinning on the watershed by doing it on both watersheds. Even if it proves impossible to fill the pit by thinning the watersheds, that activity is environmentally beneficial and should be cooperatively undertaken by LAC and its neighbors. A catastrophic fire in the watershed would not be beneficial to the quality of the water in the pit lake, nor to the recreational value of the Ortiz Mountains Educational Preserve. Tr. 125-128.

Written Public Comment

LAC submitted written comment after the hearing to emphasize the following:

- 1) there was no opposition to LAC's application for a pit waiver and its justification; the pit waiver should be granted.
- 2) In response to Mr. Parker's comments, Appendix E, Section 2.2.3 of the CCP is a pit evaluation that included several stormwater runoff scenarios, including one in which all the trees in the watershed were removed by

catastrophic fire every 30 years. Runoff would still not be sufficient to fill the open pit. LAC has presented detailed information on technical infeasibility to justify the pit waiver.

- 3) The CCP is primarily for surface reclamation under Permit No. SF002RE. NMED permits DP-55, AP-27, and long-term water management, monitoring, and reporting are addressed separately. Most of the discussion of financial assurance at hearing related to the NMED permits. MMD's acceptance of the CCP and pit waiver would not change any requirements under the NMED permits. Surface reclamation financial assurance should not duplicate other state financial requirements that are as stringent as those found in Section 19.10.12 NMAC. LAC does not agree that financial assurance for surface reclamation should require 100 years of monitoring; this would be contrary to regulatory guidance. See Section 19.10.6.607; the time frame for financial assurance should be tied to completion of reclamation. DP-55 requires 100 years of long-term monitoring; this will be addressed by NMED.
- 4) Based upon observation and 35 years of data, the 1994 Call & Nichols geotechnical report conclusion that the rock is competent and will remain stable has been shown to be correct. LAC's reclamation efforts have further assured stability on the south and west slopes. The pit walls remained stable even after a major storm event in 2019. LAC conducts regular inspections of the pit walls in addition to storm event inspections. Further stability analysis would not provide meaningful information.

FSFC submitted written comment after the hearing to emphasize several points; the submittal includes comments and recommendations on both the permit revision Application being reviewed by MMD, and the two NMED permits, DP-55 and AP-27 (this is a lengthy document with attachments; the recommendations are summarized below):

- 1) MMD and NMED should take a conservative approach and require that any uncertainty in future outcomes be considered a liability and be reflected in the CCP and financial assurance. The CCP should comprehensively include the requirements of DP-55 and AP-27.
- 2) The CCP should describe post-closure monitoring, and maintenance and operations LAC will take on for areas that have been or are yet to be fully reclaimed, to be consistent with DP-55 and AP-27.
- 3) The CCP should clarify that it presents all information required by Title 19.10.5, not just 19.10.5.6.
- 4) MMD and NMED should require that the 1994 geotechnical investigation be updated based on current site observations and modern methods. The investigation should include a multi-stakeholder Failure Modes and Effects Analysis (FMEA) that considers potential pit wall failures, the probability and consequences of occurrence, and potential mitigation measures. A plan to monitor and repair the source controls must be required by NMED and included in the CCP and financial assurance. The plan should address pit highwall failure and/or mass wasting, and the potential for climate change to cause more intense and frequent storm events. The CCP should address the

predicted range in pit lake level, the range in discharge to groundwater, and potential changes in surface water quality at various levels, anticipating extreme drought, wet periods, catastrophic wildfire, and subsequent flooding along with potential mitigation measures and financial assurance, including contingencies. If this information is not required in a revision of the CCP, it should be required as part of a condition in both permits.

- 5) Repairs and improvements are still being made 23 years following the “completion” of reclamation, and are not the last that will be made. Post-closure monitoring should be required for as long as the risk of cover system failure resulting in standard exceedances might occur, which is an indefinite period, certainly exceeding 100 years. The reactive approach to identifying inadequacies on the ground should be changed to an approach that emphasizes regular scheduled preventative maintenance and inspections.
- 6) LAC should identify specific flow rates and corresponding water chemistry to address the discharge in terms of concentration and load in addition to flow, and consider the 2022 wet period in its evaluation. The entire range of expected future conditions should be considered in post-closure planning and financial assurance.
- 7) The CCP must be clear as to PMLU, and land use controls are necessary to protect the source controls and other engineered measures intended to protect revegetation, soil, and water quality. Livestock grazing at this site may negatively affect source controls if allowed to occur in the future. The

agencies should consider requiring a restrictive land use covenant to future landowners as a permit condition.

- 8) The CCP should be revised to address expected climate change and the potential for more frequent intense storm events and wet years. Any models produced for LAC should be based on actual daily data, not average data.
- 9) NMED should recognize a 500-year storm event standard as a measure of risk reduction for public and worker safety and to minimize property damage. MMD should require at least a 200-year/24-hour storm event, and preferably a 500-year/24-hour storm event standard for stormwater design in a CCP.
- 10) Rather than allowing additional water treatment as necessary when pit lake water exceeds standards, an Adaptive Management Planning approach should be adopted that includes triggers and actions intended to prevent future exceedances for all applicable constituents over the next 25 years. In the meantime, a conservative approach should be taken that assumes annual water treatment of the pit lake will be required for the foreseeable future.
- 11) The CCP contingency plan for long-term monitoring and maintenance should be based on a preventative approach with an objective of no future exceedances, and assume at least 100 years for the program, which should also be reflected in the cost estimate. If the pit lake level reaches 6,820 feet, a hydrologic investigation should be conducted to ascertain whether the level is likely to rise further. The agencies should also consider whether a

better approach might be to maintain the current level by treatment and discharge as required.

- 12) NMED should use a longer time period to calculate net present value, such as 500 years, and make a conservative assumption as to future inflation and interest, assuming a low net discount rate, such as 1%.

Finally, **the San Marcos Association** (SMA) submitted written public comment after attending the live hearing but being unable to use the chat function. (The letter was submitted following the 11/18/22 deadline but is nonetheless part of the administrative record on which the Director's decision will be based.) SMA generally supports the FSFC position, and urges MMD to consider three specific points:

- 1) Updated research related to the 1994 study for site reclamation is important to understand the risks and progress of pit wall failure, especially considering the changing climate and whether the current pit lake level is sustainable.
- 2) SMA would like to see a financial assurance structure that will protect the site for 200-500 years; they share Mr. Kuipers' concerns.
- 3) EMNRD's approach leaves out impacts on groundwater resources on neighboring and nearby properties. NMED's separate process may not protect people and wildlife in the area; SMA requests a robust and coordinated effort among state agencies to protect groundwater.

The transcript, LAC's Exhibits 1-5, all slide presentations, and the written comments submitted following the hearing are all in the administrative record.

Respectfully submitted,

-original signed by-

Felicia L. Orth, Hearing Officer

Thu, Nov 3,
11:37 AM

from: **Felicia Orth** <felicia.l.orth@gmail.com>
to: ejantz@nmelc.org,
"Wade, Gabriel, EMNRD"
<gabriel.wade@emnrd.nm.gov>,
jindall@cmtisantafe.com,
"mara.yarbrough@nmelc.org"
<mara.yarbrough@nmelc.org>
cc: "Shepherd, Holland, EMNRD"
<holland.shepherd@emnrd.nm.gov>
date: Nov 3, 2022, 11:37 AM
subject: Cunningham Hill record at MMD
mailed-
by:

Counsel--

Following our exchange last night regarding keeping the record open in the Cunningham Hill matter, Division staff and I each had time to reflect on the differences between the role of the hearing officer for public hearings at NMED vs. the public meetings at MMD. I believe most of us have experience in both worlds, and that that experience may have led to some confusion.

At NMED, pursuant to the permitting procedural rules, the hearing officer is required to consider the entirety of the administrative record prior to writing her report and recommendation to the cabinet secretary. The role of the hearing officer for public meetings at MMD is not nearly as expansive. I have never reviewed an entire administrative record for them, nor have I ever made a recommendation for the Director's decision-making. I only summarize what happened at the public meeting, and the written public comments that are submitted in the time frame around that meeting. I typically set the deadline for written public comment about 2 weeks out, knowing that I will likely have the transcript in hand by then.

The upshot is that for purposes of my report on the public meeting, the deadline for written public comment remains November 18. But for purposes of the Director's decision on the permit application for Revision 20-1, my report is just one piece of what he will review. So my report is not the close of the administrative record upon which the decision will be based; that record will close 30 days following MMD's receipt of LAC's response to the October 25 correspondence.

I hope this helps, and please direct further questions to Mr. Wade. I truly appreciated everyone's participation last night.

Felicia Orth