

State of New Mexico
Energy, Minerals and Natural Resources Department

Michele Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd E. Leahy, JD, PhD
Deputy Cabinet Secretary

Jerry Schoeppner, PG, Director
Mining and Minerals Division



Electronic Transmission

March 14, 2022

Jennifer Ortega
Health, Safety and Environmental Superintendent
LAC Minerals (USA) LLC
582 County Road #55
Cerrillos, NM 87010

**RE: Technical Comments on the Amendment to Application for Revision 20-1,
Closure/Closeout Plan Update, Cunningham Hill Mine, Permit No. SF002RE**

Dear Ms. Ortega,

The New Mexico Mining and Minerals Division (“MMD”) received an application to Revise Permit No. SF002RE Cunningham Hill Mine on October 9, 2020 from John Shomaker & Associates, Inc. (“JSAI”) on behalf of LAC Minerals (USA) LLC (“LAC”) titled, “Cunningham Hill Mine Reclamation Project Closure/Closeout Plan Update” (“Application”). The Application, assigned Revision 20-1 by MMD, proposes to update the Closure/Closeout Plan (“CCP”) with specific attention to reclamation of the open pit. After deliberation between MMD and LAC, LAC submitted an amendment to the Application on October 12, 2021, in the form of a revised CCP (“Amendment”). The Amendment to the Revision 20-1 Application includes updates based on the May 21, 2021 responses to agency comments and a newly added Appendix H. *Pit Waiver Justification Report*.

MMD has conducted a review of the Revision 20-1 Application Amendment and, in accordance with 19.10.5.506.E NMAC, provided the Application Amendment to, and requested comments from, the New Mexico Environment Department (“NMED”), New Mexico Office of the State Engineer (“NMOSE”), New Mexico Department of Game and Fish (“NMDG&F”), New Mexico Historic Preservation Division (“NMDCA”) and New Mexico Forestry Division (“NMSFD”). Copies of the comments received from these state agencies are attached.

General Comments

MMD finds that, in general, Appendix H lacks detail when contemplating the motivation and justification for a pit waiver request. For instance, LAC only considers one backfilling (complete backfill) scenario that lacks details (e.g., rough volume calculations), without considering a partial

backfill scenario(s). MMD would also like to see more detail included in the evaluation of technical feasibility, economic feasibility, and/or environmental soundness for each pit filling scenario (including partial and full backfill). Furthermore, while LAC is suggesting that reclaiming the pit is technically infeasible in addition to economically infeasible and environmentally unsound, MMD does not find technical infeasibility a compelling argument for scenarios of backfilling the open pit. Please refer to the comments below for more specific comments.

Additionally, MMD is requesting that LAC submit a cost estimate for the work proposed in the CCP and a separate cost estimate for implementation of activities approved under the groundwater abatement plan to be submitted concurrently to NMED. MMD and NMED will provide joint review of costs associated with the CCP and NMED will be responsible for review and approval of costs for implementation of the groundwater abatement plan.

Specific CCP Comments

1. Figures 4 and 7 should be modified to include the access road along the southwestern edge of the open pit as “disturbed area, unreclaimed”. Please describe the closeout activities (*i.e.*, will there be any ripping, regrading, or reseeding of the access road or portions of it?) proposed for this access road, including whether it is within the proposed pit waiver area.
2. Section 5.1 *Reclamation Performance Objectives, Open Pit*, page 37, bullet 3 describes further reclamation to be completed in the open pit, “*Reclaim portions of the Open Pit area that will assist with source controls, and sustain water-quality standards (see Fig. 7). Allow for natural revegetation of inaccessible pit walls and benches, such as what has already occurred over the last 25 years*”. Please discuss why LAC has changed this most recent submittal to not include installing wire mesh on the highwall along the eastern pit perimeter access road. This inquiry is echoed in NMED’s comment letter, specific comment number 1.
3. Section 5.1 *Reclamation Performance Objectives, Open Pit*, page 37: In LAC’s response letter to MMD’s original comments, dated May 21, 2021, LAC responded to comment 11, “*An alternative water source will be provided within our allowable use of water rights*”, but no alternative water source is proposed in the Application Amendment. NMDG&F continues to recommend providing an alternative water source to discourage wildlife from accessing the pit, as discussed in their comment letter.
4. Section 6.2, *Reclamation Plan, Waste Rock Pile*, page 39 does not include any information on the currently planned reclamation activities on the waste rock pile. These activities are outlined in the conditionally approved Waste Rock Pile Work Plan (“WRPWP”), submitted to MMD and NMED on December 27, 2021. Please submit, for incorporation into the CCP, the conditionally approved WRPWP and note that MMD will incorporate any future WRPWP submittals into the CCP. This is also addressed in NMED’s Updated CCP comment number 2.
5. Table 6, page 41 does not include any growth medium for the open pit unit, although some reclamation around source controls, the RO ponds, and access roads is proposed in Section 6.7. Please update the table to incorporate these reclamation activities. This table should

also be updated to include the anticipated volume of growth medium for repairs on the waste rock pile, as described in the WRPWP.

6. Section 6.5, *Reclamation Plan, Growth Medium for Final Reclamation*, page 41 should be updated to include results of the soils analysis of the stockpiled cover material required under the WRPWP.
7. Section 6.7 *Reclamation Plan, Trees and Shrubs*, page 44: one-seed juniper is referenced in the text but not included in Table 9. MMD suggests removing one-seed juniper from the text altogether.
8. Section 6.8.1 *Reclamation Plan, Revegetation Success Monitoring, Proposed Revegetation Standards*, page 47, bullet number 3 includes a shrub/tree density standard for non-grassland revegetated units. Please provide a map showing grassland-revegetated vs. woodland-revegetated units of the remaining units in Permit No. SF002RE.
9. Please include a timeline of the work described in the WRPWP for repairs on the waste rock pile in Section 8.0, *Reclamation Schedule*.
10. Appendix H, Section 1.3 states, “LAC is not requesting a change to the Post Mining Land Use (PMLU). The CHMRP Open Pit PMLU of wildlife habitat and livestock watering will be maintained by meeting applicable Open Pit water-quality standards established by the New Mexico Water Quality Control Commission (NMWQCC) and requirements defined in 19.10.5.507.B(2) NMAC.” This is also stated in Section 5.1 *Reclamation Performance Objectives, Open Pit*, “The PMLU will remain the same”. To clarify, a waiver for the open pit would waive LAC’s requirement of achieving a post-mining land use or self-sustaining ecosystem, in accordance with 19.10.5.507 NMAC. If the pit waiver is approved, MMD would not consider the open pit unit wildlife habitat or a self-sustaining ecosystem. However, MMD may condition a waiver to ensure LAC is reclaiming the open pit in a manner that reduces environmental impacts and addresses public health and safety.
11. Appendix H, Figure 2 does not clearly show what area is proposed for the waiver. LAC must provide a modified Figure 2 that illustrates the acreage proposed to be waived from surface reclamation in the pit, including any water bodies, highwalls, benches, staging areas, pumping facilities, and access roads within the pit unit.
12. Appendix H, Section 2.3.1 mentions the possibility of filling the pit using groundwater wells. LAC must provide more detail on the feasibility of locating and transferring water rights to partially fill (to 6945 ft amsl) the open pit by pumping groundwater. Specifically, the detail should provide more explanation about the nearest high yield wells (on and off-site sources), uncertainty of water rights transfer or leasing, and infrastructure needed if piped from a source capable of a 10-year at 100 gpm or some other more rapid fill scenario.
13. Appendix H, Section 3.1 mentions lack of annual rain without providing a graph or table. Please provide a graph of annual historical precipitation at the site.
14. Appendix H, Section 3.2 considers one on-site (waste rock) and one offsite (Moriarity quarry) source of backfill. Provide discussion of other potential clean on-site sources and

their proposed use in reclamation of the pit. Additionally, provide more detailed design basis information, even if only conceptual, such as full backfill plus swell factor when estimating volume need to fill the entire pit with positive drainage of stormwater.

15. Appendix H, Section 3.2: Provide at least one scenario(s) of a partial backfill in addition to the full backfill scenario of the pit and evaluate each scenario in accordance with 19.10.5.506.C. Include details about stormwater management in partial/full backfill scenarios. Provide more text and data that supports the pit waiver from achieving a post-mining land use or self-sustaining ecosystem achievement based on the technical feasibility, economic feasibility, and/or environmental soundness of each partial and full backfilling scenario.
16. Appendix H, Section 3.2: Please include a more detailed cost estimate in Table 1 and include cost estimates for any additional pit filling scenarios as requested in the general comments and specific comment 7 in this letter.
17. Appendix H, Section 4.1: The surface water standards for the open pit are mentioned in Appendix E and in the main body of the CCP, but are not outlined in Appendix H. Please confirm these standards or cite other sections of the document in Appendix H.
18. Appendix H, Section 4.2: A summary of remaining closeout/closure measures should be included. Provide details of what reclamation work remains and reference the CCP for reclamation work that needs to be done for facilities related to nanofiltration, reverse osmosis ponds, ARD ponds, waste rock pile repairs, etc.
19. Appendix H, Section 5.2: Provide an estimated time of when a fence would be installed to protect humans and wildlife from the open pit. Please review NMDG&F's attached comment letter and respond to their recommendation on installing more protective fencing than what is currently proposed in the CCP.
20. Appendix H, Section 6.0 states that LAC is requesting a waiver for 16.55 acres of exposed pit walls in the open pit, but not the pit lake itself which consists of 2.82 acres according to Figure 2. However, as previously stated in a comment letter from MMD on April 21, 2021, NMDG&F does not consider the pit lake wildlife habitat. If LAC does not consider the pit lake part of the waiver request, please discuss why LAC is only requesting a pit waiver for the exposed pit walls but not the pit lake.
21. Appendix H, Section 6.0: Overall, the argument justifying a pit waiver needs a conclusion rather than referencing Section 3.

NMDCA Comments:

Please review the comment letter received by NMDCA.

March 14, 2022

Page 5 of 5

NMOSE Comments:

Please review the comment letter received by NMOSE.

NMDG&F Comments:

Please review the comment letter received by NMDG&F and respond to all elements that are not also addressed in MMD's comments.

NMED Comments:

Please review the comment letter received by NMED and respond to all comments.

Please respond to the general and specific MMD comments and review the attached comments from other state agencies within 30 days of receipt of this letter. If you have any questions, concerns, or would like to meet again regarding these comments, please contact me at (505) 216-8399 or at carmen.rose@state.nm.us.

Sincerely,



Carmen Rose, Permit Lead
Mining Act Reclamation Program ("MARF")
Mining and Minerals Division

Attachments: November 11, 2021 Letter to MMD from the NMDCA
January 20, 2022 Letter to MMD from NMOSE
January 28, 2022 Letter to MMD from NMDG&F
February 10, 2022 Letter to MMD from NMED

CC: Holland Shepherd, Program Manager, MARF, MMD
Joe Fox, Acting Program Manager, MECS, NMED
Kevin Myers, Senior Reclamation Specialist, MARF, MMD
Clark Burton, Director of Closure Operations, Barrick Gold Corporation
Steve Finch, Principal Hydrogeologist-Geochemist, John Shomaker & Associates, Inc.
Anne Maurer, Permit Lead, MECS, NMED
Gabe Wade, Assistant General Counsel, MMD
Charles de Saillan, Attorney, NM Environmental Law Center



Michelle Lujan
Grisham
Governor

STATE OF NEW MEXICO
DEPARTMENT OF CULTURAL AFFAIRS
HISTORIC PRESERVATION DIVISION

BATAAN MEMORIAL BUILDING
407 GALISTEO STREET, SUITE 236
SANTA FE, NEW MEXICO 87501
PHONE (505) 827-6320 FAX (505) 827-6338

November 9, 2021

Kevin Myers,
Acting Permit Lead
Mining Act Reclamation Program ("MARF")
Mining and Minerals Division
1220 S. St. Francis Drive
Santa Fe, NM 87505

Re: HPD Log# 116136, Request for Comments on Updated Closure/Closeout Plan and Financial Assurance,
Permit Revision 20-1, Permit No. SF002RE, Cunningham Hill Mine

Dear Mr. Myers:

I am writing in response to your request for comment on the above referenced permit modification received at this office October 29, 2021

Pursuant to 19.10.5.505 NMAC, Permit Modifications and Revisions, the Director shall determine whether a permit modification would have an adverse impact on cultural resources listed on either the National Register of Historic Places or the State Register of Cultural Properties or be located in a known cemetery or other burial ground.

According to our files, there are no cultural resources listed on either the National Register of Historic Places (NRHP) or the State Register of Cultural Properties in the modified permit area. There are also no known cemeteries or other burial grounds. Based on this information, this permit modification will have no adverse impacts to cultural resources listed on the National or State Registers.

In a prior consultation for this permit revision project (HPD log#114059) The State Historic Preservation Officer (SHPO) recommended that a cultural resources survey be conducted on any undisturbed portions of the permit area where new ground disturbance would occur for the permit revision. Responding to our comments in a letter to the Mining and Minerals Division, dated May 21, 2021, John Shomaker & Associates Inc. stated that "If any new disturbances occur a survey will be conducted". The SHPO appreciates the commitment to a survey for any new ground disturbance associated with this permit revision.

This survey should be performed by a qualified professional to determine if any historic or archaeological properties are present and if so, to provide documentation of those resources to our office. This information can then be used to evaluate the National Register of Historic Places eligibility of any resources identified during the survey and determine project effects on those resources. A list of state permitted archaeologists and archaeological firms are available from this office upon request or can be downloaded from our web site at:

<http://www.nmhistoricpreservation.org/documents/consultants.html>

If you have any questions concerning these comments, please do not hesitate to contact me by phone at (505)-452-6115 or e-mail me at richard.reycraft@state.nm.us

Sincerely,

Richard Reycraft

Richard. Reycraft
Staff Archaeologist

MEMORANDUM
OFFICE OF THE STATE ENGINEER
Hydrology Bureau

DATE: January 20, 2021

TO: Kevin Myers, Acting Permit Lead, Mining Act Reclamation Program

THROUGH: Ghassan Musharrafieh, Ph.D., P.E., Hydrology Bureau Chief *GPM*

FROM: Christopher E. Angel, PG, Hydrologist, Hydrology Bureau *CEA*

SUBJECT: Comments on Updated Closure/Close Out Plan and Financial Assurance, Permit Revision 20-1, Permit No. SF0002RE, Cunningham Hill Mine

I. Introduction

The New Mexico Office of the State Engineer (NMOSE) Hydrology Bureau received the Mining and Minerals Division's (MMD's) October 28, 2021, request for comments on the subject Cunningham Hill Mine (CHM) Closure Plan and Financial Assurance. The application materials were downloaded from <https://www.emnrd.nm.gov/mmd/mining-act-reclamation-program/pending-and-approved-mine-applications/mining-applications-regular-existing/sf002re-lac-minerals-cunningham-hill-revision-20-1/>.

The CHM ceased operations in 1987 and a closeout plan was submitted by Pegasus Gold Corporation and LAC Minerals USA, LLC (LAC). In September 2019, MMD requested an update to the Closure/Closeout plan (CCP).

The updated Closure/Closeout report that was submitted for comment included information about the following operational units that are requiring additional reclamation: Open Pit, Waste Rock Pile, Acid Rock Drainage (ARD) Treatment Facility in Dolores Gulch, and Fresh Water Make Up Ponds.

This request for comments includes a review of the John Shoemaker and Associates, Inc. (JSAI) October 2021 report. This report has updates based on LAC's May 21, 2021, response to comments letter and adds Appendix H, a pit waiver request. A review of this package was performed to identify any potential hydrologic concerns.

II. Open Pit

The Cunningham Hill Open Pit disturbed approximately 34 acres of land. The excavation is approximately 535 feet deep. During the mining operations the water level was lowered approximately 235 feet. As of June 2020, the water level has rebounded from approximately 6,660

feet above mean sea level (ft msl) and appears to fluctuate between 6,780 ft msl and 6,800 ft msl. The original open pit closure plan called for the open pit to fill to an elevation of approximately 6,945 mean sea level (msl), which equates to a 13.8-acre pond (JSAI, 2021a).

The JSAI report indicates that the guest house well (RG-36607-POD3) is being used to add alkaline water to the acid water in the open pit (JSAI, 2021b). However, during the site visit on January 11, 2022, representatives from the Cunningham Hill Mine stated that the RG-36607-POD3 is injecting groundwater into the contamination plume near the residue pile. Contaminated water is removed from the aquifer pumped to an evaporation pond and occasionally pumped into the open pit. The NMOSE D6 will need to be contacted to determine if the appropriate permits and/or water rights exist to account for the injection of the groundwater.

In this report they document using an Open Pit evaporation rate of 40 inches/year (in/yr). Pan evaporation rates are documented in JSAI (2011). These rates ranged between 13 in/yr and 60 in/yr. According to the Gross Annual Lake Evaporation New Mexico (SCS,1972) the evaporation rate for the area is 55 in/yr. The total estimated loss of water due to evaporation is summarized in Table 1. The NMOSE D6 will need to be contacted to determine and/or obtain the appropriate permits and/or water rights to account for evaporative losses.

Table 1: Open Pit Evaporative Loss Table

Pit Water Level (msl)	Total Surface Area (Acres)	40 in/yr Lake Evaporation (ft/annum)	Total Pit Evaporation for 40 in/yr (af/a)	55 in/yr Lake Evaporation (ft/annum)	Total Pit Evaporation for 55 in/yr (af/a)
6,800	2.82	2.67	9.4	4.58	12.9
6,840	4.65	2.67	15.5	4.58	21.3
6,945	13.8	2.67	46.0	4.58	63.2

Jacobs (2018) prepared a work plan to install a membrane filtration system to treat the open-pit water. This system pumps water out of the open pit, filters out impurities thereby creating a high-quality water and a brine water. High quality water is then pumped back into the open pit and the brine is pumped into evaporation ponds. According to the work plan, the amount of water that is pumped out of the open pit, the amount pumped to the evaporative pond and the amount returned to the open pit is metered. This system has been installed and started pumping in the summer of 2021 and as of August 2021, 4.9 acre-feet (ac-ft) has been treated (JSAI, 2021b). The report did not state how much water was sent to the evaporation pond. Water sent to the evaporative ponds is consumptively used. The NMOSE D6 will need to be contacted to determine and/or obtain the appropriate permits and/or water rights to account for the treatment of the open pit water.

III. Evaporative Pond Closure

Closing of the evaporative ponds will include removing all but the lower 1-foot of the high-density polyethylene (HDPE) liner, installing a stormwater conveyance pipe from a sump to the open pit, re-grading the evaporative pond area and seeding. If water is required for regrading (i.e. dust control, compaction, etc.), and re-establishing vegetation, then NMOSE D6 will need to be contacted for the appropriate permits and/or water rights. NMOSE D6 needs to be contacted to obtain the appropriate permits and/or water rights prior to installation of the stormwater conveyance system to the open pit.

IV. ARD Treatment Facility

The ARD treatment facility consists of an interceptor wall, recovery wells, and lime treatment pond. Closing of the lime ponds will include removing all but the lower 1-foot of the HDPE liner, installing a stormwater control measures, re-grading the ARD ponds area and seeding. If water is required for regrading (i.e. dust control, compaction, etc.), and re-establishing vegetation, then NMOSE D6 will need to be contacted for the appropriate permits and/or water rights. Prior to installation of stormwater control measures, the NMOSE D6 needs to be contacted to obtain the appropriate permits and/or water rights. If any of the monitor wells or recovery wells should need to be plugged and/or replaced the appropriate forms should be completed and submitted to the NMOSE D6 office.

V. Residue Pile Remediation Ponds

Closing of the residue pile remediation ponds will include removing all but the lower 1-foot of the HDPE liner, installing a stormwater control measures, re-grading and seeding. If water is required for re-grading (i.e. dust control, compaction, etc.), and re-establishing vegetation, then NMOSE D6 will need to be contacted for the appropriate permits and/or water rights. Prior to installation of stormwater control measures, NMOSE D6 will need to be contacted to obtain the appropriate permits and/or water rights.

VI. Summary of Hydrology Bureau Comments

- 1) The NMOSE D6 will need to be contacted to determine if the appropriate permits and/or water rights are obtained and are in place to account for the injection of the groundwater.
- 2) The NMOSE D6 will need to be contacted to determine and/or obtain the appropriate permits and/or water rights to account for evaporative losses.
- 3) NMOSE D6 needs to be contacted to determine if water rights are present for the pumping of water out of the open pit, through the membrane filtration and then back into the open pit or into the evaporation pond.
- 4) NMOSE D6 needs to be contacted prior to performing construction activities that require water, including but not limited to dust control, and soil compaction.
- 5) NMOSE D6 needs be contacted prior if water is needed for irrigating any of the seedings, trees and shrubs prior to irrigating.

- 6) NMOSE D6 needs to be contacted prior to diverting any stormwater from the closing of the evaporation ponds or to determine if any additional water rights or points of diversion are necessary.
- 7) NMOSE D6 needs to be contacted prior to plugging or installing any new monitor or recovery wells that encounters water.

VII. References

- Jacobs, 2018, Membrane Filtration Treatment System Work Plan for the Pit Lake at Cunningham Hill Mine Reclamation Project Abatement Plan AP-27 – Final Work Plan. Appendix B *in* Cunningham Hill Mine Reclamation Project Closure/Closeout Plan Update, John Shoemaker and associates, Inc., October 2021.
- JSAI, 2011, Update and Recalibration of Groundwater-Flow and Solute Transport Model for Predicting Potential Effects from the Cunningham Hill Mine Open Pit, Santa Fe County, New Mexico, John Shoemaker and associates, Inc., June 27, 2011.
- JSAI, 2021, Cunningham Hill Mine Reclamation Project Closure/Closeout Plan Update, John Shoemaker and associates, Inc., October 2021.
- JSAI, 2021a, (Finch, S.T., Jones, M.A. and Carsrud, C.T.) Evaluation of Open Pit Closure/Closeout Plan and Abatement Plan 27, Cunningham Hill Mine Reclamation Project, Santa Fe County, New Mexico. Appendix E *in* Cunningham Hill Mine Reclamation Project Closure/Closeout Plan Update, John Shoemaker and associates, Inc., October 2021.
- JSAI, 2021b, (Finch, S.T., and Mandybur, A.) Cunningham Hill Mine Open Pit Waiver Justification, Permit No. SF002RE, Santa Fe County, New Mexico. Appendix H *in* Cunningham Hill Mine Reclamation Project Closure/Closeout Plan Update, John Shoemaker and associates, Inc., October 2021.
- SCS, 1972, Gross Annual Lake Evaporation New Mexico, United State Department of Agriculture Soil Conservation Service, April 1972.



DIRECTOR AND SECRETARY
TO THE COMMISSION
Michael B. Sloane

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DEPARTMENT OF GAME & FISH

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27 January 2022

Carmen Rose, Reclamation Specialist
Mining and Minerals Division (MMD)
Mining Act Reclamation Program
1220 South St. Francis Drive
Santa Fe, NM 87505

***RE: Closure/Closeout Plan Update, Permit Revision 20-1, LAC Minerals LLC,
Cunningham Hill Mine, Permit No. SF002RE; NMDGF No. NMERT-1501.***

Dear Ms. Rose,

The New Mexico Department of Game and Fish (Department) has reviewed the above referenced closure/closeout plan. On behalf of LAC Minerals, LLC (LAC), John Shomaker and Associates, Inc. (JSAI) submitted a revised, updated closure/closeout plan for the Cunningham Hill Mine. A site inspection was conducted on 15 December 2021 by staff from the Department, MMD, the New Mexico Environment Department, and the Operator.

In the previous closure/closeout plan, LAC requested that the Post Mine Land Use (PMLU) for the open pit be designated as Wildlife Habitat and stated that the pit lake will meet MMD's definition of a "Self-sustaining Ecosystem" (SSE). In the current, updated closure/closeout plan, LAC is now requesting a pit waiver for SSE. This change was based on a report prepared by JSAI at the request of MMD to evaluate the open pit and its ongoing water quality issues (Appendix E). The report concluded that "Open pit pool pH mitigation has been ongoing since 1996, and it is unknown if Acid Wall Seeps (AWS) source controls will eliminate the need for re-occurring pH mitigation" and that the "remaining exposed pit walls and benches are considered to not achieve the Post Mine Land Use of Wildlife Habitat". The Department concurs that a pit waiver is the most appropriate option if reclamation by backfilling the pit with clean material is deemed technically infeasible. The Department maintains that the hydro-geological complexities at the site and associated inherent uncertainties will continue to make predicting long-term future pit lake water quality extremely difficult. In addition to AWS, the long-term potential effects of climate change and periods of prolonged drought could also lead to hazardous water quality conditions for wildlife as a result of evapoconcentration of trace elements in the pit lake water.

In Section 6.1, the current closure/closeout plan states that, in order to prevent humans and wildlife from entering the pit lake area, "an 8-ft-high chain-link fence buried 2 ft below ground, where practicable, will be installed around the open pit perimeter". As stated above, the plan appears to indicate a total fence height of eight feet with only six feet being above ground. In order to exclude deer and elk, the above ground fence height should be a minimum of eight

feet, in addition to the two feet of fence extending below ground to deter animals from burrowing under, for a total of ten feet. The Department also recommends that the bottom two feet of the above ground fence include a permanent solid or scored plastic or metal barrier, potentially with a horizontal lip at the top¹⁻³, to exclude smaller animals from accessing the pit lake. The Department reiterates that LAC should provide some type of alternative, clean water sources that would help attract wildlife away from the pit lake.

The current pit lake water quality meets the standards for wildlife, provided that pH control measures are maintained. If pH control measures cannot be maintained or become inadequate such that the pit lake's water quality declines to the point of being hazardous to wildlife, additional measures to exclude or deter birds and bats from accessing the pit lake may become necessary.

During the most recent site inspection in December, 2021, at collection ponds A and B, it was observed that sections of the protective netting, installed to prevent birds and bats from contacting the toxic Acid Rock Drainage (ARD) water, have not been repaired and continue to sag below water level. The Department has previously requested that LAC adequately repair and redesign the protective netting to prevent wildlife from accessing the toxic ARD water (e.g., previous letter from the Department dated 12 March 2021, NMDGF No. NMERT-864). Extruded plastic, knit or woven netting material is preferred. Monofilament nylon netting should not be used due to its tendency to ensnare wildlife and cause injury or death. All materials should be resistant to corrosion and ultraviolet radiation. The Department recommends a mesh size of $\frac{3}{8}$ th inch to exclude smaller animals. If the potential for snow loading needs to be addressed, a maximum mesh size of $1\frac{1}{2}$ inches is acceptable. Netting must be held taut and securely fastened to a rigid and adequately supportive frame, or cross-hatched wire cables, to prevent sagging. Regular inspection and maintenance are critical to repair holes and to restore tension to prevent sagging. A site inspection should be conducted as soon as possible following heavy snow or high wind events to assess netting for damage or to clear excessive snow loading if necessary. The Department is available for consultation regarding netting options for site-specific pond sizes and containment needs. The bottom two feet of the above ground chain link perimeter fence should incorporate a permanent solid or scored plastic or metal barrier, potentially with a horizontal lip at the top, to exclude smaller animals from accessing the toxic ARD containment ponds.

Thank you for the opportunity to review and comment on the revised, updated closure/closeout plan. If you have any questions, please contact Ron Kellermueller, Mining and Energy Habitat Specialist at (505) 476-8159 or ronald.kellermueller@state.nm.us.

Sincerely,

Matt Wunder, Ph.D.
Chief, Ecological and Environmental Planning Division

cc: USFWS NMES Field Office

1. Hughes, D.F., M. L. Green, J.K. Warner, and P.C. Davidson. 2021. Evaluating Exclusion Barriers for Treefrogs in Agricultural Landscapes. *Wildlife Society Bulletin* 45(2):305-311.
2. The Wildlife Fencing Guide: Amphibians, Reptiles & Small Mammals. 2021. Version 1 <https://www.wildlifefencing.com/>

3. Woltz, H.W., J.P. Gibbs, and P.K. Ducey. 2008. Road Crossing Structures for Amphibians and Reptiles: Informing Design through Behavioral Analysis. *Biological Conservation* 141:2745-2750.



Electronic Transmission

MEMORANDUM

Date: February 10, 2022

To: Holland Shepherd, Program Manager, Mining Act Reclamation Program

Through: Anne Maurer, Mining Act Team Leader, Mining Environmental Compliance Section (MECS)

From: Amber Rheubottom, MECS
Alan Klatt, Surface Water Quality Bureau (SWQB)
Sufi Mustafa, Air Quality Bureau (aqb)

Subject: **NMED Review and Comments, Revision 20-1, Updated Closure/Closeout Plan and Financial Assurance, Cunningham Hill Mine, LAC Minerals (USA), LLC, Santa Fe County, New Mexico Mining Act Permit No. SF002RE**

The New Mexico Environment Department (NMED) received correspondence from the Mining and Minerals Division (MMD) on October 29, 2021 requesting that NMED review and provide comments on the above-referenced MMD permitting action. Pursuant to the Mining Act, the Cunningham Hill Mine is a regular existing mine. MMD requested comments on the application within 60 days of receipt of the request for comments. NMED requested an extension to submit comments by January 28, 2022 and another extension to submit comments by February 11, 2022. NMED has the following comments.

Background

LAC Minerals (USA), LLC (applicant) submitted the 20-1 Revision application on October 9, 2020 to MMD. The application for permit revision includes a proposed updated Closure/Closeout Plan (Updated CCP). The Updated CCP includes a discussion of surface water and groundwater pollution abatement activities required under the Water Quality Act and Water Quality Control Commission (WQCC) regulations, and proposed surface reclamation activities required under the Mining Act for areas of the mine that are not yet fully reclaimed. The abatement components include the Open Pit water body and associated water

Mr. Holland Shepherd
Cunningham Hill Mine
February 10, 2022

treatment system, and the Waste Rock Pile and associated Dolores Gulch Acid Rock Drainage collection and treatment system.

NMED provided comments to MMD on the October 9, 2020 CCP on March 19, 2021. In response to comments received from multiple agencies, the applicant submitted a revised Updated CCP on October 12, 2021, which includes a request for a pit waiver.

Air Quality Bureau

The NMED Air Quality Bureau comments are attached under separate letterhead.

Surface Water Quality Bureau

The NMED Surface Water Quality Bureau comments are attached under separate letterhead.

Ground Water Quality Bureau Mining Environmental Compliance Section (MECS)

General Comments

1. The NMED-issued discharge permit (DP-55) for this mine was renewed and modified on November 20, 2020. There are numerous places in the Updated CCP that indicate that the permit renewal is pending, but this permit has been renewed and is in effect for five years. The Updated CCP should be updated accordingly. DP-55 regulates groundwater abatement associated with the Waste Rock Pile and the Dolores Gulch Acid Rock Drainage collection and treatment system. DP-55 also regulates groundwater abatement associated with the Cyanide Residue Pile plume, but this is not addressed as part of the Updated CCP because this part of the facility has been released from the Mining Act. The Cyanide Residue Pile plume will continue to be regulated under DP-55.
2. The NMED-issued abatement plan (AP-27) for this mine regulates abatement of the pit lake water body and groundwater around the Open Pit. AP-27 needs to be updated to reflect updates to the applicable surface water abatement standards for the pit lake water body in 20.6.4.99 NMAC. In addition, the costs for abatement activities also will need to be addressed as part of an update to AP-27.

Specific Comments:

MECS provided comments on the Updated CCP on March 19, 2021. Many of the comments in the March 19, 2021 letter are still relevant, as they were not adequately addressed in the permittee's May 21, 2021 response to comments (RTC) or the Updated CCP. These are as follows:

1. Open Pit – Comment 1 RTC – The pit waiver does not address source controls in the Open Pit that can be completed at this time. This includes reclamation of bench areas around the Open Pit, placement of wire mesh on certain portions of the pit walls, and surface reclamation of an area on the north side of the Open Pit. Please verify if these areas are included in the Updated CCP, and if so, in what sections of the Updated CCP are they located.

2. Open Pit– Comment 2 RTC–The pit waiver does not address reclamation of the Open Pit water body access corridor or the West side access road. Please indicate when the reclamation of these features will be completed.
3. Waste Rock Pile RTC – NMED received an updated Waste Rock Pile Work Plan (Work Plan) and Response to Comments from the applicant on December 27, 2021. NMED and MMD are in the process of reviewing the Work Plan and will provide comments directly to the applicant on the Work Plan. The comments made regarding reclamation of the RO Ponds still stand.
4. Other Components, Updated CCP RTC– Several additional components of the Updated CCP are almost exclusively related to the abatement requirements of AP-27 and DP-55, and the requirements of the WQCC regulations. This includes Appendix B, Updated Contingency Plan, and Appendix E, Open Pit evaluation report. NMED will provide comments on these two Appendices directly to the applicant and incorporate any necessary changes to AP-27 and DP-55 as appropriate. NMED will copy MMD on all comments provided to the applicant related to the appendices.
5. Financial Assurance - The Updated CCP does not include a proposed cost estimate for the proposed reclamation activities. Following agreement on the scope of required surface reclamation activities that need to be completed prior to completion of water quality abatement, the applicant is required to provide a reclamation cost estimate to the Agencies for review. Financial assurance for these activities will be held jointly by NMED and MMD. In addition, NMED has requested an updated cost estimate for abatement activities associated with AP-27 and DP-55 in the recent renewal of DP-55, contingent on approval of the Updated CCP. NMED recommends scheduling a meeting with the applicant prior to submittal of the Updated CCP cost estimate to ensure agreement between the Agencies and the applicant on what components should be included in each cost estimate.

The following comments are specific to the Updated CCP:

1. Section 6.1 – This section states that 14.60 acres of disturbance are included in the pit waiver. This also needs to include the acreage associated with the open pit water body.
2. Section 6.2 – The applicant discusses corrective actions that need to take place on the Waste Rock Pile. The applicant submitted an updated Waste Rock Pile Work Plan (WRPWP) on December 27, 2021 to both NMED and MMD for review and approval. The agencies are still in the process of reviewing this work plan, but the description of corrective actions on the Waste Rock Pile in Section 6.2 are not consistent with what is proposed in the WRPWP. Please address these inconsistencies in the Updated CCP. The WRPWP should be used as the basis for Section 6.2.
3. Section 6.3 – Pursuant to Condition C.106A in DP-55, closure of the ARD treatment ponds can commence when they are no longer required as a component of the groundwater abatement systems. DP-55 requirements are not referenced in this section.
4. Appendix H – Open Pit Waiver Justification Report – In general, NMED supports a pit waiver. The pit lake water body and groundwater surrounding the Open Pit will continue to be regulated under AP-27, which may require perpetual water treatment of the open pit water body in order to meet abatement water quality standards. NMED recognizes that additional source control measures can be taken (see Comment 1 under the RTC section above) to improve water quality conditions in the Open Pit. NMED also acknowledges that reclamation of the Open Pit high walls is not feasible. A pit waiver will release the Open Pit from the Mining Act and allow

Mr. Holland Shepherd
Cunningham Hill Mine
February 10, 2022

for continued regulation under the Water Quality Act pursuant to AP-27. That being said, additional justification is needed in Appendix F to explain the need for a pit waiver. NMED understands that the reason for a pit waiver is because the pit lake water body will not reach the elevation in the Open Pit as previously modeled. The original pit lake model indicated that the acid generating pit walls would be inundated by the pit lake, thereby causing reducing conditions in the pit lake which would help to minimize acid generation, sulfate and total dissolved solids leachate. Given the pit lake will not significantly increase in elevation and the pit walls cannot be reclaimed, abatement of the pit lake water body and surrounding groundwater will continue into the future.

NMED Summary Comment

NMED is withholding issuance of the environmental determination pending satisfactory applicant response to the comments herein.

If you have any questions, please contact Anne Maurer at (505) 660-8878.

cc: Carmen Rose, Permit Lead, EMNRD-MMD
Joseph Fox, Acting Program Manager, NMED-MECS
Shelly Lemon, Bureau Chief, NMED-SWQB
Elizabeth Bisbey-Kuehn, Bureau Chief, NMED-AQB
John Verheul, Deputy General Counsel, NMED-OGC



MEMORANDUM

DATE: January 16, 2022

TO: Anne Maurer, Mining Act Team Leader, Mining Environmental Compliance Section, NMED

FROM: Sufi Mustafa, Staff Manager, Air Dispersion Modeling and Emission Inventory Section, Air Quality Bureau.

RE: Request for Review and Comment, Revision 20-1, Updated Closure/Closeout Plan and Financial Assurance, Cunningham Hill Mine, LAC Minerals (USA), LLC, Santa Fe County, New Mexico, Mining Act Permit No. SF002RE

The New Mexico Air Quality Bureau (AQB) has completed its review of the above-mentioned mining project. Pursuant to the New Mexico Mining Act Rules, the AQB provides the following comments.

Details

The applicant has requested to update Closure and Closeout Plan for the mine. The updated CCP describes closure, remediation, and reclamation actions which LAC will take for those areas not yet fully reclaimed. This updated closeout plan addresses reclamation necessitated by Gold Fields' mining and processing operations under the responsibility of LAC.

Air Quality Requirements

The New Mexico Mining Act of 1993 states that "Nothing in the New Mexico Mining Act shall supersede current or future requirements and standards of any other applicable federal or state law." Thus, the applicant is expected to comply with all requirements of federal and state laws pertaining to air quality.

20.2.15 NMAC, *Pumice, Mica and Perlite Processing*. Including 20.2.15.110 NMAC, *Other*

Particulate Control: "The owner or operator of pumice, mica or perlite process equipment shall not permit, cause, suffer or allow any material to be handled, transported, stored or disposed of or a building or road to be used, constructed, altered or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne."

Paragraph (1) of Subsection A of 20.2.72.200 NMAC, *Application for Construction, Modification, NSPS, and NESHAP - Permits and Revisions*, states that air quality permits must be obtained by:

RE: Request for Review and Comment, Revision 20-1, Updated Closure/Closeout Plan and Financial Assurance, Cunningham Hill Mine, LAC Minerals (USA), LLC, Santa Fe County, New Mexico, Mining Act Permit No. SF002RE

Page 2

“Any person constructing a stationary source which has a potential emission rate greater than 10 pounds per hour or 25 tons per year of any regulated air contaminant for which there is a National or New Mexico Ambient Air Quality Standard. If the specified threshold in this subsection is exceeded for any one regulated air contaminant, all regulated air contaminants with National or New Mexico Ambient Air Quality Standards emitted are subject to permit review.”

Further, Paragraph (3) of this subsection states that air quality permits must be obtained by:

“Any person constructing or modifying any source or installing any equipment which is subject to 20.2.77 NMAC, *New Source Performance Standards*, 20.2.78 NMAC, *Emission Standards for Hazardous Air Pollutants*, or any other New Mexico Air Quality Control Regulation which contains emission limitations for any regulated air contaminant.”

Also, Paragraph (1) of Subsection A of 20.2.73.200 NMAC, *Notice of Intent*, states that:

“Any owner or operator intending to construct a new stationary source which has a potential emission rate greater than 10 tons per year of any regulated air contaminant or 1 ton per year of lead shall file a notice of intent with the department.”

The above is not intended to be an exhaustive list of all requirements that could apply. The applicant should be aware that this evaluation does not supersede the requirements of any current federal or state air quality requirement.

Fugitive Dust

Air emissions from this project should be evaluated to determine if an air quality permit is required pursuant to 20.2.72.200.A NMAC (e.g. 10 lb/hour or 25 TPY). Fugitive dust is a common problem at mining sites and this project will temporarily impact air quality as a result of these emissions. However, with the appropriate dust control measures in place, the increased levels should be minimal. Disturbed surface areas, within and adjacent to the project area, should be reclaimed to avoid long-term problems with erosion and fugitive dust. EPA’s *Compilation of Air Pollutant Emission Factors, AP-42, “Miscellaneous Sources”* lists a variety of control strategies that can be included in a comprehensive facility dust control plan. A few possible control strategies are listed below:

Paved roads: covering of loads in trucks to eliminate truck spillage, paving of access areas to sites, vacuum sweeping, water flushing, and broom sweeping and flushing.

Material handling: wind speed reduction and wet suppression, including watering and application of surfactants (wet suppression should not confound track out problems).

Bulldozing: wet suppression of materials to “optimum moisture” for compaction.

Scraping: wet suppression of scraper travel routes.

Storage piles: enclosure or covering of piles, application of surfactants.

RE: Request for Review and Comment, Revision 20-1, Updated Closure/Closeout Plan and Financial Assurance, Cunningham Hill Mine, LAC Minerals (USA), LLC, Santa Fe County, New Mexico, Mining Act Permit No. SF002RE

Page 3

Miscellaneous fugitive dust sources: watering, application of surfactants or reduction of surface wind speed with windbreaks or source enclosures.

Recommendation

The Air Quality Bureau has no objection to revised CCP and financial assurance.

This written evaluation does not supersede the applicability of any forthcoming state or federal regulations.

If you have any questions, please contact me at 505 629 6186



MICHELLE LUJAN GRISHAM
GOVERNOR

JAMES C. KENNEY
CABINET SECRETARY

DATE: December 20, 2021

TO: Anne Maurer, Mining Environmental Compliance Section, Ground Water Quality Bureau

FROM: Alan Klatt, Watershed Protection Section, Surface Water Quality Bureau

SUBJECT: **Request for Review and Comment, Cunningham Hill Mine, Updated Closure/Closeout Plan and Financial Assurance, Revision 20-1, Santa Fe County, New Mexico Mining Act Permit No. SF002RE**

The New Mexico Environment Department (NMED)-Surface Water Quality Bureau (SWQB) received the Subject request for comments on October 29, 2021. The application has been submitted by LAC Minerals USA LLC (LAC) for the Cunningham Hill Mine located in Santa Fe County. SWQB prepared the following comment pursuant to 19.10.5.506.E New Mexico Administrative Code (NMAC).

SWQB reviewed the updated Closure/Closeout Plan (CCP) dated October 2021. LAC incorporated and addressed SWQB's previous comments dated March 16, 2021 regarding the revised CCP dated October 2020. LAC included a request for a pit waiver that is subject to 19.10.5.507.B NMAC in the October 2021 CCP. The open pit lake and surrounding groundwater are subject to AP-27 and 20.6.2.4103 NMAC. SWQB will continue to work with GWQB to ensure that the appropriate surface water standards are established and achieved through AP-27.

For questions related to these comments, please contact Alan Klatt, SWQB, at 505-819-9623.