

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd Leahy, JD, PhD
Deputy Cabinet Secretary

Albert Chang, Director
Mining and Minerals Division



May 08, 2023

Lance Hauer, P.E.
Legacy Site Team Leader – Environmental Remediation
General Electric Company
1 River Road
Schenectady, NY 12345-6000

RE: Comments on *St. Anthony Mine Site Closure-Closeout Plan (CCOP), 30% Design Report, United Nuclear Corporation/GE, St. Anthony Mine, Cibola County, New Mexico, Permit Tracking No. MK006RE*

Dear Mr. Hauer,

The Mining and Minerals Division (“MMD”) has received and reviewed the *St. Anthony Mine Site Closure-Closeout Plan (CCOP), 30% Design Report*, (“Closeout Plan”) dated October 7, 2022. A site visit was conducted in support of the Closeout Plan on January 10, 2022.

Additionally, MMD solicited comments from cooperating state and tribal agencies on the Closeout Plan pursuant to 19.10.5.506.E NMAC. Comments from the NM Environment Dept., NM Dept. of Game and Fish, NM Office of the State Engineer, the NM Dept. of Cultural Affairs, and the Navajo Nation are enclosed with this letter.

MMD has the following general comments on the document:

30% CCOP 1st Binder

1. Executive Summary: Provide the results from the 2022 Supplemental Radiological Survey.
2. Plan Summary: Explain why the topsoil/overburden pile is planned to be reclaimed in place rather than used for cover.
3. 1.2 Plan Objectives: include a proposed PMLU Map with associated acreages.
4. 3.7.1 Wildlife: 2 large stick nests were discovered on the cliffs near Pit 1 during the January 10, 2023 inspection. Coordinate with NMG&F to assess if these nests are currently being used and by what species.
5. 4.2.4 2021-22 Highwall Investigation: When will this data be available to the agencies?
6. 5.0 Post-Mining Land Use: Please utilize MMD’s current SSE, Vegetation, and Soils Guidelines (2022) for PMLU decisions and Soils/Vegetation work on the site.

7. 5.4 Pit Waiver: The applicant indicates that before submitting a final CCP, a pit waiver will be submitted, consistent with NMAC 19.10.5.507.B. MMD suggests that the applicant indicate that a pit waiver may be submitted in the future. At this point it is unknown that a pit waiver will be necessary, or that MMD would approve a pit waiver without additional information required by 19.10.5.507.B NMAC.
8. 6.1 Plan Summary: Please be aware of MMD's concern with the reclamation of Piles 3, 4, and 5 as related to set-back and stability to prevent further erosion into Meyer Draw. The current designs with a setback of 50 ft. from the center of Meyer Draw and the longer slope lengths may not be sufficient to ensure long term stability.
9. 6.2 Excavation and Placement: As a general guideline MMD encourages UNC to place as much material as feasible from the site into Pit 2 while prioritizing the more radioactive materials.
10. 6.3.2 Design: Provide a detailed design regarding the full-scale application of Sodium Tripolyphosphate (STPP) to the pit water area.
11. 6.4 Regrading Waste Piles: MMD has the following comments and concerns regarding the preliminary designs for regrading waste piles on the site. These comments also apply to the preliminary construction designs.
 - a. MMD utilizes a maximum of 200' interbench slope lengths at a maximum of 3H:1V. Because of the environmental impacts of uranium waste rock MMD recommends the NM Copper Rule minimum slope length guidance be used for a more protective design.
 - b. Because of the saline and sodic nature of the soils surrounding the St. Anthony mine, borrow and/or cover systems will need to be built with this in mind. Important factors to keep in mind regarding minimizing erosion include, but not limited to, rock armoring, thickness of cover in the store and release system to allow for erosion, plant species selection, slope length/angle, bench frequency, and down drains designs.
 - c. With climatic weather patterns trending toward less frequent, but more intense storm events, UNC might want to consider designing over the 100 year/24 hour storm event. At a minimum MMD will require that UNC conduct a precipitation analysis to determine the frequency of specific storm events over the last 20 years. Because of the increased need for erosion controls on reclaimed uranium mine sites, design for storm event frequency becomes more important.
 - d. Because of the environmental impacts of contaminated waste materials from the site eroding into Meyer Draw, the reclamation of this area will need special consideration regarding erosion and long-term stability. Please address NMED's Surface Water Bureau comments on this topic, especially the questions regarding the 50 ft setback from the edge of the natural channel. How is the natural channel defined, and what is it about 50 ft that makes this particular number functional, given the environmental parameters of the site. Additionally, MMD advises addressing the particular issue of waste rock stability, erosion and sediment loading of Meyer Draw by applying a geomorphological solution to the reclamation of waste rock pile adjacent to Meyer Draw.
12. 6.5 Surface Hydrology:
 - a. With climatic weather patterns trending towards less frequent, but more intense storm events, MMD recommends designing over the 100 year/24 hour storm

requirement currently found for existing mines in the NM Mining Act Rules. MMD is specifically requesting this in response to the *NM Executive Order 2019-003 Executive Order on Addressing Climate Change and Energy Waste Prevention, Directive No. 3.*

- b. Will berms be constructed at the toe of the piles adjacent to Meyer Draw to catch eroded sediments?
 - c. Because of the current failure of the berm system surrounding Pit 1 on the west and southwest boundaries, the operator will need to design a more robust diversion system to keep surface water run-on out of Pit 1. Keeping surface water run-on out of Pit 1 will be essential for the success of the Pit 1 evaporative sink design.
13. 6.6 Soil Covers:
- a. All borrow areas will be required to be reclaimed to the same vegetative and erosional standards as the reclaimed areas.
 - b. Will a clay layer be included in the cover designs to help achieve the radon flux standard?
 - c. 6.6.3.3 Regraded In-Place Piles: MMD views uranium waste as similar to copper mining waste which requires a minimum 3 ft. cover system to be considered a functional evapotransporative system. This is particularly important when trying to stabilize uranium waste rock piles and establish long term erosional stability.

Appendix A.1: Vegetation & Wildlife Evaluations/Revegetation Recommendations.

1. 1.4 Precipitation: Provide more recent precipitation data from the last 20 years as opposed to data ending in 2005.
2. 2.0 Sampling Methods: Refer to MMD's 2022 SSE and Revegetation Guidelines for guidance on an acceptable revegetation plan. In addition to ground cover, vegetative productivity, and shrub density, MMD also requires plant diversity as a component to be evaluated for vegetative success.
3. Please propose Vegetative Success Criteria for the site using the extended reference area data.
4. 3.6 Wildlife: Please exclude Burro and Wild Horse from Wildlife Data. Feral horses and burros are not considered native wildlife.
5. 4.1 Growth Medium Characteristics and Reapplication Depths:
 - a. Please describe the proposed cover system in detail including all components such as spoil/contaminated material/waste rock, clean overburden or cover, clay liner, topsoil or growth media.
 - b. Because of the erodibility of local soils it is required that a minimum of 3 ft of clean cover with 2 ft of that being topsoil or growth media be used as a minimum in the cover system.
 - c. How is rock content being measured in the cover system to help decrease erosion?
6. 4.2.2 Fertilization Recommendations: MMD generally does not recommend the use of synthetic fertilizers for reclamation, however organic amendments such as biosolids, or

other organic amendments can be useful in giving plants help during the early stages of establishment. Please refer to MMD's Soils and Revegetation Guidelines for more information on this topic.

7. Please align the proposed seeding rates with the 2022 Vegetation Guidelines.
8. 5.2 Sample Site Selection: Please better explain how a specific reference area is proposed to be associated with a specific reclaimed area for purposes of proving vegetative success. MMD recommends a simpler approach than is described in this plan. Again, please refer to MMD's 2022 Vegetation Guidelines.
9. Regarding the Vegetative Recommendations found in this document, please present to the agencies a precise proposal for revegetation and monitoring on the site for approval.

Appendix B.1, B.2, and B.3: Materials Characteristics Report

1. Please provide MMD the 2022 Supplemental Radiological Survey in addition to the Appendix B.1, B.2, and B.3 data so that the agencies can fully evaluate the material characterization on-site.

Appendix C.1: Excavation Control Plan

1. Does the Excavation Control Plan address the 2022 Supplemental Radiological Survey Data? If not, this information may need to be addressed to include the additional clean-up work.

Appendix C.2: Verification Survey Plan

1. Does the Verification Survey Plan address the 2022 Supplemental Radiological Survey Data? If not, this information may need to be addressed to include the additional clean-up work.
2. 4.4.1 Verification Survey Units: Section 2.0 (1) of the Joint Guidance for the Clean-up and Reclamation of Existing Uranium Mining Operations in NM (2016) specifies that the concentration of Ra-226 is averaged over an area of 100 square meters. Survey Units within this Closeout Plan will need to meet this criterion.
3. Sections 4.4.2 and 4.4.3 will also need to be adjusted in reference to comment # 2 in this section.
4. What is the verification survey process for the areas labeled as "Backfilled, Stabilized, and Covered Areas" and "Regraded, Stabilized and Covered Areas"?

Appendix D: St. Anthony Mine Geotechnical Investigation 2018

1. Borrow sources:
 - a. Will the soils from the borrow sources be evaluated regarding the known sodic soil conditions in the area? From previous experience at a nearby mine, MMD has experienced these saline and sodic soils to be highly erodible.
 - b. Have borrow sources with ample clay content been found for use in a radon attenuation barrier?

- c. Does the operator have a known borrow area for rip-rap or rock to increase the rock content in cover materials?
2. Summary and Conclusions:
 - a. What H₂S precautions will be taken onsite to ensure the safety of personnel?

Appendix E: Material Balance Calculations

1. Why aren't the Topsoil/Overburden, Topsoil South, or Borrow Area South considered as material suitable for cover on the site?

Appendix F.1: Flow Characterization

1. As mentioned before in this document UNC may want to consider designing surface water conveyance facilities and cover designs at a more robust design level.

Appendix F.2,3, 4: Design of Hydraulic Stabilization for Meyer Draw and East Tributary Arroyo

1. MMD requests that the operator provide a presentation with diagrams and construction drawings of the various hydraulic stabilization structures described in this section for discussion with MMD and the NMED.

Appendix G.1 Radon Calculations

1. Per the Joint Guidance for the Clean-up and Reclamation of Existing Uranium Mining Operations in NM (2016) Section 2.0 (1) a radon flux limit of 20pCi/m²/s is required for areas where contaminated materials exceeding the target radium activity level is emplaced in an on-site repository. Please explain why a compacted clay layer is not included in the cover design for radon attenuation on the site.
2. Does the operator plan any density/porosity testing in the future for the Pit 1 Highwall Excavation, Pit 1 Infill, or Surface Excavation areas? If not, please provide additional justification regarding how this material is comparable to Pit 2 material.
3. Why was data limited regarding the West Borrow and North Topsoil pile? Please explain in more detail to justify combining the density/porosity data for these two locations.
4. How will radon emanation be monitored on reclaimed areas to ensure the radon flux limit of 20pCi/m²/s has been achieved? Please provide the method and details on the monitoring plan.

Appendix G.2: Cover Erosional Stability and Soil Loss Analysis

1. As previously stated, MMD recommends that the operator utilize guidance from the NM Copper Rules for determining and apply a maximum of 200' interbench slope lengths for Piles 1, 2, 3, and 4. The current slope lengths for these specific areas seem to be too long.

Appendix H: St. Anthony Mine Materials Characterization

1. MMD has concerns regarding the K-factor of sodic (highly erodible) soils found in the region of the mine site. 24 inches of soil cover may not be sufficient without a certain amount of rock armoring on sloped reclamation areas. Additionally, 24 inches of soil cover may not be adequate for plant growth as an evapotranspirative cover as mentioned in Section 3.2.2 of this appendix. This comment stems from our experience with erosion issues found on two nearby mine sites.
2. In reference to statements made in Section 5.0 Summary of the appendix, please describe industry best management practices that will be utilized to maximize success for reclamation on this site.
3. Any soil or borrow material used for cover must be evaluated for soil suitability. Please refer to the MMD 2022 Guidance for Soil and Cover Material Handling and Suitability for Part 5 Existing Mines.

Appendix H: St. Anthony Mine 2022 Revegetation Plan Update

1. MMD is in support of the biosolid application described in Section 2.2.
2. Where will rock mulch be sourced from as mentioned in Section 2.3?
3. Will the same type of reference areas be used as described in Appendix A.1?
4. If any of the comments on Appendix A.1 are addressed in this new 2022 Revegetation Plan, please make note to MMD in your response and disregard.

In addition to comments from MMD please respond to the attached comment letters from the following state and tribal agencies.

- NMED Mining Environmental Compliance Section Letter dated February 22, 2023
- NMED Surface Water Quality Bureau Letter dated February 10, 2023
- NMED Air Quality Bureau dated November 30, 2022
- NM Dept. of Cultural Affairs Historic Preservation Division Letter dated November 16, 2022
- NM Dept. of Game and Fish Letter dated 23 February 2023
- NM OSE email response dated March 3, 2023
- Navajo Nation email response dated February 16, 2023

Please contact MMD with any questions or concerns and to set up a follow-up meeting regarding UNC's response to these comments at (505) 467-9589 or by email at clinton.chisler@emnrd.nm.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Clint Chisler".

Clint Chisler
Permit Lead

Enclosures: NM Environment Dept. Comment Letters
NM Dept. of Game and Fish Comment Letter
NM Dept. of Cultural Affairs Comment Letter
NM Office of the State Engineer Comment Letter
Navajo Nation Response

cc: Anne Maurer, NMED
Mine File (MK006RE)



MEMORANDUM

DATE: February 10, 2023

TO: Anne Maurer, Mining Environmental Compliance Section, Ground Water Quality Bureau, New Mexico Environment Department

THROUGH: Shelly Lemon, Chief, Surface Water Quality Bureau, New Mexico Environment Department

FROM: Alan Klatt, Watershed Protection Section, Surface Water Quality Bureau, New Mexico Environment Department

SUBJECT: **Request for Review and Comment, Updated Closure/Closeout Plan, St. Anthony Mine, McKinley County, New Mexico Mining Act Permit No. MK006RE**

On November 4, 2022, the New Mexico Environment Department (NMED)-Surface Water Quality Bureau (SWQB) received a request for comment regarding the updated 30% Closure Closeout Plan (30% CCP) for the St. Anthony Mine. Land area disturbed during mining encompasses approximately 430 acres and includes roads, building and shaft pads, and former settling ponds along with the open pits and non-economic mine material piles. SWQB reviewed the 30% CCP and has prepared the following comments pursuant to 19.10.5.506 NMAC.

SWQB Comment 1: The computed runoff values in “APPENDIX F.1 Flow Characterization” rely on numerous assumptions and simplifications and do not report model uncertainty or account for climate change. The computed runoff values are compared to USGS regional estimates for validation; however, the USGS estimates have high prediction errors, so this method of validation should be interpreted with caution. The USGS regression equation estimates the 100-year peak-flow to be 4,460 cubic feet per second (cfs) and has an average standard error of prediction of 68%¹. The computed runoff value of 4,067 cfs is 9% less than the USGS estimate. If the USGS estimate is under predicting the actual 100-year discharge, then the computed runoff may significantly underestimate the actual 100-year discharge. Furthermore, the USGS regression equations are based off historical data and have not been adjusted for future climate scenarios. Southern Sandoval County Arroyo Flood Control Authority reports that the 100-yr storm event in 2099 will see a 25% increase in peak-flow². The New Mexico Bureau of Geology and Mineral Resources reports in “Climate Change in New Mexico Over the Next 50 Years: Impacts on Water Resources” that the true precipitation from the 100-yr storm may actually be closer to that which is currently projected for a 500-yr storm³. Grade control structures, riprap, bench channels, and diversion channels must account for model uncertainty and climate change.

SWQB Comment 2: Additional information is needed to support a sufficient setback distance between the material piles and the natural channels. Previous closeout plans and reports include the following:

- The January 2006 St. Anthony Mine Site Closeout Plan says, “material piles will be set back 50 feet from the edge of the natural channels.”

¹ <https://streamstats.usgs.gov/ss/>

² <https://www.sscfca.org/wp-content/uploads/2018/05/2015-Annual-Report-to-Congress.pdf>

³ https://geoinfo.nmt.edu/ClimatePanel/report/WaterClimateReport_Web_FINAL.pdf

- The 2018 Supplemental Investigations Work Plan states that “A preliminary arroyo setback analysis will be conducted and Stantec will communicate up to 2 design alternatives for arroyo stabilization in addition to a setback consideration (if necessary).”
- The 2019 Updated St. Anthony Mine Closeout Plan says the “proposed closure plan for Pile 4 is to push the pile material to the borders of the Meyer Draw and the East Tributary arroyos.”
- The 2022 30% CCP Design Report says, “re-graded and covered waste piles that will remain more than 50 feet from the centerline of the arroyo.”

A setback distance of “more than 50 feet from the arroyo centerline” as proposed in the 2022 30% CCP is less than the “50 feet from the edge of the natural channels” that was originally proposed in the 2006 Closeout Plan – the rationale for this change is not provided in the 2022 30% CCP. NMED-SWQB provided comments dated April 3, 2018 requesting additional information regarding how the original setback distance of 50 feet from the edge of the natural channels was determined to be protective of state surface water quality standards. A setback analysis is necessary and must be provided to ensure the material piles will not impact water resources. A sufficient setback distance (i.e., buffer distance) is needed to protect Meyer Draw from potential slope failures, lateral migration of the natural channels towards the cover piles, and infiltration and runoff from the cover piles.

SWQB Comment 3: “Appendix F.2 Design of Hydraulic Stabilization for Meyer Draw and East Tributary Arroyo” describes that Meyer Draw has been “heavily influenced by mining activity” and that the arroyo gradients “appear to be in a state of non-equilibrium as they continue to adjust to impacts of these mining activities.” Meyer draw was straightened and realigned to accommodate the expansion of pile numbers 5, 6, 3, and the shale pile which reduced the channel length and increased the channel gradient. Increased channel gradients cause increased flow velocities and stream power. In addition to being vertically unstable as a result of the increased stream power, Meyer Draw is also horizontally unstable as evident by the large pile failures shown in Figures 6 and 7 in Appendix F.2. The proposed solution to install concrete grade control structures and riprap lining is only a temporary measure and does not restore the non-equilibrium conditions caused by the mining activity. The concrete will deteriorate over time, and the riprap will be at risk of failure during each large storm event. NMED-SWQB provided comments dated May 31, 2019 that sinuosity and meander pattern should be incorporated into the restoration design to protect water quality in the long-term.

SWQB Comment 4: “Section 7.4.1 Water Quality Monitoring and Reporting” of the 30% CCP only describes a groundwater quality monitoring plan. The 2006 St. Anthony Mine Site Closeout Plan includes five surface water quality sampling events from 2004 that indicate impacts to surface water quality (see NMED-SWQB comments dated April 3, 2018). The Final CCP must include a plan to monitor and sample surface water in Meyer Draw.

SWQB Comment 5: “Section 7.4.3 Inspections” of the 30% CCP briefly mentions that inspections will be conducted on an annual basis until bond release, and that revegetation inspections will continue until bond release or up to 12 years. Meyer Draw will not “self-sustain” the proposed engineered channel configuration. The final closeout plan should include an inspection, maintenance and repair plan for the concrete grade control structures, riprap, bench channels, and diversion channels. All future costs, in perpetuity, should be considered prior to bond release.



MEMORANDUM

DATE: November 30, 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, Updated Closure/Closeout Plan, St. Anthony Mine, McKinley County, New Mexico Mining Act Permit No. MK006RE

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

United Nuclear Corporation (UNC) has filed a Request for Modification of the Stage 2 Abatement Plan for the former St. Anthony uranium mine located on the Cebolleta Land Grant, Cibola County. UNC is proposing a modification of the 2015 Stage 2 Abatement Plan to maintain the hydraulic sink by reducing the elevation of the partial backfill material in Pit 1. The Modification will prevent migration of water away from Pit 1. The AAS associated with the 2015 Stage 2 Abatement Plan will be retained. No other changes to the Stage 2 Abatement Plan are proposed in UNC's Request for Modification of the Stage 2 Abatement

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:

“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.

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 this request.

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



MEMORANDUM

Date: February 22, 2023

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

Through: Anne Maurer, Team Leader, Mining Environmental Compliance Section

From: Amber Rheubottom, Mining Environmental Compliance Section
Alan Klatt, Surface Water Quality Bureau
Sufi Mustafa, Air Quality Bureau

Subject: **NMED Comments, Updated Closure/Closeout Plan, St. Anthony Mine, United Nuclear Corporation, McKinley County, New Mexico Mining Act Permit No. MK006RE**

The New Mexico Environment Department (NMED) received correspondence from the Mining and Minerals Division (MMD) on November 2, 2022 requesting NMED review and provide comments on the above-referenced MMD permitting action. Pursuant to the Mining Act, this is a regular existing mine with Mining Act Permit No. MK006RE. MMD requested comments on the 30% Closure/Closeout Plan (CCOP) within 60-days. NMED requested an extension to submit comments by February 24, 2023. NMED has the following comments.

Background

NMED and MMD received a request for modification of the Stage 2 Abatement Plan (S2AM), which included the St. Anthony Mine CCOP from United Nuclear Corporation/General Electric (Permittee) on October 11, 2022. NMED and MMD requested both documents to be submitted as one comprehensive package due to the overlap between the S2AM and the CCOP and to satisfy both agencies' requirements under both the Water Quality Act and the New Mexico Mining Act. The CCOP is included in Appendix F of the S2AM. The Permittee was required to submit the S2AM as a result of the Permittee proposing significant changes to the approved Stage 2 Abatement Plan as conditionally approved by NMED on May 7, 2015 and a Final Order for Alternate Abatement Standards issued by the Water Quality Control Commission (WQCC) on September 29, 2017. The S2AM addresses the final remedy for Pit 1 and associated abatement of groundwater and the CCOP addresses sitewide closure/closeout.

Air Quality Bureau

The Air Quality Bureau has no comments.

Surface Water Quality Bureau

The Surface Water Quality Bureau comments are attached.

Mining Environmental Compliance Section (MECS)

MECS has the following comments:

General Comments

Due to the two regulatory processes of MMD and NMED needing to proceed independently and in support of each other, NMED recommends adjusting the process as discussed below:

- 1) In order to delineate a clearly defined boundary between the CCOP and the S2AM, NMED-MECS will comment on Pit 1 (large pit) and groundwater under separate letterhead to be sent directly to the Permittee and copy MMD. The comments on Pit 1 and groundwater need to be addressed separately to ensure that the applicable requirements of 20.6.2 NMAC are being met.
- 2) NMED-MECS proposes that the CCOP work be separated into two phases. Phase 1 would be site-wide CCOP work. Phase 2 would be work directly tied to the S2AM. The Agencies will work with the Permittee to determine which activities belong in each phase. The purpose of phasing is to ensure that site-wide closure/closeout work can commence without having an approved S2AM in place. NMED will need to issue an environmental determination for the Mining Act Permit. NMED does not want to delay surface reclamation, and therefore, will work with the Permittee and MMD to determine the appropriate pathway and timing of issuance of the environmental determination. This may require issuance of an interim environmental determination when all parties have agreed to the final design and work distribution in each phase.

Specific Comments

1. Attachment F, Page ii = *The supplemental characterization and laboratory testing is estimated to be completed in December 2022.* Considering characterization is not completed at this time, NMED recommends final calculations of Financial Assurance (FA) and design approval wait until the December 2022 data is incorporated into the design.

Holland Shepherd
St. Anthony Mine, MK006RE
February 22, 2023

2. Attachment F, Page 1.1 = *Industrial use for specific areas is also under consideration*. It is not practicable to evaluate the CCOP at this time without all PMLUs defined. NMED will withhold final approval until all PMLUs for the site have been defined. NMED recommends providing a figure that designates all site PMLUs and that the PMLUs need to be agreed upon as a requirement prior to final approval.
3. Attachment F, Page 6.12 = *Table 6-6*. By NMAC 20.6.7.33.C.4 “the uninterrupted slope length shall be no greater than 300 feet for 4.0:1, 200 feet for 3:1-slopes and 175 feet for 2.5:1 slopes. Alternative slope lengths may be allowed if the permittee provides information showing that the cover performance objectives specified in Subsection F of this section will be achieved and the exception is approved by the department.” Revise the design or provided additional information. Please indicate if the slope lengths as designed meet the substantive requirements of 20.6.7.33.C.4 NMAC. NMED recognizes that St. Anthony Mine is not a copper mine, and therefore, not regulated pursuant to 20.6.7 NMAC. However, the Copper Rule reflects current engineering best practices.
4. Attachment F, 6.13 Please provide a precipitation analysis to determine the frequency of ≥ 24 -hour, 100-year events within the last 20 years of record. Based on NMED’s experience, larger storm events are occurring at greater frequencies across New Mexico. This has deleterious effects on reclamation design if stormwater channels and conveyance systems are undersized.
5. Attachment F, Page 6.22 = *...soil loss of 12.6 tons/acre/year....8.9 tons/acre/year*. Based on the values of soil loss predicted please indicate how GE/UNC plan to account for this in annual repair and maintenance schedules and costs. NMED-MECS recommends increasing FA for the site to account for the future loss and associated repairs.

NMED Summary Comment

NMED will withhold issuance of the environmental determination until such time there is agreement between the Permittee, NMED and MMD on how to proceed with approval of the CCOP and the S2AM.

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

cc: Clint Chisler, Lead Staff, EMNRD-MMD
Joe Fox, Program Manager, MECS
Shelly Lemon, Bureau Chief, NMED-SWQB
Elizabeth Bisbey-Kuehn, Bureau Chief, NMED-AQB

GOVERNOR
Michelle Lujan Grisham



DIRECTOR AND SECRETARY
TO THE COMMISSION
Michael B. Sloane

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DEPARTMENT OF GAME & FISH

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STATE GAME COMMISSION

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Santa Fe

23 February 2023

Clint Chisler, Uranium Reclamation Coordinator
Mining and Minerals Division (MMD)
Mining Act Reclamation Program
1220 South St. Francis Drive
Santa Fe, NM 87505

RE: St. Anthony Mine 30% Closure/Closeout Plan, Cibola County, New Mexico, Permit No. MK006RE; NMDGF No. NMERT-2239.

Dear Mr. Chisler:

The New Mexico Department of Game and Fish (Department) has reviewed the above referenced 30% Closure/Closeout Plan (CCP). On behalf of United Nuclear Corporation (UNC), Stantec submitted a CCP, 30% Design Report to MMD for reclamation of the St. Anthony Mine. Staff from the Department, MMD, New Mexico Environment Department, Stantec, Intera, Seboyeta Land Grant, and the Laguna Pueblo conducted a site inspection on 10 January 2023.

UNC proposes to partially backfill Pit 1 so that it will continue to function as a hydraulic sink for contaminated groundwater. The partial backfill design feature will keep the backfill elevation below the Jackpile-Dakota contact zone, thus preventing flow into the uncontaminated aquifer. UNC expects the extent and duration of expressed water in Pit 1 to be significantly smaller in future, after the pit is partially backfilled. Since partial backfilling will not fully eliminate the pit lake, the Department recommends installation of appropriate fencing around the lake to prevent deer, elk, and other wildlife species from accessing contaminated water. The above ground fence height should be a minimum of eight feet, and the fence should extend an additional two feet below ground (where practical) to deter animals from burrowing under. The Department also recommends that the bottom two feet of the above ground fence include a permanent, solid plastic or sheet metal barrier, preferably with a horizontal lip at the top, to exclude smaller animals from accessing the pit lake. The Department also recommends that UNC provide wildlife safe, clean water sources that would help attract wildlife away from the pit lake.

Department staff observed approximately 40 mallard ducks on the pit lake during the site inspection. If water quality in the pit lake is determined to be potentially hazardous to birds or bats, the installation of bird balls or netting may also be necessary to prevent flying animals from accessing the contaminated pit lake water. If netting is utilized, monofilament nylon netting should not be used due to its tendency to ensnare wildlife and cause injury or death. Extruded plastic, knit or woven netting material with a mesh size of $\frac{3}{8}$ inch to exclude smaller animals is recommended. All materials should be resistant to corrosion and ultraviolet radiation. During the life of the remediation, snow loading is probable, therefore, a maximum mesh size of $1\frac{1}{2}$ inches is acceptable, however significant maintenance will still be required. 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. The Department recommends conducting a site inspection as soon as possible following heavy snow or high wind events to identify any damage to the netting or to clear any excessive snow loading. Alternatively, commercially available wind resistant bird balls, such as Bird-X (bird-x.com) may more effectively deter birds and bats with reduced maintenance requirements. However, high wind events and fluctuating water levels can cause some bird balls to pile up or become redistributed in such a way that open water can become accessible to wildlife. Regular inspections would still be necessary to maintain proper bird ball distribution.

As part of the original CCP, vegetation and wildlife surveys were conducted in 2006 by Cedar Creek Associates, Inc. The wildlife survey report documented a relatively small number of species, especially migratory birds. Wildlife survey dates were not stated in the report, and the relatively low avian species count could be the result of the surveys being conducted outside of the primary breeding and migration periods. The wildlife report also stated that “no evidence of nests along cliff faces was observed within the rimrock immediately adjacent to the permit area”. Department staff observed two large stick nests that appeared to be in good condition located on a sandstone cliff approximately 0.3 miles from the pit lake. In order to obtain a more complete, current inventory of the wildlife that utilizes the area near the St. Anthony Mine, the Department recommends that UNC conduct new wildlife surveys including: one in April, two in May (one early, one late), and one in June (early). The Department also recommends at least one winter wildlife survey. The wildlife surveys should include a 0.5 miles buffer area around the mine permit boundary to identify any raptor nests that could be disturbed by reclamation activities during the breeding season.

For the undisturbed, topsoil borrow areas that will be used for reclamation, the Department recommends that ground disturbance and vegetation removal activities be conducted outside of the primary breeding season for migratory songbirds and raptors (1 March – 1 September; 1 January-15 July for great horned owl). If ground disturbing and clearing activities must be conducted during the breeding season, the area should be surveyed for active nest sites (with birds or eggs present in the nesting territory), and avoid disturbing active nests until young have fledged. For active nests, establish adequate buffer zones to minimize disturbance to nesting birds. Buffer distances should be a minimum of 100 feet from songbird and raven nests, 0.25 miles from most raptor nests; and 0.5 miles from golden eagle and prairie falcon nests. Active nest sites in trees or shrubs that must be removed should be mitigated by qualified biologists or wildlife rehabilitators. Department biologists are available to consult on nest site mitigation and can facilitate contact with qualified personnel.

Thank you for the opportunity to review and comment on the St. Anthony Mine CCP. If you have any questions, please contact Ron Kellermueller, Mining and Energy Habitat Specialist, at (505) 270-6612 or ronald.kellermueller@dof.nm.gov.

Sincerely,

Matt Wunder, Ph.D.

Digitally signed by Matt Wunder, Ph.D.
Date: 2023.02.23 09:35:36 -07'00'

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

cc: USFWS NMES Field Office



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

November 16, 2022

Clinton M. Chisler
Uranium Reclamation Coordinator
Mining and Minerals Division
Mining Act Reclamation Program
1220 S. St. Francis Drive
Santa Fe, NM 87505
Clinton.Chisler@state.nm.us

Re: HPD Log#118341, St. Anthony Mine MK006RE, Updated Closeout Plan request for comment.

Dear Mr. Chisler:

I am writing in response to your request for comment on the above referenced updated closeout plan permit application received at this office November 3, 2022

According to our files, the project area has been archaeologically surveyed and there are 17 archaeological sites within or adjacent to the project area. As stated in the updated closeout plan, six of these archaeological sites are in proximity to proposed soil cleanup areas and one is situated within a proposed soil borrow area. In the plan, Stantec proposes establishing a 50-foot avoidance buffer around these archaeological locations prior to initiating earthwork. The plan also states that they will employ a qualified archaeologist to review sites located within soil cleanup areas once the buffers have been established.

The SHPO concurs that, with the implementation of these measures, this permit will have no adverse impacts to cultural resources located within the project area.

If you have any questions or concerns, please contact me at richard.reycraft@dca.nm.gov or telephone me at 505-452-6115.

Sincerely,

Richard Reycraft

Richard Reycraft, Ph.D.
HPD Archaeological review.

Chisler, Clinton, EMNRD

From: Zemlick, Katie, OSE
Sent: Friday, March 3, 2023 2:26 PM
To: Chisler, Clinton, EMNRD
Cc: Shepherd, Holland, EMNRD
Subject: OSE Response to Request for Comments on St. Anthony Mine 30% Closure Closeout Plan ("30% CCOP") dated October 11, 2022, Cibola County, New Mexico, Permit No. MK006RE

Dear Mr. Chisler,

The NMOSE Hydrology Bureau received the MMD's November 2, 2022 request for comments on the subject St. Anthony Mine 30% Closeout Plan 2019 Update, and have reviewed said Plan and attachments. The applicant submitted a request for modification of the 2015 Stage 2 Abatement Plan ("Stage 2 Plan"). Modifications include reducing the backfill elevation in the large pit proposed in the Stage 2 Plan to a level below the Jackpile Sandstone-Dakota Sandstone contact. This modification is to prevent poor quality water from migrating into the Dakota Sandstone. An additional modification to the Stage 2 Plan is the establishment of vegetation on the pit cover to increase water losses from the pit through evapotranspiration. These modifications appear to exclude new use of surface or ground water, as did the original Stage 2 Plan. In addition, local surface water impoundment will be decreased by reclamation of the project pits and constructed channels will intercept and divert rainfall away from the pit. Should proposed reclamation activities require the development or use of onsite water resources for compaction, contamination, remediation, or other purposes, the NMOSE District 1 Office (5550 San Antonio Drive NE, Albuquerque, NM 7109-4127; 505-383-4000) should be contacted to discuss the need for water rights. Previous drilling activities at the site did not penetrate water-bearing strata. On site, water was often conducted into surface stockpiles of mine waste and therefore NMOSE well construction permits were not required. Should future drilling deeper than 30' encounter groundwater, the Applicant must follow NMOSE permitting for the drilling, and the drilling be conducted by a New Mexico-licensed well driller. Please contact me if you have any questions.

Sincerely,

Katie Zemlick, PhD
Hydrology Bureau Chief
New Mexico Office of the State Engineer
katie.zemlick@ose.nm.gov
c: 505-660-7547

From: [Timothy Begay](#)
To: [Chisler, Clinton, EMNRD](#)
Cc: [r.begay](#)
Subject: [EXTERNAL] CLOSURE OF ST. ANTHONY MINE (S106-22-449)
Date: Thursday, February 16, 2023 2:02:31 PM

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Dear Mr. Chisler:

The Navajo Nation Heritage and Historic Preservation Department's (NNHPD) Traditional Culture Program is (TCP) in receipt of your letter regarding State of New Mexico Energy, Minerals and Natural Resources Department, consultation request for the Closure of the St. Anthony Mine, located 40 miles west of Albuquerque, and 4.6 miles southeast of Seboyeta, New Mexico

The Navajo Nation supports the closure of St. Anthony mine, the Navajo storge believe such consultation on cultural resources should have been conducted in the begging of the open of the mine. What every Cultural Resources that were present are all gone and nearby Cultural resources maybe adversely effected, which may include Traditional Cultural Preparties (TCP's) and or the Traditional Landscapes. The Navajo Nation recommendation for the closure and the remediation of the mine, consultation with located tribes in returning the landscape to close as possible before mining occurred. Furthermore, consulting with tribes on the type of native seeds which should be used in the remediation, all oil, gas, and other harmful chemicals which maybe absorb by plants needs to be cleaned up. Many native plants are cultural resources for the tribes and used in ceremonies year round and this why it important for the clen up. Remediation should also be conducted with the U.S. Environmental Protection Agency.

If you have any additional questions, concerns or would like to discuss these issues further, please contact Mr. Richard M. Begay, Department Manager/THPO or myself at (928) 871-7198 or (928) 871-7152. Thank you for your cooperation and understanding.

Sincerely,

Timothy C. Begay
Navajo Cultural Specialist
Navajo Nation Heritage and Historic Preservation Department
P.O. Box 4950
Window Rock AZ 86515
Office Phone: (928)871-7152
tbegay@navajo-nsn.gov