



Lance M. Hauer, PE
Legacy Site Team Leader
General Electric Company
c/o Angelica Todd
1 River Road B 33-2
Schenectady NY 12345

T +1 (484) 213-0300
Lance.hauer@ge.com

July 30, 2024

Clint Chisler
Permit Lead
Mining Act Reclamation Program
New Mexico Energy, Minerals, and Natural Resources
Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87502-5469

RE: Response to New Mexico Energy, Minerals and Natural Resources Department's Mining and Minerals Division Comments received March 12, 2024

Dear Mr. Chisler:

United Nuclear Corporation ("UNC") is submitting responses to the comments ("RTCs") received from the New Mexico Energy, Minerals and Natural Resources Department's Mining and Minerals Division's ("MMD") on the 30% Closure Closeout Plan ("30% CCOP") and related documents¹ for the reclamation of the St. Anthony Mine. UNC received comments from MMD on March 12, 2024. Since submittal of the draft 30% CCOP on August 30, 2023, UNC and MMD have exchanged several comment letters and, on May 1, 2024, UNC met with representatives of MMD and the New Mexico Environmental Department, Mining Compliance Section ("NMED") to discuss comments that had not yet been resolved and a path forward for reclamation of the mine. During the May meeting, we resolved several key issues which are captured in the attached RTCs. The RTCs assume, as discussed at the May meeting, that UNC will receive written concurrence from NMED that the future expressed water in Pit 1 will be a private water that does not combine with other surface or subsurface water and, as such, is exempt from the requirements of the New Mexico Water Quality Act. *See* NMSA 74-6-2(H). This concurrence is needed before UNC can proceed with submitting a 90% CCOP.

UNC appreciates the opportunity to formally respond to MMD's comments. The attached table provides a summary of past comments and responses, followed by subsequent comments and responses including those that MMD received from its associated state agencies. The RTC responds specifically to the following correspondence received from MMD:

- March 12 MMD comments on the Excel Comment Tracking Table which UNC had submitted to MMD on August 30, 2023 (comments and responses are provided on pages 1 to 20 of the attached RTC)

¹ To support the 30% CCOP, on August 30, 2023, UNC submitted a report summarizing the results of the investigation of the Old St. Anthony Mine area ("2022 Supplemental Radiological Characterization South of Pit 1"), a report summarizing the results of Pit 1 Highwall evaluation ("Pit 1 Highwall Stability - Phase 2 Report"), and, on November 30, 2023, an Ecological Risk Assessment Report (ERA) for Pit 1. To facilitate review, UNC included several additional reports with the ERA: UAV-Based Radiological Surveys of the St. Anthony Mine Pit-1 Sidewalls (Environmental Restoration Group, October 2021); 2023 Revegetation Plan Update (Cedar Creek, November 2023) and an updated Pit 1 Backfill and Design Concept (Stantec, November 2023).

July 30, 2024

Page 2 of 2

- November 20, 2023 NMED Memo (page 21)
- February 7 MMD general comments (pages 22 and 23):
- February 5 New Mexico Department of Fish and Game letter (pages 24)
- February 6 NMED February letter (pages 25 and 26)
- January 26 NMED-Surface Water Quality Bureau letter (pages 27 to 30).

Following receipt of MMD's concurrence on the RTCs and NMED's concurrence that the future expressed water in Pit 1 is a private water exempt from the requirements of the New Mexico Water Quality Act under NMSA 74-6-2(H) , UNC will proceed with submitting a 90% Closure Closeout Plan ("90% CCOP") for MMD's review.

Please contact the undersigned if you have any questions or would like to discuss the RTC.

Sincerely,



Lance M. Hauer, P.E.
Legacy Team Leader
GE Aerospace

Cc: David Ennis, MMD
Joseph Fox, NMED
Amber Rheubottom, NMED
Cynthia Ardito, INTERA
Melanie Davis, Stantec
Monique Mooney, GE Aerospace
Chad Baker, Parsons Behle & Latimer

Responses to 2nd Round of Comments Received from the New Mexico EMNRD Mining and Minerals Division on March 12, 2024

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
Response to Comments Received on Excel Comment Tracking Table (table provided by MMD)							
1	MMD	CCOP	Exec. Summary	Provide the results from the 2022 Supplemental Radiological Survey.	UNC is providing the 2022 Supplemental Radiological Characterization South of Pit 1 Report with this response to comments.	MMD has no specific comments on the 2022 Supplemental Radiological Survey other than we look forward to reclamation designs for areas addressed under this survey.	The 90% Closure Closeout Plan (90% CCOP) will include reclamation design for this area.
2	MMD	CCOP	Plan Summary	Explain why the topsoil/overburden pile is planned to be reclaimed in place rather than used for cover.	Cedar Creek authored a Materials Characterization in 2018 (included in Appendix H of the CCOP) which evaluated and described the benefits and drawbacks of using different stockpiled or borrow materials for reclamation. The basis of the evaluation were the chemical and physical parameters of the available materials. The most suitable materials were selected for closure.	This will need to be discussed with the agencies. MMD is of the opinion that utilizing existing topsoil and suitable overburden that has been stockpiled is preferred over disturbing new location of native ground on the site.	UNC plans to use both the topsoil/overburden pile and Lobo tract, where UNC owes the surface rights, as cover material sources.
3	MMD	CCOP	1.2	Plan Objectives: include a proposed PMLU Map with associated acreages.	A PMLU map will be included depicting PMLU and associated acreages and incorporated into the 90% CCOP.	No further comment	-
4	MMD	CCOP	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.	Members of the closure team were accompanied by NMG&F and NMMMD personnel to evaluate identified stick nests. The June 6, 2023 inspection revealed three stick nests on the property. Only one active red tailed hawk nest was found. These nests along with a comprehensive nest survey will be implemented in February/March ahead of planned construction activities, so that appropriate spatial and temporal buffer during construction activities can be applied. A report summarizing the findings of the raptor nest survey and coordination with NMG&F will be provided following the field survey.	No further comment	-
5	MMD	CCOP	4.2.4	2021-22 Highwall Investigation: When will this data be available to the agencies?	UNC is providing the Pit 1 Highwall Stability - Phase 2 Report with this response to comments.	MMD has no specific comments regarding the Pit 1 Highwall Stability - Phase 2 Report.	-
6	MMD	CCOP	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.	The Materials Characterization and Revegetation Plan were prepared prior to the guidelines but principally adhere to the guidelines without substantive differences. Ecosystems within the surrounding life zone of the reclamation activities were evaluated to inform the revegetation plan. The Materials Characterization efforts closely follows the soils guideline and the revegetation plan also closely follows the revegetation guideline.	No further comment	-
7	MMD	CCOP	5.4	Pit Waiver: The applicant indicates that before submitting a final CCOP, 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.	The current design plan includes partial backfill of Pit 1 and the potential for eventual expressed water that may not be suitable for wildlife use and may require engineering controls consistent with Comment #2 below from the NM F&G. UNC will conduct an ecological risk assessment (ERA) to evaluate whether ecological risks exist to wildlife. The results of the ERA will determine if a pit waiver is required.	Please find comments on the ERA in a separate document.	Responses to comments on the ERA are included in the ERA table of responses below.

Responses to 2nd Round of Comments Received from the New Mexico EMNRD Mining and Minerals Division on March 12, 2024

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
8	MMD	CCOP	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.	Stantec evaluations estimate that an 80-foot channel cross section bottom width and 0.75% channel slope will provide a geomorphologically stable arroyo through the project reach. These dimensions are supported by the following: A.1Observation of historical/pre-mine arroyo channel as shown in the 1935 aerial image. The average channel slope is 0.76%, based on interpolation between points up- and downstream of the mine disturbed area from the 2011 topographic survey. B.1Study of a relatively undisturbed reference reach located upstream of the project reach. The reference reach is located upstream of the mine impacted project reach. The reference reach slope is 0.73% and channel bottom width through the upstream reach varies roughly between 75-feet and 100-feet. C.1Analytical evaluations for stable arroyo dimensions. The computation of a stable arroyo using the methods from the Southern Sandoval County Arroyo Flood Control Authority (SSCAFCA, 2008) yield a channel bottom width equal to 80-feet and a channel slope equal to 0.75% for sediment continuity through the reach. With that said, UNC will conduct a setback analysis to evaluate a design scenario with a wider arroyo corridor through the site near the waste piles and will update the 90% CCOP if a design change is proposed.	Please provide an anticipated schedule for completion of the setback analysis and submittal to the agencies.	UNC reviewed an alternative arroyo stabilization approach where all piles within the lateral erosion envelope (LEE) of the arroyo were removed/regraded. The LEE was estimated based on bank delineations of the arroyo from pre-mine aerial imagery, which showed the arroyo meandering in an approximately 400-foot wide corridor. UNC then prepared a preliminary design of an alternative arroyo alignment that attempted to mimic the pre-mine arroyo alignment and removed piles within the 400-ft wide corridor. Comparison of this alternative against the proposed approach showed significant additional earthwork excavation volumes (partly in bedrock that may require drill and blast for removal). The proposed approach where the arroyo is stabilized roughly along its current alignment, with grade control structures and riprap banks (where adjacent to mine waste piles) was selected as the preferred alternative to: 1) minimize handling/rehandling of mine waste materials and limit movement of waste to unimpacted areas of the site; and 2) provide higher confidence in the performance of the proposed approach as designed compared to an alternate approach where the arroyo is allowed to meander. This information will be summarized in the 90% design documentation. Moreover, as discussed below, UNC is considering designing to a 500-year return event. If such a design is implemented, it would be in lieu of reconfiguring Myer Draw to a pre-mining meander.
9	MMD	CCOP	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.	As described in Section 6.2 of the CCOP, the more impacted materials on site are being prioritized for placement beneath an earthen cover and below the top of Pit 2. In the 90% CCOP, UNC will evaluate placing additional materials above the current design surface in Pit 2 and the approach to provide long-term erosion protection.	No further comment	-
10	MMD	CCOP	6.3.2	Design: Provide a detailed design regarding the full-scale application of Sodium Tripolyphosphate (STPP) to the pit water area.	Detailed procedures for the full-scale application of the STPP prior to partial backfill of Pit 1 will be included in the 90% CCOP.	No further comment	-
11	MMD	CCOP	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.	-		-

Responses to 2nd Round of Comments Received from the New Mexico EMNRD Mining and Minerals Division on March 12, 2024

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
11a	MMD	CCOP	6.4	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.	The piles are being designed per NMAC 19.10.5 to "minimize mass movement". Generally, 5:1 slopes at 400 feet, 4:1 slopes at 300 feet, 3:1 at 300 or 200 feet each result in industry standard acceptable factors of safety for erosional stability for the Pile 4 cover. The calculations are included as Appendix G.2 and are based on Temple (1987) and the Revised Universal Soil Loss Equation (RUSLE). UNC will evaluate the incorporation of shorter and steeper slopes at St. Anthony as part of the 90% CCOP.	MMD is in support of the 5:1 Slopes at 400 ft and 4:1 Slopes at 300 ft. The only issue we have is the 3:1 Slopes that are longer than 200 ft. Let's discuss this issue of the 3:1 Slopes longer than 200 ft. MMD's comment was not meant to imply that we would like to see shorter and steeper slopes on site reclamation.	As part of the 90% design, UNC has evaluated 4:1 slopes at 250- to 300-foot slope lengths. However, implementing this change would require moving an additional 2M CY of mine materials from Pile 4. UNC is also evaluating 3.5:1 slopes at 200- to 250- foot slope lengths to avoid moving Pile 4 materials to a second location with a larger footprint. This would increase emissions, fugitive dust, and the overall extent of disturbed areas onsite with mine materials. The proposed final approach will meet regulatory criteria for erosional and slope stability and will be presented in the 90% design. In addition, the 90% design will include a Monitoring and Maintenance plan to document monitoring procedures for the post construction and will include details on maintenance of potential erosion of the slopes that may occur.
11b	MMD	CCOP	6.4	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.	The Materials Characterization at St. Anthony was implemented to identify the best growth media materials (considering soil chemical and physical parameters) for reclamation of the facilities. Sodium Adsorption Ratios (SAR), an agronomic indicator of dispersion, were evaluated in the Materials Characterization (Cedar Creek 2018). The SAR results on the proposed growth media materials were found to exhibit 'Good' suitability in accordance with the new soils guideline for sandy loams (<12) and sandy soils (<4). In addition, salinity was evaluated using Electrical Conductivity (EC). While the new soils guidelines do not provide thresholds for EC, the measured results on the proposed growth media materials were generally below the typical salinity threshold for rangeland soils (<6 mmhos/cm). UNC agrees that the soils exhibit some erosion risk, primarily because they are sandy in texture. The soils proposed for revegetation were not found to be sodic and only mildly saline. An erosion evaluation based on the proposed slopes and growth media materials is included with the CCOP (Appendix G). In general, the underlying materials are not expected to preclude vegetation rooting. Based on their experience on more than 40 mine closure revegetation plans, Cedar Creek recommended placement depths, which were based on the chemical and physical parameters of proposed materials (Cedar Creek 2018).	MMD was not able to find rock content in the parameters evaluated in the Materials Characterization for the Borrow Areas. Please provide rock content on borrow materials for the depths planned to be excavated.	The in-situ percent gravel for the gradations, including the samples from the topsoil piles, is less than 1% by weight.
11c	MMD	CCOP	6.4	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.	UNC is unaware of a legal or regulatory obligation to perform a precipitation analysis or design for uncertain future climatic changes. Nonetheless, UNC will conduct a precipitation analysis to determine the frequency of specific storm events over the last 20 years and consider revising the design for storms with less frequent return periods up to the 500-year return period in the 90% CCOP.	Thank you for considering a more robust storm event design. Please provide an anticipated schedule for completion of the precipitation analysis.	The 90% design may include updated hydrology analyses for the 500-year return period runoff. If implemented, this approach will improve the ability of stormwater channels, including Meyer Draw, to handle larger storm events. UNC is considering implementing this change in lieu of reconfiguring Meyer Draw to its pre-mining conditions.

Responses to 2nd Round of Comments Received from the New Mexico EMNRD Mining and Minerals Division on March 12, 2024

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
11d	MMD	CCOP	6.4	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.	Please see response to comment 8 regarding pile setbacks and comment 16 regarding erosion into Meyer Draw. Piles 1-4 have been designed using a geomorphological approach to present natural-looking features that fit within the surrounding landscape, rather than linear or rectangular piles with uniform slopes. To further enhance the geomorphological design of the piles, spreading the footprints of the piles over larger areas and flattening the slopes would be necessary; however, space constraints on site and the goal of long-term protectiveness limit UNC's ability to spread the material over larger areas.	No further comment	-
12a.	MMD	CCOP	6.5	Surface Hydrology: 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.	Please see response to Comment 11C.	No further comment	-
12b.	MMD	CCOP	6.5	Will berms be constructed at the toe of the piles adjacent to Meyer Draw to catch eroded sediments?	Sediment berms and/or other temporary sediment capture devices, including stormwater BMPs, will be incorporated in key areas along Meyer Draw to manage sediments prior to vegetation establishment as part of the 90% CCOP.	No further comment	-
12c.	MMD	CCOP	6.5	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.	The proposed stormwater controls for the west side of Pit 1 are designed to redirect surface water around the pit for the prescribed storm event. Additional berms along the proposed diversion channel upstream of Pit 1 will be evaluated and incorporated into the 90% CCOP, if appropriate.	No further comment	-

Responses to 2nd Round of Comments Received from the New Mexico EMNRD Mining and Minerals Division on March 12, 2024

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
13a.	MMD	CCOP	6.6	Soil Covers: All borrow areas will be required to be reclaimed to the same vegetative and erosional standards as the reclaimed areas.	Comment noted, the revegetation plan applies to the future reclamation of the borrow areas. Proposed final grading is included in the plan set for the Lobo Tract East Borrow area and the West Borrow area. Expanded details will be included in the 90% CCOP. UNC will further address erosional stability details for the borrow areas in the 90% CCOP.	MMD would also recommend that UNC look at the sodic/saline nature of the borrow areas at depth of excavation. It is likely that material at depth is more sodic/saline than at the surface due to leaching over time.	Agronomic testing was conducted on 31 borrow area samples collected from boreholes at depths up to 21 feet (South Borrow), up to 35 feet (West Borrow) and up to 20 feet (Lobo Tract). The proposed borrow area excavation depths range from about 2 to 23 feet (South Borrow), 2 to 32 feet (West Borrow), and 2 to 28 feet for East Lobo Tract. The characterization of salinity (EC) and sodicity (SAR) of borrow soils is well documented in Cedar Creek's 2018 Materials Characterization included as Appendix B-2 of the 30% CCOP. A summary is provided here: In the Lobo Tract area, there were various sampling sites with incremental sampling depths up to 20 feet. There is not a clear trend that salinity or sodicity increases with depth. The reported values are marginal and not problematic from an agronomic standpoint. The maximum EC on Lobo Tract was 5.1 mmhos/cm (at 7-10 feet depth) and the maximum SAR was 3.58 (at 0-10 feet depth). In the West Borrow, 4 composite bulk samples were collected with depths of 35 feet. While incremental depth samples were not collected, the depths up to 20 feet appear to correlate with the EC and SAR findings from the Lobo Tract. The composite sample collected to 35 feet does not exhibit elevated SAR, but the EC was 7.3 mmhos/cm. The reported values are marginal but not problematic from an agronomic standpoint. In the South Borrow, there were various sampling sites with incremental sampling depths up to 21 feet. There is a trend of increasing EC/SAR at depths around 10 feet, then decreasing at deeper depths. The reported values are marginal but not problematic from an agronomic standpoint. The maximum EC from South Borrow samples was 6.1 mmhos/cm (at 10-20 feet depth) and the maximum SAR was 4.02 (at 5-10 feet depth). The NM EMNRD December 2022 Guidance for Soil and Cover Material Handling and Suitability for Part 5 Existing Mines describes ECs greater than 12 mmhos/cm as "unsuitable," which were not encountered in any of the 3 borrow areas described. In fact, most samples fall within the "good" suitability category with only a few in the "marginal" suitability category. The Guidance describes SARs greater than 14 as "unsuitable." The St. Anthony agronomic lab results for SAR are within the "good" suitability category, except for one sample which was marginally over the "good" suitability category (<4) with an SAR of 4.02.

Responses to 2nd Round of Comments Received from the New Mexico EMNRD Mining and Minerals Division on March 12, 2024

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
13b.	MMD	CCOP	6.6	Will a clay layer be included in the cover designs to help achieve the radon flux standard?	UNC is not aware of a State design standard for radon flux. RADON modeling have demonstrated that radon flux recommendations provided in the State's 2016 Reclamation guidance can be achieved with the available cover materials from the borrow areas, in the proposed cover configurations for the activity levels of the disposed materials. A clay layer will not be included in the cover designs. Radon modeling calculations are included in Appendix G.	A clay layer would not be required as long as the radon flux can be demonstrated to comply with the standard of no more than 20pCi/m ² /s.	In the 30% CCOP, UNC provided the results of radon modeling performed in accordance with the Nuclear Regulatory Commission (NRC) RADON model (NRC, 1989). UNC will provide updated radon modeling results in the 90% design based on final proposed cover thicknesses to demonstrate compliance with a radon flux of 20pCi/m ² /s.
13c.	MMD	CCOP	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 evapotranspirative system. This is particularly important when trying to stabilize uranium waste rock piles and establish long term erosional stability.	UNC disagrees that uranium waste is similar to copper mining waste to require a minimum 3 foot cover. Based on the proposed grades for the piles, and up to 2.5:1 slopes as recommended by NMED (NMED Comment 3) under NMAC 20.6.7.33.C.4, a 2-foot thick cover is considered adequate to address the potential for infiltration since most surface water will runoff the covered pile slopes. Currently, the design includes 24-inches of cover over Piles 1-5. The cover thickness for the Pit 1 and Pit 2 covers is proposed to be 48 inches and 96 inches respectively. The cover thicknesses have been shown by calculations to be adequate for erosion protection and radon emanation control based on the activity levels of the materials to be disposed at each location. The calculations are included in Appendix G. UNC will evaluate cover infiltration for the cover configurations in the 90% CCOP.	24" of cover for Piles 1-5 is an insufficient amount of cover considering the erodibility of the proposed cover and nature of the waste rock being covered. Additionally, the sensitivity of material eroding into Meyer Draw should be taken into consideration. MMD has noticed significant erosion when using local soils in the area as cover. A 36" clean material minimum cover system will be required on all reclaimed areas on the site.	In the 90% Design that UNC is preparing, Pits 1 and 2 have 5.5 and 10 feet of cover soil, respectively. The soil cleanup areas where material above the Soil Action Level (SAL) has been removed will be revegetated directly after removal of mine-impacted soils. At the reclaimed areas where material above the SAL remains, UNC will place a 3-foot soil cover to provide adequate radon control and to keep surface water runoff from encountering waste.
A1	MMD	CCOP - A.1	1.4	Precipitation: Provide more recent precipitation data from the last 20 years as opposed to data ending in 2005.	The data / report this is in reference to is from 2005. The 2022 Revegetation Plan Update is included as Appendix H and includes precipitation data through 2016.	Thank you for the clarification	-
A2	MMD	CCOP - A.1	2	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.	This comment was addressed in the updated Revegetation Plan included as Appendix H.	No further comment	-
A3	MMD	CCOP - A.1	-	Please propose Vegetative Success Criteria for the site using the extended reference area data.	This comment was addressed in the updated Revegetation Plan included as Appendix H.	No further comment	-
A4	MMD	CCOP - A.1	3.6	Wildlife: Please exclude Burro and Wild Horse from Wildlife Data. Feral horses and burros are not considered native wildlife.	This data will be removed from the 90% CCOP.	No further comment	-
A5	MMD	CCOP - A.1	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?	a. This comment pertains to a document drafted before the covers were designed. Please refer to section 6.6. of CCOP main text for these details. b. The Materials Characterization provides recommended placement depths which are based on the chemical and physical characteristics of the potential materials used for reclamation. c. In the present design, other than in drainage features, rock is not proposed as additional erosion protection. The covers are to be vegetated.	c. The agencies understand that the cover system will be vegetated but recommends that the operator implement a specification for the minimum rock content allowed in the cover system to help mitigate erosion while vegetation is being established. MMD was not able to find rock content information in the borrow area characterization plan. This information will need to be provided. If insufficient levels of rock content are found in borrow sources UNC will need to propose an acceptable amount of rock armoring/mulch for the proposed reclamation on Piles 1-5	The percent gravel for the borrow soil gradations including the samples from the topsoil piles is less than 1% by weight. UNC will consider the addition of a percentage of gravel to the upper layer of the cover soil in select locations, for enhanced erosion protection as part of the design, if the erosion protection calculations for the design slopes and grades indicate that it is necessary. The percent addition of gravel will consider the performance effects on long-term vegetation establishment on the covers and will be limited to prevent impacts to vegetation success.

Responses to 2nd Round of Comments Received from the New Mexico EMNRD Mining and Minerals Division on March 12, 2024

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
A6	MMD	CCOP - A.1	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.	This comment was addressed in the updated Revegetation Plan included as Appendix H.	No further comment	-
A7	MMD	CCOP - A.1	-	Please align the proposed seeding rates with the 2022 Vegetation Guidelines.	This comment was addressed in the updated Revegetation Plan included as Appendix H.	No further comment	-
A8	MMD	CCOP - A.1	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.	This comment was addressed in the updated Revegetation Plan included as Appendix H.	No further comment	-
A9	MMD	CCOP - A.1	-	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.	This comment was addressed in the updated Revegetation Plan included as Appendix H.	No further comment	-
B1	MMD	CCOP - B	-	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.	UNC is providing the 2022 Supplemental Radiological Characterization South of Pit 1 Report with this response to comments.	No further comment	-
C1	MMD	CCOP - C1	-	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.	The Excavation Control Plan does not address the 2022 Supplemental Radiological Survey Data. The Excavation Control Plan will be updated in the 90% CCOP to address this area.	No further comment	-
C2	MMD	CCOP - C2	-	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.	The Verification Survey Plan does not address the 2022 Supplemental Radiological Survey Data. The Verification Survey Plan will be updated in the 90% CCOP to address this area.	No further comment	-

Responses to 2nd Round of Comments Received from the New Mexico EMNRD Mining and Minerals Division on March 12, 2024

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
C3	MMD	CCOP - C2	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.	The verification approach for confirming impacted soils have been removed from areas planned for excavation includes multiple data collection and assessment steps, consisting of: 1.1Excavation Control Survey – following excavation of a lift a gamma survey of 100% coverage of the area will be conducted and repeated until impacted soil exceeding the Soil Action Level (SAL) has been removed (Appendix C.1, Section 5.1) . 2.1Verification Gamma Scan – when excavation in an area is complete as determined based on the excavation control survey, systematic gamma scan surveys of the excavated areas will be conducted, prior to the one-minute gamma static survey described in 3 below. The gamma scan surveys will be performed over excavated soil surfaces by walking along transects. A 30- foot transect spacing will be used for this gamma scan survey at a rate of three feet per second which results in five data points every 100 square meters (Appendix C.2, Section 5.1). 3.1Verification Static Scan Survey - after the gamma scan described above in 2 is completed, a final static survey will be conducted for each 2.5-acre survey over a 125-foot triangular grid area determined consistent with MARSSIM (Appendix C.2, Section 5.2). The overall cleanup verification approach described above and in the CCOP consisting of two systematic gamma scans, and static gamma measurements will provide adequate coverage to assess average Ra-226 concentrations within an area of 100 square meters.	No further comment	-
C4	MMD	CCOP - C2	4.4.2, 4.4.3	Sections 4.4.2 and 4.4.3 will also need to be adjusted in reference to comment # 2 in this section.	Sections 4.4.2 and 4.4.4 will be updated in the 90% CCOP to address the 2022 Supplemental Radiological Survey per Comment C2.	No further comment	-
C5	MMD	CCOP - C2	-	What is the verification survey process for the areas labeled as “Backfilled, Stabilized, and Covered Areas” and “Regraded, Stabilized and Covered Areas”?	The verification process for the waste disposed, regraded, radon covered and stabilized areas will consist of radon flux emission measurement to demonstrate the areas meet the 20 pCi/m2/sec guidance limit over the disposal area specified in the MMD 2016 Joint Guidance. The verification procedures will be included in the 90% CCOP. (see also response to comment G4).	No further comment	-
D1a	MMD	CCOP-D	-	Borrow sources: 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.	Sodium Adsorption Ratios (SAR), an agronomic indicator of dispersion, were evaluated in the 2018 Materials Characterization. The SAR results on the proposed growth media materials were found to exhibit 'Good' suitability in accordance with the new soils guideline for sandy loams (<12) and sandy soils (<4). While the new soils guidelines do not provide thresholds for EC, the measured results on the proposed growth media materials were generally below the typical salinity threshold for rangeland soils (<6 mmhos/cm). By comparison, the measured SAR and EC at the L-Bar Mine were 17.7 and 8.3 mmhos/cm, respectively. The values encountered within the potential growth media materials at St. Anthony are much more favorable. See also response to Comment 11b.	No further comment	-
D1b	MMD	CCOP-D	-	Have borrow sources with ample clay content been found for use in a radon attenuation barrier?	No, limited clayey material was encountered in the Lobo Tract borrow area but was not widespread. A clay layer will not be included in the cover design. See Appendix D for geotechnical properties of the available borrow and responses to Comments 13b and G-4 regarding the cover designs.	No further comment	-

Responses to 2nd Round of Comments Received from the New Mexico EMNRD Mining and Minerals Division on March 12, 2024

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
D1c	MMD	CCOP-D	-	Does the operator have a known borrow area for riprap or rock to increase the rock content in cover materials?	Riprap sources will be identified and included in the 90% CCOP when the specific sizes and quantities of rock needed are more clearly defined. We anticipate that rock from an offsite quarry will be required for the project.	No further comment	-
D2	MMD	CCOP-D	-	Summary and Conclusions: What H2S precautions will be taken onsite to ensure the safety of personnel?	Precautions will be included in the Health and Safety Plans in the 90% CCOP for implementation during earthwork, and may include the use of gas meters, fans, or other ventilation methods for personnel performing work in enclosed cabins of mobile equipment.	No further comment	-
E	MMD	CCOP-E	-	Material Balance Calculations: Why aren't the Topsoil/Overburden, Topsoil South, or Borrow Area South considered as material suitable for cover on the site?	The 2018 Materials Characterization rated the revegetation potential of available materials on site. The ratings are based on evaluation of physical and chemical parameters of potential growth media along with the required haul distances to determine the best materials for use as cover. More desirable materials generally exhibited more favorable conditions for plant growth, based on better plant water holding capacity or EC / SAR. Topsoil/Overburden - was rated less desirable than other sources by Cedar Creek and Stantec decided it was more economical to regrade in-place than handle twice and use poor soil somewhere else. Topsoil South - Also ranked poorly by Cedar Creek as a growth media. Stantec determined that this material could be used as unimpacted overburden to attenuate radon emanation in the reclaimed Pit 2, with another 2 feet of growth media overlying the Topsoil South material. Borrow Area South - has limited available borrow volume to use for cover and surface radiological impacts that have to be addressed before material could be used.	Thank you for the response. Please provide a schedule for evaluation of the Borrow Area South radioactive impacts if that area is chosen for borrow. After a site visit held on 1/17/2024 MMD has the following concerns regarding the two Lobo Tract Borrow areas: Lobo Tract East: Much of this area seems to have highly erodible soils that have created large gullies leading into Meyer Draw. Please provide a more detailed/focused map of the area intended for borrow in Lobo Tract East. Additional further characterization may need to be done on the focused area. Lobo Tract West: This area is located in an area of active uranium exploration by another company. Please coordinate with Land Grant to work out any issues that may arise from this situation.	Please see original comment response regarding the South Borrow Area. The area was previously characterized for mining impacts described in the St. Anthony Materials Characterization Report (MWH, 2007) and there is no additional characterization or investigations planned for evaluation of the South Borrow Area, which is considered to be a contingent borrow source due to the limited available soil volume. The sampling locations previously sampled in the borrow areas are shown in the 30% design drawing set. UNC will include excavation and reclamation plans for the individual borrow areas with the 90% Design. The Lobo Tract West Area is the area located west of the Arroyo but still within UNC's Lobo Tract property boundary. The Lobo Tract West is a contingent source and is not planned for borrow currently. No borrow excavation is planned by UNC on the neighboring parcel to the west, nor is any active exploration occurring on UNC property.
F1	MMD	CCOP-F.1	-	Flow Characterization: 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.	Please see response to Comment 11C.	No further comment	-
F2	MMD	CCOP-F.2	-	Design of Hydraulic Stabilization for Meyer Draw and East Tributary Arroyo: 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.	The overview of the proposed site hydraulic structures is shown in the drawing set on Sheet 14. Additional information showing the structures related to the Arroyos is shown on Sheets 15-16, and 23-26 of the CCOP Drawings. Additional information will be prepared and presented to NMED and MMD in the 90% CCOP pending changes to the surface water designs for the site.	No further comment	-
G1	MMD	CCOP-G.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/m ² /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.	The RADON model results provided in Appendix G demonstrate that radon fluxes less than 20 pCi/m ² /s can be achieved with the available unimpacted materials in the proposed cover configurations.	No further comment	-

Responses to 2nd Round of Comments Received from the New Mexico EMNRD Mining and Minerals Division on March 12, 2024

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
G2	MMD	CCOP-G.1	-	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.	No additional pre-testing is planned. The density/porosity of the waste layers in the cover design are dependent on the placed, compacted density of the waste material, as opposed to the density/porosity of the materials in their current condition. Therefore, placed densities will be driven by the placement requirements in the specifications. Compacted densities will be confirmed during construction as defined by the Construction Specifications to be prepared as part of the 90% CCOP. Further, RADON models for the Pit 2 cover system indicate that the calculated surface flux remains unchanged when applying either native soil geotechnical properties or Pile 3 geotechnical properties to the Surface Excavation material (see sensitivity analysis presented in Appendix G of the 30% CCOP).	No further comment	-
G3	MMD	CCOP-G.1	-	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.	Lab data was "limited" due to the number of samples selected for testing. Soils in the North Topsoil pile and West Borrow area were found to be similar and relatively consistent spatially and with depth, as described in the boring logs and shown by lab results provided in Appendix D. Additional lab tests were not performed at the time due to the consistent nature of the soils and limited perceived value of numerous tests. As described in Appendix G of the 30% CCOP, similarities in the materials in the North Topsoil and West Borrow areas, as well as the proximity of the source locations of the materials, led Stantec to conclude that they could be combined into a single dataset for evaluation of material properties.	No further comment	-
G4	MMD	CCOP-G.1	-	How will radon emanation be monitored on reclaimed areas to ensure the radon flux limit of 20pCi/m ² /s has been achieved? Please provide the method and details on the monitoring plan.	Radon flux measurements over the radon covers on waste disposal areas will be performed in accordance with 40 CFR part 61, Appendix B, Method 115 to confirm that the mean flux guidance limit of 20 pCi/m ² /s over the covered areas have been achieved. Measurement procedures will be included in the 90% CCOP.	No further comment	-
G5	MMD	CCOP-G.2	-	Cover Erosional Stability and Soil Loss Analysis: 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.	The piles are being designed per NMAC 19.10.5 to "minimize mass movement" UNC will give consideration to shorter and steeper slopes as part of the 90% CCOP. Please see response to Comment 11A.	Please see response to 11a	Please see second response to second comment on 11a.
H1	MMD	CCOP-H	-	St. Anthony Mine Materials Characterization: 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.	See response to comment 11B	No further comment	-
H2	MMD	CCOP-H	-	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.	This section will be updated in the 90% CCOP.	No further comment	-

Responses to 2nd Round of Comments Received from the New Mexico EMNRD Mining and Minerals Division on March 12, 2024

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
H3	MMD	CCOP-H	-	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.	Cover soil suitability has been evaluated consistent with the 2022 Guidance and is addressed in the 2018 Materials Characterization which is included as Appendix H.	No further comment	-
H4	MMD	CCOP-H	-	MMD is in support of the biosolid application described in Section 2.2.	Comment noted.	No further comment	-
H5	MMD	CCOP-H	-	Where will rock mulch be sourced from as mentioned in Section 2.3?	Riprap sources will be identified during the 90% CCOP process when the specific sizes and quantities of rock needed are more clearly defined. We anticipate that rock from an offsite quarry will be required for the project.	No further comment	-
H6	MMD	CCOP-H	-	Will the same type of reference areas be used as described in Appendix A.1	Suitable reference areas, in accordance with the new guidelines, will be presented in the 90% CCOP for MMD for approval.	No further comment	-
H7	MMD	CCOP-H	-	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.	Comments on A.1 were addressed were in the revised 2022 Revegetation Plan have been marked as such in the responses above.	No further comment	-
F3	NMED-SWQB	CCOP-F1	-	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%. 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-flow ² 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 storm ³ . Grade control structures, riprap, bench channels, and diversion channels must account for model uncertainty and climate change.	See response to comment 11C	United Nuclear Corporation (UNC) has not fully responded to comment F3. Model uncertainty should be accounted for in the computed runoff values. SWQB recommends that a margin of safety be added to the computed runoff values to account for model uncertainty. Furthermore, regarding responses to comments F3 and 11c, SWQB recommends that UNC continues to follow Southern Sandoval County Arroyo Flood Control Authority (SSCAFCA) guidance. UNC is relying on other SCAFCA methods (see UNC response to comments 8 and 14). Therefore, UNC should also follow SCAFCA's guidance regarding climate change. Southern Sandoval County Arroyo Flood Control Authority's 2015 report to congress describes that the 100-yr storm event in 2099 may see a 25% to 75% increase in peak-flow; The report concludes: Higher peak discharge may overwhelm existing drainage infrastructure, as well as planned facilities designed based on current standards; furthermore, the extent of floodplains in low lying areas will increase. More frequent storm flows and higher peaks will increase bank erosion and accelerate the lateral migration of natural arroyos. Preservation of buffer areas adjacent to natural arroyos that account both for floodplains and lateral migration will therefore become increasingly important in the future. Accounting for model uncertainty and climate change is necessary to ensure the future stability of the CCOP and to ensure that surface water quality standards will be protected. Relying on current standards, such as the historic 100-year precipitation and runoff values, may overwhelm the proposed drainage infrastructure that is described in the 30% CCOP resulting in increased erosion that may compromise the waste rock piles which would negatively impact water quality.	UNC is considering adopting the use of the 500-year return event for design, including for Meyer Draw, as recommended by reviewers. UNC compared the peak discharge estimates for the 500-year storm vs the 100-year storm and found that 500-year peak discharge was 39% to 160% higher (with an average of 56% higher) than those of the 100-year. This increase in peak discharge more than accounts for the 25% estimated increase in peak discharge due to a 10% rainfall increase as documented in the referenced SCAFCA 2015 report. Further, the SCAFCA 2015 report does not detail the hydrologic analysis and was performed on a single basin, both of which prevent adopting the 2015 report as guidance for St. Anthony. Based on information from the referenced studies, UNC believes adopting the 500-year as the design storm return interval accounts for the uncertainty in both hydrologic modeling and potential increases in runoff due to increasing precipitation as a result of climate change. UNC is considering adopting the 500-year return event for design, in lieu of reconfiguring Meyer Draw to pre-mining conditions.

Responses to 2nd Round of Comments Received from the New Mexico EMNRD Mining and Minerals Division on March 12, 2024

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
14	NMED-SWQB	CCOP	-	<p>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." -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% CCOP 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% CCOP 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% CCOP. 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.</p>	<p>Initial "setback" was based on existing Arroyo configuration, and changes in proposed Arroyo configuration resulted in changes to the "setback." Stantec evaluations of the Arroyo completed between 2019 and 2022 estimate that an 80-foot channel cross section bottom width and 0.75% channel slope will provide a geomorphologically stable arroyo through the project reach which is proposed in the 30% CCOP. The summary of the Arroyo geomorphological evaluation is included as Appendix F.2. These dimensions are supported by the following: A. Observation of historical/pre-mine arroyo channel as shown in the 1935 aerial image (See Figure 2). The average channel slope is 0.76%, based on the 2011 topographic survey. B. Study of a relatively undisturbed reference reach located upstream of the project reach. The reference reach is illustrated in Figure 6 and is located upstream of the mine impacted project reach. The reference reach slope is 0.73% and channel bottom width through the upstream reach varies roughly between 75-feet and 100-feet. C. Analytical evaluations for stable arroyo dimensions. The computation of a stable arroyo using the methods from the Southern Sandoval County Arroyo Flood Control Authority (SSCAFCA, 2008) yield a channel bottom width equal to 80-feet and a channel slope equal to 0.75% for sediment continuity through the reach. UNC will re-evaluate the overall site grading plan in the 90% CCOP along the arroyo to potentially allow for a wider arroyo corridor through the site near the original location of the arroyo and conduct a lateral scour analysis for the 90% CCOP design configuration to demonstrate that the waste piles will not be affected by the Arroyo.</p>	No further comment	-

Responses to 2nd Round of Comments Received from the New Mexico EMNRD Mining and Minerals Division on March 12, 2024

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
15	NMED-SWQB	CCOP	-	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.	A screening level review of alternatives was conducted to select an alignment for development in the 30% CCOP. From this review, the drop structure design alignment was selected over a separate alignment alternatively designed to maintain the equilibrium slope by increasing the channel sinuosity through the reach. Stantec selected the drop structure arroyo alignment for further design development for the following reasons: A. A narrower arroyo corridor allows for longer, gentler, and more stable slopes for the mine waste piles to be stabilized in- place long term, which minimizes the potential for environmental impacts from the waste. B. A narrower arroyo corridor would require less stockpiled material to be moved and avoid movement of waste materials to previously undisturbed ground potentially outside of the existing mine permit boundary. Minimizing movement of mine waste materials results in lesser potential environmental and health and safety impacts, as well as lower greenhouse gas emissions associated with the project. C. The engineered grade control structures are considered to provide more dependable performance for protecting the stockpiled material with consideration for uncertainties in the arroyo morphology. UNC will evaluate design alternatives for the arroyo corridor in the 90% CCOP.	No further comment	-
16	NMED-SWQB	CCOP	7.4.1	Section 7.4.1 Water Quality Monitoring and Reporting of the 30% CCOP 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 CCOP must include a plan to monitor and sample surface water in Meyer Draw.	As described in Section 2.3.2 of the St. Anthony Stage 1 Abatement Plan, the results from the five sampling events did not show statistically significant loading of constituents of concern (COC) from the St. Anthony mine when compared to variations in COC loading from upstream sources and background COC concentrations. Accordingly, pile stabilization and runoff control were identified to address potential surface water impacts to Meyer Draw. The 30% CCOP further proposed removal of mine material from Meyer Draw. The 90% CCOP will include monitoring of these control measures and compliance with NPDES requirements (if applicable).	No further comment	-
17	NMED-SWQB	CCOP	7.4.3	Section 7.4.3 Inspections of the 30% CCOP 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.	The 90% CCOP will include a monitoring and maintenance plan to define the necessary inspections and need for repairs in accordance with applicable laws and regulations.	No further comment	-

Responses to 2nd Round of Comments Received from the New Mexico EMNRD Mining and Minerals Division on March 12, 2024

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
18	NMED-AQB	CCOP	-	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, sufferer 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."	If the proposed activities are determined to exceed the minimum requirements for air quality permits in the 90% CCOP, the appropriate permits will be obtained prior to earthmoving activities.	No further comment	-
19	NMED-AQB	CCOP	-	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, a II regulated air contaminants with National I 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 N MAC, Notice of Intent, states that: "Any owner or operator intending to construct a new stationary source which has a potential I 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.	If the proposed activities are determined to exceed the minimum requirements for air quality permits in the 90% CCOP, the appropriate permits will be obtained prior to earthmoving activities.	No further comment	-

Responses to 2nd Round of Comments Received from the New Mexico EMNRD Mining and Minerals Division on March 12, 2024

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
20	NMED-AQB	CCOP	-	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.ANMAC (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:	The 90% CCPP will include specifications for the future earthwork contractor will be required to implement a dust control plan during ground disturbance and hauling throughout the active period of construction.	No further comment	-
21	NMED-MCS	CCOP	General-	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.	UNC recognizes that the CCOP and the S2AM are subject to different governing laws and regulatory programs. At St. Anthony, however, a clearly defined boundary does not exist between the CCOP and the S2AM because the Stage 2 Abatement Plan is implemented through the CCOP. This intermingling is recognized in the WQCC 2017 Order where the Commission states: "... Petitioner and the Department shall take the necessary steps to implement the institutional controls proposed in the Petition, namely ... [through undertaking] the closure plan pursuant to the New Mexico Mining Act." Acceptance of the proposed hydraulic sink approach with respect to Pit 1 dictates, in large measure, how and when other aspects of the project may be addressed. Obtaining agency concurrence on the proposed Pit 1 approach is of paramount importance in expediting meaningful reclamation activity. Accordingly, UNC believes that efforts should be directed, in the first instance, toward reaching agreement on the Pit 1 proposal. To date, UNC has not received substantive agency feedback on the technical bases provided for the Pit 1 proposal.	NMED-MECS submitted specific comments to UNC on August 3, 2023, under the modification of the S2AM. NMED-MECS has since received a response from UNC to that letter. NMED-MECS will continue with its regulatory process and will review the response to comments on the modified S2AM in parallel with the MMD process.	On July 3, UNC received NMED's response to our RTC submitted on February 5, 2024 and NMED's response to INTERA's April 2, 2024 memo evaluating background iron and manganese concentrations in groundwater. UNC will issue a separate response to NMED.
				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.	UNC considers work required by the S2AM as integral to the overall closure and therefore does not propose to separate the work into 2 phases at this time. Additional approvals are required from both agencies before any site work could proceed. The interconnected nature of critical aspects of the CCOP and S2AM processes are such that significant risks exist of potential for re- work if these processes run on parallel but separate tracks. As the NMED and MMD regulatory processes proceed and the necessary approvals are provided, particularly with respect to the proposal for Pit 1, UNC will re-evaluate potentially performing the project in phases.	NMED-MECS will continue to work in collaboration with MMD to ensure the expeditious completion of the approval for all activities needed at the site. This discussion can continue when the project is further along in each respective regulatory process.	Acknowledged.

Responses to 2nd Round of Comments Received from the New Mexico EMNRD Mining and Minerals Division on March 12, 2024

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
F4	NMED-MCS	CCOP-F	-	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.	UNC has posted Interim Financial Assurance in an amount that is within the high-end range of estimated costs to fulfill its obligations under MMD Director's Order dated April 22, 2011. Upon approval of a final CCOP that complies with all applicable requirements of the Mining Act and the Water Quality Act, UNC will propose final financial assurance for the CCOP.	NMED-MECS will evaluate the proposed values and ensure they include activities not included in MMD jurisdiction.	Acknowledged.
F5	NMED-MCS	CCOP-F	1.1	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.	UNC will finalize the PMLUs for the site and provide in the 90% CCOP.	No further comment	-
F6	NMED-MCS	CCOP-F	6.12	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.	Please see response to comment 11A. The calculations are included as Appendix G.2 and are based on Temple (1987) and the Revised Universal Soil Loss Equation (RUSLE) for the design slope angles and cover material characteristics from site-specific data. UNC will evaluate the incorporation of shorter and steeper slopes at St. Anthony as part of the 90% CCOP. The cover grades do meet the substantive requirements of 20.6.7.33.C4 for slope lengths, albeit with an alternative length and grade than what is explicitly listed in the regulation for copper mines. In general, state of practice for reclamation of uranium tailings facility covers is based on USNRC (Appendix A to 10 CFR Part 40) which says that in general reclaimed slopes should be 5:1 or flatter for considerations of greater potential for long-term erosion due to extreme storm events.	No further comment	-
F7	NMED-MCS	CCOP-F	6.13	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.	Please see response to Comment 11C.	No further comment	-
F8	NMED-MCS	CCOP-F	6.22	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.	Soil loss values will be re-evaluated in the 90% CCOP after considering revisions to the cover slopes / slope lengths and possible consideration of lower frequency storm events. Depending on the final amount of soil loss calculated, UNC will incorporate necessary maintenance and repair plans into the detailed design and monitoring and maintenance plan. Adjustments to the FA will be provided after approval of the Final CCOP.	No further comment	-

Responses to 2nd Round of Comments Received from the New Mexico EMNRD Mining and Minerals Division on March 12, 2024

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
22	NM Game and Fish	CCOP	-	<p>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.</p>	<p>UNC plans to install fencing to restrict access to Pit 1, consistent with controls typical of grazing lands. An Ecological Risk Assessment will be conducted to evaluate whether eventual expressed water chemistry will cause risk to wildlife. UNC will complete an ERA of wildlife risks for future expressed water in Pit 1. The ERA will follow New Mexico State and United States Environmental Protection Agency (USEPA) guidance on conducting ERAs. Consistent with guidance, steps in the ERA process will include identification of constituents of potential concern (COPCs); problem formulation elements, including a conceptual site model (CSM) development; exposure assessment; selection of effects concentrations; and risk characterization. Wildlife receptors selected to quantify risks will include mammalian and avian herbivores, omnivores, and carnivores. If the results indicate that there is ecological risk, then engineering controls will be considered in the 90% CCOP.</p>	<p>The Department continues to recommend that the fencing around Pit 1 is designed to exclude wildlife as recommended. Water quality in the pit lake can vary significantly over time and long-term changes in pit lake water quality is difficult to predict and could become more toxic to wildlife over time. The Department will review the completed ERA and provide further comments. If UNC ultimately decides to install fencing typical of grazing lands, the Department recommends wildlife friendly fencing that consists of four-strands with smooth top and bottom wires be installed. Wire spacing should be approximately 16, 22, 28, and 38 inches above ground (https://www.wildlife.state.nm.us/download/conservation/habitat-handbook/project-guidelines/Livestock-Wildlife-Fence-Guidelines.pdf). The Department also continues to recommend that UNC install wildlife drinker tanks to provide alternative sources of safe, clean water that would help to attract wildlife away from the pit lake.</p>	<p>UNC will include plans for permanent vertical fencing to exclude grazing animals and wildlife from accessing the expected area of Pit 1 expressed water in the bottom of the pit, to include a below-grade barrier and a barrier at the lower 2-feet of the fence. In addition, permanent fence and gates will be installed at the top of the ramps down into Pit 1 to preclude access to the Pit 1 area. Range fencing with smooth top/bottom wires at the specified wire spacing will be required by the specifications for fencing in the areas of the site other than the expressed water area in the pit bottom. The design includes both temporary and permanent range fence. Temporary fencing will be used to protect the revegetation areas during establishment. Wildlife-friendly fencing with smooth top and bottom wires at the prescribed spacing will be specified for both permanent and temporary applications. UNC will incorporate low areas in the grading plans that will naturally collect water in the reclamation plan designs for the West Borrow Area and the Lobo Tract Borrow Areas. These areas can be enhanced with specific vegetation for the areas to provide shelter or protection for wildlife while drinking. UNC does not intend to install commercial “drinker” tanks which are not expected to have long design lives in this environment and will require regular maintenance indefinitely.</p>

Responses to 2nd Round of Comments Received from the New Mexico EMNRD Mining and Minerals Division on March 12, 2024

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
23	NM Game and Fish	CCOP	-	<p>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 3/16 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 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.</p>	See response to comment 22 above.	No further comment	-

Responses to 2nd Round of Comments Received from the New Mexico EMNRD Mining and Minerals Division on March 12, 2024

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
A10	NM Game and Fish	CCOP-A1	-	As part of the original CCOP, 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.	Please see response to comment 4. The primary data collection for wildlife in 2005 was conducted outside the primary breeding and migration seasons. At this stage in the design, it does not appear that a full wildlife inventory would benefit the remaining design. In general, we are aware of the species likely to use the reclamation area following closure activities. However, it is recognized that active raptor nests in close proximity to construction activities during nesting season should be protected using spatial and temporal buffers. Therefore, raptor nests will be identified and checked for status prior to, and during, construction activities to maintain compliance with MBTA.	The Department, MMD and Intera conducted a follow-up site inspection on 6 June 2023, to evaluate the condition and status of the stick nests near the St. Anthony Mine. An active red-tailed hawk nest was observed approximately 0.7 miles away from Pit 1, and two downy chicks were observed in the nest. The large stick nests in the upper cliff band, approximately 0.3 miles away from Pit 1, were in good condition and are typical in size and structure for golden eagle. There was no evidence of recent activity at both of the potential golden eagle nest sites. The Department recommends that the raptor nest survey area includes a 0.5 mile buffer zone from where reclamation construction activities will occur.	Comment noted; the raptor survey will encompass a 0.5-mile buffer beyond the limits of proposed disturbance for construction.
A11	NM Game and Fish	CCOP-A1	-	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.	See response to comment 4.	No further comment	-

Responses to 2nd Round of Comments Received from the New Mexico EMNRD Mining and Minerals Division on March 12, 2024

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
A12	NM Historical Preservation	CCOP-A.2	-	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.	Noted, no change. UNC will base the procedures for protection on the cultural resources survey included as Appendix A.2.	No further comment	-
32	NMOSE	CCOP	-	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.	No change, note that UNC did obtain NMOSE permits for geotechnical drilling on the highwall and the drilling was conducted by a NM licensed well driller.	No further comment	-

Responses to Other Comments Received from the Agencies on Additional Documents Submitted

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
The following comments were in the NMED-MECS November 20, 2023 Memo:							
1	NMED-MECS	various	n.a.			General Comment on the Stability Report– Please indicate what the estimated volume of mass wasting of the high walls is expected to be on an annual basis. Please discuss if mass wasting has the potential to impact the reclamation plan in Pit 1 over the long-term. NMED expects mass wasting of the high walls to occur forever, but it is unclear in the Stability Report how this will affect the long-term Pit 1 remedy as proposed in the Modified Stage 2 Abatement Plan (S2AM). In addition, long-term O&M likely will be required to ensure that the access roads, engineered drainages, etc. be maintained to ensure the remedy is operating as designed. Finally, please indicate the surface area and volume of naturally occurring radioactive material (i.e. portions of exposed highwalls) that will be left un-reclaimed.	The future potential for, or a specific volume of, mass wasting for the future improved condition is difficult to quantify. Based on the design concept with improved surface water management around the perimeter of Pit 1, UNC does not expect mass wasting of the pit walls to impact the planned grading for the Pit 1 bottom area. UNC concurs that O&M will be required for the site post-construction. Areas with materials having elevated activity levels, on the pit walls above the final surface of the Pit 1 cover area will remain undisturbed during the project. In response to MMD’s comment below on the UAV Scan Report regarding an area of elevated gamma readings located along the wall below the south ramp into the pit, UNC estimated the surface area with measurements above 2400 cps. Based on the drone survey, and area above the design backfill surface for Pit 1, the area with measurements above 2,400 cps is less than 650 sf. The volume cannot be estimated without knowing extents of the materials back into the walls.
2	NMED-MECS	Highwall	p.10 table 1			Borehole details – Please discuss why boreholes were not installed on the East Highwall.	The borehole locations were selected to model cross-sections of the tallest sections of the exposed pit walls for stability purposes, which, on the west side, are on the order of 200+ feet. By comparison, the post-reclamation condition of Pit 1 will only leave a 50 to 60-foot "wall " along the east side of Pit 1.
3	NMED-MECS	Highwall	p.18			Page 18 GSI values determined using the 2013 correlation were nearly two times higher than GSI values determined using existing pit wall observations and core photographs. – Considering the newly collected data, please address if the 2013 data will be excluded from the decision-making process.	Both sets of GSI values were developed using newly collected data. The GSI values derived using the 2013 correlation were not used in the stability analyses that drive the decision-making process. We do not plan on using these values for any future analyses. Tables 6, 11, and 12 present the GSIs used in the analyses along with the other Hoek Brown parameters that were developed using the newly collected data.

Responses to Other Comments Received from the Agencies on Additional Documents Submitted

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
The following general comments were included in the MMD letter dated February 7, 2024:							
1	MMD	General	-			Please submit a Financial Assurance Estimate in the next submittal.	Please see previous response to CCOP comment F4.
2	MMD	General	-			Please respond to all agency comments in the attached excel spreadsheet.	Responses to the comments in the spreadsheet have been added to this Word document.
3	MMD	General	--			Please respond to NMED's General Comments in the attached response letter, dated November 20, 2023.	Responses to the November 20, 2023 letter are included in this table.
4	MMD	General	-			Please respond to NMED's General Comments in the attached response letter to the supplemental submittals, dated February 6, 2024.	Responses to the February 6, 2024 letter are included in this table.
1	MMD	UAV Scan Report	-			Please convert the cpm rate into $\mu\text{R/hr}$ or pCi/g to better understand how the results compare to background and readings on the rest of the site.	The count data cannot be reliably converted to pCi/g . Uneven gamma shine from the infill piles and the uneven sidewall geometry during the collection of the scan data on the pit walls prevented the reliable use of the 2018 drone scan survey data. Ra-226 soil concentrations and the terrain and inaccessibility of the scan locations prevented the establishment of a new correlation.
2	MMD	UAV Scan Report	-			What is the plan for addressing the one area of higher radiation (3,348 cpm) shown in Figure A3?	With the exception of the West High Wall where work is planned to remove loose/eroded materials from the benches; the Pit 1 High Walls above the proposed pit bottom elevation, will remain in their current configuration after regrading of the Pit 1 infill materials and cover placement.
1	MMD	Reveg. Plan	2.1			MMD will require a minimum cover thickness of 36 in. of clean material on the site.	See CCOP response 13. c.
2	MMD	Reveg. Plan	2.2			MMD is in support of the application of biosolids.	Acknowledged.
3	MMD	Reveg. Plan	2.3			MMD is in support of a rock mulch to help mitigate erosion.	UNC will consider rock mulch as a component of the waste pile covers where design slopes are steeper and enhanced erosion control may be required.
4	MMD	Reveg. Plan	-			How will livestock be excluded from reclaimed areas on the site?	Temporary and permanent range fencing will be used to exclude livestock. See 2 nd response to previous comment 22 from Game and Fish on this topic.
5	MMD	Reveg. Plan	-			Reference areas associated with evaluating vegetative success will need to be approved by MMD	Reference areas will be submitted to MMD for approval prior to initiation of post-construction revegetation sampling.
1	MMD	Pit 1	-			How will wildlife be excluded from the Pit 1 area where water will be potentially present?	UNC plans to exclude wildlife from the area where expressed water may occur in the pit bottom using a permanent vertical fence. Permanent fencing and gates will also be used to prevent access by people and wildlife to the Pit 1 Ramps from the top. See 2 nd response to previous comment 22 from Game and Fish on this topic.
2	MMD	Pit 1	-			What is the proposed PMLU for the Pit 1 area?	The proposed PMLU for the Pit 1 bottom area where expressed water may occur will be a <i>vegetated water management structure</i> , as discussed with MMD.

Responses to Other Comments Received from the Agencies on Additional Documents Submitted

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
3	MMD	Pit 1	-			MMD is in support of the proposed Pit 1 design with the condition that the design concept will be evaluated over the 12-year monitoring period, prior to release from the NM Mining Act and that the design is accepted by NMED in regard to the site Discharge Permit and Site Abatement.	The performance of the reclamation design will be evaluated with regular engineering inspections during the 12-year monitoring period following construction.
1	MMD	ERA	2.1			Why is Uranium identified as non-radiological?	Risks pertaining to uranium were analyzed for both radiological exposures to isotopes of uranium and non-radiological exposures to bulk concentrations. There are different toxicity thresholds for the radiological and non-radiological measurements of uranium, such that risks to both types of measured exposures were completed in the ERA.
2	MMD	ERA	2.2			Explain the lack of evaluation of TDS?	Section 2.2 describes why TDS risks were not further quantified in the ERA. In sum given the avoidance behavior observed on the part of animals in outdoor environments; the nutritional value of some components of TDS, including sulfate and chloride; and the lack of a definitive toxicity mechanism for TDS, the associated constituents are not identified as a toxicological risk to wildlife.
3	MMD	ERA	2.2			As discussed in this section, wildlife will avoid more saline sources for freshwater, therefore MMD recommends the installment of clean drinking water for wildlife through wildlife water catchment systems to encourage them to avoid water in the pit. The same is recommended for a livestock drinking source if the PMLU is to include grazing.	See 2 nd response to previous comment 22 from Game and Fish on this topic.
4	MMD	ERA	General			Based on the conclusion of the ERA - Will a Pit Waiver be proposed for Pit 1 or a portion of Pit 1?	The need for a Pit Waiver is dependent upon the PMLU. Based on the proposed PMLU for Pit 1, UNC does not intend to request a Pit Waiver.
5	MMD	ERA	General			Please respond to the New Mexico Dept. of Game & Fish comments on the ERA, dated February 5, 2024.	See responses to these comments below.

Responses to Other Comments Received from the Agencies on Additional Documents Submitted

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
The following comments were included in the NM Dept. of Fish and Game Letter dated February 5, 2024:							
-	NM Game and Fish	ERA	Sect. 2.1			Section 2.1 of the ERA states that "Future maximum surface water concentrations are expected to be similar to concentrations measured in Pit 1 prior to the sodium tripolyphosphate (STPP) pilot test. These measured Pit 1 concentrations would therefore be representative of undisturbed expressed water conditions over the 30-year period after mine closure." This statement suggests that 30 years after STPP treatment, pit lake uranium and radon concentrations are expected to return to pre-treatment levels. The Department requests further information regarding the rationale of the STPP treatments and their effectiveness in reducing uranium and radon levels in the short term and whether UNC/GE anticipates repeating the STPP treatments every 30 years or as levels of uranium and radon dictate.	See response to ERA Comment 2 from NMED-SWQB.
-	NM Game and Fish	ERA and CCOP	Sect. 5.3			The Department believes that the hydrogeological complexities at the site and associated, inherent uncertainties will make prediction of future, long-term pit lake water quality extremely difficult. In addition, the potential long-term effects of climate change and prolonged drought could lead to the evapoconcentration of trace elements in the pit lake water, resulting in hazardous water quality conditions for wildlife. Therefore, the Department does not agree with the definitive statement regarding long-term pit lake water quality in Section 5.3 that "The results of this ERA indicate that wildlife and livestock are not at risk from exposure to the Pit 1 environment". The Department continues to recommend that UNC/GE install pit lake perimeter fencing to exclude wildlife, as previously recommended in the St. Anthony Mine 30% Closure/Closeout Plan comments letter submitted to MMD on 23 February 2023 (NMERT-2239).	UNC acknowledges that there are necessarily uncertainties in predicting the future quality of the pit water. However, to the extent practicable, the ERA applied appropriately conservative estimates concerning the quality of future pit lake water. Furthermore, UNC is proposing monitoring to ensure that pit water quality remains below applicable risk thresholds. The ERA assumed maximum concentrations of COCs in pit water over a span of approximately 20 years to estimate wildlife exposures. The most recent measured COC concentrations (May 2019) are similar to, or less than, the maximum concentrations that were measured approximately 10 years prior (2008). For reference, the maximum concentrations that were inputs for the model are shown in Table 3-1 of the ERA and are reproduced in the attached excel Table A. Additionally, UNC will monitor pit water quality to ensure that concentrations of COCs do not exceed minimum Wildlife Threshold Values (WTVs). WTVs were derived for each wildlife receptor, as shown in Table 4-2 of the ERA report. The excel table (Table A) included with this response shows these WTVs and identifies the minimum WTV for each isotope. The lowest WTVs for radium isotopes correspond to the mallard duck at 99 pCi/L (Ra-226) and 133 pCi/L (Ra-228), respectively. The ratio of Ra-226 to total uranium measured in pit water (excluding STPP treatments) shows a consistent ratio of about 2.4:1 (Ra-226 to total Uranium). These data are summarized in the attached excel sheet (Table B). Measuring Ra-226 and Ra-228 levels alone would provide a simplified way to monitor potential wildlife risks. Concentrations above these WTVs would indicate treatment may be necessary to protect wildlife. UNC would monitor pit water concentrations against these WTVs and conduct additional STPP treatments if concentrations exceed these thresholds. As also indicated in the attached WTV table, the current maximum concentrations are well below the minimum WTV. Therefore, we believe that we have adequately addressed potential risks to wildlife, including uncertainties with risk predictions. With regard to fencing, see 2 nd response to previous comment 22 on this topic. Permanent fencing around the future potential expressed water area is planned.
-	NM Game and Fish	ERA and CCOP				At minimum, the Department recommends providing nearby sources of clean drinking water to attract wildlife away from the pit lake. Drinker tanks should be designed with textured escape ramps to prevent entrapment and drowning of smaller animals. The Department is available for consultation regarding the different types of appropriate wildlife drinker tanks.	See 2 nd response to previous comment 22 on this topic.
-	NM Game and Fish	ERA	-			The Department does concur with the evaluation that birds are unlikely to build nests on the exposed band of Jackpile sandstone. The formation lacks suitable crevices, cavities, and ledges that are necessary for nesting birds and roosting bats. The surrounding habitat provides an abundance of cliff lines and bluffs that are suitable for birds and bats. Staff from the Department, MMD, and INTERA observed an active red-tailed hawk (<i>Buteo jamaicensis</i>) nest with an adult and two downy young present on 6 June 2023. The nest was located on a cliff face approximately 0.6 miles from Pit 1.	Acknowledged.

Responses to Other Comments Received from the Agencies on Additional Documents Submitted

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
The following comments were included in the NMED February 6, 2024 letter:							
1	NMED-MECS	ERA	Sect. 2.0			Accordingly, this CSM assumes that the duration of surface water expression in Pit 1 will be long enough for rooted aquatic plants and sediment-dwelling invertebrates to inhabit the pit. It is NMED's understanding through submitted documents and presentations that Pit 1 will intermittently hold water and intermittently be dry. How long are the expected rooted aquatic plants able to survive when water is not continuously expressed on the post reclamation surface?	It is not known precisely how long rooted aquatic plants may survive under conditions of intermittent water expression. An aquatic resource delineation for St. Anthony (SWCA, 2020, citation is provided in the ERA report) described emergent vegetation along the littoral margin of Pit 1. The species noted by SWCA along the rim included <i>Typha latifolia</i> and <i>Schoenoplectus tabernaemontani</i> , which are perennial species with growing seasons ranging between 80 and 120 days in the region. They require saturated soils, but not necessarily freestanding water, and tolerate saline conditions. As explained in Section 2 describing the conceptual site model, the approach utilized in the ERA adopts conservative estimates of exposure where uncertainties exist. Accordingly, this CSM assumes that the duration of surface water expression in Pit 1 will be long enough for rooted aquatic plants and sediment-dwelling invertebrates to inhabit the pit and for a relatively complex trophic food web to develop. Therefore, emergent vegetation growth was incorporated into estimates of exposure and consumption by wildlife. It may be intermittently dry enough that rooted aquatic plants may not develop and trophic food webs with these plants may not occur.
2	NMED-MECS	ERA	Sect. 2.1			Future maximum surface water concentrations are expected to be similar to concentrations measured in Pit 1 prior to the Sodium tripolyphosphate (STPP) pilot test. While use of the pre-STPP treatment water concentrations is reasonable for model inputs for the post reclamation water quality modeling, NMED would like to acknowledge the results presented in the January 17, 2020, Intera Technical Memo on the STPP Results. Intera indicates that following the STPP application, some concentrations in specific constituents (phosphate, sulfate, manganese, and chloride) increased and that increased phosphate concentrations may result in a notable increase in algal growth. NMED understands that STPP is planned to be used again in the final closure of Pit 1. NMED recommends adjusting the model inputs based on the results presented in the Technical Memo to properly model the post reclamation conditions and that the growth of the algae be evaluated with respect to ecological communities.	The Intera Pilot Test Report (October 2020) describes the treated water as having a slight green color (Section 3.12 of the report), which was attributed by Intera to "algae growth," although it was noted by Intera that no algal blooms occurred, oxygen depletion did not occur, and "macroalgae," (described by Intera as plant-like growth) was present before the treatment and was noted to continue growing after treatment. Based on this description, the green color appears to be attributable to microalgae, which would be unlikely to be consumed by wildlife as a source of food. This microalgae could be inadvertently consumed by wildlife as wildlife drink from the pit; however, trying to estimate risks resulting from inadvertent consumption of microalgae would be complicated by the fact that the algae was present as a result of treatment that lowered the radiological concentrations in the water (and as noted, increased concentrations of non-radiological constituents such as sulfate, chloride, and phosphate, which would also decrease the palatability of the pit water). Intera reviewed their field notes collected after STPP application to Region A in Pit 1; these notes are consolidated and summarized in the attached excel spreadsheet. Based upon these notes, the green color was noted in the water for about 4 months following application on 8/16/2019 and had disappeared sometime during the next 6 months. Since the pit bottom is anticipated to be backfilled within 4 to 6 months of the STPP treatment, algal growth and consumption is expected to be minimized during the implementation and construction. Therefore, the presence of this algae appears to be an ephemeral phenomenon. Although projected food sources in the pit will always involve some uncertainty, the ERA did evaluate exposures to wildlife through food web interactions. It appears based on the field notes and observations that the addition of algae in the pit following treatment would be a temporary phenomenon and would be consumed incidentally rather than as a primary food source; therefore, additional modeling of food web interactions with algae does not appear to be warranted.
3	NMED-MECS	Reveg. Plan	Sect. 2.2			If composted cow manure or biosolids are utilized, the moisture content, salinity, organic content, and radioactivity will need to be tested by a certified laboratory. NMED recommends analyzing for metals in any biosolids proposed to be utilized at St Anthony. Also, if any products are industrially generated, please submit the appropriate hazard and profile documentation prior to its use on site.	Acknowledged. If cow manure or biosolids will be used by the Contractor, the appropriate analytical testing, including moisture content, salinity, organic content, and radioactivity, will be completed on the material prior to delivery to the site. If products are industrially generated, UNC will provide hazard and profile documentation.
4	NMED-MECS	Reveg. Plan	Table 2			At a site visit on January 17, 2024, it came to NMED's attention that the Lobo Tract Borrow area overlaps with the area for the Cebolleta Exploration Project (see Attachment 1 for approximate locations based on NMED's current understanding). Please provide documentation of the agreements between UNC and the Cebolleta Land Grant which enables the use of the Lobo Tract Area for borrow material, while the same area is currently being explored by another company holding the mineral rights.	The proposed Lobo Tract Borrow Area does not overlap with the Cebolleta Exploration Project. No mineral exploration holes were drilled on UNC's property.

Responses to Other Comments Received from the Agencies on Additional Documents Submitted

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
5	NMED-MECS	CCOP	general			<p>Since the Pit 1 infill piles will be the first materials placed in the pit bottom, these materials will be placed partially below the level of the existing groundwater surface in the pit bottom. The removed material will be placed in a compacted layer above the layer of compacted Pit 1 infill waste pile material, thus acting as the initial cover layer over the waste. Please discuss how the material will be compacted if it is below the level of the existing water surface. Will special equipment be required, or will the water be removed prior to construction?</p>	<p>The existing water will not be removed. The specific placement methods and types of equipment used will be determined by the contractor selected to perform the work. However, based on the 2019 bathymetric survey data of the pond, the water depth was approximately 0.5 to 3.5 feet deep and is expected to fluctuate based on seasonal precipitation. We anticipate that the contractor will choose to place fill materials in the pit bottom during the driest time of the year and proceed by spreading materials from the infill piles to displace water and bridge the existing pond with a series of access line fills or "bridges". They will then progressively infill the areas with loose material where the water remains. The infill pile materials consist of a range of particle sizes including large rock. We expect that the contractor will stage a portion of the volume to be placed, equivalent to a 2-3-foot thick layer, and push/spread materials from the pond edge inward to bridge the remaining wet areas. The initial lifts to develop stable working surfaces will not be compacted as they are placed in the shallow water; subsequent lifts will be compacted once the surface is stabilized. Once a stable working layer is established, the contractor will place and compact the remaining materials in lifts commensurate with the sizes of the materials (i.e. cobbles and boulders within the materials will require thicker lifts for placement.</p>

Responses to Other Comments Received from the Agencies on Additional Documents Submitted

Number	Agency	Document	Section/Page	Comment	Response	2nd Round of Comments	Response to 2 nd Round of Comments
The following were listed in the NMED-SWQB Memo Dated January 26, 2024:							
1	NMED-SWQB	ERA	-	-	-	The <i>Ecological Risk Assessment</i> and the <i>Stage 2 Abatement Plan Modification</i> both assert that the expressed water in Pit 1 is a private water and is therefore not subject to New Mexico surface water quality standards. SWQB provided comments to GWQB on the <i>Stage 2 Abatement Plan Modification</i> dated February 13, 2023. A determination on private waters will be provided as part of the <i>Stage 2 Abatement Plan Modification</i> approval process.	Comment noted. UNC understands that NMED concurs that the future expressed water will be a private water and is awaiting a letter from NMED confirming this understanding.
2	NMED-SWQB	ERA	-	-	-	The <i>Ecological Risk Assessment</i> assumes, "future maximum surface water concentrations are expected to be similar to concentrations measured in Pit 1 prior to the STPP pilot test." However, Section 6.3.6 of the 30% CCOP dated October 7, 2022 says that several constituent concentrations, including uranium, increased in the untreated region of Pit 1 as a likely result of evapo-concentration over the spring and summer of the 2019 sodium tripolyphosphate (STPP) pilot test. The <i>Ecological Risk Assessment</i> should consider the effects of evapo-concentration on future maximum surface water concentrations.	We acknowledge that there are always uncertainties about predicting future concentrations in the pit water. However, we feel that the ERA addresses this uncertainty in two ways. First, the ERA used maximum concentrations of pit water over a span of about 20 years. The most recent measured concentrations (May 2019) are similar to or below the maximum concentrations that were measured about a decade beforehand (2008). For reference, the maximum concentrations that were inputs for the model are shown in Table 3-1 of the ERA and are reproduced in the attached excel Table A below. Second, the ERA derived Wildlife Threshold Values (WTVs) for pit water as shown in Table 4-2 of the report. WTVs were derived for each wildlife receptor. The excel table (Table A) included with this response shows these WTVs and identifies the minimum WTV for each isotope. The lowest WTVs for radium isotopes correspond to the mallard duck at 99 pCi/L (Ra-226) and 133 pCi/L (Ra-228), respectively. Uranium isotope WTVs were lowest for mammal species (livestock specifically, or if livestock would not have access to the pit due to planned fencing treatment, then the kit fox). The ratio of Ra-226 to total uranium measured in pit water (excluding STPP treatments) shows a relatively consistent ratio of about 2.4:1 (Ra-226 to total Uranium). These data are summarized in an attached excel sheet (Table B). Measuring Ra-226 and Ra-228 levels alone would provide a simplified way to monitor potential wildlife risks. Concentrations above these WTVs would indicate treatment may be necessary to protect wildlife. Therefore, the St Anthony team believes that the ERA has adequately addressed potential risks to wildlife and that further modeling of risks is not needed to show that the pit water is protective of wildlife. As also indicated in the attached WTV table, the current maximum concentrations are well below the minimum WTV.

ATTACHMENTS

Table A: Wildlife Threshold Values for Pit Water

NOREL-Based WTVs								
COI	Kit Fox	Pronghorn Antelope	Cliff Swallow	Deer Mouse	Livestock	Little Brown Bat	Mallard Duck	Red-tailed Hawk
Ra-226	9.24E+02	3.31E+03	1.42E+03	1.96E+07	3.17E+02	6.02E+02	9.94E+01	2.36E+05
Ra-228	1.07E+03	4.44E+03	1.72E+03	1.74E+07	3.67E+02	1.50E+03	1.33E+02	2.73E+05
U-234	2.327E+05	1.200E+06	2.789E+06	9.665E+08	7.986E+04	3.708E+06	2.497E+05	5.943E+07
U-235	2.530E+05	1.304E+06	2.371E+06	1.051E+09	8.681E+04	2.940E+06	2.648E+05	6.459E+07
U-238	2.586E+05	1.333E+06	1.803E+06	1.074E+09	8.874E+04	2.106E+06	2.606E+05	6.603E+07

COI	Minimum WTV (pCi/L)	Receptor With Minimum WTV	Minimum WTV, Livestock excluded (pCi/L)	Receptor With Minimum WTV	Reported Pit Maximum (pCi/L)
Ra-226	99	Mallard	99	Mallard	49
Ra-228	133	Mallard	133	Mallard	24
U-234	79,862	Livestock	232,737	Kit fox	<i>5,604</i>
U-235	86,806	Livestock	252,975	Kit fox	<i>251</i>
U-238	88,735	Livestock	258,596	Kit fox	<i>5,536</i>

Notes:

All values in pCi/L.

NOREL-based WTVs from Table 4-2 in the ERA are shown here. These are the lowest thresholds for wildlife. NOREL means "No Observed Radionuclide Effect Level", which corresponds to the highest estimated level that no effect is anticipated in animals. Table 4-2 also shows LOREL-based WTVs, which correspond to the lowest level that a meaningful radiological effect was observed or estimated. The reported pit maximum for uranium isotopes is estimated based on measures of total uranium (mg/L). Estimates are shown in italics.

Table B: Isotope data measured in Pit 1

Source:	Sample Name	Sample Date	Ra-226	Ra-228	Uranium	Gross Alpha	Gross Beta	Uranium	U-234	U-235	U-238	Ra-226: Total U
			pCi/L	pCi/L	mg/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	ratio
Table 3-6, Intera 2015	Pit water A	2008	17.1	6	6.31			4228	2730	133	2210	2.71
Table 3-6, Intera 2015	Pit water B	2008	19.5	4	6.28			4208	2560	107	1970	3.11
Appx F, Intera 2015	Large Pit	10/05/00			3	1060	1170	2010	989	44	977	nc
Appx F, Intera 2015	Large Pit	12/05/00	9.48		4	2780	1060	2680	1319	59	1302	2.37
Appx F, Intera 2015	LP-1	09/17/04	16.4	1.27	4.4	3050	423	2948	1450	65	1433	3.73
Appx F, Intera 2015	LP-1	12/30/04	12.2	1.4	4.6	3800	712	3082	1516	68	1498	2.65
Appx F, Intera 2015	LP-1	03/08/05	10.8	1.4	4.4	3930	867	2948	1450	65	1433	2.45
Appx F, Intera 2015	LP-1	06/21/05	11.5	1.4	5.3	4060	772	3551	1747	78	1726	2.17
Appx F, Intera 2015	LP-2	09/17/04	22.9	1.93	4.5	3390	336	3015	1483	66	1465	5.09
Appx F, Intera 2015	LP-2	12/30/04	9.72	1.87	4.2	3450	720	2814	1384	62	1368	2.31
Appx F, Intera 2015	LP-2	03/08/05	10.1	1.4	4.5	3650	962	3015	1483	66	1465	2.24
Appx F, Intera 2015	LP-2	06/21/05	10.6	1.4	5.2	4590	515	3484	1714	77	1693	2.04
Appx F, Intera 2015	SALP-1	11/11/08	16	1.3	6.58	2500	1600	4409	2169	97	2143	2.43
Appx F, Intera 2015	SALP-12-06	11/15/12	30	12	17	7600	7900	11390	5604	251	5536	1.76
Appx F, Intera 2015	SALP-2	11/11/08	13	3.2	6.57	3300	1300	4402	2166	97	2139	1.98
Appx F, Intera 2015	SALP-3	11/11/08	15	1.2	6.61	3300	1600	4429	2179	97	2152	2.27
Appx F, Intera 2015	SALP-4	11/11/08	11	10	6.46	2500	1800	4328	2129	95	2104	1.70
Appx F, Intera 2015	SALP-5	11/11/08	16	0.9	6.64	3300	1800	4449	2189	98	2162	2.41
Appx F, Intera 2015	SA-PLW-UF	10/11/10			12			8040	3956	177	3907	nc
Appx F, Intera 2015	SA-VT-1	10/11/10			2.6			1742	857	38	847	nc
Appx F, Intera 2015	SA-VT-2	10/11/10			2.2			1474	725	32	716	nc
Appx D, Intera 2020	LARGE PIT A 4/8/2019	4/8/2019	17	1.5	12.9	4000	2900	8643	4252	190	4200	1.32
Appx D, Intera 2020	LARGE PIT A 4-122019	4/12/2019	23	2.4	13.5			9045	4450	199	4396	1.70
Appx D, Intera 2020	LARGE PIT-A 4182019	4/18/2019	49	1.7	13.7			9179	4516	202	4461	3.58
Appx D, Intera 2020	LARGE PIT-A 4252019	4/25/2019	26	0.6	12.7			8509	4186	187	4135	2.05
Appx D, Intera 2020	Large Pit B	4/16/2019	22	0.35	13.3	6300	2700	8911	4384	196	4331	1.65
Appx D, Intera 2020	LARGE PIT B 4-12-2019	4/16/2019	27	0.7	15.1	4700	2800	10117	4978	223	4917	1.79
Appx D, Intera 2020	LARGE PIT-B 4182019	4/26/2019	29	5.1	15.1			10117	4978	223	4917	1.92
Appx D, Intera 2020	LARGE PIT B 5-2-2019	5/2/2019	32	1.8	15.9			10653	5241	234	5177	2.01
Appx D, Intera 2020	LARGE PIT B 5-30-2019	5/30/2019	47	24	16.8			11256	5538	248	5470	2.80
	Average:		20.13	3.56	8.41	3751	1681	5636	2811	126	2742	2.39
	Min:		9.48	0.35	2.20	1060	336	1474	725	32	716	1.32
	Max:		49.00	24.00	17.00	7600	7900	11390	5604	251	5536	5.09

Notes:

nc = not calculated, Ra-226 not measured in the sample.

Detection limits are shown where results were reported less than MDL.

INTERA Inc. (INTERA). 2015. St. Anthony Mine Stage 2 Abatement Plan, Cibola County, New Mexico. February 9.

INTERA Inc. (INTERA). 2020. St. Anthony Mine Pit 1 Sodium Tripolyphosphate Pilot Test Results. October.