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CERTIFIED MAIL – RECEIPT REQUESTED

February 3, 2009

Andrew Bain
Project Manager
U. S. EPA Region 9
75 Hawthorne Street
San Francisco, California 94105

RE: Engineering Evaluation/Cost Analysis for the Northeast Church Rock Mine Site, Gallup,
New Mexico

Dear Mr. Bain:

Thank you for providing the State of New Mexico the opportunity to review and provide comments on the draft Engineering Evaluation/Cost Analysis (Plan) for the Northeast Church Rock Mine Site, Gallup, New Mexico dated December 16, 2008. The Ground Water Quality Bureau of the New Mexico Environment Department (NMED) and the Mining and Minerals Division of the Energy, Minerals and Natural Resources Department (EMNRD) have reviewed the Plan and offer the attached comments to aid in your presentation to the Review Board and for consideration in finalizing the Plan.

NMED and EMNRD do not consider consolidation and capping of waste on the NECR mine site an acceptable alternative as presented, if it does not involve unrestricted use of the repository area. The stated goal of reclamation is to restore the mine site for release for unrestricted use. The Navajo Nation has voiced their desire to use the land for grazing and possible housing in the future. Since the material being consolidated and capped has a radioactive component, ensuring a long-lasting cover is essential which cannot be accomplished if left on site and grazing is allowed, even if allowed after vegetation has been deemed successful. Past reclamation efforts at the site bear this out. The Non-economical Material Storage Area on the mine site was capped with a 1-foot soil cover and revegetated. Shortly thereafter, the vegetation and cap were significantly compromised by overgrazing. The selected alternative must provide long-term effectiveness and permanence which may not be

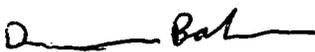
possible with allowance of unrestricted use such as grazing. Therefore, in light of the above considerations, NMED and EMNRD support alternatives, 5 and 5A with the following additions:

Alternative 5 and 5A

- The cell designed to hold the NECR waste may require a Discharge Permit issued by NMED and the proposed cell must be constructed and managed in compliance with the New Mexico Water Quality Control Commission Regulations (NMWQCCR).
- The cell bottom would be required to be double-lined with leak detection and leachate recovery system.
- A supporting groundwater monitoring network would need to be maintained.
- The cover for the cell would have to be designed to eliminate, to the maximum extent practicable, water infiltration. Store and release covers for mine sites in New Mexico are typically installed in order to meet this requirement. Such covers allow for the growth of self-sustaining vegetation and a rooting medium sufficient to support such growth. A cover system with less than 3 foot of cover can be installed if: 1) it can be demonstrated to perform as well as a 3 foot cover; or 2) a thinner soil cover with an underlying liner may also satisfy this requirement.
- The cell would have to comply with 20.6.2 NMAC (Water Quality Control Commission Regulations), 20.9:1 NMAC (Solid Waste Management Regulations) and 2.4 NMAC (Hazardous Waste Management Regulations).

Please be aware that NMED and EMNRD believe the groundwater issues also need to be addressed as part of the overall cleanup at the Northeast Church Rock Mine Site. If you have any questions, please contact Bill Olson at (505) 827-2919 or Chuck Thomas at (505) 476-3435.

Sincerely,



For William C. Olson, Chief
Ground Water Quality Bureau



Charles Thomas, Chief
Mining and Minerals Division

Encl: Detailed Comments

Cc: Stephen Etsity, Director, Navajo Nation
Mike Fiegel, NRC
Dana Bahar, Manager, SOS
Mary Ann Menetrey, Manager, MECS
Holland Shepherd, Manager, MMD

NMED/EMNRD SPECIFIC COMMENTS ON THE *Draft* NECR EE/CA

General Comments

1. NMED/EMNRD agrees with EPA and the HHRA that the risk levels and exposure scenarios calculated for the No Further Action alternative at the NECR Mine Site are unacceptable, and the Site has to be remediated according to one of the Alternatives 2, 3, 4, or 5.
2. NMED/EMNRD acknowledges the factors that were used to develop the proposed Action Level value of 2.24 pCi/g as the site specific cleanup goal for Radium in soil at the NECR Mine Site: 1) it is the sum of the Site-specific background mean in soil (1.0 pCi/g) and the risk-based value for a 1 in 10,000 excess cancer risk in a residential exposure scenario (1.24 pCi/g); 2) it is within the risk range sited in the National Contingency Plan (NCP 300.430 e 2 l); 3) it is distinguishable from background and therefore measurable in the field; and 4) the analytical detection limit for Radium is 0.1 pCi/g. It is also important to note that the Human Health Risk Assessment (HHRA) was conducted for the Site based on laboratory analysis of soil samples representing an interval less than 0.5 feet to 10 feet below ground surface. The HHRA is a quantitative and qualitative evaluation of potential impacts of Site-derived contaminants on human health, in the absence of remediation or institutional controls. It should be noted that the exposure and risk estimates described in the HHRA are biased high due to the soil sampling design because the Field Screening Level methodology intended to collect samples high in Radium-226. Different levels of uncertainty are incorporated into the risk estimate and the majority of the uncertainties err on the conservative side. The estimated risks in the HHRA for the NECR Mine Site most likely represent upper bound estimates, and the actual risks are anticipated to be less. CERLCA cleanups are required to use a risk level of 1×10^{-6} as the point of departure for determining cleanup goals. NMED requires that cleanups at least achieve a protectiveness risk level of 1×10^{-5} . NMED defers to the Navajo Nation for approval of the proposed Action Level (2.24 pCi/g) that represents a 3 in 10,000 excess cancer risk for Radium in a residential exposure scenario.
3. NMED/EMNRD considers consolidation and capping of waste on the NECR Mine Site an unacceptable alternative for the following reasons:
 - a. The Navajo Nation intends to use the site for grazing and possibly housing in the future once it is released for unrestricted use. Since the material being consolidated and capped has a radioactive component, ensuring a long-lasting cover is essential which cannot be accomplished if left on site and grazing is allowed, even if allowed after vegetation has been deemed successful. Past reclamation efforts at the site bear this out. The Non-economical Material Storage Area on the mine site was capped with a 1-foot soil cover and revegetated. Shortly thereafter, the vegetation and cap were significantly compromised by overgrazing. The selected alternative must provide long-term effectiveness and permanence which may not be possible with allowance of grazing.
 - b. Long-term O&M will ensure the integrity of the cap and vegetative cover, but there is concern that if O&M is not part of the remedy in perpetuity, the cap will eventually fail.
 - c. The Navajo Nation have expressed that an alternative that proposes consolidation and capping of waste on the NECR Site is not acceptable to the Nation.
 - d. The current EE/CA does not address the costs necessary to adequately design a functioning store and release cover that would provide adequate protection for the proposed land use. The proposed cover design involving a two foot layer of earthen material, covered by 18 inches of rip rap, than 6 inches of organic material would not work as a store and release cover and would not promote adequate plant growth. .

- e. The cell designed to hold the NECR waste must be constructed and managed to include the installation of a double-lined cell bottom with leak detection and leachate recovery system as well as a supporting groundwater monitoring network and a cover that is designed to eliminate, to the maximum extent practicable, water infiltration. Store and release covers for mine sites in New Mexico are typically installed in order to meet this requirement. A cover system with less than 3 foot of cover can be installed if it can be demonstrated to perform as well as a 3 foot cover or a thinner soil cover with an underlying liner may also satisfy this requirement.
4. The EE/CA states that ground water contamination has not been adequately characterized at the NECR Mine Site, it is required, and that it will be addressed in the future. However, a timeframe is not provided. A plan and timeframe should be provided in the EE/CA.
5. The EE/CA does not address how areas that have been excavated to remove material above the screening level will be reclaimed.

Specific Comments

6. Section 1.5.4, Groundwater Contamination:

- a. Same comment as #4.
- b. The EE/CA states that some synthetic precipitation leaching procedure (SPLP) results exceed New Mexico Human Health Standards or Federal maximum contaminant levels (MCLs) but are within the range of concentrations detected in the Westwater Canyon Member. The EE/CA should include information/data used to determine ranges of natural contaminant concentrations in the Westwater Canyon Member.
- c. The EE/CA states that the pathway from surface contamination to groundwater is unlikely due SPLP results within the range of concentrations in the Westwater Canyon Member, limited rainfall, and depth to groundwater. It must be noted that contamination of groundwater from surface waste is not the only possible source. The other and more significant source is the dewatering and disturbance caused by mine operations which increased surface area and introduced oxygen into the ore body which resulted in dissolution of contaminants into groundwater.

7. Section 2.3.2.3, Cap Design Criteria:

- a. The EE/CA states revegetation goals are not an integral component in the cap design to achieve protectiveness. NMED and EMNRD disagree with this statement. Revegetation is only one component of a cover system, however, an important one. Other components include soil cover and water management BMPs. All these components are intended to work together to eliminate, to the maximum extent practicable, water infiltration and erosion.
- b. Alternatives 3 through 5 propose a 2-foot cover to be installed on the waste. NMED/EMNRD typically requires a minimum of 3-foot cover installed, unless a cover consisting of less than 3-feet can be demonstrated to equally reduce infiltration. An alternative for a store and release cover, which is what is being proposed, is a liner installed on top of the waste covered with a 1 to 2 foot growth media. It must also be noted that a thicker cover may be required in order to limit the potential of root penetration through the cover and into contaminated material below. The potential for uptake of contaminants from vegetation should be consideration in cover

design.

- c. Alternatives 3 through 5 propose installation of 6" of organic material placed on top of rip rap to act as a growth media. NMED/EMNRD questions whether 6" of organic material placed on top of rip rap is adequate to provide a suitable growth media for native plants. Fine organic material would migrate over time into the voids in the armoring installed beneath. The resulting rocky texture of the cover material would not provide an adequate rooting medium for plants.

8. Section 3.0, Identification of Removal Action Alternatives:

- a. NMED/EMNRD finds Alternative 1 – No Action, unacceptable under any condition.
- b. NMED/EMNRD finds Alternative 2 – Excavation and Disposal Offsite of all NECR Mine Site Wastes, is the remedy that offers the greatest amount of risk reduction and protection of the environment to current and future generations of the Navajo Nation and the State of New Mexico. Alternative 2 provides the people of the Navajo Nation the opportunity to utilize the land for unrestricted activities such as ranching, farming, residing, and practicing their culture in a safe environment. Alternative 2 poses challenges that may increase the level of risk to human receptors and the environment because of the transportation factor. Complete removal of the estimated contaminated soil volume (871,000 cubic yards) and disposal at a licensed facility in Idaho would require well over 48,000 truck loads of soil to be transported 700 miles one way along state and interstate highways through small towns and major cities. The EE/CA, estimates it would take to take 6 years to remove all actionable soils from the site, which may not be an acceptable timeframe compared to other alternatives. Alternative is the most costly alternative and would increase the risk of offsite contamination along the 700 mile haulage corridor.

This large number of truck trips carrying this type of material may necessitate special transportation risk analysis and consideration of potential accidents. This level of transportation effort may want to consider methodologies, routing, issue resolution, and protocols utilized by the Department of Energy (DOE) Environmental Management program in the transportation of radioactive low-level waste from generator sites like Fernald, OH to the Nevada Test Site, NV for disposal.

- c. NMED/EMNRD finds Alternative 3A – On-Site Consolidation and Capping of Mine Wastes on the NECR Mine Site with principal threat waste (PTW) taken to an off-site disposal facility challenging because it only reduces threats to human health and the environment: it does not eliminate those threats. Alternatives 3A and 3B are problematic because they propose to consolidate the waste and cap it on-site without a liner beneath the waste. Additionally, the proposed cap appears to be substandard. Alternative 3A would reduce the quantity and concentration of radioactive source material; that would remain at the NECR Site by off-site, out-of-state disposal of the PTW. Alternative 3B involves consolidation and capping of waste on the NECR Mine Site with the PTW consolidated within the existing mill tailings waste at the adjacent UNC facility. Alternative 3B would reduce the amount of radioactive source term that would remain in place at the NECR Site, however, the PTW would be placed at the UNC facility where it would create other challenges requiring resolution. For instance, consolidation of the PTW at the UNC facility may require a license-permit modification from the Nuclear Regulatory Commission (NRC) before regulatory approval could be granted to UNC to legally dispose the waste in the central tailings cell. Disposal of the PTW at the UNC facility may also require an amendment to the Record of Decision (ROD) under the Comprehensive Environmental Response Compensation Liability Act (CERCLA) because the UNC ground water component is a site on the National Priorities List (NPL). Implementation of 3A or 3B would require UNC/GE to fence, operate, and maintain the NECR Mine Site consolidation facility for a minimum of 200

years to ensure it performs according to the engineering design criteria. Alternative 3A and 3B would result in conditions at the NECR Mine Site that may restrict or prohibit the Navajo Nation people from conducting ranching, farming, residing, and cultural activities in the area near or on the Site.

- d. NMED/EMNRD finds Alternative 4A – Lined and Capped Repository on the NECR Mine Site is challenging because it only reduces and does not eliminate threats to human health and the environment. Alternative 4A will reduce the amount of radioactive source term at the NECR Site by off-site, out-of-state disposal of the PTW. Alternative 4B creates challenges similar to those described under the State of New Mexico's comments for Alternative 3 above (No. 6). Disposal of PTW at the UNC facility will require regulatory approval from the NRC and EPA Region 6 since the source material license will have to be modified under NRC, and the ROD for the UNC NPL site may also have to be amended. Alternatives 4A and 4B result in conditions at the NECR Mine Site that will restrict or prohibit the Navajo Nation people from conducting ranching, farming, residing, and cultural activities in the area near or on the NECR Site.
 - e. NMED/EMNRD finds Alternative 5 – Above-Ground, Repository on the UNC Mill Facility to be challenging because it only reduces and does not eliminate threats to human health and the environment, although under DOE's long-term surveillance obligations this may be addressed. Alternative 5 results in a restored NECR Mine Site that can be available to the Navajo Nation people for unrestricted land use applications. Alternative 5A is advantageous because the PTW is removed and disposed off-site, at an out-of-state licensed facility. Under Alternative 5A the amount of radioactive source term is reduced that would remain on the Navajo Nation and in the State of New Mexico. Consolidation and capping of the NECR waste in the UNC tailing disposal cell would be done under the regulatory oversight of the NRC. After the final design and cover of the disposal cell have been completed, the NRC will terminate the UNC source material license and turn the site over to the DOE Long Term Stewardship program following the requirements of the Uranium Mill Tailings Reclamation Control Act (UMTRCA). Alternative 5 will require UNC/GE to fence, operate, and maintain the facility for a minimum of 200 years to ensure it performs according to the engineering design criteria. Moreover, the UNC NPL ground water program may have to be modified and expanded to accommodate the disposal of NECR Mine Site wastes which may require a modification to the Record of Decision (ROD) and perhaps require an Environmental Impact Statement and may require a Discharge Permit issued by NMED. The proposed cell should be constructed and managed in compliance with the New Mexico Water Quality Control Commission Regulations.
9. Section 3.3.3, Post-Excavation and Site Restoration Activities: Alternatives 2 through 5 include a revegetation requirement, however no monitoring requirements or performance criteria are provided. The EE/CA should be revised to include these.
 10. Section 3.6.5, Site Controls and Security: The Plan states "Domestic livestock would not be allowed to enter the UNC Mill facility for a scheduled period." NMED/EMNRD suggests not allowing grazing on the cell in perpetuity.
 11. Section 4.1.3, Cost: The EE/CA states the cost estimate includes costs for O&M, but does not list how long these costs apply. Nor does it address who will be responsible for O&M or the requirements for Financial Assurance. Please revise the EE/CA to include this information.
 12. Section 5.2.2, Administrative Feasibility:
 - a. A new repository on the UNC Mill site that is carved out from the area that DOE will eventually manage is not desirable due to the fact that long-term protectiveness may be

compromised. The concern may be addressed by placing the requirement for O&M to be conducted in perpetuity.

- b. Above-Ground, Repository on the UNC Mill Facility: Please evaluate the use of a hopper-conveyor belt system to move the excavated soil from the NECR Mine Site to the proposed UNC tailings cell disposal area instead of transporting by truck. Perhaps a conveyor belt system like those found at coal mines (Peabody) and Southwestern copper-molybdenum mines might offer a cost-time-materials-risk reduction savings when compared to truck haulage and decontamination issues on state Highway 566. Conveyor system may not require as much maintenance and level of effort to operate as truck haulage.

13. Table A-1:

- a. Please add groundwater under the Status and Rationale column for 20.6.2 NMAC on page 5.
- b. Please add the Solid Waste Act (20.9.1 NMAC) and the Hazardous Waste Act (20.4 NMAC) to the list of ARARs.