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Subject: Fw: Time Critical Removal Action Memo for East Drainage Area near Northeast Churchrock
Mine Site
Attachments: NECR Time-Critical Action memo 09262011 signed2.pdf
Follow Up Flag: Follow up
Flag Status: Flagged

Hello, here is the a copy of the signed Time Critical Removal Action at the Northeast Churchrock Site Drainage East of Red Water Pond Road. It is being sent you as you were cc'd on the document. Thank you.

Signed Time-Critical Action memo:

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

MEMORANDUM

DATE: September 26, 2011

SUBJECT: Request for a Time-Critical Removal Action at the Northeast Church Rock Site Drainage East of Red Water Pond Road (Step Out Area #2), McKinley County, New Mexico, Coyote Canyon Chapter of the Navajo Nation Indian Reservation

FROM: Sara Jacobs, Remedial Project Manager
Arizona & Navajo Sites Section (SFD-6-2) *intake 9/26/11*

Laurie Williams, Assistant Regional Counsel
Office of Regional Counsel (ORC-3) *JW 9/26/11*

THROUGH: Claire Trombadore, Section Chief
Arizona & Navajo Sites Section (SFD-6-2) *Claire Trombadore 9/26/11*

Harrison Karr, Section Chief
Office of Regional Counsel (ORC-3)

TO: Clancy Tenley, Assistant Director
Superfund Division (SFD-6)

I. PURPOSE

The purpose of this Action Memorandum is to obtain and document United States Environmental Protection Agency (U.S. EPA) approval of the proposed time-critical removal action described herein. If approved, the removal action described herein would result in excavation of approximately 30,000 cubic yards of waste material from the Northeast Church Rock Mine (NECR) drainage area east of Red Water Pond Road and disposal of this waste on the NECR mine site. This waste would later be disposed with other NECR mine waste at a location or a facility that U.S.EPA has determined to be acceptable for the receipt of CERCLA waste under applicable laws. The location is selected in a separate concurrent Action Memorandum and determined to be suitable in the Engineering Evaluation and Cost Analysis ("EE/CA") issued by U.S. EPA Region 9 on May 30, 2009, is the nearby United Nuclear Corporation ("UNC") Mill Site.

Disposal at the UNC Mill Site is contingent upon both modification of the license issued by the U.S. Nuclear Regulatory Commission (“NRC”) for the UNC site, and issuance of an appropriate decision document by U.S. EPA Region 6 consistent with the NCP, 40 CFR Part 300. Contingent upon both actions, the NECR Mine wastes will be disposed of within the footprint of the existing tailings disposal cells at the UNC Mill Site.

The purpose of this action is to mitigate threats to human health and the environment posed by the presence of hazardous substances in the drainage area east of Red Water Pond Road (Step Out Area #2). The proposed removal of hazardous substances would be undertaken pursuant to Section 104(a)(1) of the Comprehensive Environmental Response, Compensation and Liability Act (“CERCLA”), 42 U.S.C. § 9604(a)(1), and Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (“NCP”), 40 CFR § 300.415.

Step Out Area #2 (Figure 1) is located on the Navajo Nation Reservation immediately east of Red Water Pond Road in Coyote Canyon Chapter, McKinley County, New Mexico.

II. SITE CONDITIONS AND BACKGROUND

Site Status: Non-NPL
Category of Removal: Time-Critical
CERCLIS ID: NNN000906132
SITE ID: 09PM

A. Site Description

1. Physical Location

The Site is located within Sections 35 and 36 of Township 17 North, Range 16 West, east of Red Water Pond Road near the intersection with State Highway 566. The site is approximately 15-20 acres and is situated approximately 16 miles northeast of Gallup, McKinley County, New Mexico

2. Site Characteristics

The NECR mine is a former uranium mine and is considered to be a contributing source of the soil contamination east of Red Water Pond Road at the time-critical removal site. The mine was operated by the United Nuclear Corporation (“UNC”). The mine operated from 1968-1982, serving as the principal mineral source for the UNC uranium mill facility, located east of Highway 566. UNC is now an indirect subsidiary of General Electric Corporation (“GE”).

Originally, the workplan for this investigation only addressed a linear portion of the drainage area between the first culvert under Red Water Pond Road and the Unnamed Arroyo #2 (See Figure #1). However, it became apparent during the investigation that

the extent of contamination went beyond this limited area as the water also flowed out of the narrow and relatively shallow linear path across an open field in a sheet flow. Similarly, it became apparent that the contamination also intermingled with other paths of migration from the mine site where a second culvert to the north brings water running from the minesite through Step Out Area #1, under Red Water Pond Road and through Step Out Area #2. The drainage area east of Red Water Pond Road that is the subject of this action is primarily a flat wide field with little vegetation other than grasses. The edge of the field that runs along the Unnamed Arroyo #2 is quite steep in some places.

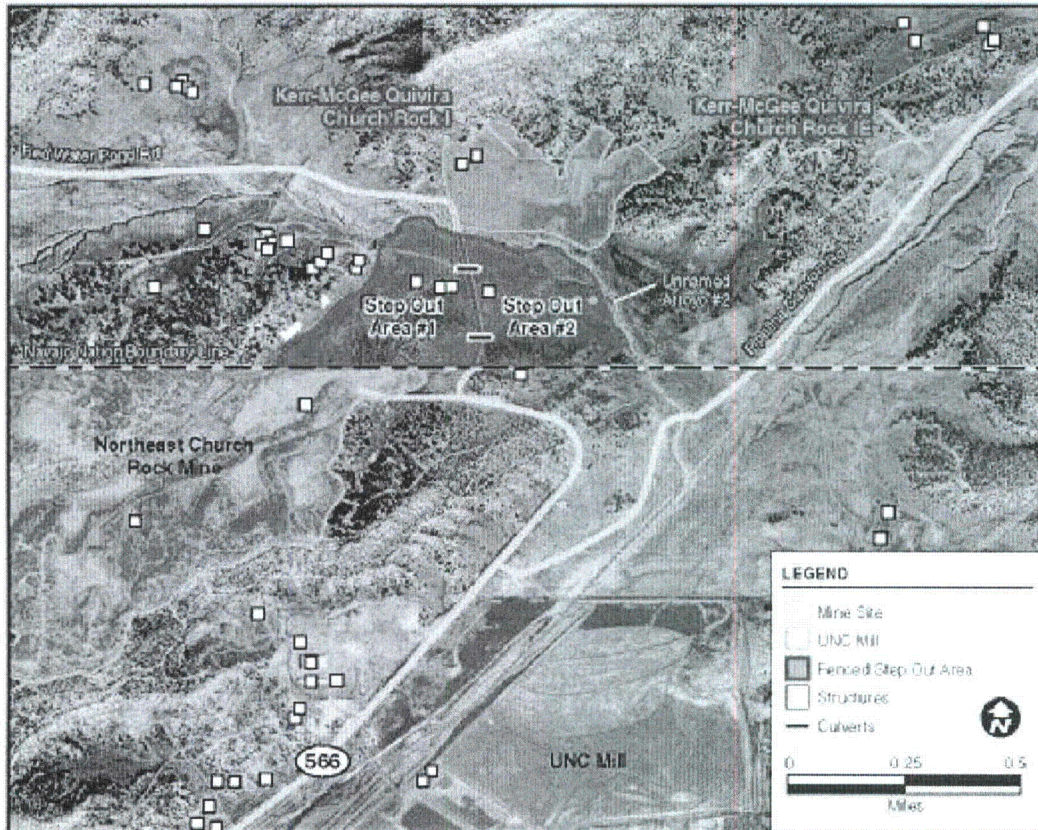


Figure 1: Northeast Church Rock Mine and Step Out Areas

The east drainage area is downgradient and downwind (based on the prevailing wind direction) from the NECR mine; however, contamination at this Site may be partially the result of another nearby former uranium mine (operated by Kerr-McGee) resulting from similar contaminant transport forces attributed to the NECR area (i.e., contaminant migration due to wind and runoff). It is believed that the haul road for the Kerr-McGee Quivira mine was situated in close proximity to the Site. One residence is located off Red Water Pond Road within the Step Out Area #2, however, this homesite was the subject of a residential removal action in 2007 and is therefore not part of this current action.

According to the Red Water Pond Road Community Association, there are eleven households or home sites in the immediate vicinity of the NECR Mine Site and Step Out Areas, including 48 families and 110 people. Approximately 25 families reside along Pipeline Road north of the UNC Mill Site and approximately 12 families reside along State Rt. 566 south of the UNC Mill Site (Navajo DOJ, December 2008). Several Navajo families have stated they collect herbs and plants from the NECR Mine Site and surrounding area for ceremonial purposes. Apart from the residential areas, the primary land use in the area is grazing for sheep, cattle, and horses.

3. Removal Site Evaluation (RSE)

Overall, the RSE investigation included sampling on the Mine Site as well as in areas adjacent to the Mine Site (“Step-Out Areas”) both east and west of Red Water Pond Road. The primary RSE investigation of the mine site and Step Out Area #1, West of Red Water Pond Road, occurred in 2006. Samples were collected under U.S. EPA oversight in accordance with a U.S. EPA approved RSE Work Plan. The work plan was developed and executed pursuant to an Administrative Order on Consent (AOC) between U.S. EPA and UNC, dated September 27, 2006. Contamination identified west of Red Water Pond Road was removed in two removal actions, including a removal immediately around the residences in 2007 and a larger removal, that included the Unnamed Arroyo #1 in 2009/2010. These removals are described in more detail in Section II.B.3. Contamination on the mine site is addressed under a concurrent non-time-critical action memo.

In 2010, the Potentially Responsible Party (“PRP”), UNC, conducted a supplemental RSE investigation in the drainage area East of Red Water Pond Road with U.S. EPA and Navajo Nation EPA (“NNEPA”) oversight under the same AOC and a supplemental work plan. When preliminary field results indicated that the Step Out Area #2 was contaminated, UNC/GE immediately installed fencing around the Step Out Area to prevent exposure to people or livestock while waiting for laboratory confirmation of these results. The NECR Mine is considered to be a contributing source of the radiological soil contamination east of Red Water Pond Road. However, due to the proximity of the contamination east of Red Water Pond Road to residents and the potential for migration of the contamination, U.S. EPA decided to address this step-out area as a separate time-critical action as the subject of this action memo.

Surface Soil Results

Surface soil samples were collected from 51 locations within the East Drainage and East Drainage flats areas (collectively Step Out Area #2) and were analyzed for Ra-226. All but eleven samples were above the action level of 2.24 pCi/g. Ra-226 concentrations along the downstream section of the East Drainage channel were generally lower (0.8 to 7.3 pCi/g). Within the East Drainage flats area, Ra-226 concentrations were generally higher near the central portion (between the East Drainage channel and the secondary channel to the north), with a maximum Ra-226 concentration of 93 pCi/g.

Subsurface Soil Results

Twenty-six subsurface soil samples were collected from 19 test pit locations in the East Drainage Step Out Area and were analyzed for Ra-226. Subsurface soil analytical results for Ra-226 ranged from <0.3 (non-detect) to 2.4 pCi/g with an average in the East Drainage channel area of 1.9 pCi/g. Twelve subsurface samples collected for field analysis in the flats indicated two locations where contamination extended below a depth of one foot. No contamination was evident at 2.5 feet at these locations indicating relatively shallow contamination in the flats.

4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

Under U.S. EPA supervision, UNC/GE performed a human health risk assessment (“HHRA”), including a conceptual site model, screening level HHRA, and a baseline HHRA. Cancer is the major effect of concern from radionuclides. Radium is known to cause bone, head, and nasal passage tumors in humans, and radon, via inhalation exposure, causes lung cancer in humans. Uranium may cause lung cancer and tumors of the lymphatic and hematopoietic tissue.

The Action Level for the Contaminant of Concern is based on the PRG for residential exposure. The Action Level for Ra-226 is 2.24 pCi/g (1.24 pCi/g above the mean of the Ra-226 background concentration, which is 1.0 pCi/g) and corresponds to an acceptable risk range of 2×10^{-4} for residential scenarios.

Table 4.1 Selected Action Level

Contaminant of Concern	Action Level	Basis for Action Level
Radium-226	2.24 pCi/g	10^{-4} risk + background

Based on the sampling data in the RSE, US EPA has estimated that approximately 30,000 cubic yards of radiological waste exist in Step Out Area #2

Current conditions in Step Out Area #2 present risks due to the lack of an engineered containment system for the waste and the wind and water transport mechanisms that have previously contaminated the surrounding areas.

5. National Priorities List status

Neither the NECR Step Out Areas nor the NECR Mine Site is on the National Priorities List (NPL). In 2006, Navajo Superfund Program conducted a pre-CERCLIS site screening of the NECR Mine Site (CERCLIS ID No. NNN000906132). The RSE Work Plan determined the need for investigation of the east drainage area and ultimately expanded the Site definition to include Step Out Area #2.

Current conditions at the Site pose an imminent and substantial endangerment (see Sections III and IV) in Step Out Area #2. The proposed Removal Action will complete all work in Step Out Area #2 but will not complete work at the balance of the NECR Mine Site or other potential Sites.

B. Other Actions to Date

U.S. EPA ordered three time-critical removal actions related to the NECR Mine Site in the past five years. These actions, which were performed by UNC and U.S. EPA, are described below.

1. 2006 Removal Site Evaluation

In September 2006, U.S. EPA entered into an administrative order on consent (“2006 AOC”) with UNC, under which UNC performed a removal site evaluation, at the NECR Mine Site, under oversight of U.S. EPA and Navajo Nation EPA.

2. 2007 Residential Removal Action

A time-critical removal action was taken for three home sites where NECR Mine-related contamination was found. U.S. EPA signed the NECR Residential Removal Action Memo on April 18, 2007 and issued a Unilateral Administrative Order on May 4, 2007 ordering UNC to undertake transportation and disposal, while U.S. EPA conducted excavation and sampling components of the removal action.

Beginning on May 7, 2007 and continuing for approximately four weeks, U.S. EPA representatives and the United State Coast Guard (“USCG”) Pacific Strike Team performed the NECR home site investigation and cleanup. Using the U.S. EPA-established soil cleanup goal of 2.24 pCi/g radium-226 for surface soil sampling, removals were conducted for half-acre areas around three home sites. Consistent with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) guidance, excavated areas were 100% scanned. All radon levels were below 4.0 pCi/L in the homes and the average soil concentrations were below 2.24 pCi/g consistent with MARSSIM procedures after the removals were completed.

3. 2009/2010 Step-Out Interim Removal Action

U.S. EPA signed the NECR Step-Out Area Interim Removal Action Memorandum on July 23, 2009. In a July 24, 2009 Administrative Order on Consent (“2009” AOC), UNC and GE (collectively “UNC/GE”) agreed to undertake the removal action with U.S. EPA oversight. The 2009 removal action used the same soil cleanup goal as the one selected for the 2007 Removal Action, i.e. of 2.24 pCi/g radium-226.

The Interim Removal Action (“IRA”) activities were performed from approximately August 17, 2009 through May 21, 2010. The work included demolition of

existing mine buildings and associated concrete slabs located within the NECR-1 footprint. It also included excavation and placement onto the NECR-1 pile of approximately 109,800 cubic yards (cy) of soil from the Step Out Area, including approximately 33,000 cy from the Unnamed Arroyo; excavation and stockpiling of approximately 4,000 cy of petroleum impacted soil (TPH soil); backfilling and restoration of depressions, culverts, and roads with new imported materials; characterization of Red Water Pond Road from Hwy 566 to the bridge by the Quivira Mine Site; and fencing, seeding and other restoration activities.

In general, all soils with an activity concentration for Ra-226 above 3.0 pCi/g were removed from the Unnamed Arroyo and 4 Zones in the Step Out area until the average residual activity concentrations were less than 2.24 pCi/g. Removal soils were placed on the NECR-1 pile, which was capped with 6 to 12 inches of clean imported fill. Areas that were excavated to a depth of more than about 1-foot (including the Unnamed Arroyo) were backfilled with imported material.

During this work, in close coordination with U.S. EPA Community Involvement Coordinators, UNC/GE arranged for temporary housing for three households for approximately five months. U.S. EPA also temporarily moved residents from four additional households for approximately two months. UNC/GE retained contractors to carry out temporary housing, construction, transportation and sampling activities.

C. State and Local Authorities Roles

1. State and local actions to date

Consultations with the Navajo Nation and the State of New Mexico in 2005 resulted in Region 9 taking the lead on the NECR site. NN EPA sent a letter to U.S. EPA Region 9 dated March 22, 2005 formally requesting that U.S. EPA become the lead agency, per a Memorandum of Understanding between Region 9 and the Navajo Nation. Region 9 issued a letter formally accepting Site lead on November 7, 2005. U.S.EPA will continue to coordinate closely with the Navajo Nation EPA throughout the cleanup process.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Current Site conditions pose the threat of potential future releases of a hazardous substance, namely radium-226. The likelihood of direct human exposure, via ingestion and/or inhalation of hazardous substances, and the threat of potential future releases and migration of those substances, pose an imminent and substantial endangerment to public health, and/or welfare, or the environment based on the factors set forth in the NCP, 40 CFR § 300.415(b)(2). These factors include:

1. Actual or potential exposure to hazardous substances or pollutants or contaminants by nearby populations or the food chain

As described in Section II.A.3, high concentrations of radium-226 have been detected in samples at the Mine Site. Radium is a daughter product formed when uranium and thorium decay. Two of the main radium isotopes found in the environment are radium-226 and radium-228. During the decay process, alpha, beta, and gamma radiation are released. Radium may be found in air, water and soil. Radium in the soil may be absorbed by plants.

Analytical results indicate that concentrations of radium-226 identified in these media exceed background and U.S. EPA's PRGs. Acute inhalation exposure to high levels of radium can cause adverse effects to the blood (anemia) and eyes (cataracts). Radium-226 also has been shown to affect the teeth, causing an increase in broken teeth and cavities. Exposure to high levels of radium results in an increased incidence of bone, liver, and breast cancer. The U.S. EPA and the National Academy of Sciences, Committee on Biological Effects of Ionizing Radiation, has stated that radium is a known human carcinogen (ATSDR, 1999). Inhalation of radium contaminated particulates is of particular concern. Radium emits alpha radiation, which, when inhaled, becomes a source of ionizing radiation in the lung and throat, possibly leading to toxic effects.

Much of the contaminated material in the NECR Residential Site is fine-grained and therefore likely to result in human exposure via inhalation or ingestion. Contamination is readily accessible to on-site full-time residents and potentially nearby part-time and/or full-time residents. Persons occupying or traversing the Site may be exposed to contaminated dust by inhalation or ingestion of contamination sorbed to particulate matter. Incidences of direct contact with natural and mechanically generated dust during these activities account for known contamination exposure scenarios faced at the Site. Radium-226 may be entrained in naturally and mechanically generated dust and/or transported on shoes and clothing of residents passing over contaminated areas.

Activities that occur in contaminated areas that may put persons at risk include walking or hiking, livestock grazing, gardening and yard work, and modes of transportation including all-terrain vehicle, motorcycle, or horseback. Persons may drive their vehicles over contaminated areas as well. This activity may also contribute to exposure pathways via dust generation.

Rainfall events may lead to transport of the contamination from the Mine Site. High soil erosion rates may indicate transport of contamination from the Site constituting a release of hazardous substances and resulting in secondary contamination sources. In addition, contaminants may migrate during high wind events, due to the propensity for contaminants to adhere to windborne dust particles.

Contaminated soils from the Site may continue to migrate off-site via wind and water transport mechanisms including mechanical dust generation. It is believed that the source of radium in soils in the Step Out Areas was the upgradient NECR Mine Site.

Some of the radium daughter particles, such as radon, also have a specific tendency to adhere to dust particles and migrate and have traveled off-site in historic surface water flows.

IV. ENDANGERMENT DETERMINATION

Actual and threatened releases of hazardous substances from this site, if not addressed by implementing a Time-Critical Removal Action, may continue to present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

U.S. EPA proposes to mitigate the imminent and substantial threats to human health, welfare, or the environment by taking steps to prevent the release of radium-226. The removal action will include the following objectives to prevent direct human contact with environmental radium-226:

- Conduct any additional baseline sampling necessary to assess current site conditions prior to construction and waste disposal.
- Remove contamination by excavating soil within Step Out Area #2 based on historical sampling results and real-time field gamma scans. (Similar to the 2009/2010 Interim Removal Action in Step Out Area #1, this action does not include a Final Status Survey. A Final Status Survey will be conducted for the entire NECR Mine Site, including the IRA Area, according to MARSSIM guidance at the conclusion of the response actions selected pursuant to the concurrent non-time-critical removal action memo.)
- Conduct confirmation scanning, sampling and analysis.
- Transport and consolidate excavated material at the NECR mine site and cover with clean soil.
- Restore site to pre-removal conditions including backfilling and re-grading of excavation areas for erosion and storm water control. These areas will also be re-vegetated with native species.
- Requested funding will include payment for voluntary alternative housing options to residents significantly impacted by disruptions associated with the removal action. The housing payments will be calculated consistent with EPA's April 2002 Superfund Response Actions: Temporary Relocations Implementation Guidance (OSWER Directive 9230.0-97) and the Uniform Relocation Assistance and Real Property Acquisitions Act ("URA"), 42 U.S.C. §§ 4601 et seq., and its implementing regulations, 49 C.F.R. Part 24.

2. Contribution to remedial performance

This removal action would address surface soil contamination within Step Out Area #2. U.S. EPA has recently worked to assess groundwater for the NECR Mine Site and surrounding facilities, including historic releases from these facilities; however, the removal action that is the subject of this memorandum does not address groundwater.

The long-term cleanup plan for the site:

It is expected that this removal action will eliminate any threat of direct or indirect contact with or inhalation of hazardous substances in Step Out Area #2. As discussed above, U.S. EPA is issuing a separate and concurrent non-time-critical action memo which addresses soil contamination at the NECR Mine Site. The non-time-critical action memo also does not address groundwater.

Consistency with the long-term remedy:

The Time-Critical Removal proposed for Step Out Area #2 is consistent with addressing the larger issue of potential exposures posed by the NECR Mine Site.

3. Applicable or relevant and appropriate requirements (ARARs)

A complete list of Applicable or Relevant and Appropriate Requirements (“ARARs”) are provided as Attachment II.

Section 300.415(j) of the NCP provides that removal actions must attain ARARs to the extent practicable, considering the exigencies of the situation.

Section 300.5 of the NCP defines applicable requirements as cleanup standards, standards of control, and other substantive environmental protection requirements, criteria or limitations promulgated under Federal environmental or State environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location or other circumstances at a CERCLA site.

Section 300.5 of the NCP defines relevant and appropriate requirements as cleanup standards, standards of control and other substantive requirements, criteria, or limitations promulgated under Federal environmental or State environmental or facility siting laws that, while not “applicable” to a hazardous substance, pollutant, or contaminant, remedial action, location, or other circumstances at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site and are well-suited to the particular site.

Because CERCLA on-site response actions do not require permitting, only substantive requirements are considered as possible ARARs. Administrative requirements such as approval of, or consultation with administrative bodies, issuance of

permits, documentation, reporting, record keeping, and enforcement are not ARARs for on-site CERCLA actions.

4. Project schedule

It is estimated that removal activities will take approximately three months to complete excavation and disposal of the contaminated material plus revegetation activities. However, with confirmation sampling, analysis, reporting and any additional work that may be necessary, the action may take up to six months to completion. It is anticipated that this removal action will be completed in 2012.

B. Estimated Costs

The total cost for the removal action is estimated to be \$2,000,000 based on the estimated volume of 30,000 cubic yards and the reported associated costs for Step Out Area #1. US EPA expects UNC to pay for removal and disposal of contaminated soils under a settlement or a unilateral order. In addition, the U.S. anticipates the following extramural costs, which will be eligible for cost recovery:

Cost of the Removal Action paid by the Responsible Party: \$2,000,000

U.S. EPA Extramural Cost Summary

Housing: \$600,000

START Contractor: \$100,000

TOTAL: \$700,000

U.S. EPA plans to use extramural funding sources to fund housing and oversight work prior to pursuing cost recovery.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the site conditions, the nature of the hazardous substances documented on site, and the potential exposure pathways to nearby populations described in Sections III and IV above, actual or threatened releases of hazardous substances from the Mine Site, if not addressed by implementing the response actions selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

VII. OUTSTANDING POLICY ISSUES

Outstanding policy issues related to the consolidation of mine wastes on the UNC Mill Site are addressed in the concurrent non-time critical action memorandum for the NECR Mine Site removal action.

There are no other outstanding policy issues that have been identified at this time.

VIII. ENFORCEMENT

U.S. EPA expects UNC to pay for removal and disposal of contaminated soils under a settlement or a unilateral order, and to reimburse U.S. EPA for the costs incurred in oversight of the PRP's work. The following intramural and extramural costs are also recoverable:

Intramural Costs¹:

U.S. EPA Direct Costs:	\$50,000
U.S. EPA Indirect Costs (47.71% of Extramural ² and Intramural costs)	\$357,825

Total Intramural Costs: \$407,825

The total U.S. EPA extramural and intramural costs for this removal action, based on full-cost accounting practices, that will be eligible for cost recovery are estimated to be \$1,107,825.

U.S. EPA expects UNC/GE to pay for removal and disposal of contaminated soils under a settlement or a unilateral order, and to reimburse U.S. EPA for the costs incurred in oversight of the PRP's work and other costs per section V. B.

IX. RECOMMENDATION

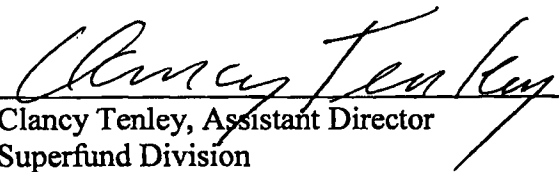
We recommend that you approve this removal action memorandum and the decision incorporated therein. This Action Memorandum documents the selected removal action for Step Out Area #2, McKinley County, New Mexico, developed in accordance with CERCLA as amended, and is not inconsistent with the NCP. This decision is based on the Administrative Record for the NECR Eastern Drainage Step Out Area #2.

Conditions at the NECR Step Out Area #2 meet the NCP criteria for a Time-Critical Removal Action. The total project ceiling for this time critical removal action if approved will be \$1,107,825, of which \$700,000 would come from U.S. EPA extramural

¹ Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the United States' right to cost recovery

² See section V.B.

funding sources.

Approve: 
Clancy Tenley, Assistant Director
Superfund Division

Date 9/26/2011

Disapprove: _____
Clancy Tenley, Assistant Director
Superfund Division

Date

cc: Sherry Fielding, U.S. EPA, OERR, HQ
Steven Etsitty, Navajo Nation Environmental Protection Agency
David Taylor, Navajo Nation Department of Justice
Steven Spencer, U.S. Department of Interior
Katrina Coltrain, U.S. EPA Region 6
Yolanda Norman, NRC
Deborah Steckley, DOE

LIST OF ATTACHMENTS

Attachment I – Index to Administrative Record

Attachment II – Applicable or Relevant and Appropriate Requirements

Attachment I

INDEX TO THE ADMINISTRATIVE RECORD

NECR Mine Superfund Site Drainage East of Red Water Pond Rd Removal AR Index - 9/27/11

Doc ID	Doc Date	Title/Subject	Author	Addressee	Access Code
2240724	6/11/2009	Northeast Churchrock Mine Engineering Evaluation/Cost Analysis (EE/CA) for Non-Time Critical Removal Administrative Record Index	Environmental Protection Agency - Region 9		REL
1128301	1/7/2011	Ltr: Supplemental removal site evaluation workplan - E drainage, w/attchs	Toby Leeson / M W H Americas, Inc	Sara Jacobs / Environmental Protection Agency - Region 9	REL
1128449	3/24/2011	Supplemental removal site evaluation (RSE), east drainage area - figures 1-2, revision 0	M W H Americas, Inc	United Nuclear Corp	REL
1128306	4/5/2011	Ltr: Response to supplemental removal site evaluation workplan, East drainage, NECR site, MWH, dated 1/7/11	Sara Jacobs / Environmental Protection Agency - Region 9	Lance Hauer / General Electric Co	REL
2240722	4/8/2011	Northeast Churchrock Mine Superfund Site, Residential Site #1 Removal Administrative Record Index	Environmental Protection Agency - Region 9		REL
2240723	4/8/2011	NE Churchrock Quivira Mines Superfund Site, Residential Site #2 Removal Administrative Record Index	Environmental Protection Agency - Region 9		REL
1128448	4/14/2011	Ltr: Revised supplemental removal site evaluation (RSE) workplan, east drainage area (red-line revision)	Toby Leeson / M W H Americas, Inc	Sara Jacobs / Environmental Protection Agency - Region 9	REL
1128444	4/15/2011	Email: Discusses Churchrock mine archaeological survey, w/history	Lance Hauer / General Electric Co	Sara Jacobs / Environmental Protection Agency - Region 9	REL
1128445	4/18/2011	Ltr: Approval of revised supplemental removal site evaluation (RSE) workplan, east drainage area	Sara Jacobs / Environmental Protection Agency - Region 9	Lance Hauer / General Electric Co	REL
1128442	5/10/2011	Supplemental removal site evaluation (RSE) rpt, east drainage area - figures 1-3 (draft)	M W H Americas, Inc	United Nuclear Corp	REL
1128326	5/13/2011	Maps (8): Supplemental removal site evaluation rpt, figures 3-1, 3-2.1, 3-2.2, 3-2.3, 3-2.4, 3-4 (2 versions)	Montgomery Watson Harza		REL

NECR Mine Superfund Site Drainage East of Red Water Pond Rd Removal AR Index - 9/27/11

1128446	5/23/2011	NECR east drainage area, figure 1 - fencing plan	M W H Americas, Inc	United Nuclear Corp General Electric Co	REL
1128447	9/2/2011	Supplemental removal site evaluation (RSE) rpt, east drainage area, w/apps A & B, w/o app A figures	M W H Americas, Inc	General Electric Co United Nuclear Corp	REL
2237959	9/2/2011	Compact disc: Supplemental removal site evaluation (RSE) rpt, east drainage area (app B only - static gamma radiation survey field forms)	M W H Americas, Inc	General Electric Co United Nuclear Corp	REL
2240736	9/2/2011	Supplemental removal site evaluation (RSE) rpt, east drainage area (App A figures only)	M W H Americas, Inc	General Electric Co United Nuclear Corp	REL
2240727	9/16/2011	Northeast Churchrock Mine Superfund Site Step-Out Interim Removal Administrative Record Index	Environmental Protection Agency - Region 9		REL
2240728	9/16/2011	NE Churchrock Quivira Mines Superfund Site Removal Administrative Record Index	Environmental Protection Agency - Region 9		REL
2240732	9/26/2011	Action Memo: Request for time-critical removal action at NECR site Drainage East of Red Water Pond (Step-Out Area #2)	Environmental Protection Agency - Region 9		REL
2240737	9/27/2011	Northeast Churchrock Mine Superfund Site Engineering Evaluation/Cost Analysis (EE/CA) Non-Time-Critical Update 1 Removal Administrative Record Index	Environmental Protection Agency - Region 9		REL
1128443		Supplemental removal site evaluation (RSE) rpt, east drainage area - tables 1-3 (draft)	M W H Americas, Inc	United Nuclear Corp	REL

Attachment II

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs) TABLE

In the Engineering Evaluation and Cost Analysis (“EE/CA”), U.S.EPA addressed the Applicable or Relevant and Appropriate Requirements (“ARARs”) for the proposed Actions at the Site. This attachment contains a discussion of how the ARARs are selected, and lists the ARARs laid out in the EE/CA as well as the additional ARARs identified as a result of comments received by U.S. EPA during the Public Comment Period on the EE/CA.

Applicable or relevant and appropriate requirements (ARARs) cover both federal and state environmental requirements and are used to: (1) evaluate the appropriate extent of Site cleanup; (2) scope and formulate alternatives; and (3) guide the implementation and operation of a selected action. Section 300.415(j) of the NCP requires that “removal actions pursuant to CERCLA Section 106, shall "to the extent practicable, considering the exigencies of the situation, attain ARARs under federal or state environmental or facility siting laws.” The U.S. EPA Region 9 requested and received ARARs from the State of New Mexico and the Navajo Nation EPA for consideration in this EE/CA (see table provided as Attachment II for a complete list of the ARARs for this removal action).

Terms and Definitions

The following are explanations of the terms and definitions used throughout this ARARs discussion. Applicable requirements are clean-up standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site (52 Federal Register [FR] 32496, August 27, 1987). Relevant and appropriate requirements are clean-up standards, standards of control, or other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that, while not applicable to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well-suited to the particular site (52 FR 32496). Portions of a requirement may be relevant and appropriate even if the entire requirement is not. Information to be considered includes non-promulgated advisories or guidance issued by federal or state government that are not legally binding and do not have the status of potential ARARs. They are considered in the absence of federal or state ARARs, or when such ARARs are

not sufficiently protective. An example of information to be considered is the U.S. EPA Region 9 PRGs that provide guidance to assess human health implications during a removal action.

Under the description of ARARs set forth in the NCP, state and federal ARARs are organized under the following three categories:

Chemical-specific ARARs are usually health- or risk-based standards that limit concentrations of chemicals found in or discharged to the environment. They govern the extent of site remediation by providing either actual clean-up levels or the basis for calculating such levels. Chemical-specific ARARs may also be used to indicate acceptable levels of discharge in determining treatment and disposal requirements and to assess the effectiveness of future remedial alternatives. For example, state water quality standards apply to a site where treatment effluent is discharged to a surface water body.

Location-specific ARARs set restrictions on chemical concentrations or the conduct of activities solely because they are in special locations (53 FR 51394). In determining the use of location-specific ARARs for selected remedial actions at CERCLA sites, the jurisdictional prerequisites of each of the regulations must be investigated. In addition, basic definitions and exemptions must be analyzed on a site-specific basis to confirm the correct application of the requirements. For example, federal and state regulations concerning groundwater may apply at a site where a removal action may impact groundwater quality.

Action-specific ARARs set controls or restrictions on particular kinds of activities related to the management of particular wastes or materials (53 FR 51437). Selection of a particular response action at a site will invoke the appropriate action-specific ARARs that may specify particular performance standards or technologies as well as specific environmental levels for discharged or residual chemicals. For example, the federal noise regulations apply at a site where construction and heavy equipment activities are occurring.

Identification and evaluation of ARARs is an iterative process that continues throughout the response process. As a better understanding is gained of Site conditions, contaminants, and response alternatives, the lists of ARARs and their relevance to the removal action may change.

Other Considerations and Assumptions

The following additional considerations and assumptions were made during the ARAR identification process.

Occupational Safety and Health Administration (OSHA)

OSHA has promulgated standards for protection of workers who may be exposed to hazardous substances at Resource Conservation and Recovery Act (RCRA) or CERCLA sites (29 CFR Parts 1910.120 and 1926.65). The U.S.EPA requires compliance with

OSHA standards in the NCP (40 Code of Federal Regulations [CFR] 300.150), but not through the ARAR process. Therefore, OSHA standards are not considered ARARs. Although the requirements, standards, and regulations of OSHA are not ARARs, they will be complied with during the removal action.

Uranium Mill Tailing Radiation Control Act (UMTRCA)

UMTRCA programs are categorized under Title I and Title II. Title I addresses specific inactive Uranium processing sites and Title II addresses active sites that are required to have a license from NRC. Under UMTRCA, the U.S.EPA was directed to devise standards for both the control Engineering Evaluation/Cost Analysis and cleanup remedial actions. The NECR mine site is not a listed site under Title I of UMTRCA nor would NECR mine wastes be classified under Title II. However, UMTRCA requirements may be ARARs under certain circumstances, as reflected in the ARARs table attached as an Appendix to this Attachment.

Acronyms

BMP	Best Management Practice
CAA	Clean Air Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
ESA	Endangered Species Act
Mrem/yr	Milli-Roentgen-Equivalent-Man/Year
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NMAC	New Mexico Administrative Code
NMSA	New Mexico Statutes Annotated
NN	Navajo Nation
NPDES	National Pollutant Discharge Elimination System
NRC	Nuclear Regulatory Commission
RCRA	Resource Conservation and Recovery Act
SMCRA	Surface Mining Control and Reclamation Act
TBC	To Be Considered
UMTRCA	Uranium Mill Tailings Radiation Control Act
USC	United States Code

**Table A-1
Chemical-Specific ARARs and TBC Information**

Media	Requirement	Requirement Synopsis	Status and Rationale
Solid Wastes	FEDERAL Resource Conservation and Recovery Act (RCRA) of 1976, as amended – Subtitle D, 42 USC 6901 et seq.	Regulates disposal of solid waste. Per 42 USC 6903(27), RCRA does not regulate “source, special nuclear, or byproduct material” as defined in the Atomic Energy Act, but may apply to other wastes, including ores containing uranium in concentrations less than 500 ppm.	Substantive requirements may be applicable to wastes that are subject to the Act
Hazardous Wastes	FEDERAL Resource Conservation and Recovery Act (RCRA) of 1976, as amended – Subtitle C, 42 USC 6901 et seq.	Provides for “cradle-to-grave” regulation of hazardous wastes. Per 42 USC 6903(27), RCRA does not regulate “source, special nuclear, or byproduct material” as defined in the Atomic Energy Act. Per 40 CFR 261.4(b)(7), wastes derived from the extraction, beneficiation and processing of ores are not hazardous wastes. EPA does not anticipate encountering RCRA hazardous wastes during this removal action. However, if hazardous wastes (e.g., buried drums containing solvents) are discovered, RCRA hazardous waste requirements would be ARARs.	Substantive requirements may be applicable if wastes that are subject to the Act are encountered
Soils	FEDERAL Surface Mining Control and Reclamation Act of 1977 (SMCRA), as amended – And regulations at 30 CFR Parts 816 and 817	Establishes a program for regulating surface coal mining and reclamation (mandatory uniform standards). Includes minimization of impacts on fish, wildlife, and related environmental values. Revegetation requirements (e.g., 30 CFR 816.111) may be relevant & appropriate to protect against erosion.	Substantive requirements may be relevant and appropriate
Hazardous Materials	FEDERAL Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA), as amended – And regulations at 40 CFR Part 192, Subparts A-E	Protect the public and the environment from uranium mill tailings. Some requirements (e.g., 40 CFR 192.02, 192.12, 192.32) may be ARARs.	Substantive requirements may be applicable to activities involving uranium mill tailings, and/or activities on UNC NPL site, if any; may be relevant and appropriate to other activities
Other	FEDERAL Code of Federal Regulations (CFR), Title 10, Part 20 NRC Regulations – Standards for Protection Against Radiation; Subpart D – Radiation Dose Limits	Establishes standards for protection against ionizing radiation resulting from activities conducted under licenses issued by the NRC	Substantive requirements may be applicable or relevant and appropriate if source, byproduct or special nuclear material is encountered
Air	FEDERAL Clean Air Act (CAA) – National Emission Standards for Hazardous Air Pollutants (NESHAPs) that apply to radionuclides, Title 40 CFR Part 61, Subpart H.	Regulates airborne emissions of radionuclides to nearest off site receptor during cleanup of Federal facilities and licensed U.S. NRC facilities. Emissions of radionuclides cannot exceed 10 milli-Roentgen-Equivalent-Man per year (mrem/yr)	Substantive requirements may be relevant and appropriate to activities during the removal action. These requirements may become applicable if DOE takes over long-term maintenance of the facility in the future.

**Table A-1
Chemical-Specific ARARs and TBC Information**

Media	Requirement	Requirement Synopsis	Status and Rationale
Other	FEDERAL EPA Directive on Protective Cleanup Levels for Radioactive Contamination at CERCLA sites. OSWER Directive 9200.4-18	Provides guidance for cleanup levels for CERCLA sites with radioactive contamination. Cleanup of radionuclides are governed by risk established in the NCP when ARARS are not available or sufficiently protective.	TBC
Water	NAVAJO NATION Navajo Nation Pollutant Discharge Elimination System Program – applicable regulations	Protection of NN watershed from discharges of pollutants from any point source	Substantive requirements may be applicable to activities on reservation and tribal trust land
Solid Wastes	NAVAJO NATION Navajo Nation Solid Waste Act – Subchapter 2 – Prohibited Act Subchapter 5 – Enforcement	Protect the health, safety, and preserve the resources of the NN. Regulates solid waste but exempts mine tailings and waste rock. Some requirements are applicable to salts.	Substantive requirements may be relevant and appropriate if regulated salts are encountered during removal action
Air	NAVAJO NATION Navajo Nation Air Pollution Prevention and Prevention Act – Air Quality Control Programs – Permits, 2004; Code of Regulations for air emissions, Rules and Regulations.	Outlines Best Management Practices (BMPs) to control dust that would be generated during earth moving activities. Details the BMPs to control excessive amounts of particulates.	Substantive requirements may be applicable to activities on reservation and tribal trust land
Water	NAVAJO NATION Navajo Nation Clean Water Act – Title 4 Navajo Nation Code.	Establishes water quality standards; prevention of pollutant discharges. Standards protect fish, wildlife, and domestic, cultural, agricultural, and recreational uses of water.	Substantive requirements may be applicable to activities on reservation and tribal trust land
Hazardous Waste	STATE Hazardous Waste Act 20.4 NMAC – Hazardous Waste Regulations	Establishes criteria for the classification of hazardous waste and for the treatment, storage, and disposal of hazardous waste. The state Act incorporates most Federal RCRA regulations, including the definition of solid waste, which excludes “source, byproduct or special nuclear material.” New Mexico’s definition of hazardous waste also excludes wastes from the extraction, beneficiation, and processing of ores and minerals.	Substantive requirements may be applicable or relevant and appropriate, if wastes that are subject to the Act are encountered.
Solid Waste	STATE Solids Waste Act 20.9 NMAC – Solid Waste Regulations	Establishes criteria for the handling of solid waste. The state Act incorporates most Federal RCRA regulations, including, as noted above, the definition of solid waste, which excludes “source, byproduct or special nuclear material.”	Substantive requirements may be applicable or relevant and appropriate, if wastes that are subject to the Act are encountered.
Water	STATE 20.6.2 NMAC – New Mexico Water Quality Ground and Surface Water Protections	Establishes water quality standards and regulations to prevent or abate water pollution from discharges, including surface water and groundwater.	Substantive requirements may be relevant and appropriate to surface runoff on reservation or tribal trust land, and may be applicable to protecting groundwater and surface runoff on non-tribal lands

**Table A-1
Chemical-Specific ARARs and TBC Information**

Media	Requirement	Requirement Synopsis	Status and Rationale
Water	STATE 20.6.4 NMAC – New Mexico Standards for Interstate and Intrastate Surface Waters	Establishes water quality standards that consist of the designated use or uses of surface waters, water quality criteria necessary to protect the use or uses, and an anti-degradation policy.	Substantive requirements may be relevant and appropriate to surface runoff on reservation or tribal trust land, and may be applicable to surface runoff on non-tribal lands
Other	STATE 20.3.14 NMAC – New Mexico Standards for Protection Against Radiation	Establishes standards for protection against radiation resulting from extraction, transport, transfer and storage of naturally occurring radioactive materials in the oil and gas industry.	Substantive requirements may be relevant and appropriate
Other	STATE 20.3.4 NMAC – Standards for Protection Against Radiation	Establishes standards for protection against ionizing radiation resulting from activities conducted pursuant to licenses or registrations issued by the Department	Substantive requirements may be relevant and appropriate

**Table A-2
Location-Specific ARARs and TBC Information**

Media	Requirement	Requirement Synopsis	Status and Rationale
Cultural Resources	FEDERAL The Native American Graves Protection And Repatriation Act – 25 United States Code (USC) Section 3001 <i>et seq</i> and its regulations Title 43 CFR Part 10.	Protects Native American graves from desecration through the removal and trafficking of human remains and cultural items including funerary and sacred objects	Substantive requirements applicable if Native American burials or cultural items are identified within area to be disturbed
Cultural Resources	FEDERAL National Historic Preservation Act – 16 USC 470 <i>et seq</i> ; 36 CFR Part 800	Provides for the protection of sites with historic places and structures	Substantive requirements applicable if eligible resources identified within area to be disturbed
Cultural Resources	FEDERAL Archeological Resources Protection Act of 1979 – 16 USC Sections 47000-47011; 43 CFR Part 7	Prohibits removal of or damage to archaeological resources unless by permit or exception	Substantive requirements applicable if eligible resources are identified within area to be disturbed
Cultural Resources	FEDERAL American Indian Religious Freedom Act – 42 USC Section 1996 <i>et seq.</i>	Protects religious, ceremonial, and burial sites, and the free practice of religions by Native American groups	Substantive requirements applicable if Native American sacred sites are identified within area to be disturbed
Wildlife	FEDERAL ESA – 7 USC Section 136; 16 USC Sections 15331-1548, Title 50 CFR Parts 17 and 402	Regulates the protection of threatened and endangered species or critical habitat of such species	Substantive requirements applicable if protected species are identified within area to be disturbed
Wildlife	NAVAJO NATION Navajo Nation Endangered Species List – Resource Committee Resolution RCAU-103-05	Regulates the protection of Navajo Nation threatened and endangered species or critical habitat of such species	Substantive requirements applicable if protected species are identified within area to be disturbed on reservation or tribal trust land
Cultural Resources	STATE NMSA 1978 – New Mexico Cultural Properties Act	Requires the identification of cultural resources, assessment of impact on those resources that may be caused by the proposed remedy, and consultation with the State Historic Preservation Officer	Substantive requirements applicable to response actions on non-tribal lands in New Mexico

**Table A-3
Action-Specific ARARs and TBC Information**

Media/ Activity	Requirement	Requirement Synopsis	Status and Rationale
Hazardous Materials	FEDERAL Federal Hazardous Materials Transportation Law (formerly Hazardous Materials Transportation Act) – 49 CFR Parts 171, 172, 173	Provides protection against the risks to life, property, and the environment that are inherent in transportation of hazardous materials in commerce	Substantive requirements applicable to transportation of materials subject to the Act, including radionuclides
Water	FEDERAL EPA Guidance for Developing Best Management Practices for Storm Water – Publication EPA/832/R-92006	Guidance for developing stormwater BMPs for industrial facilities	TBC
Water	FEDERAL CWA – Section 402, National Pollutant Discharge Elimination System (NPDES) Stormwater discharges (40 CFR parts 122, 125).	On-site and off-site discharges from site are required to meet the substantive CWA requirements, including discharge limitations, monitoring and best management practices	Substantive requirements may be applicable
Water	FEDERAL CWA – Section 404, dredged or fill material, 33 CFR parts 320--330, 40 CFR 230.	Regulates discharge of dredge or fill material into waters of the U.S.	Substantive requirements may be applicable to activities impacting waters of the U.S.
Air	STATE 20.2 NMAC – Air Quality	Establishes ambient air quality standards, performance standards for specific sources of air pollutants, and specifies monitoring methods	Substantive requirements may be relevant and appropriate to sources on reservation or tribal trust land; may be applicable to sources on non-tribal lands in New Mexico
Mining	STATE 19.10 NMAC – Regulation of Non-Coal Mining	Establishes requirements for mine reclamation and close-out plans	Substantive requirements may be relevant and appropriate
Wildlife	STATE 19.21.2 NMAC – New Mexico Wildlife Conservation Act NMSA 178 Sections 17-2-37 thru 17-2-46	Regulates taking of endangered plant species	Substantive requirements may be applicable if protected species are identified within area to be disturbed on non-tribal lands; may be relevant and appropriate on reservation or tribal trust land