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

MEMORANDUM

DATE: August 24, 2010

SUBJECT: Request for a Time-Critical Removal Action at the Quivira Mine, McKinley County, New Mexico, Navajo Nation Indian Reservation

FROM: Andrew Bain, Remedial Project Manager
Arizona and Navajo Section (SFD-6-2)

THROUGH: Claire Trombadore, Chief
Arizona and Navajo Sites Section (SFD-6-2)

TO: Clancy Tenley, Assistant Director
Superfund Division
Partnerships, Land Revitalization & Cleanup Branch (SFD-6)

I. PURPOSE

The purpose of this Action Memorandum is to describe the hazardous conditions at a portion of the Church Rock #1 and #1 East Mines ("Quivira Mine Site" or "Site"/ Map ID E4, Mine ID 305 (Churchrock #1); and Map ID E5, Mine ID 303 (Churchrock #1E) that require the proposed interim response actions ("IRA"), including the interim response mitigation actions ("IRMA") and need to conduct a Removal Site Evaluation ("RSE"), which we anticipate will be performed pursuant to a Administrative Order on Consent with Rio Algom Mining LLC, a subsidiary of BHP Billiton ("BHP"). This Action Memorandum also seeks approval to spend up to $158,820 in direct costs to oversee PRP actions to mitigate threats to human health and the environment posed by the presence of hazardous substances and to characterize the contamination at the Site. The proposed IRA would include mitigation activities (fencing, road paving and soil stabilization) in the specified areas of concern prior to implementation of a site-wide characterization (RSE) and time critical removal action involving the rest of the Site:

Interim Response Actions:

1) repair Site boundary fence, conduct monthly inspections and maintain access control;

2) chip seal or asphalt the specified segment of Red Water Pond Road ("RWPR") crown and the Mine Entrance Road and apply erosion and dust control measures to the shoulders (within 50 feet of the center of the road) as shown on Map 1;
3) apply erosion and dust control measures on the area shown on Map 1, next to RWPR, including the entire western and southern waste pile side slopes to control erosion and run-off from the NE Church Rock #1 Mine Area;
4) characterize radium and uranium, including both the lateral and vertical extent of the surface and subsurface area beneath and immediately adjacent to the Mine Entrance Road and the first 50 feet of RWPR to the west of the junction with the Mine Entrance Road, prior to paving; and
5) characterize radium and uranium surface and subsurface soils and arroyo sediments from the entire Church Rock #1 and #1E mine impact areas and screen selected samples for additional analytes.

The Site is located on the Navajo Nation, on Red Water Pond Road, in the Coyote Canyon Chapter, and Pipeline Canyon Road, in Nahodishgish Chapter, McKinley County, New Mexico.

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.

II. SITE CONDITIONS AND BACKGROUND

Site Status: Non-NPL
Category of Removal: Time-Critical
CERCLIS ID: NNSFN0905492
SITE ID: QM

A. IRA Area and Site Description

1. Physical Location

The Site includes the Quivira Mine Areas and all areas where hazardous substances from that mining operation have come to be located. The IRA Area is located in Coyote Canyon and Nahodishgish Chapters on the Navajo Indian Reservation immediately north of Sections 35 and 36, Township 17 North, Range 16 West approximately 20 miles northeast of Gallup in McKinley County, New Mexico. The IRA Area also includes approximately a 1,850 foot segment of RWPR north of the intersection with State Highway 566 and the approximately 400 foot length

of the Mine Entrance Road to the Church Rock #1 Mine Area, as well as the immediate vicinity of this segment of these roads.

The following aliases have been used to describe the Site: Churchrock 1 and Churchrock 1 East, NE Churchrock, Kerr McGee Quivira, Quivera, and Kerr-McGee Section 35 Mine. Lat/Long: 35.6654391042 N / -108.500960227 W. See Figure 1 for Site Location Maps.

2. IRA Area Characteristics

The IRA Area consists of the RWPR, the Mine Entrance Road and the Quivira Church Rock 1 and 1E Waste Piles (see Figure 1). The IRA Area is located entirely within the Navajo Nation Reservation, bounded to the west by the Northeast Church Rock (UNC) Mine (Map ID E6, Mine ID 304 and Pipeline Canyon Arroyo, and to the south by Sections 35 and 36 and State Highway 566. The IRA Area is in close proximity to the United Nuclear Corporation Mill NPL Site located on Sections 36 and 2, which is managed jointly by the US Nuclear Regulatory Commission (NRC) and EPA Region 6.

Contaminated material originating from the Quivira Mine has been observed in the road crown and shoulders and has migrated to at least one homesite east of RWPR. UNC characterized the surface and subsurface RWPR material south of the Unnamed Arroyo #2 approximately 1,800 feet.

The Quivira mine areas contain abandoned uranium mines and are considered to be the major sources of the soil contamination at the Site. The Kerr McGee Corporation (KMC) operated the mines from 1974-1985. All the uranium ore from the mines, approximately 5 million pounds, was processed at the Quivira Mining Corporation (QMC) Ambrosia Lake Mill located in Grants, New Mexico and accessed via the haul road (a.k.a. RWPR).

The Site consists of one shaft, a uranium ore waste pile, several mine vent holes, treatment ponds and a production well developed at approximately 1,800 feet used to dewater the mine workings during operations. The western and southern edges of the Site, representing a approximately 3:1, 30 to 40 foot face reportedly constructed of mining overburden, is partially located adjacent to the RWPR and the Arroyo.

The Site is believed to be impacted by wind and water erosion during weather events. A 2003 Navajo EPA Site Screen, indicated a maximum gamma radiation dose rate of 57 micro Roentgens per hour. In 2009, EPA staff and contractor, Weston, measured gamma activity between 50,000 and 100,000 counts per minute at several areas on RWPR north of the bridge

and atop the waste pile. EPA's scanner van survey (2003) and UNC's Removal Site Evaluation (RSE) sampling and Supplemental RSE (SRSE) investigations in the vicinity of RWPR indicate that elevated levels of Radium-226 are present throughout the length of the road.

The Unnamed Arroyo#2, RWPR and the surrounding NECR IRA Areas are downgradient of the Site.

3. NECR Removal Site Evaluation and Supplemental Removal Site Evaluation

UNC, a Potentially Responsible Party (PRP), conducted the RSE at the NECR Mine with U.S. EPA and NNEPA oversight. In addition to the NECR Mine area, the RSE included RWPR. The work plan was developed and executed pursuant to an Administrative Order on Consent (AOC) between U.S. EPA and UNC.

UNC collected analytical samples and conducted gamma surveys during the RSE and SRSE field investigations. The gamma survey consisted of static direct gamma radiation level measurements (gamma survey). The survey was conducted consistent with MARSSIM guidance.

The gamma survey measurements were collected at 80-foot triangular grid nodes cast on a random origin in accordance with MARSSIM, using the same protocol as the other survey areas specified in the RSE Work Plan. In the area north of NECR-1, the gamma survey was extended west to the Unnamed Arroyo #1, north to the second unnamed arroyo that runs east-west (Unnamed Arroyo #2), and east to the side of Red Water Pond Road. Details of the instrumentation configuration and Standard Operating Procedures (SOPs) are described in the RSE Work Plan.

Surface soil samples were collected at approximately 20 percent of the gamma survey points and collected manually as grab samples from 0 to 0.5 feet below ground surface (bgs). The samples were submitted to Energy Laboratories, Inc. and analyzed for:

- Radium-226 by U.S. EPA Method 901.1; and
- Total uranium by U.S. EPA Method 6020/200.8.

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

The residential Preliminary Remediation Goal (PRG) for radium-226 is 0.0124 Pico Curies per gram (pCi/g). EPA recommends selecting the same value for the road, based on the likelihood that road materials will continue to migrate from the road and recontaminate the

recently remediated residential areas adjacent to the road. The field screening level (FSL) for the Site was 2.24 pCi/g. The Site screening level is the sum of the Site-specific background mean and a risk-based value representing the upper end of the risk range (i.e., the 1 in 10,000 excess cancer risk for radium in residential exposure scenarios). The Site specific background mean was 1.0 pCi/g and the risk-based value was 1.24 pCi/g[1]. The entire RSE and SRSE datasets are included as Attachment II.

Red Water Pond Road: According to the SRSE report,100% of the gamma radiation measurements (Ra-226 equivalent) performed adjacent to the east and west sides of Red Water Pond Road, as well as the surface soil samples (Ra-226) collected adjacent to the road exceeded the field screening level (FSL) of 2.24 pCi/g. Elevated Ra-226 in soils near and beneath Red Water Pond Road are believed to be associated with the historical use of this road as a haul road for the Site north of UNC's NECR Mine. Due to the proximity of NECR to the southern portion of RWPR and based on local drainage patterns in this area, past operations at the NECR Mine could have caused some impacts. Additional characterization of RWPR north of the bridge is required to assess the scope of future removal activities.

Background: It is notable that the Site-specific background level was determined based on a background survey conducted on August 17, 2006. On that date, 25 surface soil samples were collected from an area located southwest of the NECR Mine. The area was judged to be un-impacted by mining activities and situated upwind from the NECR Mine. The Technical Memorandum background report is included in the Site Administrative Record.

5. NPL status

The Site is not separately listed on the National Priorities List (NPL). However, the Quivira Mine Site is located in close proximity to the UNC NPL site and there is a possibility that groundwater contamination from the two sites may be comingled. In 2000, the Navajo Superfund Program conducted a pre-CERCLIS site screening of the Quivira Mine (CERCLIS ID No. NNSFN0905492). The RSE Work Plan determined the need for investigation of the Step-Out Area, including RWPR. EPA ultimately included the Step-Out area in studies and planning for removal actions at the NECR Mine.

Current conditions at the Site pose an imminent and substantial endangerment (see Sections III and IV) in the RWPR Area. The proposed Interim Removal Action is expected to complete work at the IRA Site (subject to verification in the Final Status Survey for the entire

[1] The residential PRG is 0.0124 pCi/g. This represents the 1 in 1,000,000 risk and is below the analytical detection limit (0.1 pCi/g). EPA policy states that a 1 in 10,000 risk is acceptable as a Removal Action objective, therefore, the PRG was scaled up to the 1 in 10,000 risk range to give a risk-based value of 1.24 pCi/g.

Mine Site), but will not complete work at the Quivira Mine Site and other potentially impacted areas not yet characterized.

B. Other Actions to Date

The UNC NECR Residential Time Critical Removal Actions #1 and #2 consisting of three homesites and one homesite respectively situated within or near the RWPR Area occurred at or in the vicinity of the Site in summer 2007. At that time, the surface soils from approximately one-half acre around each homesite was scraped and hauled off-site for disposal. In 2009 UNC, under EPA oversight, removed approximately 100,000 cubic yards of radium-contaminated soils from the remaining off-site soils at three of the homesites (Step-out Area). No other CERCLA response actions have occurred at the Site to date. Federal Nuclear Regulatory Commission remedial actions have taken place at the NECR Mine Site as well as the Mill, an NPL Site.

EPA Region 9 performed an Engineering Evaluation/Cost Analysis ("EE/CA") addressing all surface soils and sediments pertaining to the UNC NECR Mine. The proposed EE/CA was issued for public comment in Spring 2009 and all comments were received by September 9, 2009. The Region has not yet made a decision about the remedy.

C. State and Local Authorities Roles

1. State and local actions to date

No State actions have taken place at the Site; however, some of the State and Tribal actions at the UNC NECR Mine may be relevant to the Site. Region 9 issued a letter formally accepting lead for the NECR Mine on November 7, 2005.

U.S. EPA consults with the Navajo Nation EPA and DOJ with respect to the planning documents and enforcement orders.

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.4, high concentrations of radium-226 have been detected in samples of residential soils (downgradient/downwind from the Mine Area wastes that may have been impacted by Mine Area contamination and from Kerr McGee's haul road spillage) at the Site. Radium is formed when uranium and thorium break down in the environment. 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 and water. 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). It 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 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. Gardening and other yard work also may result in exposure to contamination.

Activities that occur in contaminated areas that may put persons at risk include walking or hiking, livestock grazing, and modes of transportation including all-terrain vehicle, motorcycle, or on-horseback. Persons may drive their vehicles over contaminated areas as well. This activity may also contribute to exposure pathways via dust generation. Contamination in yards where children play may also be ingested. Children may eat contaminated soils during play activities.

2. High levels of hazardous substances in soils at or near the surface that may migrate

Contaminated soils from the Site may migrate off-site via wind and water transport mechanisms including mechanical dust generation. It is believed that radium in soils at the homesites was transported there from sources including the upgradient Quivira Mine. It is likely that this contamination could continue to migrate beyond the Site boundary. Some of the radium daughter particles, such as radon, also have a specific tendency to adhere to dust particles and migrate and may have traveled off-site in historic surface water flows.

3. Weather conditions that may cause hazardous substances to migrate or be released

Rainfall events may lead to transport of the contamination from the mine to areas of concern and the homesites. 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.

4. Availability of other appropriate federal or state response mechanisms to respond to the release

The NNEPA has informed U.S. EPA that it does not have the authority or resources to address the Site.

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

U.S. EPA will direct Rio Algom through a Unilateral Administrative Settlement Agreement and Order pursuant to Sections 104, 106a, 107 and 122 of CERCLA to conduct response actions. U.S. EPA proposes to conduct technical oversight of UNC and GE. Work will consist of the following activities:

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 in RWPR and adjacent soils and:

Boundary Fence Repair: Repair entire fences surrounding the waste pile(s), conduct monthly inspections and maintain access control until the final remedy is decided and implemented;

Chip Seal: Cover soils containing Radium 226 (Ra-226) above 2.24 pCi/g (hereafter referred to as the IRA Action Level) from Navajo Reservation lands that are potentially attributable to historic activities at the Quivira Mine. Scope includes paving surficial contamination from the Quivira Mine. Contact BIA and Navajo Department of Transportation to scope and submit adequate transportation planning documentation for their purposes.

Erosion/Sediment Control: Install erosion and stability controls on the periphery of the western and southern portions of the Site to prevent transport of potentially impacted material off-site via stormwater (i.e., the unnamed arroyo and down onto the RWPR). This will include installing erosion and stability controls on the side slope of the waste pile on-site.

Investigation: Investigate the northern segment of Red Water Pond Road from the bridge at Unnamed Arroyo #2 (approximately 400 feet), as well as the immediate vicinity surrounding it to determine which portions of this area are in need of remediation. Conduct confirmation scanning prior to berm and sediment pond construction. Conduct confirmation sampling at a 5% frequency and a minimum of 20 samples prior to berm and sediment pond construction. The IRA does not include a Final Status Survey. A Final Status Survey will be conducted for the entire Quivira Mine Site, including the IRA Area, according to MARSSIM guidance, at the conclusion of the response actions selected pursuant to a future EPA decision document.

Cultural Resource Survey and Permit: Contact Navajo Historic Preservation Department about protocols for conducting a cultural resource survey and application for a permit.

Health & Safety: Implement the Work in a safe manner that is protective of site personnel as well as residents.

Excavation and removal of contaminated soils will achieve the ultimate goal of reducing the radium concentration in the excavation footprint to a concentration that is less than the Site screening level.

2. Contribution to remedial performance

This removal action is expected to provide interim protection from radium contaminated soils on RWPR, the Mine Entrance Road and erosion from the Church Rock #1 waste pile as well as to provide additional site-wide characterization. A subsequent, time critical removal action is planned to address the remainder of radium contaminated soils and sediments at the Quivira Mine Areas (#1 and #1E).

The long-term cleanup plan for the site:

It is expected that this removal action will mitigate the threat of direct or indirect contact with or inhalation of hazardous substances at the areas addressed in this removal. As discussed below, U.S. EPA expects to conduct subsequent response actions at the larger Quivira Mine Site following site-wide characterization, including a Site-wide Final Status Survey (MARSSIM).

Threats that will require attention prior to the start of a long-term cleanup:

USEPA has identified imminent threats posed by radium-226 contamination at the RWPR Area Site. The mitigation actions described above will constitute an interim remedy for the Site.

Sources of the contamination may require long-term cleanup. In future actions, these sources will comprise the Quivira Mine. USEPA will continue to coordinate with NNEPA to evaluate the risk of human health effects based on mine wastes exposure pathways that may be present at the Quivira Mine. The NECR Supplemental RSE completed 2009 constitute the basis for further action at the Quivira Mine Site.

The extent to which the removal will ensure that threats are adequately abated:

The removal of surficial hazardous substances contamination by excavation and disposal will abate the threats described in Section III.

Consistency with the long-term remedy:

The Time-Critical Removal proposed for the Site is consistent with addressing the larger issue of potential exposures posed by the Quivira and NECR Mine Sites.

3. Applicable or relevant and appropriate requirements (ARARs)

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 the CERCLA actions confined to the site.

Federal ARARs determined to be practicable for the Site are:

- U.S. Department of Transportation of Hazardous Materials Regulations 49 CFR Part 171, 172 and 173.
- The RCRA Land Disposal Restrictions (LDRs) 40 CFR 268.40 Subpart D implemented through Title 22 Section 66268.40.
- Uranium Mill Tailings Radiation Control Act (40 CFR Part 192.12 subparts B and C) requirements for residential cleanup levels of tailings sands.
- Native American Graves Protection and Repatriation Act, 25 USC Section 3001 *et seq.* and its implementing regulations, 43 CFR Part 10.
- National Historic Preservation Act, 16 USC 470 *et seq.*; 36 CFR Part 800
- Archaeological Resources Protection Act of 1979, 16 USC Sections 47000-47011; 43 CFR Part 7
- American Indian Religious Freedom Act, 42 USC Section 1996 *et seq.*
- Clean Water Act, Section 402, 33 USC 1342 (NPDES stormwater discharges)
- Clean Water Act, Section 404, 33 USC 1344 (Regulates discharge of dredge or fill material into waters of the U.S.)

Additional Federal guidance to be considered:

- U.S. EPA Directive on Protective Cleanup Levels for Radioactive Contamination at CERCLA sites. OSWER Directive 9200.4-18.

The Site, including the IRA Area, must be surveyed for potential impacts on archaeological, historic and cultural resources. The Navajo Historic Preservation Department must approve the proposed removal action with a Cultural Resources Compliance Form.

No State or Tribal ARARs have been identified.

4. Project schedule

The IRA is scheduled to start immediately after approval of the action as indicated by the signature on this memorandum and EPA approval of the Administrative Order on Consent with the PRP Rio Algom Mining LLC ("Rio Algom") or Unilateral Administrative Order directed to Rio Algom. The removal activities are expected to take approximately three months to complete.

B. Estimated Costs

As stated above, U.S. EPA expects to issue a Unilateral Administrative Settlement Agreement and Order with Rio Algom Mining LLC to conduct the IRA. U.S. EPA may incur the following costs in its role overseeing or reviewing the response actions to be completed. These are costs for oversight to come from the Regional Removal Allowance through the Quivira Site Special Account.

Regional Removal Allowance Costs

START Contractor/USCG PST	$ 100,000
Extramural Subtotal	$ 100,000
TOTAL, Removal Action Project Ceiling	$ 100,000

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 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

There are no outstanding policy issues with the Site identified at this time.

VIII. ENFORCEMENT

Please see the attached Confidential Enforcement Addendum for a discussion regarding potentially responsible parties (PRPs). If the PRP does not enter into a timely Administrative Order on Consent, U.S. EPA expects to issue the PRP a Unilateral Administrative Order requiring the PRPs to pay for all work, and to reimburse U.S. EPA for the oversight costs. The following intramural costs are also recoverable:

Intramural Costs[2]

U.S. EPA Direct Costs	$ 25,000
U.S. EPA Indirect Costs (35.28%)	$ 33,820
TOTAL Intramural Costs	$ 58,820

The total USEPA 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 $158,820.

IX. U.S. EPA RECOMMENDATION

[2] 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.

This decision document represents the selected removal action for the Quivira Red Water Pond Road Area Site, Coyote Canyon Chapter, McKinley County, New Mexico developed in accordance with CERCLA as amended, and not inconsistent with the NCP. This decision is based on the Administrative Record for the Site.

Because conditions at the site meet the NCP criteria for a Time-Critical Removal Action, USEPA enforcement staff recommends the approval of the removal action proposed in this Action Memorandum. The total project ceiling if approved will be $158,820, of which an estimated $158,820 comes from the Advice of Allowance fund. Approval may be indicated by signing below.

Approve: Claire Hombadone acting for _____ 8/24/2010

Clancy Tenley, Assistant Director — Date
Superfund Division
Partnerships, Land Revitalization & Cleanup Branch

Disapprove: _____ _____

Clancy Tenley, Assistant Director — Date
Superfund Division
Partnerships, Land Revitalization & Cleanup Branch

Attachments:

I. Index to the Administrative Record

cc: Sherry Fielding, USEPA, OERR, HQ
Steven Etsitty, Navajo Nation Environmental Protection Agency
David Taylor, Navajo Nation Department of Justice
Steven Spencer, U.S. Department of Interior
David Sitzler, BLM
Don Williams, USEPA, Region 6

bcc: H. Allen, SFD-9-2
A. Bain, SFD-6-2
L. Williams, ORC-3
C. Temple, SFD-9-2
Mark Purcell, U.S. EPA Region 6
Katrina Coltrain, U.S. EPA Region 6
Michele Dineyazhe, Navajo Nation Environmental Protection Agency
Freida White, Navajo Nation Environmental Protection Agency
Site File

ATTACHMENT I
INDEX TO THE ADMINISTRATIVE RECORD

1. Final Removal Site Evaluation Work Plan, NECR. Prepared by MWH. August 30, 2006.
2. Technical Memorandum, Results of Background and Radium-226 Correlation Sampling, NECR Mine Site, United Nuclear Corporation. Prepared by MWH. October 2006.
3. Final Removal Site Evaluation Report Northeast Church Rock Mine Site. Prepared by MWH. October 2007.
4. Statistical Evaluation of Gamma and Soil Analytical Results Along Red Water Pond Road, Northeast Church Rock Removal Site Evaluation. Prepared by MWH. February 16, 2009.
5. Letter from Lance Hauer GE dated February 18, 2009. Northeast Church Rock Mine, Limits of Proposed Interim Removal Action.
6. Northeast Church Rock Mine, Interim Removal Action Completion Report, Red Water Pond Road Supplemental Removal Site Evaluation data tables. Prepared by MWH. June 2010.
7. Site Evaluation for Gamma Radiation. Prepared by Weston. 2009.
8. Agency for Toxic Substances and Disease Registry (ATSDR) ToxFAQs, Radium CAS#7440-14-4. ATSDR. July 1999.
9. The Administrative Record for the Northeast Church Rock Non-Time Critical Removal Action dated June 11, 2009 is hereby incorporated by this reference (see index provided as attachment 1a).