

US EPA ARCHIVE DOCUMENT

Abandoned Uranium Mines on the Navajo Nation: Outreach, Communication, and Education



April 17, 2013

Five - Year Plan to address Uranium Mines

Collaboration between six federal agencies:

- Environmental Protection Agency (EPA)
- Department of Energy (DOE)
- Centers for Disease Control (CDC), Agency for Toxic Substances and Disease Registry (ATSDR)
- Indian Health Services (IHS)
- Nuclear Regulatory Commission (NRC)
- Bureau of Indian Affairs (BIA)

Why Community Outreach ?

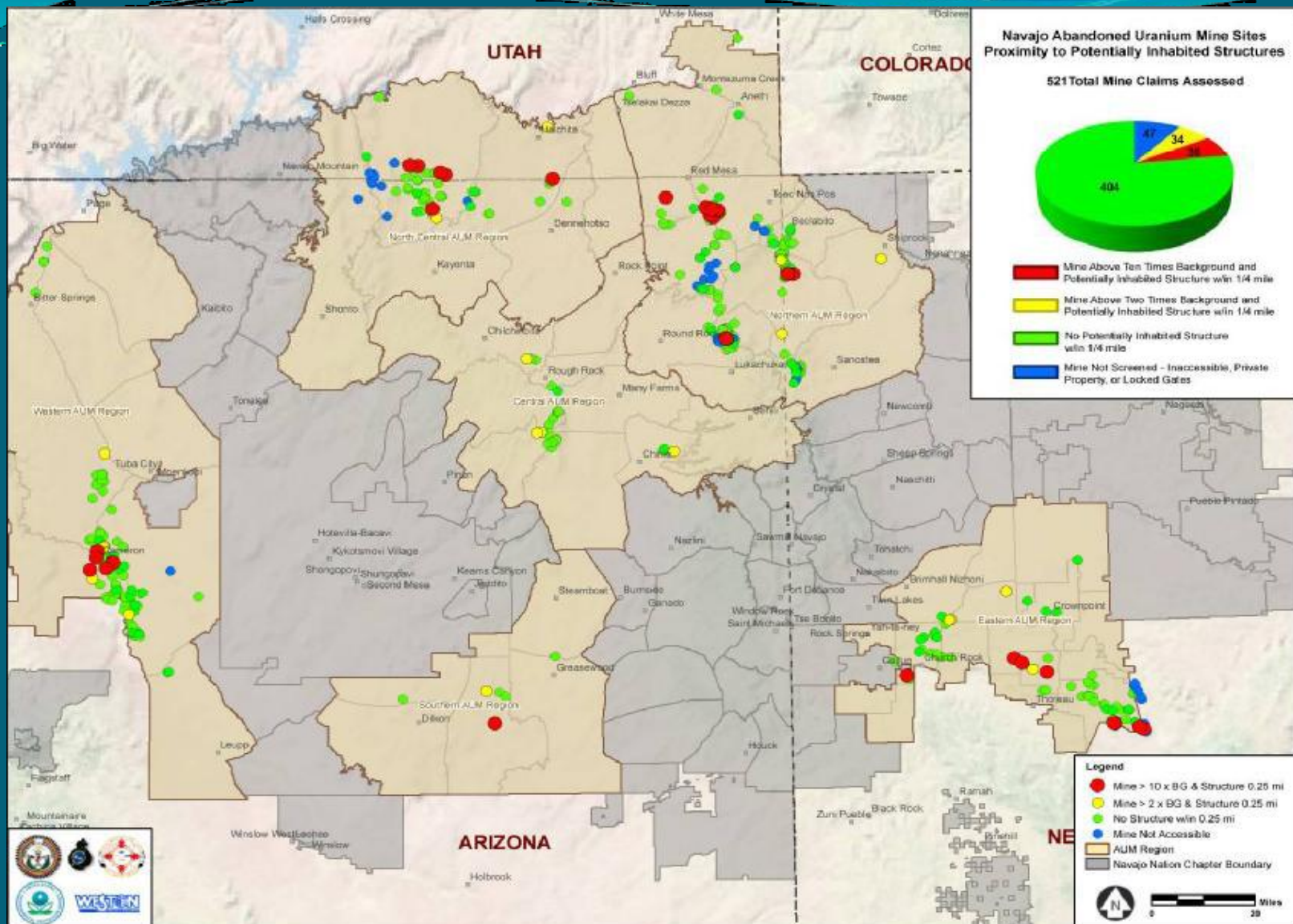
- 1. Inform** - provide balanced and objective information on Abandoned Uranium Mines (AUMs) to assist the Navajo public in understanding the dangers of AUMs.
- 2. Consult** - keep the Navajo public informed, listen to concerns, obtain feedback and alternatives.
- 3. Involve** - work directly with the Navajo public so their concerns, feedback, recommendations, etc. are reflected in AUMs outreach materials.
- 4. Collaborate** - develop partnerships based on trust so that the Navajo public can understand the processes, development, and identification of alternatives for cleanup.
- 5. Empower** - By working closely with the Navajo public, USEPA and NNEPA can guide and foster community voices and opinions on solutions.

NNEPA / USEPA Outreach Material/Tools

- Maps with site pictures
- Progress reports and/or summaries of cleanup work
- Fact sheets written in Navajo and English languages
- Posters with AUM warning messages
- Site screen reports
- As appropriate, oral presentations in the Navajo language so that non-English speakers can understand the complexities of AUMs, their risks and what can be done to address concerns.

Where do we provide community outreach?

- Local Chapter Meetings
- Public Events
- Public Schools
- Meetings with Navajo Nation Officials
- Community gatherings



Fact Sheets



Addressing Uranium Contamination in the Navajo Nation

April 2012

The lands of the Navajo Nation include 17,000 square miles spread over three states in the Four Corners area. The unique geology of these lands makes them rich in uranium, a radioactive ore in high demand after the development of atomic power and weapons at the close of World War II in the 1940s.

From 1944 to 1986, nearly four million tons of uranium ore were extracted from Navajo lands under leases with the Navajo Nation. Many Navajo people worked the mines, often living and raising families in close proximity to the mines and mills.

Today the mines are closed, but a legacy of uranium contamination remains, including over 500 abandoned uranium mines (AUMs) as well as leaches and drinking water sources with elevated levels of radiation.

Potential health effects include lung cancer from inhalation of radioactive particles, as well as bone cancer and impaired kidney function from exposure to radionuclides in drinking water.

EPA maintains a strong partnership with the Navajo Nation and since 1994, the Superfund Program has provided technical assistance and funding to assess potentially contaminated sites and develop a response. In August 2007, the Superfund Program compiled a Comprehensive Database and Atlas with the most complete assessment to date of all known uranium mines on the Navajo Nation. Working with the Navajo Nation, EPA also used its Superfund authority to clean up four residential yards and one leachate pond at the highest priority abandoned uranium mine, Northeast Church Rock Mine, at a cost of over that \$2 million.

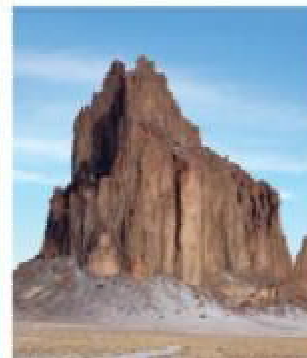
The lands of the Navajo Nation include some resources, metals and minerals spread over three states in the Four Corners area.



<http://www.epa.gov/region9/superfund/navajo-nation/index.html>



At the request of the US House Committee on Oversight and Government Reform in October 2007, EPA, along with the Bureau of Indian Affairs (BIA), the Nuclear Regulatory Commission (NRC), the Department of Energy (DOE), and the Indian Health Service (IHS) developed a coordinated Five-Year Plan to address uranium contamination in consultation with Navajo Nation EPA. EPA regularly reports back to the Committee and to the Navajo Nation on its progress in implementing the Five-Year Plan.



Navajo Nation, SHREVE, NM

The Five-Year Plan is the first coordinated approach created by the five federal agencies. This landmark plan outlines a strategy for cleanup and details the cleanup process for the Navajo Nation over the next five years.

EPA is addressing the most urgent risks on the reservation — uranium contaminated water sources and structures. Approximately 30 percent of the Navajo population does not have access to a public drinking water system and may be using unregulated water sources with uranium contamination. EPA and the Navajo Nation EPA have launched an aggressive outreach campaign to inform residents of the danger of consuming contaminated water.

EPA will also continue to use its Superfund authority to address contaminated structures. EPA and Navajo Nation EPA have already assessed 640 structures, targeted at least 34 structures and 12 residential yards for remediation as a precaution, and already 4 homes.

Over the course of the Five-Year Plan, EPA will focus on the problems posed by abandoned uranium mines, completing a final assessment of over 500 mines and taking actions to address the highest priority mines. As mines that pose risks are discovered, EPA may use Superfund authority, including the National Pollution Litigation, enforcement against responsible parties, or emergency response to require cleanup. At the Northeast Church Rock Mine, the highest risk mine on the Reservation, EPA is requiring the owner to conduct a cleanup that is protective of nearby residents. EPA is working with the community to ensure the remainder of the site is cleaned up.

Although the legacy of uranium mining is widespread and will take many years to address completely, the collaborative effort of EPA, other federal agencies and the Navajo Nation will bring an unprecedented level of support and protection for the people at risk from these sites. Much work remains to be done, and EPA is committed to working with the Navajo Nation to remove the most immediate contamination risks and to find permanent solutions to the remaining contamination on Navajo lands.

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 10100 North Central Expressway
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State Offices
 10100 North Central Expressway
 10100 North Central Expressway
 10100 North Central Expressway
 10100 North Central Expressway

**EPA Five-Year Plan Progress Report on
 Cleaning up Uranium Contamination**
 United States Environmental Protection Agency



The National Health and Environmental Effects Research Administration (NHEERL) is leading the effort to clean up uranium contamination in the United States. NHEERL is working with the Environmental Protection Agency (EPA) to clean up uranium contamination in the United States. NHEERL is working with the Environmental Protection Agency (EPA) to clean up uranium contamination in the United States. NHEERL is working with the Environmental Protection Agency (EPA) to clean up uranium contamination in the United States.



January 2013 Progress Report

United States Environmental Protection Agency, Region 9
 750 West Washington Blvd.
 San Francisco, CA 94115
 415-774-3000

FOR RELEASE EARLY
 12:00 PM
 1/15/13

Office of Uranium
 10100 North Central Expressway
 10100 North Central Expressway
 10100 North Central Expressway

Replacing Contaminated Structures

The US EPA and Nevada State EPA awarded the first contract of awarding \$10 million to replace contaminated structures in Nevada. The US EPA and Nevada State EPA awarded the first contract of awarding \$10 million to replace contaminated structures in Nevada.



What is Radiation?

Radiation is the energy that is emitted from the nucleus of an atom. It can be in the form of particles or electromagnetic waves. Radiation can be ionizing or non-ionizing. Ionizing radiation can damage DNA and cause cancer.

Assessing Abandoned Uranium Mines

The US EPA and Nevada State EPA awarded the first contract of assessing abandoned uranium mines in Nevada. The US EPA and Nevada State EPA awarded the first contract of assessing abandoned uranium mines in Nevada.



Providing Safe Drinking Water

The US EPA and Nevada State EPA awarded the first contract of providing safe drinking water in Nevada. The US EPA and Nevada State EPA awarded the first contract of providing safe drinking water in Nevada.



Cleaning Up Abandoned Mines

The US EPA and Nevada State EPA awarded the first contract of cleaning up abandoned mines in Nevada. The US EPA and Nevada State EPA awarded the first contract of cleaning up abandoned mines in Nevada.



Want to Have Input?

Public input is an important part of the process. We want to hear from you. Please contact us at 1-800-424-6343. We will hold public hearings in Nevada, Utah, and Arizona. We will also hold public hearings in Nevada, Utah, and Arizona.

The 5-Year Plan, along with other important reports, can be found on the US EPA Region 9 website or by contacting the US EPA directly.



For more information, contact:

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Environmental Justice
 Priority for People Like You
 Address Service Requested

FORM CLASSIFIED
 F03062 & F0302
 F0302
 U.S. EPA
 Permit No. G-02

Health and Environmental Impacts of Uranium Contamination in the Navajo Nation

EPA Progress in Implementing a 5-Year Cleanup Plan



August 2011 Progress Report

Abandoned Uranium Mines

Background
 Over 100 years of uranium mining has left behind a legacy of contamination in the Navajo Nation. In a study, workers mining for uranium in the Navajo Nation and other areas of the Navajo Nation were found to have elevated levels of uranium in their urine. This study was the first to show that uranium mining workers in the Navajo Nation have elevated levels of uranium in their urine. This study was the first to show that uranium mining workers in the Navajo Nation have elevated levels of uranium in their urine.

Mormon Lake Mine
 The EPA signed an Administrative Order on Consent with the Navajo Nation in July 2011 to conduct ground water monitoring and remediation at the Mormon Lake Mine. The EPA will be providing technical assistance to the Navajo Nation in conducting ground water monitoring and remediation at the Mormon Lake Mine.

Quartz Mines
 In July 2010, the EPA conducted the first phase of work at Quartz and High Chasing, up contamination from the Quartz mines. The EPA will be providing technical assistance to the Navajo Nation in conducting ground water monitoring and remediation at the Quartz mines. The EPA will be providing technical assistance to the Navajo Nation in conducting ground water monitoring and remediation at the Quartz mines.



Worker in trench at mine site.

Northeast Church Rock
 In May 2010, the EPA and Navajo Nation signed a Consent Order with the Navajo Nation to conduct ground water monitoring and remediation at the Northeast Church Rock Mine. The EPA will be providing technical assistance to the Navajo Nation in conducting ground water monitoring and remediation at the Northeast Church Rock Mine.

The activities relating to the Northeast Church Rock Mine are the first of a series of activities that the EPA will be conducting at the Northeast Church Rock Mine. The EPA will be providing technical assistance to the Navajo Nation in conducting ground water monitoring and remediation at the Northeast Church Rock Mine.

Large Scale Clean up in Monument Valley

Abandoned Uranium Mine clean up in Monument Valley
 The EPA is working with the Navajo Nation to clean up an abandoned uranium mine in Monument Valley. The EPA will be providing technical assistance to the Navajo Nation in conducting ground water monitoring and remediation at the mine site.

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Worker in trench at mine site.

Contaminated Water Sources

Background
 The EPA is working with the Navajo Nation to clean up contaminated water sources in the Navajo Nation. The EPA will be providing technical assistance to the Navajo Nation in conducting ground water monitoring and remediation at the water sources.

The EPA is working with the Navajo Nation to clean up contaminated water sources in the Navajo Nation. The EPA will be providing technical assistance to the Navajo Nation in conducting ground water monitoring and remediation at the water sources. The EPA is working with the Navajo Nation to clean up contaminated water sources in the Navajo Nation. The EPA will be providing technical assistance to the Navajo Nation in conducting ground water monitoring and remediation at the water sources.



Truck carrying water tanks at site.

Contaminated Structures

Background
 The EPA is working with the Navajo Nation to clean up contaminated structures in the Navajo Nation. The EPA will be providing technical assistance to the Navajo Nation in conducting ground water monitoring and remediation at the structures.



Worker in trench at structure site.

The EPA is working with the Navajo Nation to clean up contaminated structures in the Navajo Nation. The EPA will be providing technical assistance to the Navajo Nation in conducting ground water monitoring and remediation at the structures. The EPA is working with the Navajo Nation to clean up contaminated structures in the Navajo Nation. The EPA will be providing technical assistance to the Navajo Nation in conducting ground water monitoring and remediation at the structures.



Abandoned Uranium Mines – Cove Transfer Stations

U.S. Environmental Protection Agency • Region 9 • San Francisco, CA • September 2012

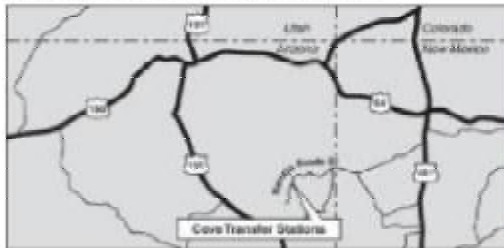
USEPA to Address Uranium Contamination at Cove Transfer Stations

The U.S. Environmental Protection Agency (USEPA) Region 9 is working to protect the residents of Cove Chapter by cleaning up residual mine waste from past uranium mining operations which occurred between 1940s and the 1980s. In Cove Chapter, the uranium mining operations included two transfer stations where uranium-containing ore from the mines was stockpiled awaiting transfer to trucks that would take the ore to the Shiprock Mill for processing.

The two transfer stations in Cove Chapter still contain some left over uranium-containing ore from the stockpiles from when the mines were active. This residual uranium-containing ore is hazardous and can adversely affect human health; people should avoid coming in contact with it and/or walking through the transfer stations.

Because of the health risks, beginning next month (September 2012) USEPA Region 9 will be removing the contaminated soil from Transfer Station 1 and placing it at Transfer Station 2 where it will be sealed to stabilize the contaminated soil. After the soil is sealed at Transfer Station 2, a fence will be placed around the entire site with signs warning people to keep out of the fenced area. This removal action is a temporary measure to stabilize the contaminated soil while a long-term cleanup remedy is developed. USEPA Region 9 will discuss long-term options with the community and the Navajo Nation before making any decisions about permanent disposal.

USEPA will also be conducting constant air quality monitoring during excavation activities to make sure that residents in the immediate area, including the students at Cove Day School, will be safe from any dust coming from the excavation. It is expected the removal action will take 4-6 weeks to complete.

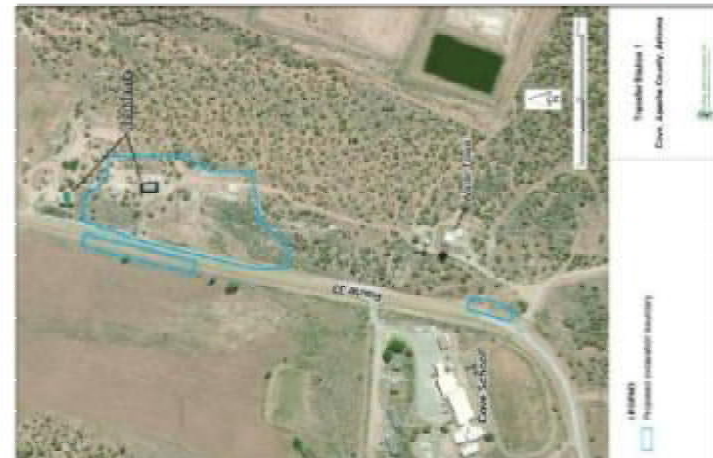


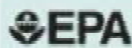
For More Information

For open questions about the Cove Chapter Transfer Stations and this removal action, please contact:

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Northeast Churchrock & Quivira Mine Sites

A Federal Remedial Action Plan, Superfund Site, and Resource Conservation and Recovery Act Site

Community Update

The United States Environmental Protection Agency (EPA) is currently planning for remediation of an area referred to as the Northeast Churchrock and Quivira Sites. The first order of business cleanup of the Eastern Churchrock (ECC) Superfund Site will occur during the summer of 2012. Remedial work will occur in the cleanup of the entire site in phases which is a four year remediation project scheduled to begin in 2013. This is the same time that US EPA is also preparing the site remediation for the Quivira Mine Sites. This fact sheet provides updates on both NECR cleanup actions as well as the status of the Quivira Mine investigation and includes additional information to assist you with related to these sites.

Quivira

The Quivira is a complex responsible for the two Quivira mine Superfund Sites and the Quivira Mine and Eastern Churchrock Superfund Sites. They are conducting the Remedial Site Investigation (RSI) of the sites. This started in 2011 and they will submit results in spring 2012 from Unconstrained Areas (UAs). They will also be conducting other monitoring around the edge of the site under way.

The Quivira UA is a complex of sites with the results of the investigation to be released in 2012. The site includes the Quivira Mine and Eastern Churchrock Superfund Sites. The Quivira Mine is a large area of land that is currently being investigated. The Quivira Mine is a large area of land that is currently being investigated.



Quivira will continue to work the permit to remove and a final remedy is under way and implemented.

US EPA and Quivira will work with the community to address the Quivira Mine Remedial Site Investigation report and to begin remediation from cleanup actions. This US EPA will continue to work with the community to address the Quivira Mine Remedial Site Investigation report and to begin remediation from cleanup actions.

The Quivira Mine remediation site is currently under way and a final remedy is under way and implemented.

Northeast Churchrock (NECR)

Remedial Action
In August 2011, Eastern Churchrock (ECC) under US EPA and Resource Conservation and Recovery Act (RCRA) Superfund Site. The remediation will occur from the Eastern Churchrock Superfund Site. The remediation will occur from the Eastern Churchrock Superfund Site. The remediation will occur from the Eastern Churchrock Superfund Site.

The remediation will occur from the Eastern Churchrock Superfund Site. The remediation will occur from the Eastern Churchrock Superfund Site. The remediation will occur from the Eastern Churchrock Superfund Site.

The remediation will occur from the Eastern Churchrock Superfund Site. The remediation will occur from the Eastern Churchrock Superfund Site. The remediation will occur from the Eastern Churchrock Superfund Site.



Housing Update

US EPA and Quivira Mine are working to move into construction to build more than 100 homes. The homes will be built on the site of the Eastern Churchrock Superfund Site. The homes will be built on the site of the Eastern Churchrock Superfund Site.



NECR Mine Site Cleanup: Begin a Proposed Plan

In order to plan the site, the Quivira Mine and Eastern Churchrock Superfund Sites. The Quivira Mine and Eastern Churchrock Superfund Sites. The Quivira Mine and Eastern Churchrock Superfund Sites.

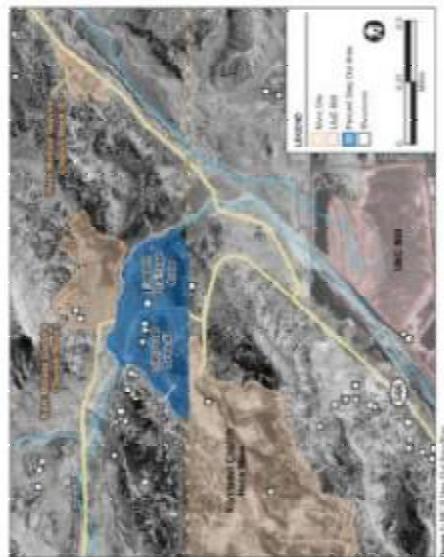


Figure 1-1: NECR Mine Site Cleanup

Northeast Churchrock (NECR) Long Term Schedule

- 2011
 - Clean up Eastern Churchrock and provide clean water to the community
 - US EPA begins Remedial Action Plan (RAP) and Remedial Investigation (RI) for NECR Superfund Site
 - Begin design process for long-term NECR cleanup
- 2012
 - Complete NECR Cleanup Design
 - Complete remediation work under the Remedial Action Plan (RAP) and Remedial Investigation (RI)
- 2013
 - Final NECR design and submit to the Quivira Mine Remedial Site Investigation (RSI) Unconstrained Areas (UAs)
 - Complete remediation work under the Remedial Action Plan (RAP) and Remedial Investigation (RI)
- 2014
 - Final NECR design and submit to the Quivira Mine Remedial Site Investigation (RSI) Unconstrained Areas (UAs)
 - Complete remediation work under the Remedial Action Plan (RAP) and Remedial Investigation (RI)
- 2015
 - Final NECR design and submit to the Quivira Mine Remedial Site Investigation (RSI) Unconstrained Areas (UAs)
 - Complete remediation work under the Remedial Action Plan (RAP) and Remedial Investigation (RI)
- 2016
 - Final NECR design and submit to the Quivira Mine Remedial Site Investigation (RSI) Unconstrained Areas (UAs)
 - Complete remediation work under the Remedial Action Plan (RAP) and Remedial Investigation (RI)

Quivira Long-Term Schedule

- 2011
 - Complete Remedial Site Investigation (RSI) Unconstrained Areas (UAs)
 - Begin Remedial Action Plan (RAP) and Remedial Investigation (RI)
 - Complete remediation work under the Remedial Action Plan (RAP) and Remedial Investigation (RI)
- 2012
 - Complete Remedial Site Investigation (RSI) Unconstrained Areas (UAs)
 - Begin Remedial Action Plan (RAP) and Remedial Investigation (RI)
 - Complete remediation work under the Remedial Action Plan (RAP) and Remedial Investigation (RI)
- 2013
 - Complete Remedial Site Investigation (RSI) Unconstrained Areas (UAs)
 - Begin Remedial Action Plan (RAP) and Remedial Investigation (RI)
 - Complete remediation work under the Remedial Action Plan (RAP) and Remedial Investigation (RI)
- 2014
 - Complete Remedial Site Investigation (RSI) Unconstrained Areas (UAs)
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 - Complete remediation work under the Remedial Action Plan (RAP) and Remedial Investigation (RI)
- 2015
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 - Complete remediation work under the Remedial Action Plan (RAP) and Remedial Investigation (RI)
- 2016
 - Complete Remedial Site Investigation (RSI) Unconstrained Areas (UAs)
 - Begin Remedial Action Plan (RAP) and Remedial Investigation (RI)
 - Complete remediation work under the Remedial Action Plan (RAP) and Remedial Investigation (RI)

Contact Info

We want to hear from you. Please call or email us and we will be happy to answer your questions.

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Documents and information are available at www.epa.gov/goringsite



Tuba City Dump

U.S. Environmental Protection Agency • Region 9 • San Francisco, CA • June 2012

US EPA Starts New Phase of Work

Update: Fieldwork Has Begun on Site

You may have noticed contractors, on behalf of EPA, have begun the scheduled fieldwork detailed on page 3. In early June they began work installing the specially-designed groundwater monitoring wells. More sampling and field work will continue through the summer and into the fall.



This newsletter is written by the U.S. Environmental Protection Agency (US EPA) for the residents of the Tuba City community, the Navajo Nation and the Hopi villages of Upper Moenkopi and Lower Moenkopi. It is intended to update you on what is going on with the investigation of soil and groundwater in your area as it relates to the Tuba City Dump (TCD), also known as the "Tuba City Open Dump". The TCD was used primarily for disposal of municipal waste by local businesses and the general public between the 1950s and 1997. It was operated by the Bureau of Indian Affairs (BIA).

Much information regarding the TCD and the surrounding groundwater has been gained by years of technical studies conducted by different groups, including the Hopi Tribe, the Navajo

Nation, U.S. Geological Survey (USGS) and US EPA. US EPA is considering all of that information as well as collecting the information that is still needed so that we can determine what needs to be done.

The drinking water from village supply wells and springs in the area is safe. Drinking water in the villages of Upper Moenkopi, Lower Moenkopi and Tuba City has been tested and does not have elevated levels of uranium, the main contaminant of concern in the area of the TCD. US EPA is routinely providing information to, and seeking input from, the Hopi Tribe and the Navajo Nation during this work.



Tuba City Dump and surrounding areas

ABANDONED URANIUM MINES

DÓÓ KONE' NA'ÁDÁÁ'DA!

CAUTION



Contaminated Area

STAY AWAY

NO AT MINES

Building
Gathering
Playing
Corrals
Digging



Call 928- 871-6092 (Navajo EPA) or
800-231-3075 (U.S. EPA) for information



ABANDONED URANIUM MINES

DÓÓ KONE' NA'ÁDÁÁ'DA!

Cameron/Coalmine Canyon Chapters



STAY AWAY

NO AT MINES

Building
Gathering
Playing
Corrals
Digging



Call 928- 871-6092 (Navajo EPA) or
800-231-3075 (U.S. EPA) for information



Tuba City Fair



Tuba City Fair



Tuba City Fair



Cameron Chapter



NNEPA/USEPA Superfund Staff



Discussion Questions

1. Are the Fact Sheets and Posters effective?
2. What would be some effective ways to communicate the dangers of Abandoned Uranium Mines (AUMs)?

Discussion Question

3. Where should AUMs information be made available in your community?

Discussion Question

4. How can we make the Maps more understandable?

Discussion Question

5. What would make people stay away from AUMs?

Contact Information

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