



U.S. Environmental Protection Agency
Pacific Southwest Region 9
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Cameron Area Abandoned Uranium Mines

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The Navajo Nation was the site of widespread uranium mining from 1944 to 1986. Although uranium mining activities no longer occur on Navajo Nation and the Navajo Nation Abandoned Mine Lands (NNAML) program addressed many of the mines' physical hazards, a legacy of contamination remains. This includes more than 500 abandoned uranium mine (AUM) claims as well as homes and drinking water sources with elevated levels of radiation. More than 100 of these mine claims are in the Western AUM Region, a region of Navajo Nation including Cameron, Coalmine Canyon, Bodaway/Gap, Tuba City, Leupp, Coppermine, and Lechee Chapters.

In October 2007, at the request of the U.S. House Committee on Oversight and Government Reform, the U.S. Environmental Protection Agency (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 Five-Year Plan to address uranium contamination on Navajo Nation land, in consultation with EPA's partners at the Navajo Nation EPA (NNEPA).

The initial task of these federal partners was to outline and execute a strategy for gaining a better understanding of the scope of the problem and to identify

sites with the greatest human health risks. As part of this effort, EPA screened 521 mine claims across Navajo Nation. EPA and NNEPA used this information to identify 43 priority mine claims that pose the greatest risk to community members, based on their levels of radiation and location near homes. EPA is working on several priority mines in and around the Cameron area.

The initial screening reports, called Site Screens, from the Western AUM Region have been shared with Chapter leaders and community members, and can be found on EPA's website:

epaosc.org/Cameron_Area_Mines.

Cameron Area Abandoned Uranium Mines

How many abandoned uranium mines are in the Cameron area? Where are they located?

There are more than 100 abandoned uranium mine claims located in the Western AUM Region and centered around the Cameron area (see map in this factsheet). Within the Western AUM Region, mines are located in Cameron, Coalmine Canyon, Bodaway/Gap, and Leupp Chapters. The majority of the mines are within a few miles of the Little Colorado River. A small number of sites also exist on Arizona lands close to the Navajo Nation border.

Maps showing mine locations are available at Cameron, Coalmine Canyon, and Bodaway/Gap Chapters, as well as on EPA's website (epaosc.org/Cameron_Area_Mines), and in this factsheet. Additionally, EPA can provide copies of maps to community members and groups upon request.

Who is responsible for the contamination? Who will pay for cleanup?

Under Superfund law, EPA can ask or compel responsible companies to address contamination at mines where they or their legal predecessors mined for uranium. In 2013, EPA identified El Paso Natural Gas as having responsibility for 19 mine claims near Cameron and the Little Colorado River. El Paso Natural Gas entered into a legal agreement

with EPA to investigate the extent of the contamination for these mines. After investigation work is complete, EPA and NNEPA will determine next steps to address the contamination and will share these plans with the community for feedback and comment.

EPA continues to identify companies responsible for mines in and around the Navajo Nation and will keep community members updated on our progress. EPA will also continue to inform community members about mine locations and provide recommendations for limiting exposure to hazards associated with uranium and radiation.

What are EPA's current activities at mines in the Cameron area?

EPA will be putting up warning signs at A&B No. 3 mine, which is located near the Cameron Chapter and trading post. These signs will alert community members to stay away from the mine.

EPA is working with NNEPA and El Paso Natural Gas to obtain access agreements before the start of field work. In order for El Paso Natural Gas to begin investigating the 19 mine claims they are responsible for under their agreement with EPA, they must obtain access agreements from homesite lease and grazing permit holders that will be impacted by their work.

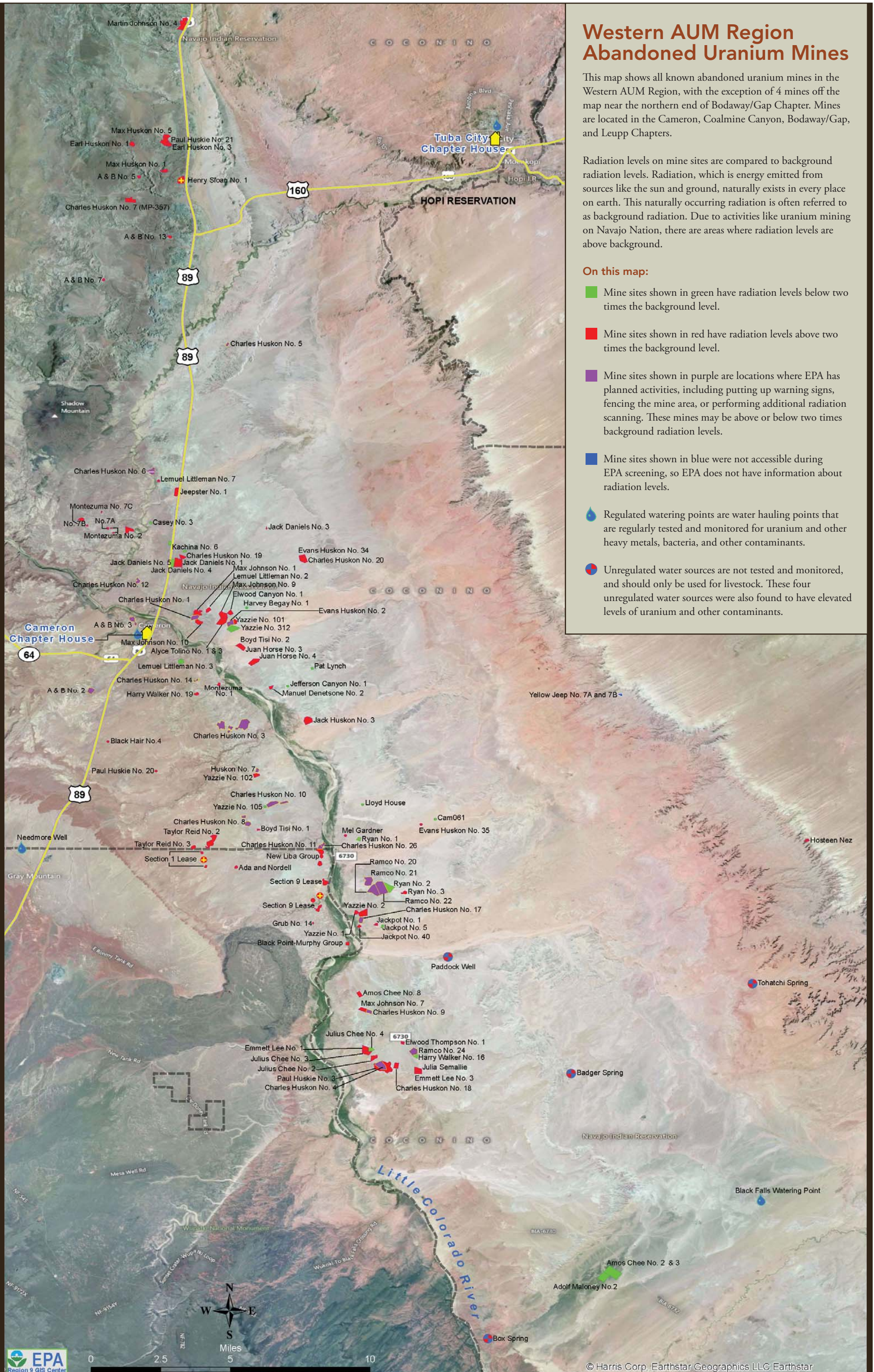
Western AUM Region Abandoned Uranium Mines

This map shows all known abandoned uranium mines in the Western AUM Region, with the exception of 4 mines off the map near the northern end of Bodaway/Gap Chapter. Mines are located in the Cameron, Coalmine Canyon, Bodaway/Gap, and Leupp Chapters.

Radiation levels on mine sites are compared to background radiation levels. Radiation, which is energy emitted from sources like the sun and ground, naturally exists in every place on earth. This naturally occurring radiation is often referred to as background radiation. Due to activities like uranium mining on Navajo Nation, there are areas where radiation levels are above background.

On this map:

- Mine sites shown in green have radiation levels below two times the background level.
- Mine sites shown in red have radiation levels above two times the background level.
- Mine sites shown in purple are locations where EPA has planned activities, including putting up warning signs, fencing the mine area, or performing additional radiation scanning. These mines may be above or below two times background radiation levels.
- Mine sites shown in blue were not accessible during EPA screening, so EPA does not have information about radiation levels.
- 💧 Regulated watering points are water hauling points that are regularly tested and monitored for uranium and other heavy metals, bacteria, and other contaminants.
- 🚰 Unregulated water sources are not tested and monitored, and should only be used for livestock. These four unregulated water sources were also found to have elevated levels of uranium and other contaminants.



Cameron Area Water Sources

Is regulated water in the Cameron area contaminated?

Navajo Tribal Utility Authority's (NTUA) water system serves the Cameron area with regulated water that is not contaminated with uranium. At times, the water system has had elevated levels of disinfection by-products, which can cause health effects if consumed over a long period of time. The water system also has high levels of iron and manganese, which is not hazardous for human health, but does affect the taste, odor, and color of the water.

EPA issued an order to NTUA to address these water quality issues. To comply with this order, NTUA will connect the Cameron community water system with NTUA's Bodaway/Gap/Cedar Ridge water system, bringing improved water from the Gap area. Construction of the pipeline is scheduled to begin in 2015. After this connection is complete, NTUA will build an extension bringing piped water from the Cameron area to the Gray Mountain area.

The 2013 Consumer Confidence Report for the Cameron community water system, which provides water quality information, is available at <http://www.ntua.com/ccr13.html>.

Has EPA found contamination in unregulated water sources? What has been done to protect community members from this contamination?

Four unregulated livestock-use-only wells in the Black Falls area were found to have elevated levels of uranium and other contaminants. EPA, NNEPA, and other agencies installed warning signs at these contaminated water sources, informed community members about the risks of drinking from unregulated water sources, constructed a waterline extension to serve 18 homes, constructed a new regulated water hauling station, and implemented a water hauling pilot program that delivers water every week.

Uranium and Radiation Health Concerns

How can uranium and radiation affect my health?

Coming in contact with uranium and radiation, either at high levels or for a long period of time, can affect your health, including damaging your kidneys and increasing your risk for cancer.

Community members should take precautions to limit their exposure to uranium and radiation in areas of Navajo Nation where uranium mining occurred.

How can community members limit their exposure to uranium and radiation?

Stay away from abandoned mine sites

Community members should avoid spending time at abandoned mines, as some mines have high levels of radiation. You should never build, gather building materials, play, ride ATVs, or ride horses on or near mine sites. Community members should also graze animals away from mine sites. A map

showing locations of abandoned uranium mines in the Western AUM Region is included in this factsheet, available at local Chapter houses, and available on the EPA website: epaossc.org/Cameron_Area_Mines.

Screen your home for radiation

If you suspect that your home may have been built using radioactive materials from abandoned mine sites, you should contact the Navajo Superfund Program at (800) 314-1846 to have your home screened.

Only drink regulated water

Regulated water is monitored and treated to meet EPA and NNEPA drinking water standards for uranium and other contaminants. Community members should only drink from regulated water sources, including water piped to your home and water from regulated watering points. You should also use good water hauling practices to keep water clean. Never drink water from livestock-use-only wells.

Community Involvement

How can I get information about EPA work and be involved in the cleanup process?

EPA is committed to involving community members during the cleanup process. EPA interviewed community members in the Western AUM Region to get feedback on effective ways to involve the community during mine investigation and cleanup. Information from these interviews will be used to write a Community Involvement Plan, which will outline EPA's action plan and community outreach methods. This plan will be made available to community members when it is completed (end of 2014).

Additionally, EPA keeps a list of community members who would like to be updated about meetings and activities in the area. To be added to this list, contact Community Involvement Coordinator Amanda Pease.

Where to Get Information

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