



ANNUAL PROGRESS UPDATE: FEDERAL ACTIONS TO ADDRESS URANIUM CONTAMINATION ON NAVAJO NATION

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Introduction

In February 2021, the U.S. Environmental Protection Agency (EPA) issued the “Federal Actions to Address Uranium Contamination on Navajo Nation 2020–2029,” also known as the Ten-Year Plan. Part of that plan is to provide annual updates on the status of milestones for the goals outlined in that document. This is the second annual fact sheet to provide updates and includes a summary of 2022 accomplishments and 2023 goals.



U.S. Environmental Protection Agency Update

The COVID-19 pandemic continued to impact EPA and the Navajo Nation Environmental Protection Agency (NNEPA) field activities in 2022.

EPA supported communities in decision making by conducting public meetings and soliciting community input on proposed cleanup alternatives for 10 abandoned uranium mines, including, two Mac mines, two Black Jack mines, two Ruby mines, two Quivira mines, the Mariano Lake mine and the Section 32/33 mine. EPA expects to select final cleanup alternatives for these mines in 2023.

EPA expanded community access to information by establishing information repositories at eight locations on the Navajo Nation, including at the U.S. Department of Energy (DOE) Community Outreach Network office in Window Rock, Kayenta Community Library in Kayenta and Diné College in Shiprock. EPA also set up an online information repository with Administrative Records for Navajo abandoned uranium mine sites at <https://www.epa.gov/navajo-nation-uranium-cleanup/administrative-records-abandoned-mines-and-other-superfund-cleanups>.

EPA researched new technologies to address abandoned uranium mines and conducted treatability studies at three mine sites to evaluate the effectiveness of an ablation technology that can be used to reduce waste volumes and disposal costs. Ablation technology uses a mechanical process to remove radionuclides and metals from mine waste. The results of the treatability studies are expected to be published in 2023.

EPA worked to bolster NNEPA’s capacity to address abandoned uranium mines by publishing the first phase of the “Navajo Nation Capacity Building Plan: Federal Actions to Provide Workforce Development and Resources on the Navajo Nation (2022–2029).” This phase outlines focus areas where developing capacity would help to expand the role of NNEPA in overseeing and assessing the cleanup of abandoned uranium mines. EPA also coordinated two Intergovernmental Personnel Act positions with NNEPA to help support NNEPA’s oversight and assessment activities at abandoned uranium mines.



EPA ablation treatability study in progress.



View of the Lukachukai Mountains.

EPA worked with DOE during the planning phase to initiate verification and validation efforts at nearly 200 abandoned uranium mine sites for which EPA and the Navajo Nation do not have cleanup settlement agreements and for which cleanup is currently not funded. The campaign was a collaborative effort between EPA, DOE's Defense-Related Uranium Mines program, NNEPA, and the Navajo Abandoned Mine Lands Reclamation Department. Thirteen field investigations were completed in 2022, and field investigations will continue through 2027.

EPA worked closely with federal land managers and impacted states and tribes to identify potential off-Navajo disposal options and develop a long-term management strategy for abandoned uranium mine waste in the Four Corners area. In October 2022, EPA met with senior leaders from the U.S. Department of the Interior, DOE, U.S. Department of Defense, U.S. Nuclear Regulatory Commission, and U.S. Department of Agriculture; the states of New Mexico, Arizona, Utah, and Colorado; and tribal leaders from the Navajo Nation, Laguna Pueblo, and Ute Mountain Ute to begin discussing a potential mine waste disposal strategy.

EPA identified a location for the first Navajo abandoned uranium mine field office, which is co-located with the U.S. Geological Survey's offices in Flagstaff, Arizona. EPA also coordinated with the Navajo Nation and General Services Administration to identify potential locations in the Window Rock area for a second Navajo abandoned uranium mine field office, which is planned to open in 2025.



Bureau of Indian Affairs Update

In February 2022, the Bureau of Indian Affairs (BIA) and EPA consulted with the Hopi Tribal Council on the Tuba City Dump to discuss on-Hopi land options. The council indicated that the off-Hopi land disposal option was preferred.

In June 2022, BIA consulted with the Hopi Tribal Council and told the council that BIA would pursue the off-Hopi land disposal option. Also, during this month, the council passed a resolution authorizing BIA to close the Tuba City Dump by removing the waste off Hopi lands.

In October 2022, BIA awarded a contract to develop closure plans and designs for this alternative. This decision was based on removing waste from the Tuba City Dump off Hopi land.

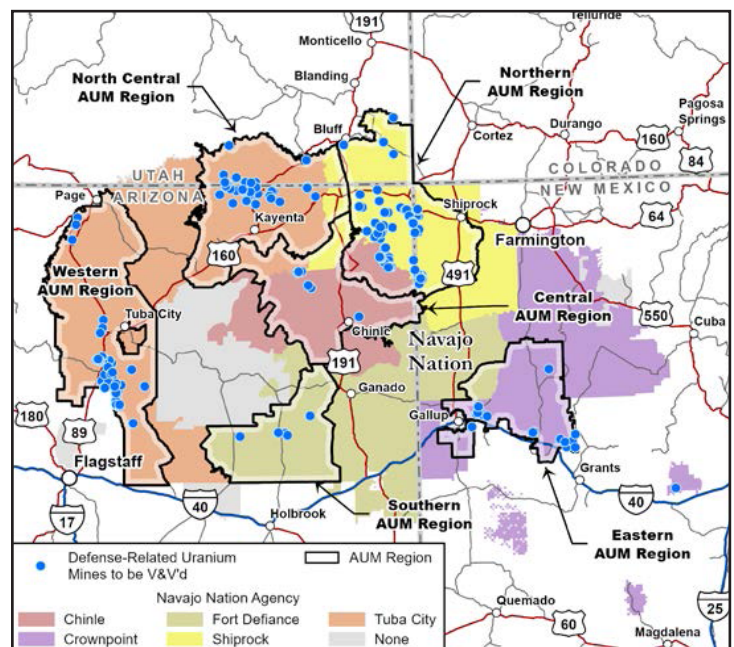
In October 2022, EPA's Enforcement and Compliance Assurance Division assumed responsibility for managing negotiations and overseeing an Administrative Order on Consent to close the Tuba City Dump. The division will coordinate with the Solid Waste Program in the Land, Chemicals and Redevelopment Division. Before finalizing the Administrative Order of Consent, EPA will request Hopi Tribal Council review.



U.S. Department of Energy Uranium Mill Tailings Radiation Control Act and Defense-Related Uranium Mine Program Update

DOE finalized a cooperative agreement for incorporating Navajo Abandoned Mine Lands Reclamation Department roles for the implementation of the Defense-Related Uranium Mines program. The program completed 13 mine inventories on the Navajo Nation in the fall of 2022. Field activities resumed in the spring of 2023 and will continue into 2024.

In Tuba City, Arizona, DOE's Office of Legacy Management did an aerial survey of the disposal cell cover to learn about the geologic features of the landscape and topography. The disposal cell cover limits radon gas emissions and water infiltration. DOE also took overlapping photos of the landscape, which can be converted into 3-D models. The team initiated drilling and construction of new monitoring wells near the former mill ponds in support of a future Groundwater Compliance Action Plan. DOE will complete collection of this geophysical data in 2023.

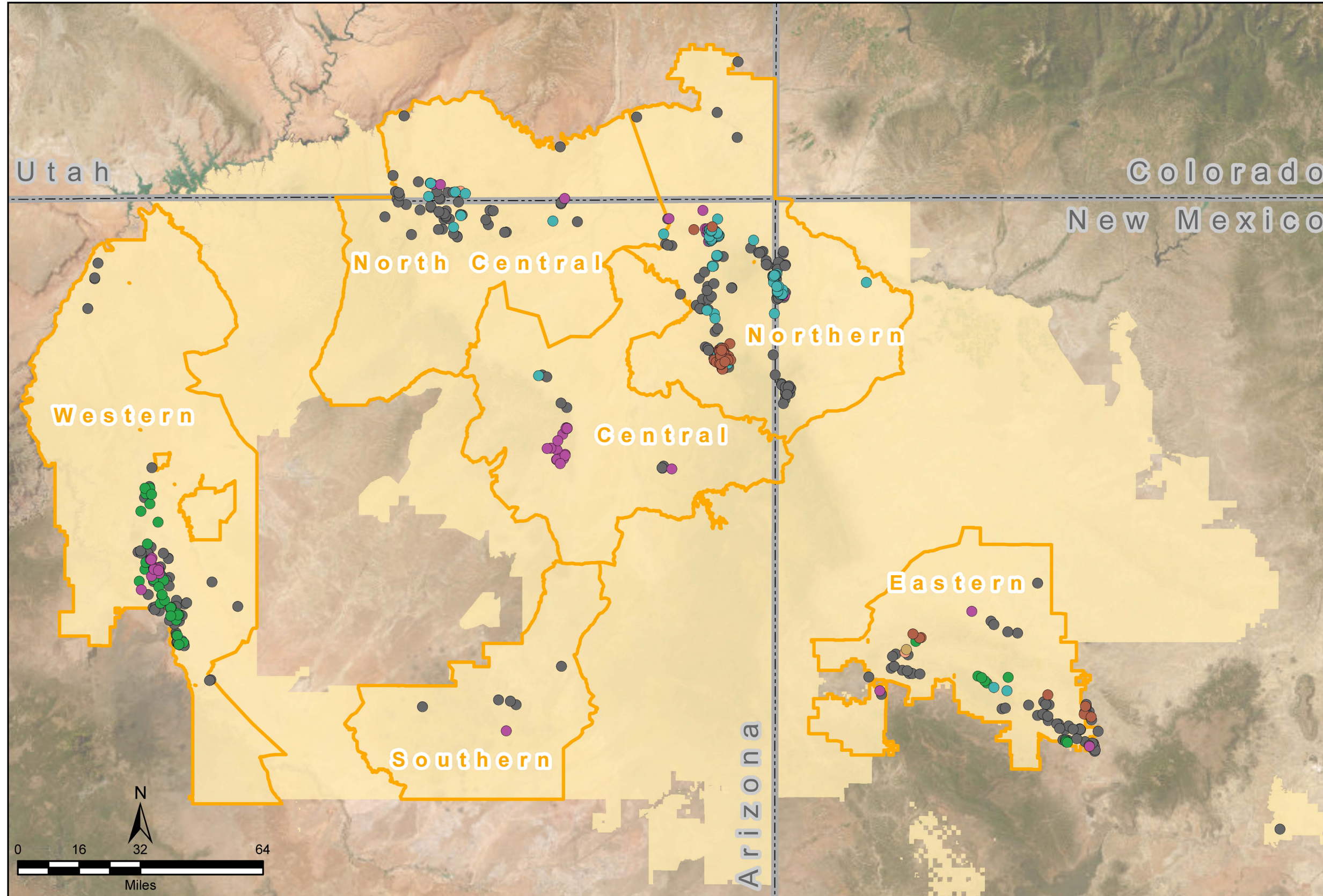


DOE's Defense-Related Uranium Mines program sites on the Navajo Nation for verification and validation.

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Project Area	Summary of Goals for 2023
Abandoned Uranium Mines – EPA	<p>EPA expects to complete environmental engineering evaluation/cost analyses for 10 sites by the end of 2023, falling short of the original target of completing analyses for 50 sites by this time. This shortfall is a carryover of paused field work and community outreach activities during the pandemic. It is also a result of a lack of disposal options for mine waste. Completing these environmental engineering evaluation/cost analyses will require organizing extensive community outreach, establishing and updating information repositories, and coordinating closely with the Navajo Nation.</p> <p>EPA plans to complete a final cleanup at the Cove Transfer Station. This cleanup will include excavating, sorting and transporting soil above cleanup limits to the Deer Trail facility near Denver, Colorado, for disposal. The clean soil may be used to support backfilling and final grading at the site.</p> <p>EPA plans to complete studies to evaluate the effectiveness of an ablation technology to strip contamination from mine waste. If successful, this technology will reduce waste volumes and disposal costs. Treatability studies were performed in 2022, and EPA expects to publish the results in 2023.</p> <p>EPA will work with Navajo Nation agencies to implement the “Navajo Nation Capacity Building Plan: Federal Actions to Provide Workforce Development and Resources on the Navajo Nation (2022–2029).” The first phase of this plan, completed in 2022, outlines focus areas where developing capacity would help to expand the role of NNEPA in overseeing and assessing the cleanup of mine sites. This version is expected to be the first of several of this plan that will develop with the work and the Navajo Nation’s growing capacity.</p> <p>EPA will continue to coordinate closely with DOE’s Defense-Related Uranium Mines program, NNEPA and the Navajo Abandoned Mine Lands Reclamation Department throughout the planning and implementation of DOE’s field activities at abandoned uranium mines. These field investigations started in Fall 2022 and are expected to continue through 2023.</p> <p>EPA will begin negotiations with the United Nuclear Corporation/General Electric to implement the selected cleanup option of transporting mine waste from the Northeast Church Rock Mine Site to the United Nuclear Corporation Mill Site. The goal is to start cleanup in 2024.</p> <p>EPA proposed the Lukachukai Mountains Mining District site for EPA’s National Priorities List in Spring 2023. The site, which is in the Cove, Lukachukai and Round Rock Chapters of the Navajo Nation, contains 88 abandoned uranium mines in the Lukachukai Mountains. This site will be the Navajo Nation’s first National Priorities List site.</p> <p>EPA will schedule a follow-up meeting to build upon the October 2022 multi-agency workshop on potential mine waste disposal options on federal land.</p> <p>EPA will establish field offices in Flagstaff and Window Rock, Arizona, to support work on the Navajo Nation. EPA expects to open the first EPA field office in Flagstaff in Summer 2023. EPA will continue planning for the opening of its second field office in Window Rock in 2025.</p>
Abandoned Uranium Mines – DOE Defense-Related Uranium Mines Program	<p>DOE expects to complete approximately 60 field activities in 2023 working with the Navajo Abandoned Mine Lands Reclamation Department.</p>

Project Area	Summary of Goals for 2023
Former Mills	<p>In Shiprock, DOE’s Office of Legacy Management will continue planning for a different method to treat extracted groundwater and evaluate the future of the evaporation pond. In 2023, studies are planned to further address contamination and include a geophysical study to look at paths for groundwater flow. The studies will also consider drilling and installing new monitoring wells around the disposal cell.</p> <p>In Tuba City, new monitoring wells of the former mill ponds area will enter engineering and environmental planning for 2023. This work will show whether this area is an ongoing source of uranium contamination in groundwater. Geophysical data will be collected and used to predict movement or migration of groundwater contaminants. This will support the design of a more effective remedy to address contamination.</p> <p>In Monument Valley, DOE’s Office of Legacy Management expects to begin field activities recommended by the National Lab Network. DOE also plans to reduce the fenced area of the former processing site.</p> <p>In Mexican Hat, DOE’s Office of Legacy Management will conduct more soil collection and laboratory testing as recommended by National Lab Network to better understand and evaluate how erosion affects the disposal site. DOE will complete climate and modeling studies on how water and geology have impacted erosion in the past, present, and future. These efforts will inform remedial alternatives evaluation, selection and design criteria development to enhance environmental resiliency.</p> <p>The U.S. Nuclear Regulatory Commission will complete its review of the license amendment to bring mine waste from the Northeast Church Rock Mine Site to the United Nuclear Corporation Mill Site and complete upgrades to mitigate erosion in the adjacent Pipeline Arroyo in 2023. The U.S. Nuclear Regulatory Commission will continue to engage with the nearby Navajo communities and the Navajo Nation with respect to future actions at the United Nuclear Corporation Mill Site. The U.S. Nuclear Regulatory Commission will also work with EPA on next steps and timelines for construction activities.</p>
Drinking Water	<p>The Indian Health Service and EPA will continue to increase access to safe drinking water in the abandoned uranium mine regions of the Navajo Nation by funding high- ranking water infrastructure projects.</p>
Tuba City Dump	<p>In 2023, BIA will complete the design and closure plans for the off-Hopi land alternative. BIA plans to fund the initial work to close the Tuba City Dump in September 2023. The work will begin in December 2023. This time frame coincides with when EPA and BIA will implement the Administrative Order of Consent.</p>
Community Involvement	<p>The Community Outreach Network will coordinate outreach events to enhance community understanding of the work agencies are doing to address uranium contamination on the Navajo Nation. The Community Outreach Network will also schedule an in-person meeting of the federal partner agencies in 2023 to establish future goals for the group.</p>
Health	<p>The Agency for Toxic Substances and Disease Registry. will coordinate with the Indian Health Service to provide training to clinicians and other health care providers. The training will focus on the health effects of non-occupational exposure to uranium and on documentation of exposure history.</p>
Navajo Workforce Development	<p>EPA anticipates awarding the Response, Assessment and Evaluation Services II contract in 2023 to support educational and employment opportunities for Navajo workers and Navajo-owned businesses.</p>



- Mines**
- Cyprus Amax/Western Nuclear
 - Other Private Companies
 - Phase 1 and Phase 2 Trusts
 - Tronox
 - Navajo Superfund Lead
 - US EPA Funded
 - Currently Unfunded

**Navajo Nation Abandoned Uranium Mines
Current Settlements and Funded Mines**

- AUM Region
- Navajo Nation
- U.S. State



In Shiprock, New Mexico, DOE's Office of Legacy Management began planning for a different method to treat extracted groundwater. The new method will use a modular water treatment unit and a 1- to 4- acre modular pond to replace the aging 11-acre evaporation pond. DOE's Office of Legacy Management is doing an environmental assessment to analyze the environmental effects of alternatives for the future of the evaporation pond. Additionally, DOE will continue studies to assess the best ways to address contamination from abandoned uranium mines. For instance, DOE installed new monitoring wells and evaluated borehole soil samples to better understand groundwater flow paths.

In Mexican Hat, Utah, DOE's Office of Legacy Management and the National Lab Network prepared a report outlining actionable recommendations for the site to address erosional features. As recommended, DOE began collecting more soil samples to better understand how erosion is affecting the disposal site. Climate studies and modeling efforts will show how weather patterns impact soil erosion as well. These studies will inform remedial alternatives evaluation and selection and design criteria development to enhance environmental resiliency.

In Monument Valley, Arizona, DOE's Office of Legacy Management and the National Lab Network developed a groundwater compliance action plan addendum in 2022. A pumping test was also completed on a public well adjacent to the former processing site. Additionally, one well is under consideration for beneficial reuse opportunities such as conversion to a production well for Navajo ranchers.



Agency for Toxic Substances and Disease Registry Update

In 2022, the Agency for Toxic Substances and Disease Registry (ATSDR) led a multiagency workshop in Cameron, Arizona, titled Uranium 101 to educate communities on abandoned uranium mines and the health effects of exposure to radiation. Ten federal and Navajo government agencies led these outreach efforts. The presentation completed the pilot phase of workshop development. In December 2022, the co-chairs sent the final report and workshop materials to the Community Outreach Network. ATSDR continued to participate in the Community Outreach Network.



The NNEPA booth at the Uranium 101 workshop.



The multi-agency Community Outreach Network booths outside the Cameron Chapter House at the Uranium 101 workshop.

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