

Testimony of James Woolford
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Mr. Chairman and Members of the Subcommittee, my name is James Woolford. I am Director of the Office of Superfund Remediation and Technology Innovation at the U.S. Environmental Protection Agency (EPA). Thank you for the opportunity to provide an overview of the status of the EPA's efforts in addressing legacy uranium mining contamination on Navajo and other lands, and Agency efforts related to uranium *in-situ* recovery operations.

BACKGROUND – URANIUM MINING LEGACY ON NAVAJO LANDS

From 1944 to 1986, nearly four million tons of uranium ore were extracted from lands in Arizona, New Mexico and Utah, primarily on Navajo Nation land. Today the mines are closed, but a legacy of uranium contamination remains from more than 600 abandoned uranium mines, homes built with contaminated mine waste rock, and contaminated water wells. Chronic human exposure to these contaminants could pose a variety of health risks, including lung cancer, bone cancer, and impaired kidney function.

FIVE-YEAR PLAN FOR NAVAJO NATION LANDS

EPA has led the development and implementation of a coordinated Federal plan to address the uranium legacy on the Navajo Nation. This federal Five-Year Plan was developed in 2008 in conjunction with the Bureau of Indian Affairs, Indian Health Service, the Agency for Toxic Substances and Disease Registry, Department of Energy, Nuclear Regulatory Commission (NRC), and the Navajo Nation. We are now in the federal Five-Year Plan's fourth year of implementation. A map identifying legacy uranium mining sites on the Navajo Nation is included as an attachment to my testimony. The federal Five-Year Plan outlines the federal commitments to address contaminated homes, water sources, and abandoned uranium mines, and lays out a framework for addressing the highest risks while gaining a solid understanding of longer-term problems.

EPA maintains a strong partnership with the Navajo EPA, and, since 1994, EPA has provided technical assistance and funding to assess potentially contaminated sites and develop a response, including demolition and replacement of contaminated homes. Since October 2007, U.S. EPA and Navajo EPA have assessed 854 structures, 240 wells, and 452 abandoned uranium mines to determine threats to residents. In addition, 34 contaminated homes and other structures have been demolished, and 28 uranium-contaminated water sources have been identified. The EPA is building water systems for more than 300 residents living near contaminated water supplies. The EPA and has also built 14 replacement homes and expects to complete three more in fall 2011. U.S. EPA Region 9 has issued enforcement actions against five responsible parties, and has begun cleanup work at four of the highest risk abandoned uranium mines. The Agencies plan to complete the screening of remaining mines by the end of 2011, identify and prioritize

response actions for the highest risk mines, and continue to identify additional parties responsible for site cleanup.

FIVE-YEAR PLAN FOR NON-TRIBAL LANDS

In addition to the federal Five-Year Plan to address legacy uranium mining on tribal lands, EPA, the Agency for Toxic Substances and Disease Registry, the Department of Energy, the Nuclear Regulatory Commission (NRC), the Department of the Interior, and the State of New Mexico developed a Five-Year Plan in 2010 that lays out the goals, objectives, and tasks for multiple agencies to assess and address health risks and environmental impacts resulting from the extraction, processing, disposal, and releases from legacy uranium mining and milling activities in the Grants Mining District in New Mexico. While the Grants Mining District has been the primary location of uranium mining historically, there are additional legacy uranium mines located throughout New Mexico. In deciding which uranium mines to investigate and prioritize, the New Mexico Five-Year plan focuses on legacy uranium mines with reportable production and mining activities with surface disturbances. There are 97 legacy uranium mines in the district with the potential for physical hazards such as open adits and shafts, and for potential releases to soil, surface water, and ground water.

Within the Grants Mining District, there are also five legacy uranium milling sites. Four are located in the Ambrosia Lake sub-district and one in the Laguna sub-district. The Homestake Mining Company site and the Ambrosia Lake-Rio Algom Mill sites are currently under the jurisdiction of the NRC until reclamation is complete. The Department of Energy is responsible for the long-term surveillance, maintenance and ground water monitoring at the Ambrosia Lake-Phillips Mill site, the Anaconda Bluewater Mill site, and the L-Bar Mill site since reclamation activities have been completed.

Agencies have completed 66 site screenings of legacy uranium mines, completed an Engineering Evaluation and Cost Analysis for the San Mateo Mine located on U.S. Forest Service land and created a technical workgroup with representatives from state and federal agencies to develop a characterization protocol for legacy uranium mine sites and cleanup criteria. Site screenings for the remaining 31 legacy uranium mines are scheduled for completion in fall 2011.

The agencies also plan to complete more detailed assessments on at least seven previously screened mines to determine the impact from mining activities, assess radiation levels at two mine sites located on Bureau of Land Management property, conduct emergency action at mine sites when warranted due to releases to the environment or physical hazards, and prioritize all remaining sites and determine appropriate action.

IN-SITU RECOVERY OF URANIUM

There is growing interest in developing uranium mining sites in several states due to significant increases in the price of uranium. In the U.S., uranium has been mined through conventional open pit and underground mining practices. However, most of the uranium extracted in the U.S. is now produced by *in-situ* leaching. This practice uses injection wells to introduce alkaline fluids into underground formations to mobilize uranium into the ground water. Production wells subsequently bring the uranium-bearing fluids to the surface, where they are processed into “yellowcake” for use by the nuclear industry. EPA understands that there are states, tribes and communities concerned about the potential development of new uranium in-situ leaching mining operations. EPA will work with our federal partners and state co-regulators to ensure that these practices do not adversely impact ground water resources.

EPA shares authority with NRC and with the states in overseeing operations at *in-situ* leaching facilities. However, if the operation is occurring on federal lands, the federal land management agency will also have a role. NRC and Agreement States regulate *in-situ* leaching facility operations, including the injection of fluids, using environmental, radiation, and ground water protection standards developed by EPA in accordance with the Uranium Mill Tailings Radiation Control Act (UMTRCA). In addition to NRC requirements, operators of injection wells used at *in-situ* leaching facilities also must apply for and receive a Class III well permit and if needed, a Class I well permit for disposal of fluids, under the authority of the Safe Drinking Water Act's Underground Injection Control (UIC) program requirements. Permits for Class III solution mining wells are issued either by EPA or the authorized state UIC agency in those states that have been granted primary enforcement responsibility for the UIC program, which in New Mexico is the New Mexico Environment Department. State UIC programs may have requirements that are more stringent than EPA requirements.

In 2009, NRC started to develop ground water regulations for *in-situ* leaching operations to improve the current guidance and licensing approach. EPA worked with NRC to help ensure that revisions would incorporate EPA regulatory requirements developed under UMTRCA and be consistent with EPA regulations for RCRA and Class III injection wells. In 2010, EPA began an effort to review our own regulations regarding uranium recovery operations. NRC has deferred its regulatory effort while EPA continues our regulatory review. In addition, the EPA has convened the Agency's Science Advisory Board to request scientific and technical advice on *in-situ* leaching post-closure ground water monitoring issues. EPA, NRC, states, and if relevant, federal land management agencies, will continue to work together and coordinate our regulatory efforts.

EPA or state UIC programs will continue to maintain responsibility for permitting *in-situ* leaching injection wells. Permits include requirements based on the siting of wells, construction standards, operational practices, monitoring and reporting, closure, financial responsibility, and cleanup. Current NRC guidance and licenses require operators to take action to prevent off-site excursions of fluids used in uranium production into ground water aquifers during operations, and to restore ground water after operations are completed.

CONCLUSION

EPA will continue to work with its federal, state, and tribal partners in addressing sites contaminated from abandoned uranium mines and will continue to identify parties responsible for site cleanup. Efforts are underway under both the Five-Year Plan for Navajo Lands and Five-Year Plan for non-tribal lands. EPA will continue its regulatory work with NRC to help ensure that *in-situ* leaching injection and recovery operations are protective of groundwater resources. EPA remains firmly committed to protecting public health and the environment by addressing the environmental effects of legacy uranium mines. We will continue to work closely with our Navajo and other federal, state and local partners on this important matter.