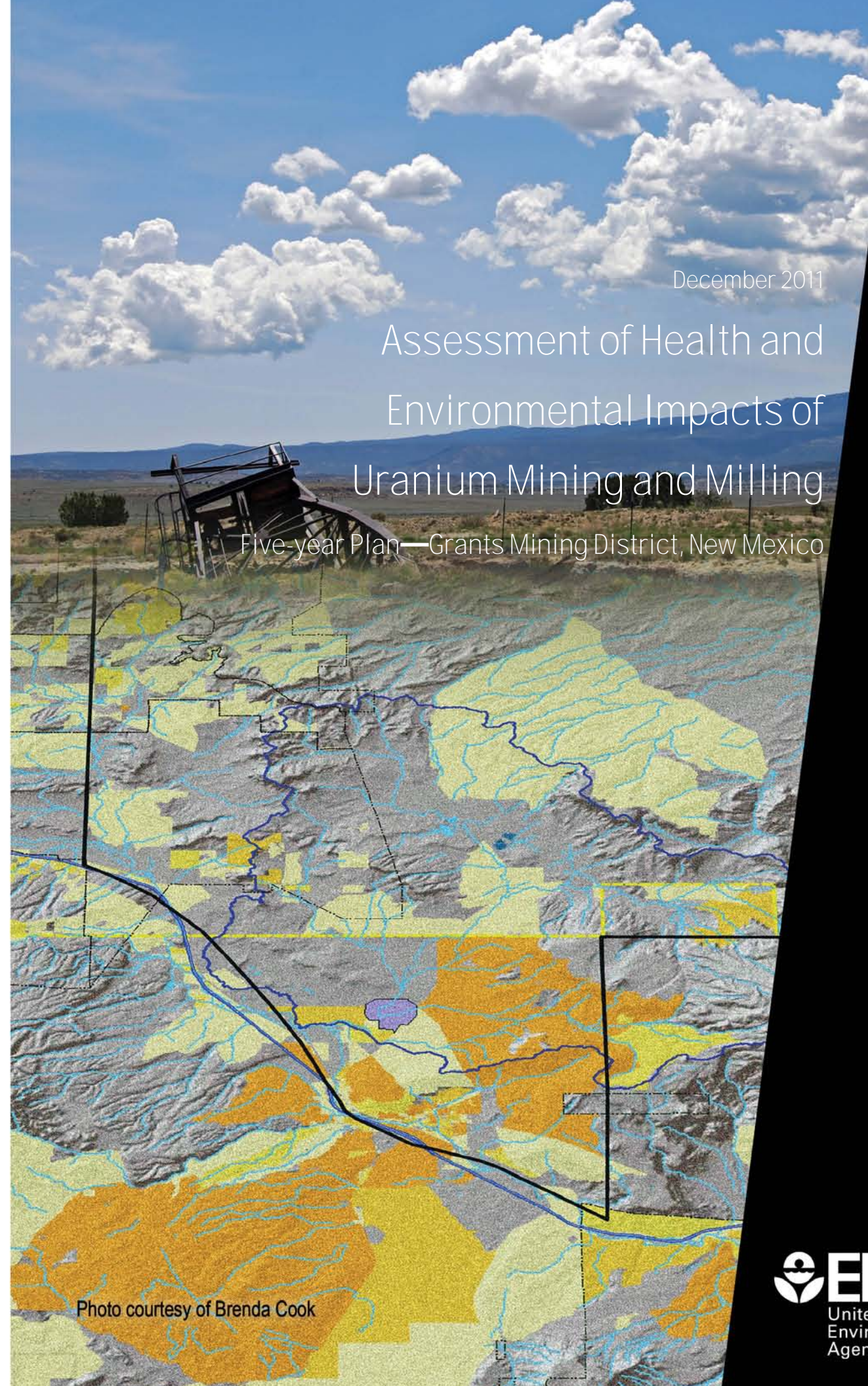




EPA Office of Solid Waste and Emergency Response
Assistant Administrator Mathy Stanislaus
during a visit to Jackpile Mine,
Grants Mining District, New Mexico, in October, 2011



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Assessment of Health and Environmental Impacts of Uranium Mining and Milling

Five-year Plan — Grants Mining District, New Mexico

Photo courtesy of Brenda Cook



Assessment of Water Supply for Contamination

Background

Residents within the Ambrosia Lake and Laguna sub-districts primarily rely on private wells for residential-domestic, stock-watering and agricultural uses. Legacy uranium mining and milling operations generated liquid wastes that included water produced from mine dewatering operations and process waters from milling operations. The New Mexico Environment Department (NMED) and the Environmental Protection Agency (EPA) continue to assess impacts to regional ground water.

Accomplishments

The United States Geological Survey conducted geophysical survey in the area between the Bluewater Mill and Homestake Mining Company site; the information collected assists in targeting ground water systems to be investigated.

Next Steps Planned

Develop a ground water investigation plan within the context of a comprehensive Grants Mining District investigation

Assessment and Cleanup of Legacy Uranium Mines

Background

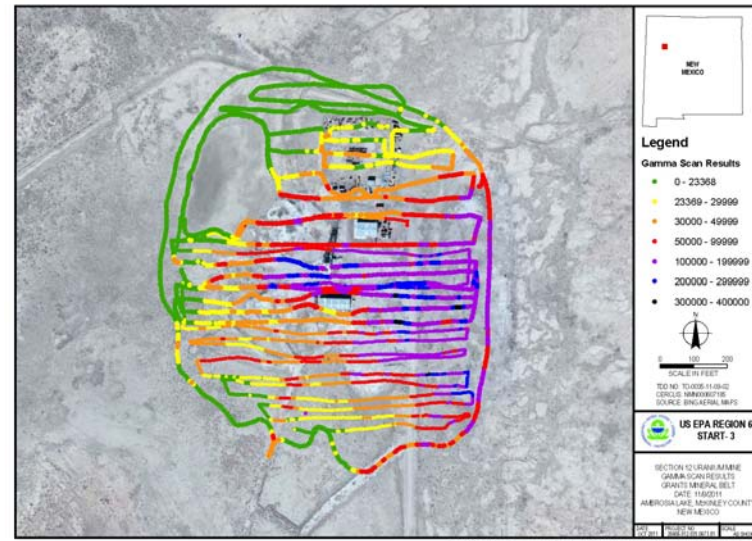
The Grants Mining District comprises an area of 100 miles by 25 miles where primary uranium extraction and production activities in occurred New Mexico from the 1950s until late into the 20th century. There are 97 legacy uranium mines in the district with the potential for physical hazards such as open adits and shafts, and for potential releases to soil, surface water, and ground water.

Accomplishments

- Completed 78 site screenings of legacy uranium mines in the Grants Mining District.
- EPA conducted aerial radiological surveys in the Ambrosia Lake and Poison Canyon areas, coverage of approximately 70 square miles; these areas have the highest concentration of mines. The two reports can be viewed on the Grants Mining District website: http://www.epa.gov/region6/6sf/newmexico/grants/nm_grants_index.html
- Developed a characterization protocol for legacy uranium mine sites.
- EPA completed mine investigations at the John Bully, Sandstone, Section 12, and the Dysart #2 mines using the characterization protocol.
- United States Forest Service issued an Unilateral Order for site stabilization for the San Mateo Mine located on United States Forest Service land; the work plan for the actions was approved in October 2011.
- Executed Memorandum of Understanding between EPA and Bureau of Land Management (BLM) for roles and responsibilities for mine sites located on the Bureau's trust lands.
- BLM completed archaeological survey of the Poison Canyon area and at the Spencer Mine.

Next Steps Planned

- Complete site screenings for the remaining 19 legacy uranium mines by September 2012.
- Complete more detailed assessment on at least nine previously screened mines collecting soil and water samples



to determine impact from mining activities.

- Close shafts and bore holes on the Barbara J complex of mines under the direction of BLM.
- Complete actions ordered for the San Mateo Mine under the direction of the United States Forest Service.
- Conduct emergency action at mine sites when warranted due to releases to the environment or physical hazards.
- Prioritize all remaining sites and determine appropriate action.
- Finalize characterization protocol including solicitation of comments from stakeholders.

Contaminant Assessment, Cleanup, and Long-Term Management of Former Uranium Milling Sites

Background

There are five legacy uranium mill sites within the Grants Mining District. Four are located in 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 Nuclear Regulatory Commission until reclamation is complete. 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.

Accomplishments

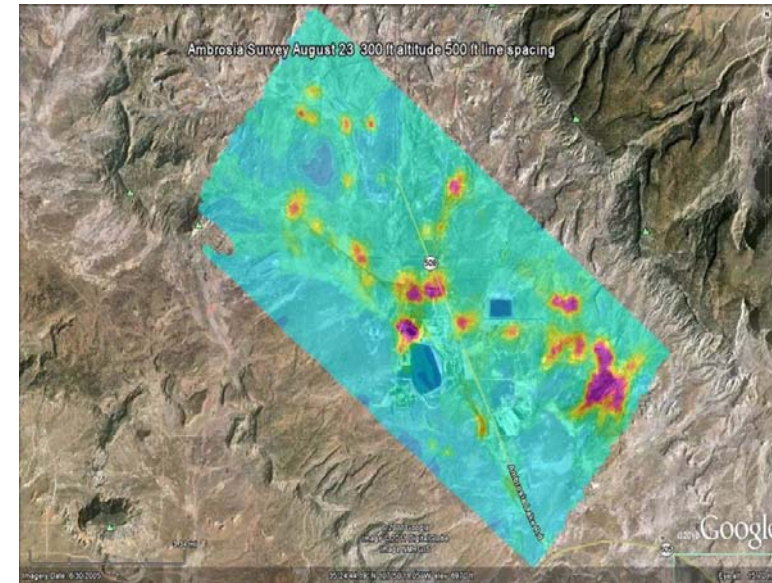
- Installed and sampled two new monitoring wells to supplement the alluvium aquifer point of compliance and point of exposure wells at the Bluewater Mill site in July 2011; the uranium concentrations in the original point of

compliance well had been trending higher over the past several years but the well was almost dry.

- Sampled monitoring wells at Bluewater Mill and Ambrosia Lake-Phillips Mill in November 2011.
- Continued collecting data for the human health risk assessment (HHRA) at the Homestake Mining Company site.

Next Steps Planned

- Complete ground water investigations at the Ambrosia Lake-Phillips Mill and the Bluewater Mill sites, including installation and sampling of additional monitoring wells, if warranted.
- Complete the HHRA at the Homestake Mining Company site.
- Complete revision of the ground water corrective action plan for the Homestake Mining Company site based on the Remedy System Evaluation for improving remediation efficiencies.



Assessment and Cleanup of Contaminated Structures

Background

The Grants Mining District has been inhabited since the 12th century; therefore, structures can date back to those early days. More recent dwellings may be constructed of materials unearthed during mining activities or built on or near high uranium content lands. Based on the results of the Airborne Spectrophotometric Environmental Collection Technology (ASPECT) Gamma Emergency Mapper (shown above) and residential radiological survey, EPA has been surveying structures and properties potentially affected.

Accomplishments

- Assessed 451 structures/properties for potential gamma and elemental uranium contamination; of those identified, 146 structures have radiation contamination above action levels.
- Relocated one residence due to radiation contamination.
- Completed three separate action memos for removals at the Hogan Mine Site, the Sun Clan Road Site, and the Mount Taylor San Mateo Radiation Site; the actions are for the

removal of soil contamination, radon abatement and the demolition of one structure.

Next Steps Planned

- Complete testing on all structures.
- Implement radon abatement at residences, as warranted.
- Cleanup contaminated soil at residences, as needed.
- Cleanup contaminated structures, as needed.

Jackpile Mine on Laguna Pueblo

Background

The Jackpile Mine, once the world's largest open pit uranium mine, is located on the Pueblo of Laguna near the village of Paguete and operated from 1953 to 1982. A Record of Decision was adopted by the Bureau of Indian Affairs and BLM in 1986 with the objective of reclaiming and stabilizing the mine site. EPA is conducting investigations to determine the extent of residual risk from legacy activities.

Accomplishments

- Finalized CERCLA Site Inspection report that documents impacts to ground water and soil.
- Completed Expanded Site Inspection to further investigate the ground water to surface water pathway at the site.

Next Steps Planned

- Finalize the Expanded Site Inspection report.
- Evaluate the Jackpile Mine for inclusion on the National Priorities List.

Public Health Surveillance

Background

Historical releases are documented from legacy uranium sites throughout the Grants Mining District. Area residents requested health screenings and studies to evaluate health impacts from uranium mining and milling in the area.

Accomplishments

- Posted "Grants Mineral Belt Uranium Biomonitoring Project Summary" on the New Mexico Environmental Public Tracking website: https://nmtracking.unm.edu/enviro_exposure/exposure-data_biomonitor/
- The National Institute for Occupational Safety and Health evaluated open mine portals for radon exposure to workers or recreational visitors.

Next Steps Planned

- Continue to field questions from the public regarding the Health Assessment and potential sources of exposure to uranium and how to reduce exposure.
- Issue report on National Institute for Occupational Safety and Health evaluation.