
ENERGIZE NEW MEXICO

URANIUM TRANSPORT & SITE REMEDIATION

YEAR 3 ANNUAL REPORT: RESEARCH

Inadequate understanding of how uranium reacts to and moves in natural and contaminated environments, which results in an inability to control the movement of uranium in the environment during and after mining, is a critical roadblock to its sustainable utilization as a safe and sustainable energy source in New Mexico. As part of their continued efforts for the *Energize New Mexico* grant, the Uranium Transport & Site Remediation research team promotes collaborations among university scientists working on fundamental uranium biogeochemistry, engineers, applied geologists, regional resource managers, and tribal leaders concerned with mineral resources, contamination of the surrounding area, and remediation.

In Year 3, scientists from UNM, NM Tech, and the New Mexico Bureau of Geology made significant progress characterizing the extent of contamination from legacy uranium mining and milling and how it spreads in groundwater, surface water, vegetation, and soils on the Laguna Pueblo and Navajo Nation.

Crossing Cultural Borders to Protect People and the Environment

Data from New Mexico EPSCoR-supported research in the Navajo Nation that was published in *Environmental Science & Technology* convinced local leaders to place new sites on their Priority List for environmental remediation. Researchers have built lasting collaborations with state and federal regulatory agencies to investigate the impacts of legacy uranium mining on tribal lands in west-central New Mexico.

In the last year, the team documented elevated concentrations of uranium and co-occurring metals in abandoned mine wastes on Native American lands. For example, uranium concentrations in water from a seep on the Blue Gap Tachee site were up to 5 times the EPA's drinking water limit and suggest that abandoned mine wastes can be a major source of potential metal exposure to local people and livestock. Results from this and other research sites near the Jackpile Mine on the Laguna Pueblo are being shared and translated to the Native American communities at Tribal Council and chapter meetings.

Because of relationships established through the Energize New Mexico project, the New Mexico Environment Department reached out to the NM EPSCoR Uranium researchers

after the 2015 Gold King Mine spill on a tributary of the Animas River (an environmental disaster associated with the spill of 3 million gallons of mine wastewater and tailings) for independent analysis of the impacts on tribal lands and waters. In addition, outreach efforts to K-12 students at Laguna Pueblo have fostered interest in STEM learning and have inspired young Native American scientists.



NM EPSCoR Uranium Transport & Site Remediation research team faculty and students from the University of New Mexico, New Mexico Tech, and Laguna Pueblo at the Jackpile-Paguate Mine, Laguna, NM