

# INTRODUCTION

## Making Abandoned Mine Lands Profitable

March 27 – 28, 2018

Bonnie Frey, moderator

# Contributing factors

- **Workshop leaders – Bonnie Frey, Virginia McLemore, Jose Cerrato, Dan Cadol, Johanna Blake, Sumant Avasarala**
- **New Mexico EPSCoR (Established Program to Stimulate Competitive Research), an NSF program**
- **2016 White Paper for RII5 NSF EPSCoR: Critical Materials for Energy and Technology**

# NM EPSCoR Uranium Team



For the past five years, a team of UNM and NMT researchers has been investigating the mobility of uranium. Study sites include Grants Mining District, Laguna Subdistrict, and part of the Navajo Nation.

- Mineralogy and geochemistry of mine waste and uranium deposits.
- Dust transport study.
- Hydroponic plant study to determine uranium distribution in plants.
- Uranium distribution among particle grain sizes.
- Development of new uranium filtration material.
- Amenability of New Mexico uranium deposits for in-situ recovery.
- Dissolution of dust-bound uranium by lung fluid.

# Draft List of critical minerals

## Federal Register, Feb. 16, 2018

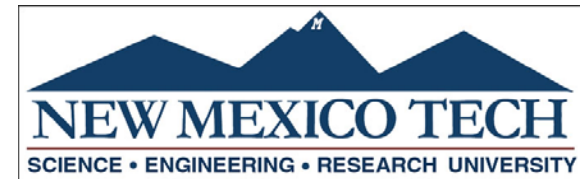
---

- Aluminum (China)
- Antimony (China)
- Arsenic (China)
- Barite (China)
- Beryllium (US)
- Bismuth (China)
- Cesium and rubidium (Canada)
- Chromium (S. Africa)
- Cobalt (Congo)
- Fluorspar (China)
- Gallium (China)
- Germanium (China)
- Graphite (China)
- Helium (US)
- Indium (China)
- Lithium (Australia)
- Magnesium (China)
- Manganese (China)
- Niobium (Brazil)
- Platinum Group Metals (S. Africa)
- Potash (Canada)
- Rare Earth Elements (China)
- Rhenium (Chile)
- Scandium (China)
- Strontium (Spain)
- Tantalum (Rwanda)
- Tellurium (China)
- Tin (China)
- Titanium (China)
- Tungsten (China)
- Uranium (Kazakhstan)
- Vanadium (China)
- Zirconium and hafnium (Australia)

# What we hope to accomplish

- Identify mine waste features that can be used to extract critical minerals or other material essential to the U.S. economy and security.
- Identify other potential technologies that can be developed for use of mine waste.
- Identify hazards, especially those that can be removed or mitigated through profitable activities.
- Identify funding sources for research in these areas.

# Workshop sponsors



New Mexico Bureau of Geology  
Mineral Museum



Toltec Mesa Resources LLC

Special thanks to Melissa Coverdale, Gloria Gutierrez-Anaya, Nelia Dunbar and Van Romero for their advice and assistance with workshop planning and to Marcus Silva, Connie Apache, Alexandra Pearce and Amy Trivitt-Kracke with assistance with the program.