
NEW MEXICO TECH
SCIENCE • ENGINEERING • RESEARCH UNIVERSITY
New Mexico Bureau of Geology and Mineral Resources
New Mexico Tech
Earth Science for the 21st Century
New Mexico
Abandonded Mine Lands Project
Inventory Process for Inactive/ Abandoned Mines
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Introduction

- New Mexico has some of the richest mineral wealth of US States.
- This resource has been accessed throughout the history of the state, leaving thousands of mine features across the state.
- These mine features were abandoned when the mines were closed, in accordance with the laws of the time.
- These features may be potentially dangerous physically and environmentally.

What Are Abandoned Mines?

- For our purposes, an abandoned mine is:
  - A legacy mining location, which has been left inactive, unreclaimed and deserted
  - Features may include shafts, adits, pits, waste rock and tailings piles, and the remains of buildings related to mining

- Many of these locations have no individual or company responsible for reclamaition or remediation.

Abandoned Mine Inventory Process Locating Potential Sites

- Research is done using the NM Bureau of Geology files, courthouse documents, theses, published and unpublished reports, and other records in the NMBG GIC (mine archives) to find potential sites of interest
- For sites on private property, the owners are identified using courthouse and county assessor's records, and permission to access private land is sought
- Additional sites from field work are added
- Locations are confirmed using Google Earth when possible

Abandoned Mine Inventory Process
Field Inventory

- To perform field inventories of the potential abandoned mine sites, teams of students and staff are sent to the locations that the research pinpointed.
- Each location is carefully searched to locate the mine features which are present.

Abandoned Mine Inventory Process Field Inventory

- Once the mine features are located, GPS readings are taken to record the exact location of each feature.
- Photographs and observations are taken to record the condition and potential hazards of each feature

Abandoned Mine Inventory Process Field Inventory

- Conditions we look for include
  - Stability of the feature
  - Hazardous Conditions
  - Erosion
  - Animal Activity
  - Signs of environmental impact
  - Signs of human activity

Photo: Marcus Silva

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Abandoned Mine Inventory Process Field Inventory

- Sampling of waste rock and soil is done to determine the characteristics of the mine features and the associated waste rock piles
  - Mineralogy
  - Chemical and Engineering Characteristics
    - Acid generation potential, particle size distribution, shear strength
  - Future Mineral Resource potential
  - Potential for use as backfill to remediate features

Abandoned Mine Inventory Process

- The data and photographs collected in the field are entered into the New Mexico Mine Database
  - The new data is correlated to existing entries in the database wherever possible to avoid duplicates and improve the database's usefulness
- Using the data collected in the field, hazard rankings are assigned to each feature for remediation priorities

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