A STUDY OF ABANDONED MINE LANDS IN NEW MEXICO

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Abandoned mine lands (AML) are sites that were mined and left unreclaimed where no individual or company has reclamation responsibility and there is no closure plan in effect. The New Mexico Bureau of Geology and Mineral Resources and the Mineral Engineering Department at New Mexico Tech are conducting research to develop a better procedure to inventory and characterize legacy, inactive, or abandoned mine features in New Mexico. The object of this study was to inventory a number of abandoned mine features in several mining districts throughout New Mexico. This inventory was conducted by means of recording field observations according to the procedure already used by the program, soil petrography of composite dump samples, and paste pH analysis of said samples. This work served to identify environmental hazards in the two districts, which contributed to the goals of the AML program. The procedure developed for the project involves field examination of the mines features and collecting data on the mine features. Samples are collected to determine total whole rock geochemistry, mineralogical, physical, and engineering properties, acid-base accounting, hydrologic conditions, particle size analyses, soil classification, and prioritization for remediation, including hazard ranking.

A field inventory form was designed to collect data on all mine features during the field examination, which were later entered into the New Mexico Mines Database. Composite dump samples were collected and subjected to soil petrography, paste pH analysis, and geochemical testing, for evaluation of major and trace elements.

Samples that have higher concentrations of pyrite are more likely to have a higher acid generation capacity.

A few mine sites examined have the potential to generate acid drainage and additional mine sites are physically dangerous and require proper safeguarding.
Figure 1. Location of mining districts examined during this study

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