TITLE: **RECLAIMING ABANDONED URANIUM MINES IN ARIZONA**

AUTHOR: **SANDOVAL, J.P., BOR**

CONTACT: Sandoval, John (602) 870-2218

ABSTRACT:

The Bureau of Reclamation conducted site investigations at three abandoned uranium mines near Cameron, Arizona to remediate and return ownership of withdrawn land to the Bureau of Land Management. The remediation program is based on similar design and construction practices used by the Navajo Nation. Radiological monitoring was completed by taking two sets of readings on 50 ft centers producing a horizontal and vertical grid. The readings were collected in counts per second and converted into Equivalent Ra-226 Concentrations for environmental ground reading in picocuries per gram (pCi e Ra-226/g) and into True Exposures for the 1 meter reading in microrems per hour (R/hr) by correlation equations. The pits and waste piles were categorized into three classes based on radiological emissions. The bulk of the material at the site was categorized as at or near natural background levels with isolated areas of low level radioactive material. Currently, the material is not subject federal standards because the site is abandoned and has not been milled. Therefore, no approved standards exist in Arizona regulating radioactive substances or emissions from abandoned mine sites. However, this does not negate the concern for radiological hazards at abandoned mine sites nor the need to document the degree of danger and take appropriate remedial actions on withdrawn land.

TITLE: **HAZARDOUS WASTE SITE REMEDIATION WITH BOREHOLE MINING TECHNOLOGY**

AUTHOR: **SAVANICK, G.A. USBM** and A. L. Miller

CONTACT: Savanick, George (612) 725-4543

ABSTRACT:

The Bureau of Mines has developed borehole mining equipment. This equipmcnt has potential applications in environmental remediation and is especially suited for removing hazardous waste buried in situations where conventional excavation ls not possible such as ln urban areas. The method is selective and can extract deposits that are small or erratically distributed. This selectivity allows the volume of interest to be extracted without disturbing the surrounding rock or the overburden. Borehole mining has been proposed as a method for removing dense, nonaqueous phase liquids (DNAPLS) which have leaked into soils. DNAPLS cannot be removed by pumping of the groundwater and must be physically removed in order to remediate the groundwater.

The borehole miner can also be used to backfill the mined out caverns to minimize subsidenee or to emplace materials for controlling the flow of groundwater or modifying its chemistry.

U.S. DEPARTMENT OF THE INTERIOR CONFERENCE ON THE ENVIRONMENT AND SAFETY

APRIL 24-28, 1995

ABSTRACT BOOK

Sponsored by the U.S. Bureau of Mines