Project Title: Adit Discharge Control
Location: State Wide
Period of Project: March 1998–October 2001
Project Leader: John Metesh
Project Staff: Phyllis Hargrave and Mike Kerschen
Funding Source: USFS-Missoula Technology Development Center

Issue or Background
In its ongoing work with the USFS-Region 1, the Montana Bureau of Mines and Geology has screened about 3100 abandoned-inactive mines on USFS- and BLM-administered lands in Montana. Of these, about 220 sites on USFS-administered land have one or more adits that discharge water at least part of the year. Poor-quality adit discharges can have deleterious effects on aquatic life, fisheries, and riparian areas downstream. Adit discharges, regardless of the water quality, contribute greatly to the leaching of metals from waste-rock dumps that are commonly near the adit. The cumulative metals loading from adit discharges can be detrimental in some of the smaller drainages.

In March of 1997, the Forest Service Missoula Technology and Development Center and the Montana Bureau of Mines and Geology initiated a program to summarize current methods for reducing or eliminating mine adit discharge and evaluate their application to specific conditions.

Objective
The U.S. Forest Service wishes to identify current and available technology for reducing and/or preventing acid mine drainage, and identify and prioritize abandoned and inactive mine sites on or effecting lands administered by the Forest Service at which to use the technology. The objective is to develop a classification of mine types and applicable methods.

Approach
The current literature regarding ground-water recharge control, acid mine drainage processes, and remediation techniques were reviewed and summarized. Also, there are several ongoing investigations by the MBMG and others regarding ground-water flow into underground openings. Information from these studies will enhance the development of discharge control methods.

Progress during the 1999–2001 Biennium
A review of current technologies was completed and published by the U.S. Forest Service. A summary report of the chemical physical characteristics of adit discharges in Montana was completed; publication is pending. Two sites, the Elkhorn mine and Charter Oak mine, were selected for detailed monitoring of the flow and field chemistry of adit discharges.

Plans for the 2001–2003 Biennium
Work will continue on a detailed investigation of geology, geochemistry, and soils associated with the adit discharges at the two sites. The intent is to develop a plan for a permanent reduction of the adit discharge at both sites.
Information Products
