Project Title: Coal Lands Hydrogeology
Location: Southeastern Montana
Period of Project: Ongoing since the early 1970s
Project Leader: Wayne Van Voast
Project Staff: John Wheaton, Joe Lalley
Funding Sources: U.S. Bureau of Land Management, Montana Bureau of Mines and Geology

Problem

Energy is not the only resource provided by coal beds in southeastern Montana. In this semi-arid climate, inhabitants almost totally depend on ground water for stock and domestic supplies, and in many places ground water is obtained from coal beds that will be removed by mining. Mine-spoil aquifers may be of limited value as a water resource and may impact water quality in downgradient aquifers.

To ensure rational and efficient coal resource decision making by mining companies and regulators, the impacts of mining on ground water must be well documented and thoroughly understood. Because mining and associated impacts have long durations, the study of the associated hydrology needs to be a long-term commitment.

Objectives

Document hydrologic impacts associated with coal-strip mining. Develop models that can be used to predict those impacts using hydrogeologic baseline data and mine plans; and use the information to plan, mine, and reclaim for minimum hydrologic impact.

Approach

1. Measure water levels and collect water samples at over 200 wells in and outside of mine areas. Wells should reflect mining-impacted aquifers as well as aquifers that are not impacted but can provide background data and natural seasonal variations.
2. Maintain the data in computer data bases.
3. Review the data, analyzing temporal and spatial trends.
4. Interpret the information and disseminate it to regulators and industry.

Progress during the 1999–2001 Biennium

Continued data collection at mining areas near Colstrip and Decker. Reviewed data for mining impacts. Data collected and interpretations of those data were used at numerous presentations, including public meetings and scientific conferences. The value of the data base due to its longevity and continuity has been a point of positive discussion at these meetings.

Plans for the 2001–2003 Biennium

Continue monitoring program, and visit older study sites. Present technical papers at workshops and scientific conferences. Collect water-quality samples and perform aquifer tests, with emphasis on the Decker area.

Information Products

This long-term project has produced many formal publications.