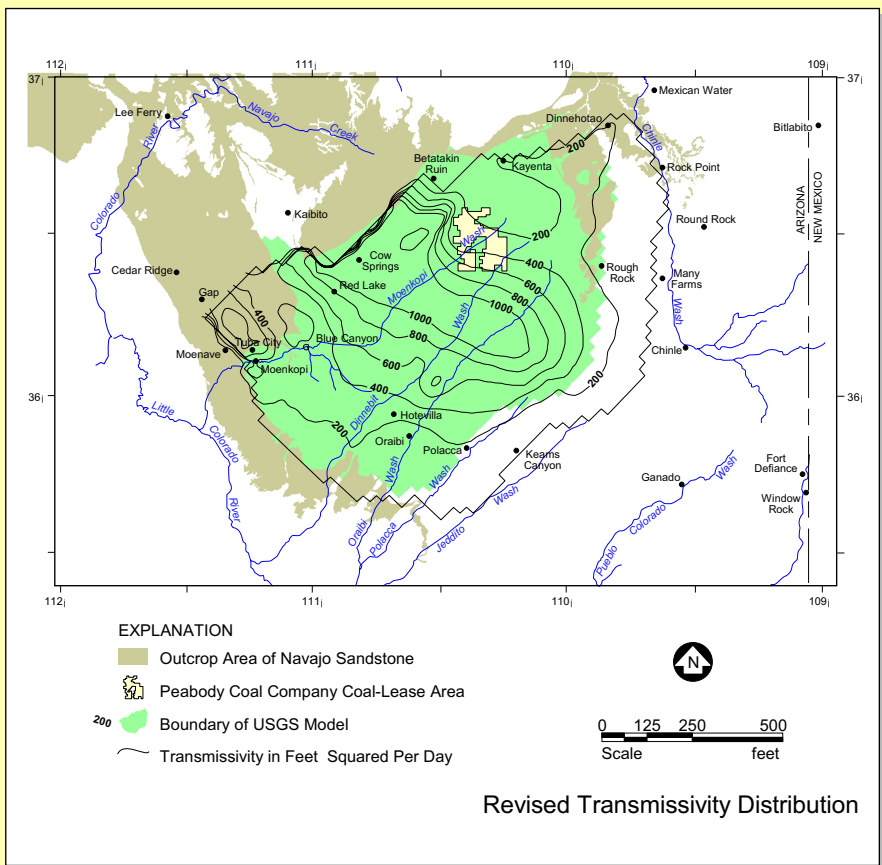


Measured and Simulated Water-level Changes in USGS Observation Wells



Regional Navajo Aquifer Study, Black Mesa, Arizona

Location

Black Mesa Area, Arizona.

Problem

Potential impact on the N-aquifer due to groundwater withdrawal for mining purposes in the area of Black Mesa, Arizona.

SSP&A's Role

Acquisition and evaluation of relevant data and studies.

Creation of a relational database.

Development of technical opinions regarding the nature and adequacy of existing data and studies.

Recommendations for further action.

Results

A groundwater model was run with, and without, pumping by Peabody Coal Company and the results were subtracted to identify the impact of Peabody's groundwater withdrawal. Model results using alternative model parameters were compared to results from the USGS groundwater model of the Black Mesa Area to assess the impact of parameter uncertainty. The impacts identified were very similar to the impacts calculated by the original USGS model.

Conclusions

Total pumping by the Peabody Coal Company is a very small fraction (2 to 3 percent) of the total flow rate in the aquifer, and while no further modeling is presently necessary, continued and up-graded data collection and long-term monitoring are important.