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NEWS

Report: Mining depleted N-Aquifer more than predicted

By Cindy Yurth
Tséyi' Bureau

CHINLE, July 28, 2011

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A newly released study of the springs around Peabody Western Coal Co.'s mining operations on Black Mesa concludes the company's use of water for mining and slurrying coal depleted Navajo Aquifer storage by 21,000 to 53,000 acre-feet - more than 6,700 acre-feet over what the company's consultants predicted.

The study by Daniel Higgins, who holds a Ph.D. in arid lands resource science from the University of Arizona, also concludes Peabody's predictions were based on a flawed model that was then used to inform both the Office of Surface Mining's hydrologic impact assessment and a subsequent environmental impact statement for the mine - and that over the 15 years the Black Mesa Mine was in full production, nobody ever checked to make sure the aquifer was behaving as predicted.

Four environmental groups - Diné Citizens Against Ruining our Environment, Tó Nizhónícní, the Sierra Club and the Center for Biological Diversity - are submitting the report to the OSM as part of their comments on an environmental assessment currently underway, and have asked OSM to hold a public hearing on Higgins' findings.

Peabody, meanwhile, disputes the report.

"The issues raised by activists long opposed to mining are heavy on rhetoric and light on facts," reads a statement released by the company in response to Higgins' research. "The Navajo Aquifer is healthy and robust, and mining has not harmed any regional water supplies."

Higgins said he's letting his data speak for itself.

"I gathered all the studies that had to do with Black Mesa dating back to the 1940s, including the environmental impact statements and groundwater models," he explained. "Then I evaluated the accuracy of the predictions in the environmental impact statements."

Higgins checked the levels and flows for wells and springs about which predictions had been made and

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found that, in general, the water level decline Peabody attributed to mining withdrawals was underestimated and the water level decline attributed to municipal withdrawals were overestimated. Over the years, no one had checked to make sure the model was working.

"When it comes to environmental impact statements, whether it's a new project or revisions to an existing one, once a decision has been made there is no requirement to validate the predictions in that impact statement," Higgins said.

In the case of Kayenta, for example, the model predicted 85 to 87 percent of the decline in the level of the N-Aquifer under Kayenta would be due to drawdown from municipal wells - even though Peabody was pumping 4,085 acre-feet per year while Kayenta pumped 567.

Higgins found a strong correlation between the water level decline in Kayenta and the rate of Peabody withdrawals, but there was no statistically significant relationship between Kayenta's municipal withdrawals and water level decline.

Higgins also found that, during the six months in 1985 when the Mohave Generating Station was idled for repairs and Peabody stopped pumping water to slurry coal to the station, the water level in many wells throughout the aquifer increased.

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"I can't say for certain that the mine was responsible for that," he said, "but there was a pretty dramatic spike in many of the wells in the area."

While the model predicted there would be no seepage between the lower-quality D-Aquifer and the N-Aquifer, the USGS did find some of the water sources became more contaminated with particulates, arsenic and other pollutants over the years the N-Aquifer was pumped, the report stated.

"Whether that is due to seepage is unclear," Higgins said. "We know very little about the D-Aquifer."

Perhaps the major problem with the predictions, according to Higgins, is that they were based on a water-budget model that the USGS intended as a learning tool, not a management tool.

"What water-budget modeling does is to treat water like a bank account," Higgins explained. "As long as withdrawals don't exceed deposits, then everything is thought to be sustainable."

Reality, however, is more complex.

The water-budget approach assumes the climate and precipitation rates will stay the same, which they rarely do, Higgins said. It also assumes the water will be replaced fairly quickly.

"The USGS determined in 1997 that 90 percent of the water in the N-Aquifer is between 10,000 and

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35,000 years old," he said. "It's fossil groundwater. It can't be replenished on a human time scale."

In its statement, however, Peabody begs to differ.

"Studies demonstrate that mining will use less than one-tenth of one percent of the volume of water stored in the aquifer over the life of the operations and that the aquifer will recharge rapidly," the statement reads. "Current evaluation of the Black Mesa wellfield confirms the aquifer is recovering and reacting as modeling has forecast."

Peabody added water from the N-Aquifer to ground coal to form a slurry that was piped to the Mohave Generating Station in Laughlin, Nev., until 2005, when the power plant shut down.

The company currently uses 1,200 acre-feet per year for dust suppression and drinking water at its Kayenta Mine, for which it pays the Navajo and Hopi tribes \$1.1 million annually, according to its statement.

The Kayenta Mine transports its output by rail to the Navajo Generating Station in Page.

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