

Berkeley Pit water profits? New tech idea gets mixed reviews



APRIL 28, 2013 12:00 AM • **BY FRANCIS DAVIS OF THE MONTANA STANDARD**

A process engineer who believes he has invented a technology to clean Berkeley Pit water has offered to set up a pilot plant at Montana Resources in Butte.

An MR spokesman said the mining company isn't interested in the new technology at this time, but left the door open to revisiting the idea in the future.

John Bewsey, of South Africa, says his "KNEW" process can treat the acid mine drainage in the pit and make a profit while doing so. Bewsey asserts his technology would not only clean the polluted water, saturated with metals and chemicals, but also produce a product that could earn a profit.

Specifically, Bewsey said the method could turn the pit water into potassium nitrate, a chemical compound used in fertilizer.

On Tuesday, Bewsey and executives of Glenjohn Capital, the company holding the distribution rights to the technology, met with Sara Sparks, remedial project manager of the Environmental Protection Agency, Region 8; Erik Nylund, a Butte representative of U.S. Sen. Jon Tester, D-Mont.; and Tad Dale, the vice president of Human Resources to Montana Resources, to discuss the merits of the new process.

Bewsey and his team offered to set up and pay for a test pilot plant at the pit that would process about 1,000 gallons an hour, but Montana Resources backed away from that idea.

"I wasn't totally up on what the process is, but they needed a pilot plant that needs a large volume," Dale told The Montana Standard on Thursday. "All they've done is small volume. We couldn't accommodate them, but we left it open to revisit in the future."

A MINE TO RUN

Dale cited the existence of the Horseshoe Bend treatment plant, built in 2002-03, as part of the reason his company turned down Bewsey's team. Dale also referred to the fact that Montana Resources isn't releasing treated water from the pit, but rather using that water for its mining operations.

“We’ve got a mine to run,” he said.

On the other hand, Aubrey Howard, an executive at Glenjohn Capital, came away from the meeting with Dale with a more positive outlook about working out a future deal with Montana Resources. Howard said his company is going forward with plans to submit a formal proposal to Montana Resources.

“It was very positive,” Howard said. “The ball is in our court now. We’re going to write up a proposal and take it from there.”

Howard said one reason Montana Resources might have been reluctant to commit to the idea of a pilot plant at this time was because of the recent landslides of the pit walls that have created waves in the water. Dale, though, did not confirm this as one of the reasons MR turned down Bewsey.

Howard did say the pilot plant could be set up offsite, and he mentioned Montana Tech as a possibility.

SUPERFUND ISSUES

Another potential sticking point to Bewsey’s plan, however, is the fact that the Berkeley Pit is a Superfund site. Because of this, the EPA’s 1994 Record of Decision governs how the site is managed and cleaned. That document, along with the Consent Decree filed in 2002, dictates that that the water be treated through a lime precipitation method.

Sparks, however, said the ROD could be changed if Atlantic Richfield and Montana Resources agree to it.

“We’re always interested in any new technology that benefits human health and the environment,” Sparks said. “(Changing the Record of Decision) is not an easy thing to do, but if the responsible parties agree, it can be done. Without their approval, it’s virtually impossible.”

Dale said his company went into the meeting, which he said lasted less than an hour, with an open mind.

“The point is we’ve seen a lot of people through the years, but their plans never pan out,” Dale said. “We always look at these things with wide open eyes, however.”

OLD SCIENCE, NEW METHOD

Nick Tucci, a research hydrologist with Montana Bureau of Mines and Geology, attended a presentation Bewsey made at the Butte Archives on Monday. Tucci said Bewsey’s process combines a lot of known technology, such as ion exchange and reverse osmosis, but it does so in a new way.

However, Tucci cautioned that the process would have to be tested using Berkeley Pit water to see if it could work in Butte.

“All of these processes are relatively old processes, but they’re combining things

in a way we haven't seen," Tucci said. "(But) they have to take some Berkeley Pit water and see what they get. They've been using this in South Africa, but no two mines' waters are alike."

Howard said Bewsey and his company are touring around the country visiting different mines and conferences to spread the word about their new technology. He said they have successfully tested their product using a bench scale, and they're in the process of setting up a pilot plant in South Africa.

Tucci wonders if the Berkeley Pit water is so polluted that the potassium nitrate that resulted from Bewsey's process might also be too contaminated to use as a commercial product.

"Scientifically, it looks interesting," he said. "But I wonder if the impurities in the product would be too great."

Bewsey patented the process in 2011.

Howard said Bewsey recently presented his process to the Newmont Mining Corp. in Colorado, one of the world's biggest gold producers.

They've also presented at the U.S. Department of Interior's Brackish Groundwater National Desalination Research Facility in Alamogordo, New Mexico, and are scheduled to present at a National Groundwater Association conference in San Antonio on May 1, according to Howard.

VOICE OF CONCERN

Open pit mining was in operation at the Berkeley Pit from 1955 to 1982. The pit is 1,780 feet deep with a four-mile circumference. The pit began filling with water after it ceased operations in 1982 after Atlantic Richfield shut off the pumps that kept water out of the pit.

It's estimated the pit will reach the natural ground water level, considered the critical level, around 2022. At that time the polluted water could seep into Silver Bow Creek or into the alluvial ground water.

Butte's Fritz Daly, a former Montana legislator involved with the Superfund for the last 30 years, thinks the EPA and Montana Resources should start taking a more pro-active approach to the problem of the Berkeley Pit.

"Within 10 years, that water will have to be pumped and treated," Daly said. "And what I always tell people is this isn't just a Butte problem. Silver Bow Creek is the headwaters for the Clark Fork and Columbia Rivers."

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