

## In Wyoming, economics often blurs health concerns in uranium mining

Andrew Villegas, (Bio) [avillegas@greeleytribune.com](mailto:avillegas@greeleytribune.com)

February 10, 2008

Drilling rigs bore holes into the ground at in-situ mine sites to access uranium. This mine near Douglas, Wyo., is Cameco's Smith Ranch site, formerly owned by Power Resources Inc.

**For the Tribune**  
[Browse Our Galleries](#)



[Click to Enlarge](#)

Charmaine White Face thinks there's enough sun and wind in South Dakota for all of America's energy needs.

That's why she doesn't think mining for uranium is a good idea, even if uranium mining officials in Wyoming and South Dakota say that there's no danger to anybody from their underground uranium leach mines, and that America needs uranium to reduce its intake of foreign oil.

People in Wyoming and South Dakota are afraid of how the uranium mining will affect their water, livestock and their families, just like their Coloradan neighbors to the south, but they are more afraid of the ramifications of speaking up, White Face said.

Most fear retribution, and because they live in economically-depressed places, residents often value the jobs the mines bring more than their own health, she said.

"Local people don't want to speak up -- they're afraid," White Face said. "This is like the wild west out here."

But the uranium mining industry -- with new speculation fueled by the high price of uranium -- still booms, particularly in Wyoming where mining for the radioactive substance isn't as taboo or nearly as controversial as it is in northern Colorado, the site of a proposed mine near Nunn that has raised concerns of many nearby residents.

There just aren't as many people living near the mines in Wyoming, officials say, so disputes are usually settled between one or two ranchers and a big corporation, whereas in northern Colorado, thousands of people live within 20 miles of the proposed mine.

Powertech, the Canadian company that wants to place the mine near Nunn, also is exploring three possible uranium mines in both Wyoming and western South Dakota.

White Face said she's seen firsthand the sorts of things uranium can do to public health, even in more remote parts of the United States. Uranium dust from abandoned open-pit mines in Wyoming makes its way into South Dakota, she said, and it even finds its way into the Cheyenne River, which flows into South Dakota's Black Hills, uranium-rich in its own right.

### «Mining in Wyoming

In Wyoming, there are literally hundreds of abandoned open-pit mines as well as 3,000 open exploratory wells that are 6,800 feet deep, White Face said. Both of these prove a hazard to residents all over eastern Wyoming, she said, where Power Resources Inc. runs the state's only uranium leaching mine.

A recent meeting between northern Colorado's Coloradoans Against Resource Destruction, who have their own uranium mine worries, and

White Face's Defenders of the Black Hills group led to a good dialogue and hopefully a four-state residents' coalition against the mining, White Face said.

All the groups are taking a stand against in-situ leaching of uranium, though uranium company officials say it is the most benign way of extracting the uranium ore.

Donna Wichers, senior vice president of Uranium One, a company that is applying for permits to run an in-situ uranium mine in northeast Wyoming, said leach mining in Wyoming has been practiced there since the 1970s, and that residents are used to mining's ubiquity in Wyoming since many people rely on the industry for jobs.

"People are very familiar with it," Wichers said. "People aren't afraid of it."

Moreover, the water that accompanies the uranium deep underground isn't water that people should drink anyway, Wichers said, trying to allay the fears of people who are afraid their wells or groundwater will be polluted by the mining.

"The water in the ore body is fairly nasty" to begin with, Wichers said. "So people shouldn't be drinking it anyway."

Mark Moxley, with Wyoming's Department of Environmental Quality, agreed that the water near the uranium deposits indeed isn't fit for human consumption, but that it doesn't matter anyway since most people don't live near the mines.

"In general, most (mines) in Wyoming are not very controversial," Moxley said, adding that in the past six months, Wyoming has gotten three applications for new uranium mining operations. "Most are out in the middle of nowhere."

A bigger concern of residents, Moxley said, are sand and gravel operations, which can be close to subdivisions.

But that's not to say that there are no regulations regarding uranium mining in Wyoming. Moxley said mining companies are responsible to get water quality levels back to their original background levels for chemicals and elements, but most companies rarely ever do because of the difficulty of meeting that standard.

Wichers said companies sometimes have trouble getting uranium and radium back to background levels, but added that it never turns out to be a problem.

"It's as benign a mining operation as you can have," said Marion Loomis, executive director of the Wyoming Mining Association.

#### «Safeguarding water, restoring land

Many areas actually have been restored and successfully reclaimed, because the water underground just doesn't move as much as people think, Loomis said.

"It's not like underground rivers down there," he said. Indeed, many compare the aquifers to sponges that don't allow for a free flow of water underground.

Tom Mast, business editor of the Casper Star-Tribune newspaper, has followed uranium mining in Wyoming through the boom, and said he's also found that most people say the water doesn't move around very much underground.

People are worried about safety of the mining operations as well as declining property values, Mast said, but concern about water remains -- both the availability and quality of it.

Shannon Anderson, an organizer for the Powder River Basin Resource Council -- a group trying to ensure safe mining practices in Wyoming, said her group is not necessarily against the mines, but they lobby to get the sites away from cities such as Douglas, east of Casper.

There's a lot of government support for uranium mining in Wyoming because of the boon it can provide to the economy, Anderson said.

That support, however, is not as clear in northern Colorado.

The Fort Collins City Council passed a resolution last December against the proposed mine near Nunn and Rep. Marilyn Musgrave, R-Fort Morgan, recently sent a letter to the Board of Weld County Commissioners voicing her opposition to the project.

"Chief among my concerns is the potential impact this proposed mining could have on our groundwater resources in northern Colorado," Musgrave said in her letter. "This process has the potential to contaminate the underground aquifers our families, communities and agricultural producers rely upon for clean, safe water. ... On behalf of my constituents in Colorado's Fourth Congressional District, I again reiterate my strong opposition to this proposal and encourage you to carefully evaluate both the potential economic and environmental costs

associated with this project."

The Weld commissioners will have the ultimate say about whether or not the mine can go forward, though Powertech hasn't yet filed a proposal with Weld County, and doesn't plan to do so until December.

"We just want to make sure (the uranium mines) are done safely," Anderson said, adding that Colorado and Wyoming sometimes diverge on values surrounding mining and it's importance to the economy. "The political and economic forces are a little different."

## **URANIUM IN WYOMING**

Uranium mining in Wyoming dates to the 1950s, when open-pit mining was popular. Since the 1970s, in-situ leach mining became the only method used to extract uranium from the ground -- which uranium company officials say is much safer, even benign -- and because of higher uranium prices, the boom is on again in Wyoming.

Uranium prices are at about \$75 per pound, lower than the high of nearly \$140 per pound in July last year, but still higher than the low of \$7 per pound in 2000.

With costs to extract uranium at about \$40 per pound, according to industry analysts, mining speculation should continue until the costs outweigh profits for mining.

Wyoming produces about 2 million pounds of uranium per year, as opposed to the 450 million tons of coal it produces, according to Marion Loomis, executive director of the Wyoming Mining Association.

A pound of uranium contains the equivalent energy of 17,000 pounds of coal, Loomis said.

## **WHAT IS IN-SITU MINING?**

Nunn and Goliad, Texas, are home to ancient deposits of uranium, a naturally occurring heavy metal as old as Earth itself. Ancient volcanic ash spewed the metal into the air, where it was picked up in highly oxygenated rainwater and brought back down to earth. When it hit the ground, other metals in the rock helped to de-oxidize the uranium, and the element was embedded in ancient river or marine sandstone formations.

In the 1950s and '60s, uranium mines were much like other metal mines, including shafts and open pits. But in the 1970s, scientists figured out a way to get the uranium out without having to dig anything bigger than a well hole.

In-situ, or "in-place" mining, duplicates the same chemical process that led the uranium to be deposited into the rock in the first place.

Groundwater is oxidized and turned into a solution called a "lixiviant," which is forced down into the sandstone layers, where the uranium is essentially drawn to combine with the water. The solution is pumped back to the surface and combined with resin beads in a process that works basically the same way as a home water softener. Molecules of uranium hop on to the resin beads, which are taken to a processing facility to strip the uranium off, refine it and make yellowcake. That material can be turned into weapons-grade uranium or enhanced for use in nuclear power plants.

-- Rebecca Boyle

---

[BACK](#) 