



Conflict at the Canyon

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Conflict at the Canyon

The Obama administration is expected to announce soon whether it will lift a two-year-old moratorium on new uranium mining claims on 1 million acres near the Grand Canyon. But the government's decision could be swayed by the analysis of a corporate mining consultant who stands to reap hundreds of thousands of dollars if the moratorium is lifted.

The administration is considering an environmental impact study, issued Feb. 18 by the Interior Department's Bureau of Land Management, that effectively dismisses the threat of contamination by uranium mining activity near the Colorado River, which flows through the Canyon. Some 26 million Americans depend on the Colorado River for drinking water.

In downplaying risks to the Colorado River, BLM relied heavily on research by Karen J. Wenrich, a prominent Golden, Colo., based-geologist and uranium mining industry consultant who serves on the advisory board of American Energy Fields, a uranium mining company based in Apache Junction, Ariz.¹ Yet BLM did not disclose that Wenrich and her client American Energy Fields have a direct financial stake in the administration's decision on lifting the moratorium.

Three days prior to release of the BLM study, according to documents filed with the U.S. Securities and Exchange Commission, American Energy Fields consummated a deal to purchase 61 mining claims from Wenrich for \$225,000. The purchase is contingent on an administration decision to open the million-acre area to new claims.²

BLM's 1,000-page study contains little more than three pages assessing potential mining pollution threats to the Colorado. It calculates that because the river flows at a rate of 1.6 million gallons of water per minute, contamination from uranium-polluted springs that feed the river would be unnoticeable. The BLM also minimizes pollution impacts from floods that might wash uranium-mining debris into the river.

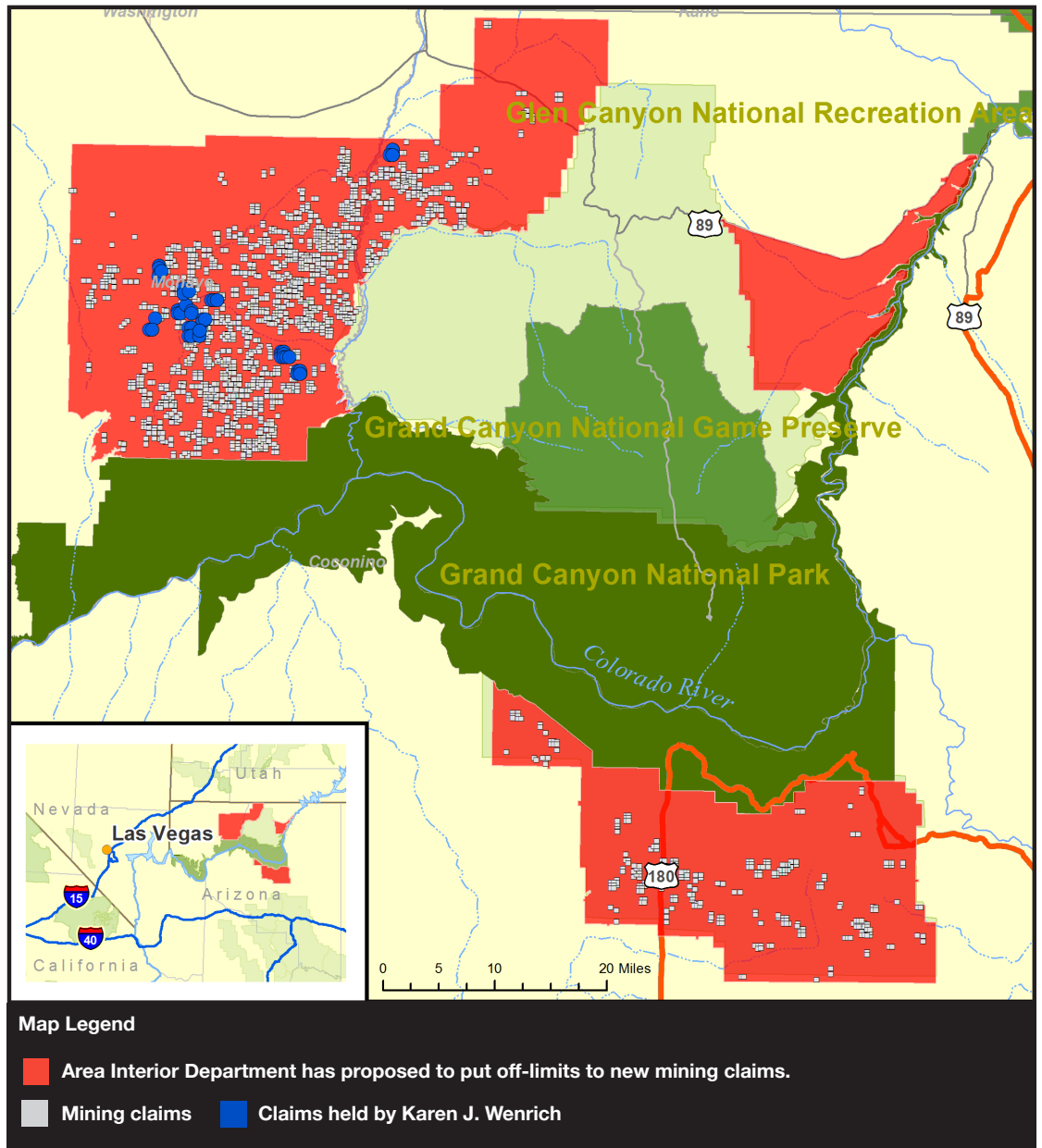
This three-page analysis relies on just seven sources to assess contamination risks to the river. Two of the sources are papers authored by a uranium mining company, Energy Fuels Nuclear, Inc. A third citation is a summary of a paper by Wenrich and co-author Jon E. Spencer, a senior geologist at the Arizona Geological Survey.

The Wenrich-Spencer paper, dated September 2010,³ dismissed the risks of uranium spills. "Spencer and Wenrich (2010) projected that the change in concentration of dissolved uranium in

the Colorado River in response to a hypothetical spill of 30 tons of high-grade uranium ore would be undetectable,” the BLM wrote.⁴

According to an investigation by Environmental Working Group and Earthworks, BLM’s LR2000 database, its official list of mining claimholders, shows that Wenrich had staked 61 mining claims inside the million-acre area around the Canyon in 2007 and 2008.⁵ The Feb. 15, 2011, deal with American Energy Fields would pay her \$225,000 for the claims, plus a 2.5 percent royalty for any uranium mined and other compensation.⁶ The purchase agreement that American Energy Fields filed with the SEC included an important contingency:

3,500 Mining Claims near Grand Canyon National Park



“The consummation of the Mining Purchase will occur only in the event that certain actions taken by the Bureau of Land Management... are terminated within five (5) years from the date of the Agreement.” The “actions” are defined as an end to the Interior Department’s moratorium on

Claimholders within million-acre area near Grand Canyon

Claimholder	Number of Claims
Patrick Hillard	812
Uranium One Americas Inc	643
Liberty Star Gold Corp	426
Vane Minerals (US) LLC	359
George McCormick	243
Tournigan USA Inc	147
Nu Star Expl LLC	124
Walter S Lombardo	102
Quaterra Alaska Inc	101
Dir Expl Inc	98
Denison Arizona Strip LLC	84
Neutron Energy Inc	82
Arizona Strip Res Joint Venture	78
North Expl LLC	63
Karen J Wenrich	61
Kris K Hefton	46
Cliff Phillips	40
Larry D Turner	39
North American Expl Inc	15
Energy Fuel Resources	9
Lawrence D Turner	9
Anthony Borcic	6
Joe Borcic	6
Ken Puchlik	5
Dennis McCormick	4
Gregory D Yount	3
Christopher J Crossland	2
Eagle Hill Arizona Uranium LLC	2
Steven Dove	1
William M Sheriff	1
The Northern AZ Uranium Proj	1
Total Claims	3,503*

*Total claims are less than sum of all claims because some claims are jointly held. Source: BLM LR2000 database, March 1, 2011 download.

new claim staking in the million-acre area in a decision that leaves at least 50 percent of Wenrich's claims open to development.⁷

Neither Wenrich nor American Energy Fields responded to phone calls seeking comment.

The ultimate value of Wenrich's claims and the 3,450 or so other mining claims staked in the million-acre area hinges on the administration's upcoming decision. The White House cannot legally nullify existing claims, but a decision to bar new claims would erect some legal hurdles to exploiting existing claims. If, on the other hand, the administration opens the area to new claim staking, owners of existing claims are likely to have an easier time transforming their claims into actual uranium mines.

According to her [2009 testimony before a House Natural Resources Subcommittee](#) and a news release from a uranium company for which she worked, Wenrich holds a Ph.D. in geology and spent 25 years at the U.S. Geological Survey, specializing in mining-related and environmental issues. After retiring, she spent several years as a geologist for the International Atomic Energy Agency.⁸

She then went into the mining industry. In 2005, Liberty Star Gold Corp. (later renamed Liberty Star Uranium and Metals Corp.), based in Arizona, announced that Wenrich had joined

its technical advisory board.⁹ Liberty Star holds 426 claims inside the million-acre area, according to BLM's database. Wenrich is no longer affiliated with the company, according to a spokesperson for Liberty Star. In recent years, Wenrich has also consulted for the mining industry under the business names [Wenrich Consulting 4 U](#) and [CrystalUnlimited](#).¹⁰

Federal regulations for drafting environmental impact analyses do not prohibit reliance on researchers who have financial conflicts of interest. They do require that "agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements."¹¹

Water Utilities, Others Warn of Uranium Mining Pollution

Conservation organizations and Native American tribes are campaigning to stop both new claims and the exploitation of existing claims, on grounds that uranium mining would threaten the health of residents and water users and despoil the lands around the Canyon. Major water suppliers that draw their water from the Colorado, including the Central Arizona Project, Metropolitan Water District of Southern California and Southern Nevada Water Authority, have weighed in with their own concerns about

the potential impact of uranium mining on the river.

"The effects of increased mining within the subject area may affect consumer confidence over the safety and reliability of the Colorado River for its use as a municipal drinking water supply, irrespective of any definitive public health impacts," the Lower Colorado River Water Quality Partnership wrote in a May 3, 2011 letter to the Interior Department.

"Considering the tragic aftermath of the recent earthquake and tsunami in Japan, the public has a heightened concern over the potential for even minute amounts of radiation in water supplies."¹²

The Lower Colorado River Water Partnership includes the Metropolitan Water District of Southern California, which serves 19 million people in the Los Angeles basin; the Central Arizona Project, which supplies drinking and agricultural water to 80 percent of the state, including metro Phoenix and Tucson, and the Southern Nevada Water Authority, with 2 million customers in the Las Vegas metro area. All draw much of their water from the Colorado River after it passes through the Grand Canyon and is stored at Hoover Dam.

The partnership wrote that "given the uncertainty in the location and number of mines to be

operated under each alternative, the Partnership requests that worst-case scenarios be fully evaluated in the [final environmental impact statement] in terms of the water quality effects on the Colorado River and its tributaries.”¹³

Interior Weighing Options

The Bureau of Land Management has laid out four options for managing the million acres near the Grand Canyon:

- Barring new claims for 20 years on 1 million acres, with 11 mines likely to be dug on existing claims.
- Barring new claims for 20 years on 700,000 acres, with 18 mines likely.
- Barring new claims for 20 years on 300,000 acres, with 26 mines likely.
- Opening the entire area to new mining claims, with 30 mines likely.

A decision to allow new claims inside the million-acre area near Grand Canyon National Park would benefit existing claimholders by allowing mining to proceed without the need for a validity exam in which BLM would determine whether a claim contains a valuable mineral deposit.¹⁴

Interior contends that it is virtually powerless to prevent mining on a valid claim.¹⁵ It might

be able to buy out claims to prevent mines that could pollute the Grand Canyon or Colorado River, but this tactic would likely cost taxpayers millions of dollars. In 1995, the Clinton administration negotiated a \$65 million deal to buy out a major gold mine that would have threatened Yellowstone National Park.¹⁶ Since many more uranium claims are at issue, the costs of buy-outs at the Grand Canyon could be much greater.

The issue has come to the fore because mining claims around the Grand Canyon and Colorado surged during the mid-2000s, driven by rising prices for other types of energy, speculation on uranium prices and hopes that nuclear power could help prevent global warming.

But when Environmental Working Group reported that claims within five miles of the Canyon had surged from 10 in 2003 to 815 in 2007 – [U.S. Mining Database: Mining Law Threatens Grand Canyon, other Natural Treasures](#), the ensuing controversy and actions by dozens of other organizations convinced Interior to declare a two-year moratorium on new claims in the million-acre boundary. That period ends July 21.

Uranium Mining Has Toxic History

Uranium mining near the canyon is highly

controversial because digging for the radioactive metal has left a toxic legacy of cancer and contamination throughout the Southwest. In a 2006 series, the *Los Angeles Times* chronicled the death and disease suffered by scores of members of the Navajo nation. Uranium mining on their reservation during the Cold War was considered a prime suspect.¹⁷ In 1979, a dam near Church Rock, N.M., burst, sending 1,100 tons of uranium mining waste and 93 million gallons of radioactive water into the Rio Puerco River. The toxic material traveled roughly 80 miles downstream, contaminating drinking water used by the Navajos and their livestock. The area was designated a federal Superfund site.¹⁸

In 2009, the U.S. government began removing a 16-million-ton pile of uranium mine tailings from the banks of the Colorado

River near Moab, Utah, in an effort to prevent water contamination. The estimated cost of the cleanup is \$1 billion.¹⁹

The three major Colorado River water providers highlighted this cleanup effort in their May 3 letter to Interior. “Historical uranium mining has led to considerable environmental damage, with subsequent cleanup efforts taking decades to complete,” they wrote. “One prime example is the uranium mill tailings pile that sits along the Colorado River near Moab, Utah. Although removal of the 16-million-ton tailings pile is underway, the remediation of this site comes with considerable costs and the prolonged threat to the Colorado River persists until final cleanup is complete. It is therefore critical that potential water quality effects are fully understood prior to the exploration and mining of uranium

Russian company owns 642 claims near park

Foreign mining companies hold a substantial percentage of the 3,503 uranium-mining claims within the 1-million-acre area around the Grand Canyon. Among them is the Russian state-owned mining company Atomredmetzoloto, or ARMZ, which last year purchased a controlling interest in Uranium One Inc., a Canadian company that held 642 claims.³⁹ Uranium One is engaged in uranium mining in Australia, Canada and Kazakhstan.⁴⁰

Reps. Spencer Bachus (R-Ala.), Peter King (R-N.Y.), Howard McKeon (R-Calif.) and Ileana Ros-Lehtinen (R-Fla.) asked Treasury Secretary

Timothy Geithner and other top administration officials to prevent ARMZ from acquiring a Wyoming uranium processing facility operated by Uranium One USA Inc., a subsidiary of Uranium One. They argued that ARMZ’s parent company, Rosatom, the Russian state nuclear power company, had helped Iran build a nuclear power reactor and had supplied the reactor with enriched-uranium fuel rods. Many Western experts suspect that Iran is using its civilian nuclear program to develop nuclear weapons capability.⁴¹ “We remain concerned that Iran could receive uranium supplies through direct or secondary proliferation,” the House members wrote.⁴²

The Obama administration declined to interfere with the transaction. A Nuclear Regulatory Commission spokesperson told EWG and Earthworks that neither Uranium One nor ARMZ has a permit to export U.S.-

and other minerals in all areas proximate to the Colorado River and its tributaries.”²⁰

The Orphan Mine, located on the Grand Canyon’s south rim, tapped into the area’s rich uranium deposits as recently as 1969. In a 2009 brochure, the National Park Service wrote that “percolating ground water picks up traces of the radioactivity and carries it to the surface in the bed of Horn Creek.” It warned hikers not to drink water from the stream “unless death by thirst is the only other option.”²¹

Uranium Pollution Debated

In the summary cited by BLM, Wenrich and Spencer considered “a hypothetical, worst-case, accidental uranium release to the Colorado River in which a truck hauling ten metric tons [22 tons] of ore is swept away by a flash flood on

Kanab Creek and its entire ore load is washed into the Colorado River where it is pulverized and dissolved over one year to become part of the dissolved uranium content of the river.” They concluded that this “extremely unlikely” scenario would lead to an “undetectable” increase in uranium concentration in the Colorado.²²

Yet Wenrich and Spencer appear to have significantly underestimated the amount of ore and waste rock that could enter the Colorado.

Permits for mines proposed for the area suggest that mining operations could generate not only 30 tons of uranium ore but vastly more waste rock. Piles of waste rock contain uranium and other heavy metals, including arsenic and lead.²³

“The amount of waste materials contaminated with uranium or arsenic that could be released

mined uranium.⁴³ Uranium One USA, Inc. did not respond to a request for comment. The Obama administration recently imposed sanctions on seven foreign companies that supply or ship petroleum products to Iran because the administration alleges that Iran uses proceeds from its petroleum business to fund its nuclear program.⁴⁴

Most uranium ore from mines near the Grand Canyon would likely be sent to the White Mesa mill in Blanding, Utah, according to the Bureau of Mines draft environmental impact statement. Denison Mines Inc. of Canada owns White Mesa. Denison, in turn, is partly owned by the [South] Korean Electric Power Company, which has two members on Denison’s board of directors.⁴⁵ KEPCO is involved in nuclear power projects around the world. It leads a Korean consortium that won a \$20 billion contract from the United

Arab Emirates in 2009 to build four 1,400-megawatt nuclear reactors for the UAE.⁴⁶

Denison is engaged in uranium mining projects in Canada, Mongolia and Zambia. It has permits to export uranium from the U.S. to France and Canada for partial processing. The ore is to be returned to the U.S. for further processing.⁴⁷

According to the Bureau of Land Management’s impact statement, some uranium mined near the Grand Canyon might go to the Pinon Ridge mill in Montrose County, Colo., to be run by Canadian-based Energy Fuels if it opens in 2012 as planned⁴⁸

Neither Denison nor Energy Fuels returned phone calls seeking comment.

from any given storm event could be orders of magnitude greater than the 30 tons estimated,” said Jim Kuipers, a consulting mining engineer who has worked at uranium mining operations in the Southwest and has consulted for Earthworks.²⁴

For example, in documents filed with the Arizona Department of Environmental Quality, Denison Mines Corp. estimates that its Arizona 1 mine,²⁵ now operating inside the million-acre area, produces 54,750 tons of waste rock a year. Denison estimates that three other mines the company would like to reopen inside the million-acre area would produce at least tens of thousands of tons of waste rock per year. Denison estimates that the Pinenut Mine would generate 40,000 tons a year,²⁶ the Canyon Mine²⁷ would produce 54,750 tons per year and the EZ Mine would produce 146,000 tons per year.²⁸

In a paper published by the Arizona Geological Survey after the release of BLM’s environmental impact analysis, Spencer and Wenrich considered an additional scenario they termed “even more unlikely.” In this case, a flash flood washed 13,200 tons of uranium into the Colorado, where it dissolved over the course of a year. The researchers estimate that such an event would raise the Colorado’s uranium level from four parts per billion (ppb) to 12.8 parts

per billion, “still far below the 30 ppb EPA Maximum Contaminant Level.”

Kuipers commented in an interview with EWG that this scenario is “much more plausible” given the amounts of ore and rock involved in the uranium mines that could be developed near the Colorado. He also expressed concern about the increased concentration of uranium in Spencer and Wenrich’s hypothetical.

“If you’re talking uranium, [that increase] is pretty significant to me,” he said. “There is no good quantity of uranium.”

EPA’s 30 ppb cap on uranium in water is a political compromise. The agency’s health goal for uranium in drinking water is zero.²⁹ In a publication on uranium mining, the agency says that its drinking water regulation for uranium is based on toxicity to the liver, not the risk of cancer. Yet the agency lists both cancer and liver toxicity as health problems that would result from long-term exposure.³⁰ The EPA’s health goal for arsenic in drinking water is also zero.³¹

Flash floods in the Grand Canyon area have been known to wash ore and waste rock downstream, according to the U.S. Geological Survey. “These floods can effectively transport trace elements and radionuclides,”³² the agency said. In 1984, after a flash flood in a tributary north of the Grand Canyon, where one of three Hack

Canyon mines was operating, the mine operator recovered radioactive rock from the streambed as far as a mile away.³³

The USGS conducted experiments on materials from mines near the park, including unprocessed uranium ore and mined waste rock, and found that “in some instances, uranium concentrations in the experimental leachates were very high – several hundred to several thousand parts per billion – but in natural settings such element-rich waters leached from mine sites are subject to very large dilutions as they mix with runoff.”³⁴

Kuipers countered that while mine site contamination is subject to dilution from runoff, “toxic pollution such as that contained in the leachates from uranium mines should be prevented and not allowed into surface water at all. Diluting toxic substances is an unacceptable substitute for not releasing them to the environment in the first place.”³⁵

BLM: “Springs could dry up...”

Other experts have warned that uranium mining near the Grand Canyon could pollute water in and around the national park. David Kreamer of the University of Nevada-Las Vegas, who has studied the Grand Canyon’s springs since the 1980s, told the House Natural Re-

sources Committee in 2009 that he is “profoundly concerned that mining [near the canyon] will damage the quantity and quality of Grand Canyon springs, and the plants and animals that depend on those springs.” Among those who depend on the springs are Native Americans and backcountry hikers.³⁶ Another scientist, Abe Springer, a professor of hydrogeology at Northern Arizona University wrote in 2008 to Rep. Raul Grijalva, then chairman of the House Natural Resources Committee Subcommittee on National Parks, Forests and Public Lands, that “if mining or related mining activities were to cause [mineral] elements (and uranium) to become mobile and to enter the surface water, or groundwater flow system, they would move toward springs or wells which drain the regional aquifer... Once these elements became mobile through mining activities, they would continue to be mobile through the aquifer and eventually discharge at springs impacting the human uses of water of these springs.”³⁷

The Interior Department has highlighted risks to the canyon and area water supplies from uranium mining. The BLM draft environmental impact statement found that “springs could dry up” near the Grand Canyon as a result of uranium mining and that pollution in

groundwater could be “major.” It urged “a more thorough investigation of water chemistry in the Grand Canyon region ... to better understand groundwater flow paths, travel times, and contributions from mining activities, particularly on the north side of the Colorado River” where most uranium mining would occur.³⁸

Recommendations:

1. The Interior Department’s final environmental impact statement should disclose Wenrich’s financial interest in mining companies and mines in the Grand Canyon-Colorado River area. It should balance Wenrich’s research with research from independent scientists who do not stand to benefit financially from mining near the Grand Canyon. Federal regulations require that environmental impact analyses be prepared with “scientific integrity.” While it is inevitable that an environmental impact statement on uranium mining would include information from the uranium mining industry, industry connections should be clearly disclosed, especially the ownership of claims whose value could be directly affected by an Interior decision. Interior should not use research from scien-

tists who have a financial stake in the outcome.

2. As Earthworks and Environmental Working Group have urged in written comments, Interior should choose the most protective option and declare the million-acre area near the Grand Canyon off-limits to new mining claims for 20 years – the maximum allowed under federal law. The risks and uncertainties for the Grand Canyon and the Colorado River are too great, especially when mining in the area would produce a mineral that will be used for nuclear power, which poses its own dangers. It is not worth it to take a gamble with our most treasured national park and the drinking water for 26 million Americans.

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