



The South Rim at Grand Canyon National Park in Arizona. GETTY IMAGES/ISTOCKPHOTO

# Uranium mine 10 miles south of Grand Canyon rim opens

Havasupai Tribe has sacred sites nearby

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A uranium mine about 10 miles south of the Grand Canyon's South Rim and inside a new national monument has opened over the objections of tribes and environmentalists, renewing concerns over protecting water and other natural resources in the area. • Energy Fuels Inc. began operations at its Pinyon Plain Mine in December, according to a company statement, citing higher prices on the spot market and increased government support for nuclear power as a means to divest the U.S. of fossil fuel-generated electricity.

The mine will operate for about 28 months after a four-month ramp-up, according to a report issued by Energy Fuels in 2022. The ore will be extracted and sent to the company's mill in White Mesa, Utah.

The company also began extracting ore at two other mines in the region.

The Pinyon Plain Mine has long been opposed by the Havasupai Tribe, which along with the Grand Canyon Trust, the Sierra Club and other environmental organizations, fears long-term, irreversible groundwater contamination of the tribe's sole water source, despite assertions by Energy Fuels that the mine won't affect local aquifers.

The 640-member tribe's home is in Supai, a small town within Havasu Canyon, which stretches to the side of the Grand Canyon. The mine is also close to two of the Havasupai people's most sacred sites: Red Butte (Wii'l Gdwiisa or "Clenched Fist Mountain"), the abdomen of Mother Earth, and Mat Taav Tiivjumdva, a meadow about 3 miles north of Red Butte, her navel.

The Havasu Baaja, or "People of the Blue-Green Waters" fear not only environmental but cultural and spiritual damage to their religion and the sites where they worship.

The tribe lost its bid to close the mine after a federal judge ruled on the side of the U.S. Forest Service's environmental assessment and Energy Fuels in 2022.

### Presidential mineral bans, national monument can't stop the mine

In 2012, the Obama administration issued a 20-year mining ban on about 1 million acres of public land surrounding Grand Canyon National Park to protect sensitive lands and waters.

At the time, the administration envisioned a 15-year science plan that would help determine how the region's groundwater moves and whether it might deliver contaminants to springs that join the Colorado River, including the springs that supply Supai with drinking and agricultural water.

The region has some of the nation's highest-grade uranium ore in subterranean Paleozoic formations known as

brecchia pipes, according to the U.S. Geological Survey. Scientists have found elevated uranium levels in some locations around the region, but determined most were likely naturally occurring.

In 2023, President Joe Biden established Baaj Nwaavjo I'tah Kukveni National Monument. The 917,000-acre monument permanently prevented the development of nearly 600 active mining claims within its borders. Pinyon Plain Mine, then known as the Canyon Mine, was in development before 2012 and could not be halted by either president's action under the Mining Act of 1872.

Funding to support the 15-year monitoring plan under Biden's old boss never fully developed, leaving the question of groundwater threats unsettled. The exception is at Horn Creek, a spring-fed waterway below an abandoned uranium mine along Grand Canyon's South Rim.

Starting in 1839, the Orphan Mine produced copper from a brecchia pipe until 1951, when it switched to uranium production before finally shutting down in 1969. Researchers later found elevated uranium levels in the creek below.

One of those researchers, U.S. Geological Survey hydrologist Kimberly Beisner, said the tainted water appears to be "young," meaning it has passed through the mine or related exploratory

wells in the years since the mine was developed. The spring water contains tritium, a radioactive hydrogen isotope that has a relatively short half-life before it decays away.

Tritium in southwestern waters is generally linked to open-air atomic bomb testing the U.S. conducted in the 1950s, Beisner said, so its presence indicates water from rain or snow on the mine area that has since re-emerged, not water that has been isolated in the aquifer for centuries.

That abandoned mine is at the canyon's edge. Water from Pinyon Plain Mine, by contrast, would have to travel at least 6 miles underground to reach the South Rim, and possibly farther as it follows unknown fractures and flow paths. In the absence of more monitoring wells, it is not clear whether or how soon it could pose a direct threat to Grand Canyon springs.

The U.S. Geological Survey to date has observed no effect to groundwater resources from past brecchia pipe mining in the monument zone, Beisner told The Arizona Republic after Biden's order to protect the area last summer. The agency and partners monitor some wells, including one drilled at the Pinyon Plain site, but may need to drill more and conduct long-term groundwater dye injection studies to learn more.

"We're doing the best we can to chip away at these unknowns," Beisner said.

The Arizona Department of Environmental Quality issued an aquifer protection permit for the mine in 2022. The mine had to meet state water quality standards for discharges and show the state that it is using the latest technology to ensure that any discharges will not filter into groundwater.

### Feds prioritize nuclear power as part of net-zero energy plan

The Biden administration has made divesting the U.S. from fossil fuels a priority and has identified nuclear power as a strategy in achieving a net-zero energy grid by 2050. In December, the U.S.

House of Representatives passed a bill barring future uranium purchases from Russia, and a report from the news site Mining.com said the Senate was supportive but had yet to move on the legislation. Currently, Russia supplies almost 25% of the nation's uranium fuel, according to Mining.com.

The U.S. Department of Energy announced its latest move recently, a request for proposals with \$500 million in funding to develop and supply uranium fuel known as HALEU, or "high-assay low-enriched uranium" for advanced nuclear reactors currently under development. Producing HALEU domestically would also cut Russia out of the U.S. uranium market, as it's currently the only nation producing the new fuel.

### Opponents don't buy statements that the mine will operate safely

None of those permits and assurances that the mine will operate safely hold much if any weight with opponents. Amber Reimondo, energy director at Grand Canyon Trust, said the mine's closure plan, which requires 30 years of monitoring among other activities, poses risks as great as the mine.

"There are a lot of risks in what happens after the mine is closed," she said. "We won't know there's a problem until it occurs." And, she said, if the groundwater becomes contaminated, it will remain that way forever.

The mine is projected to produce about 1.57 million pounds of uranium over its 28-month operating period, she said, while the U.S. uses about 40 to 50 million pounds per year.

"Mining for that very little ore could create a forever problem," she said.

Reimondo pinned the blame for Pinyon Plain being allowed to operate on the 1872 mining law, which she said was outdated and antiquated.

"There is no space in the regulatory framework to properly account for cultural and environmental losses," she said.

Ute Mountain Ute Chairman Manuel Heart told The Republic he's concerned about ore from Pinyon Plain Mine and another mine in Utah that will be processed at Energy Fuels' White Mesa facility in southeastern Utah. It's just 3 miles away from the eponymous tribal community that's part of Ute Mountain Ute's reservation lands. He said required testing for radon is minimal.

Communities near mines or processing mills should be doing epidemiology studies to ensure nobody contracts cancer from tailings or other radiation sources. Mitigation funding should be in place for any ill effects resulting from mining or milling, Heart said.

Arizona Republic reporter Brandon Loomis contributed to this story.

Coverage of Indigenous issues at the intersection of climate, culture and commerce is supported by the Catena Foundation.



An aerial view shows Pinyon Plain Mine. The uranium mine was in development before 2012 and could not be halted by either an Obama administration mining ban or a national monument. PROVIDED BY JOSHUA DUBI ECHANI/TBOLT LINK LIMITED