

A TOXIC LEGACY

Radioactive Contamination in the Grand Canyon



BLAKE McCORD

We must learn from the uranium industry's past performance as it attempts to mine sensitive areas in the Grand Canyon Watershed.

THE PINENUT URANIUM MINE

A two million gallon radioactive bath on the North Rim.

When Energy Fuels re-opened the Pinenut Mine, it discovered an estimated 2.85 million gallons of water in the mineshaft. From 2011 to 2013, the operator pumped approximately 1.5 million gallons of water from the shaft. This water was heavily laden with radionuclides. The highest level of uranium was reported at 2.41 micro-grams per litre ($\mu\text{g/L}$), more than 80 times the upper safe limit ($.03\mu\text{g/L}$) for drinking water. All the water is contained in a pond on-site with only a perimeter fence to prevent wildlife from accessing it.



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THE ORPHAN URANIUM MINE

\$15 Million clean-up and counting inside Grand Canyon National Park.

The abandoned Orphan uranium mine sits on the Grand Canyon's south rim, three miles from the park's famous El Tovar Hotel. Closed in 1969, the mine still leaches radioactive waste into Horn Creek, which feeds the Colorado River, forcing the already cash-strapped park service to pay for clean-up. The cost of the first stage totaled over \$15 million. The taxpayer-funded clean-up has yet to recover any costs from industry contractors. The cost of dealing with contamination of ground-water and nearby Horn Creek is still unknown.

Don't U-Mine the Grand Canyon



MICHAEL COLLIER

THE KANAB NORTH URANIUM MINE

Blowing radioactive dust across the North Rim.

In 2010, the United States Geological Survey reported finding radioactive dust originating from the Kanab North Mine site outside the mine perimeter. The dust contained more than 10 times the background levels of radiation. This mine has finally entered closure after thirty years, but the legacy of contamination is still blowing in the wind.

SCIENTIFIC STUDIES

Patterns of radioactive groundwater contamination.

“Fifteen springs and five wells in the region contain concentrations of dissolved uranium that exceed the U.S. Environmental Protection Agency maximum contaminant level for drinking water and are related to mining processes... Elevated radioactivity is evident at all sites.”

United States Geological Survey, Hydrological, Geological, and Biological Site Characterization of Breccia Pipe Uranium Deposits in Northern Arizona (February, 2010)

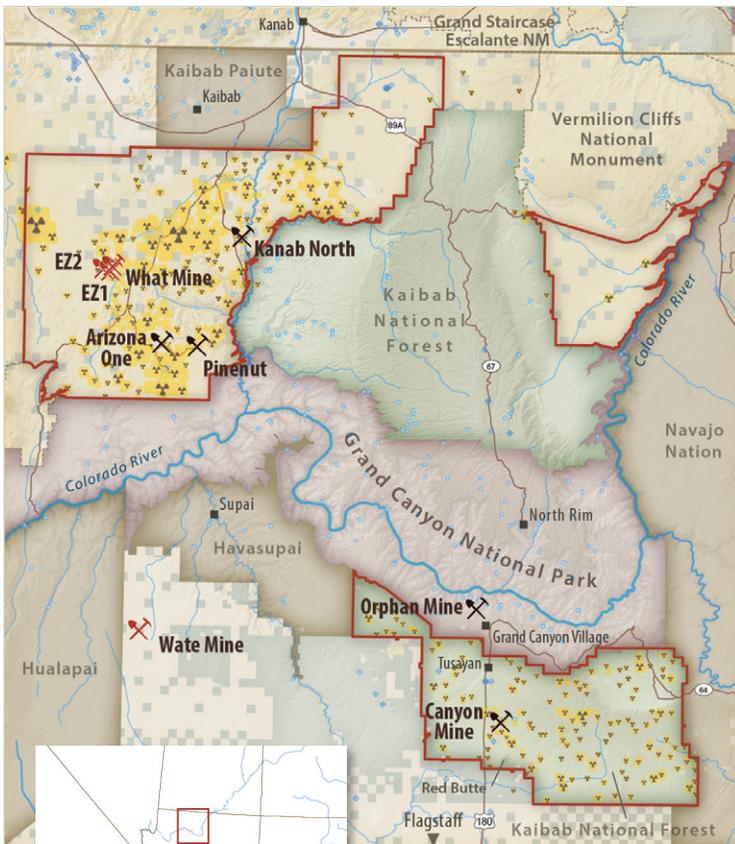
“Regional aquifer groundwater wells at the Canyon, Pinenut, and Hermit mines...have all exhibited dissolved uranium concentrations in excess of drinking water standards.”

Grand Canyon National Park Division of Science and Resource Management, Comments and Concerns Regarding the Proposed Wate Mine and Potential for Expanded Arizona State Land Breccia Pipe Uranium Mining (May, 2013)

Faced with permanent radioactive contamination of the Grand Canyon, history reminds us that the **risks far outweigh the rewards.**

Uranium mining in the Grand Canyon is

**UNSAFE
UNECONOMIC
UNNECESSARY**



Map by Stephanie Smith, GIS Manager, Grand Canyon Trust

- | | |
|-------------------------|---------------------------|
| Uranium Claims | National Park Service |
| Existing Uranium Mines | Forest Service |
| Proposed Uranium Mines | Bureau of Land Management |
| Uranium Withdrawal Area | Tribal |
| Spring | State |
| Well | Private |
| | National Monuments |



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