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To: Diana Gutierrez, Groundwater Protection, Arizona Department of Environmental Quality
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From: Grand Canyon River Guides, Inc.

Re: Facility Name: Pinyon Plain Mine
Individual Aquifer Protection Permit No. 100333, LTF 84446
Permittee: Energy Fuels Resources (USA) Inc.

Date: August 3, 2021

Grand Canyon River Guides, Inc., (GCRG) founded in 1988, is unique in that it provides a unified voice for river guides and river runners in defense of the Colorado River through Grand Canyon. Our non-profit educational and environmental 501(c)(3) organization is comprised of over 1,700 individuals who are passionately dedicated to the continuing preservation of this national icon. Consequently, Grand Canyon River Guides' goals are to:

*Protect the Grand Canyon
Provide the best possible river experience
Set the highest standards for the guiding profession
Celebrate the unique spirit of the river community*

As a longstanding Colorado River stakeholder and Grand Canyon defender, Grand Canyon River Guides strongly urges ADEQ to deny the pending aquifer protection permit for Pinyon Plain Mine (aka Canyon Mine), close the mine, and commence cleanup. The contaminated floodwaters are a grave risk to the underlying aquifer that feeds the life-giving seeps and springs of Grand Canyon National Park, including Havasu Creek. With ever increasing volumes of groundwater pouring into the Pinyon Plain Mine in recent years, and insufficient monitoring mechanisms to determine whether the contaminated floodwaters are polluting the aquifer, the situation has become untenable.

To date, over 40 million gallons of groundwater contaminated with high levels of uranium and arsenic has been pumped out of the mine shaft at Pinyon Plain Mine into evaporative ponds, or transported through the Navajo Nation to White Mesa Mill in Utah. Samples taken from the mine's holding pond in 2017 tested at 130 parts of dissolved uranium per billion, when the Environmental Protection Agency considers anything above 30 parts per billion to be unsafe to drink. To compound matters, when water levels became too high in the containment ponds, mine operators sprayed contaminated water into the air to increase evaporation, with the mist from high-powered pumps spreading onto the adjacent Kaibab National Forest.

Many experts agree that the potential for irreversible and lasting damage to the underlying aquifer is overwhelming. A 2010 report by the U.S. Geological Survey indicated that 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*. (Emphasis, ours.)¹ That same USGS report also makes clear that, *"Uranium mining within the watershed may increase the amount of radioactive materials and heavy metals in the surface water and groundwater flowing into Grand Canyon National Park and the Colorado River, and deep mining activities may increase mobilization of uranium through the rock strata into the aquifers. In addition, waste rock and ore from mined areas may be transported away from the mines by wind and runoff."*²

We therefore concur with the perspectives expressed by Dr. David K. Kreamer, hydro-geologist and professor at the Department of Geoscience, University of Nevada Las Vegas, when he testified before Congress that: *"I believe that an assumption that uranium mining will have minimal impact on springs, people and ecosystems in the Grand Canyon is unreasonable, and is not supported by past investigations, research, and data."*³

Considering the fractured geology and complex hydrology of the Grand Canyon region, and without monitoring wells, there is no way to know if contaminated water from the mine shaft may be infiltrating the groundwater, posing irreparable harm to perched and deep aquifers, and jeopardizing life-giving seeps and springs. May we stress again that *this dire situation is playing out on the very doorstep of Grand Canyon* -- one of the seven natural wonders of the world, the iconic crown jewel of our National Park system and World Heritage Site, and a pillar of our state, regional, and local economy. It could take years or even decades for the effects of uranium pollution to manifest, and by then, it would simply be too late.

¹ U.S. Department of the Interior & USGS, Scientific Investigations Report No. 2010 - 5025: Hydrological, Geological, and Biological Site Characterization of Breccia Pipe Uranium Deposits in Northern Arizona (2010), available at <http://pubs.usgs.gov/sir/2010/5025/pdf>, see Page 194

² Ibid, Page 5

³ Testimony of David K. Kreamer, Professor, Department of Geoscience, University of Nevada, Las Vegas (07/21/09)

It is also incumbent upon the Arizona Department of Environmental Quality to carefully consider the social justice ramifications and human cost of uranium mining pollution on the eleven Native American tribes who hold Grand Canyon sacred. These include the Havasupai, Hualapai, Kaibab-Paiute, Hopi, and Navajo whose lands are directly adjacent to the canyon and river and who rely on the watersheds for drinking water and to sustain livestock and crops.

As the traditional guardians and protectors of Grand Canyon, the Havasupai remain in their place of origin, the only tribe to still dwell deep within Grand Canyon. The Havasupai Tribe has deep and justifiable concerns that contamination from the Pinyon Plain Mine could permanently impact seeps and springs in Grand Canyon, as well as Havasu Creek, their sole water source.

Additionally, Pinyon Plain Mine lies within the Red Butte Traditional Cultural Property, a National Register-eligible designation that signifies a sacred site of critical cultural and religious value to several tribes, especially the Havasupai. Since the mine was built in the 1980's, the Havasupai people have fought to protect their future, their precious water, and their traditional homelands from the toxic and lasting effects of uranium mining. We applaud and support those efforts.

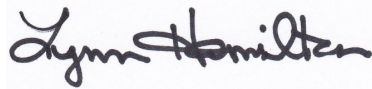
Grand Canyon River Guides believes that the grave risks and lasting consequences posed by the Pinyon Plain Mine could negatively affect Grand Canyon National Park, the Colorado River and its watershed, tribal communities, our thriving tourist/recreation economy, and American taxpayers for generations to come. We therefore urge the Arizona Department of Environmental Quality to deny the groundwater permit for operation of the newly renamed Pinyon Plain Mine, and to issue a groundwater permit only for the immediate closure and cleanup of the mine. At a minimum, any permit that is issued should require:

- Installation of at least three monitoring wells up and down gradient in both the shallower Coconino (C) Aquifer and the deeper Redwall-Muav (R) Aquifer to monitor groundwater contamination.
- Groundwater monitoring in perpetuity, even after the mine is closed. Plugging groundwater flow into the mine to prevent the spread of contaminants should not be assumed effective.
- A detailed plan for stopping and cleaning up any groundwater contamination in the event that contamination is detected in monitoring well(s) before, during, and/or after the mine is closed.
- Immediate preparation of a detailed closure and post-closure monitoring plan, to replace the outdated plan the mine owner developed in the 1980s.

- A surety bond (insurance policy for cleanup) that accounts for the possibility of subsurface water contamination. Managing subsurface contamination can be the most expensive part of mine cleanup and should not fall on taxpayers.

Again, we strongly urge ADEQ to deny the pending aquifer protection permit for Pinyon Plain Mine, close the mine and commence cleanup, remediation, and take the aforementioned steps to ensure safety for the Grand Canyon region in perpetuity, rather than the grave risk it faces today. Thank you for your consideration of our request.

Respectfully,



Grand Canyon River Guides, Inc.

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