



August 2, 2019

Misael Cabrera, P.E., Director

Trevor Baggiore, Water Quality Division Director

ADEQ

1110 West Washington Street

Phoenix, AZ 85007

Submitted via email to cabrera.misael@azdeq.gov, baggiore.trevor@azdeq.gov

Dear Mr. Cabrera and Mr. Baggiore:

On behalf of Sierra Club's Grand Canyon (Arizona) Chapter, Grand Canyon Trust, Center for Biological Diversity, and National Parks Conservation Association and our staff and thousands of members, we are submitting this letter to request significant changes and the opening of a public comment period in advance of the renewal of the Aquifer Protection Permit for the Non-Stormwater Impoundment for Canyon Mine (Currently a Type 3.04 General Aquifer Protection Permit with Inventory No. 100333, LTF No. 60849, USAS No. 030032-02; expiration date August 31, 2019). We will be submitting more detailed comments in the coming weeks.

Canyon Mine was granted a General Aquifer Protection Permit with **voluntary** requirements for water management, record keeping, and water quality testing despite an established record demonstrating ample groundwater in the mine's vicinity, a history of permit denials, and past rejections of a general permit for this mine. The Arizona Department of Environmental Quality's (ADEQ) records contain ample information supporting the need for better groundwater protection, more thorough groundwater monitoring, and a detailed post-mining closure plan. Early on, staff at state agencies foresaw the likelihood that the mine would interact with regional aquifers, potentially polluting groundwater; later decisions ignored that knowledge. Now that Canyon Mine, since at least 2013, has been taking on significant amounts of water (almost 10 million gallons per year) into its shaft, and the water contains high levels of arsenic and uranium, it is time for ADEQ to create a stringent individual permit for Canyon Mine with specific and mandated requirements for monitoring, reporting, and closure protocols.¹

ADEQ Must Require an Individual Aquifer Protection Permit for Canyon Mine or Deny a Permit

Prior to the establishment of ADEQ in 1986, the same year that Canyon Mine's Record of Decision was signed by the Forest Service, the Arizona Department of Health Services contacted the owner of Canyon Mine to say that a permit would only be granted "if the applicant demonstrates that no wastes or pollutants will enter an aquifer in sufficient quantities to violate adopted groundwater quality standards" because:

¹ Energy Fuels 2018. pp. 7-8 in Canyon Mine Non-Storm water Impoundment 3.04 General Aquifer Protection Permit No. P-100333 Annual Report for 2017.

Energy Fuels 2019. pp. 7-8 in Canyon Mine Non-Storm water Impoundment 3.04 General Aquifer Protection Permit No. P-100333 Annual Report for 2018.

“The Department disagrees that the drill logs (actually bore-hole logs) verify your position. The logs indicate that the boring encountered saturated zones and that mining operations may therefore contribute to the discharge of a pollutant to the vadose zone or to an aquifer.”²

A letter dated October 29, 1986 points out that a hydrogeologic report of the area “indicated that the project vicinity was a groundwater recharge area and that generally the flow of groundwater was downward while some strata impeded the downward flow. It also indicated the presence of perched aquifers...”³ Another memorandum from 1987 states “a long-term, post-closure sampling program should be implemented. This sampling program should last 15 years with semi-annual sampling of the on-site water supply/monitor well, and the springs at Havasu Springs, Indian Garden Springs, and Blue Springs.”⁴ An Environmental Protection Agency (EPA) report “Ground-Water Monitoring in Karst Terrains” that was found in ADEQ’s files gives the following recommendations for monitoring in karst areas such as the Canyon Mine area:

“The easiest and most reliable sites at which to monitor ground-water quality in a karst terrane [sic] are springs and directly accessible cave streams shown by dye-tracing to drain from the facility being evaluated (Quinlan & Ewers, 1985)... The preferred alternative to the use of springs as monitoring sites is a suite of wells that intercept cave streams shown by tracing to flow from the facility.”⁵

Early on, the ADEQ insisted on Individual APPs for Canyon mine and, in fact, denied the General APPs. On April 12, 2001, ADEQ issued a “Notification of the Final Decision to Deny Aquifer Protection Permit (APP) Applications” for Kanab North, Pinenut, and Canyon Mines.⁶ In 2002, ADEQ issued a “Denial of an Individual Aquifer Protection Permit Application” for Canyon Mine, saying that “the facility and its operation cannot comply with the requirements of A.R.S. 49-243 and R 18-9-A202.”⁷ This was followed by a Legal Notice in the *Arizona Daily Sun* that “Arizona Department of Environmental Quality intends to deny an application for a Aquifer Protection Permit” for Kanab North Mine, Pinenut Mine, and Canyon Mine.⁸ Early versions of draft permits required, “Contingency plans, a closure plan, and a groundwater monitoring plan, which includes mine seepage monitoring, an on-site monitoring well, and monitoring of Blue Springs, Havasu Springs, and Indian Garden Springs...”⁹

In a letter dated March 17, 2008, regarding “Notice of ADEQ Decision to Deny a Type 3.04 General Aquifer Protection Permit (APP) to Denison Mines (USA) Corp, Canyon Mine Facility,” the ADEQ wrote “. . . **it has been determined that your facility does not meet the design, construction and installation requirements**

² Arizona Department of Health Services Letter dated November 6, 1986 signed by Gary M. Ullinsky, Water Permits Unit, Office of Waste and Water Quality Management

³ Letter dated October 29, 1986 signed by Gary Ullinsky.

⁴ Inter-Office Memorandum dated October 22, 1987, from Michael Leach.

⁵ p.8 in EPA (1991?) Ground-Water Monitoring in Karst Terranes Recommended Protocols & Implicit Assumptions.

⁶ ADEQ Letter Dated April 12, 2001, signed by Dorothy McKee, Project Manager, Mining Unit, Water Permits Section.

⁷ ADEQ 2002. Denial of an Individual Aquifer Protection Permit Application Inventory Number 100333, signed by Karen L. Smith, Director, Water Quality Division, Arizona Department of Environmental Quality.

⁸ Public Notice No. 09-02APP published on or about January 30, 2002 in the *Arizona Daily Sun*, “Notice of the Preliminary Decision to Deny an Application for an Individual Aquifer Protection Permit.”

⁹ Inter-Office Memorandum dated February 17, 1987 RE: Canyon Mine, File Review No. 85-134, Draft Goundwater Quality Protection Permit No. G-0004-03, from Gary M. Ullinsky.

for a Type 3.04 General Permit pursuant to A.A.C. R18-9-D304(A) and A.A.C. R18-9-D304(C)." (emphasis added)

Denial letters were also issued for general permit applications for various other activities at the mines, including Intermediate Stockpile at Mining Sites (Canyon Mine, letter dated April 24, 2008) and denial for Vehicle and Equipment Washes (Canyon Mine, letter dated March 17, 2008).¹⁰

ADEQ made it clear in its statements to the media that more was needed from at-the-time mine owner Denison to comply with the law and to protect the aquifers. In an article in the *Arizona Daily Sun*, ADEQ Director Steve Owens said, "The burden is on them to prove to us that there will not be an impact on groundwater."¹¹

Unfortunately, mine operators have never proven that mining operations will not contaminate groundwater, and yet, Canyon Mine continues to operate under a general permit. **It is time to require an individual permit or deny a permit altogether** if this mining operation cannot meet the requirements of the APP program and ensure that it will not violate aquifer water quality standards at the point of compliance.

The movement of water in and between Grand Canyon's regional aquifers is poorly understood; the deep Redwall-Muav aquifer supplies essential springs in Grand Canyon National Park and the Havasupai Reservation, and drinking water wells at Tusayan and Valle. Experimental dye trace studies performed by the National Park Service north of Grand Canyon revealed that one tracer travelled 6,000 vertical feet and 26 linear miles in less than a month¹². Similar studies **have never been performed** south of Grand Canyon to determine if similar conditions exist. **We do not know how to clean up uranium-contaminated groundwater, so if water from Canyon Mine reaches the Redwall-Muav aquifer, it will cause irreversible harm.** There is also the threat of water depletion: it may take decades before we understand the impact of removing millions of gallons of water from the Coconino aquifer in this critical location upgradient of Grand Canyon and Havasupai.

Given the severity of the threat of groundwater pollution presented by uranium mining in such close proximity to fragile culturally and ecologically important springs, the use of general permits for such mining activities is inappropriate and an abuse of discretion. R18-9-A307(B) of the Arizona Administrative Code provides that the director may revoke coverage under a general permit for any or all facilities within a specific geographic area if, due to geologic or hydrologic conditions, the cumulative discharges of the facilities has violated or *will violate* an Aquifer Water Quality Standard established under Arizona Revised Statutes §§ 49-221 and 49-223. Here, the unique hydrological conditions of the area would support such action. Specifically, the aquifer in the Grand Canyon area is unique in that the water from these aquifers discharges into seeps, springs, and streams in the area that are critical to people and wildlife and that also help to feed the Colorado River, an important drinking water source for millions of people.

¹⁰ We also note that International Uranium (USA) Corporation, Inc., the company that owned Canyon Mine previously, applied for individual permits that were denied for failure to correct deficiencies in the permits (see letters dated March 22, 2002). These applications do, however, indicate that there was recognition that individual permits were necessary.

¹¹ Uranium mine permits denied, *Arizona Daily Sun*, May 14, 2008.

¹² Jones, C.J.R., A.E. Springer, B.W. Tobin, S.J. Zappitello, and N.A. Jones. 2017. Characterization and hydraulic behavior of the complex karst of the Kaibab Plateau and Grand Canyon National Park, USA. *From: PARISE, M., GABROVSEK, F., KAUFMANN, G. & RAVBAR, N. (eds) Advances in Karst Research: Theory, Fieldwork and Applications. Geological Society, London, Special Publications, 466, <https://doi.org/10.1144/SP466.5>. Available at: <http://sp.lyellcollection.org/content/early/2017/11/03/SP466.5>, accessed 5/2/18.*

Given the extensive record of previous support within ADEQ for an individual permit, documentation of abundant water in the mine's vicinity, lack of a future plan to control the spread of contamination in case of mine closure, and persistent flooding of the mine shaft, we request an individual permit be required for Canyon Mine or that a permit be denied altogether.

In addition, a dye trace study should be conducted to determine the most informative placement of monitoring wells. Energy Fuels should be required to pay for groundwater monitoring and monitoring should be conducted by an independent contractor, in compliance with the Forest Service Canyon Mine Record of Decision:

Radiological surveys and appropriate cleanup measures will be required for all unplanned events, including ore haulage accidents and failure of the surface water control structures. All monitoring will be by independent contractors and all costs will be borne by the applicant, EFN.¹³

ADEQ Should Request Public Input on Canyon Mine's Permit

Canyon Mine's General Aquifer Protection Permit was issued prior to shaft completion and prior to Canyon Mine piercing regional aquifers. Given the controversial nature of Canyon Mine and new information discovered since ADEQ approved coverage of Canyon Mine under the General Aquifer Protection Permit, ADEQ must invite public comment and offer opportunities for affected communities to weigh in on the mine's regulation. We request a minimum of a 30-day public comment period and public hearings in the following affected communities: Supai Village, Tusayan or Grand Canyon Village, and Flagstaff.

Thank you for your consideration.

Sincerely,



Sandy Bahr
Chapter Director
Sierra Club - Grand Canyon Chapter
514 W Roosevelt St
Phoenix, AZ 85003
sandy.bahr@sierraclub.org



Taylor McKinnon
Senior Public Lands Campaigner
Center for Biological Diversity
P.O. Box 1178
Flagstaff, AZ 86002-1178
TMcKinnon@biologicaldiversity.org



Kevin Dahl
Arizona Senior Program Manager
National Parks Conservation Association
kdahl@npca.org



Amber Reimondo
Energy Program Director
Grand Canyon Trust
2601 N. Fort Valley Road
Flagstaff, AZ 86001
areimondo@grandcanyontrust.org

¹³ p. 12 in Canyon Mine Record of Decision USDA Forest Service Kaibab National Forest Canyon Mine Proposal Final Environmental Impact Statement Coconino County, Arizona. ROD, EIS, and Plan of Operations are available at https://www.fs.usda.gov/detail/kaibab/home/?cid=fsm91_050263