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Legal Department

December 15, 2005

David Albright
Groundwater Office Manager
U. S. Environmental Protection Agency
Region 9
75 Hawthorne Street, Mail Code: WTR-9
San Francisco, CA 94105

Re: Safe Drinking Water Act Determination, Underground Injection Control Program, Determination of Indian Country Status for Purposes of Underground Injection Control Program Permitting – FRL-7992-9

Dear Mr. Albright:

I am the County Attorney of McKinley County, New Mexico. Any attempt to expand Navajo jurisdiction in the Checkerboard Area of McKinley County is taken very seriously by the County. McKinley County has established jurisdiction over private fee land in the County. This jurisdiction has been recognized by non-Indians and Indians, including the Navajo Tribal Government. Size and location of a private tract have no bearing on the County's jurisdiction.

To the extent the Navajo Tribal Government, or its citizens, own private land within the County, they are subject to property taxes unless exempted for reasons other than ownership status. In recognition of their tax payments, fee landowners within the County are provided essential services such as road maintenance, fire and police protection, emergency medical services and public schools and school transportation.

In addition to the private fee land, the County provides these services, (including police protection as a first responder until relieved by Tribal police or the FBI) to County residents living on trust and allotment lands. The provision of Fire and EMS service to the Navajo Chapters and trust lands is solely preformed by McKinley County.

The tract of land subject to EPA's determination in this matter is accessed by State Highway 566 which is maintained by the State of New Mexico.

The area surrounding Section 8 is accessed by county roads maintained by McKinley County.[1] The importance of transportation infrastructure provided by the State and McKinley County is highlighted by the fact that approximately 90 percent of working individuals living in the Churchrock Chapter area commute to work with an average travel time to work of 31.8 minutes daily.[2] The county road network provides this necessary service. Neither the unincorporated Churchrock Chapter nor the Navajo tribal Government provides any infrastructure or basic services to Section 8.

It is the County's position that the review of all "dependent Indian community" interpretations culminated in the *Alaska v. Native Vill. of Venetie Tribal Gov't* decision, 522 U.S. 520 (1998). In *Venetie*, the Supreme Court held that, in order to have a "dependent Indian community," the property in question must meet two requirements: (1) it must be set aside by the federal government for the use of Indian tribes and (2) the land must be under federal superintendence. Private land such as Section 8 has not been set aside by the federal government, nor is the land in question under federal superintendence. Since the federal set-aside and federal superintendence requirements are not satisfied on Section 8, the property is not "Indian Country." The New Mexico Supreme Court has embraced the *Venetie* two-prong test noting that it redirects "our attention to land and its title and away from the more nebulous issue of community cohesiveness." New Mexico has declined to incorporate a community of reference inquiry into its case law. *State v. Frank*, 2002-NMSC-026, ¶ 21, 132 N.M. 544, 549, 52 P.3d 404, 409 (citation omitted). McKinley County has always treated the land and its title as the sole guide for jurisdictional determination.

Economic growth and the need to expand its limited tax base are very vital issues for McKinley County. The County's unemployment rate of 7.8 percent is higher than New Mexico's average of 5.7 percent.[3] Unemployment on the Navajo Reservation is estimated at 50-70 percent. Mining jobs can have a significant impact on McKinley County's economic wellbeing. Average earnings in the County have fallen from $30,703 in 1970 to $24,378 in 2000. The 2000 figure is lower than the New Mexico average of $28,283 and the United States average of $36,316 per job. During 1973 through 1984, County earnings were higher than the U.S. average due to mining employment.[4]

McKinley County has given serious consideration to the proposed mining activity on Section 8. Recognizing the importance of the County's water supply, the McKinley County Water Board conducted a review of the proposed mining operation, which is

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[1] A map of the Churchrock area showing county and state roads is attached.
[2] Churchrock Selected Characteristics from Census 2000 United States Census 2000.
[3] New Mexico Department of Labor.
[4] *See* McKinley County Comprehensive Plan Phase 2 August 22, 2005 White Paper.

summarized in the attached report of November, 2005. The Water Board "discovered no evidence that would suggest that the mining operation will impair our water supply."

McKinley County strongly opposes the designation of any fee land within its boundaries as "Indian Country." Neither the legal conclusions of *Venetie* nor the demographic facts support such a finding. Such a designation would divest McKinley County's jurisdiction over private fee lands long agreed to be intact and legitimate by all concerned parties.

Sincerely yours,

Douglas W. Decker
McKinley County Attorney

McKinley County Water Board
REVIEW OF PROPOSED CROWNPOINT URANIUM MINING
ON GROUNDWATER

November 15, 2005

EXECUTIVE SUMMARY

Hydro Resources, Inc. proposes to mine one million pounds of uranium per year from each of three sites in McKinley County by injecting oxygen laden water into the subsurface ore body which dissolves the uranium ore. The ore is then pumped to the surface, the ore extracted, and the water is recharged with oxygen and re-injected into the ore body. Slightly more water is extracted from the area of the ore body than is injected to maintain a cone of depression or "negative pressure" in the mining area. Several groups have asserted that the operation is not safe and that it will contaminate the wells at Crownpoint and at a proposed housing development that is several miles from another mining site.

After review of materials provided and investigation into the assertions made by those opposing in-situ leach mining, we discovered no evidence that would suggest that the mining operation will impair our water supply. We recommend that the New Mexico Environment Department perform split sample testing at the monitor wells on a monthly basis as a minimum.

INTRODUCTION:

The McKinley County Water Advisory Board reviewed a proposed mining operation planned by Hydro Resources Incorporated. There has been some controversy regarding this proposal and it was not clear that the mining operation was safe for our water supply. Water Board members had differing initial views and predispositions, running from pro-environment and somewhat anti-nuclear to those who lean towards the mining development. We determined that we would work together on this conflict-ridden issue and allow ourselves to be led by the facts to a conclusion.

PROPOSAL:

Hydro Resources, Inc.[1], HRI, a mining company, proposes to use a mining technique called in-situ leaching, to mine uranium oxide from three locations in McKinley County as shown on Figure 1.1 which follows this report and is taken from the Final Environmental Impact Statement. The Church Rock location is broken into two sites due to the fact that the surface ownership is split between two entities. The U. S. Nuclear Regulatory Commission has issued a Materials License (No. SUA 1580) authorizing mining after years of review. HRI's materials license authorizes it to perform in-situ

[1] 1380 Rio Rancho Boulevard #297, Rio Rancho, NM 87124. President Mr. Craig Bartels,

leaching uranium mining at four clustered sites in McKinley County, New Mexico: Sections 8 and 17 in the Church Rock area, and Crownpoint and Unit 1 in Crownpoint.

In-situ leaching is a well established mining technique that involves removing the mineral without digging into the earth. As such, traditional mining techniques utilizing miners and earth moving equipment, blasting and tailings piles are all eliminated. The technique involves sending appropriately "charged" water into the ore body to loosen the mineral of interest which is then pumped to the surface and removed from the water. The only subsurface disturbances are the wells. The surface disturbance includes the surface expression of the wells, any buildings required for the mining operation, holding ponds and a power line for electricity. Typically facilities are fenced.

AQUIFER:

The targeted mining zone will be small portions of an expansive aquifer, called the Westwater Aquifer that underlies the entire region. The Westwater Aquifer ranges in thickness from 175 to 275 feet between Gallup and the continental divide, but it is known to be considerably thicker locally. In the Church Rock area the top of the Westwater Aquifer ranges in depth from 460 to 760 feet; in the Crownpoint area the top of the Westwater Aquifer is at an average depth of about 1840 feet. The aquifer is sandwiched between two clay layers, which are geologic formations that impede the free flow of water.

The portion of the aquifer that will be mined is extremely small compared to the overall size of the aquifer. The Westwater Aquifer is assumed to underlie 50% of McKinley County, or about 1,700,000 acres. HRI's well fields when fully developed at all three sites will encompass about 435 acres.

THE MINING PROCESS

HRI's in-situ leaching uranium mining will involve two principal steps. During the first step, HRI will inject a leach solution called "lixiviant" which is groundwater that is charged with oxygen and bicarbonate. This lixiviant is injected through wells into a targeted zone containing uranium oxide. The uranium oxide, which is in solid form and is immobile because it is chemically attached to the host rock, dissolves when it comes into contact with the lixiviant solution.

Production wells are located in a pattern around the individual injection wells. As these production wells are pumped they draw the dissolved uranium laden water to the surface. The production wells create a negative pressure, or "cone of depression" in the mined region by withdrawing slightly more water from the ground than is injected, thus containing the horizontal spread of the uranium containing water. A series of monitor wells are located in a ring around the mining area. These wells monitor the groundwater quality surrounding the mined area and serve to demonstrate that no uranium products "leak out" from the mining site.

The second step of the in-situ mining is the extraction process and occurs after the uranium bearing water is pumped to the surface. This water is pumped thorough columns of ion exchange resin. The uranium attaches to the resin and the now uranium free water is recharged with oxygen and bicarbonate and re injected into the subsurface to collect more uranium while the uranium remains attached to the resin.

When the ion exchange capacity of the column of resin is depleted, that column is taken off-line and another chemical process is used to strip the uranium oxide from the resin. The resulting slurry is filtered and dried to produce the finished product – uranium oxide concentrate, or yellowcake – which is packaged and stored for final shipment.

GROUNDWATER RESTORATION:

After HRI completes mining at a site, it is required to return the groundwater in the Westwater Aquifer to the average pre-mining baseline conditions. According to the Nuclear Regulatory Commission (NRC) Materials License, HRI must submit to the NRC for approval the results of a groundwater restoration demonstration conducted at the Church Rock site before beginning mining at either the Crownpoint or Unit 1 sites. After groundwater restoration, the in-situ mining wells will be plugged, processing facilities will be decontaminated, all contaminated materials will be removed to a licensed waste disposal site, and all affected areas will be surveyed, re-contoured and re-vegetated, and released for unrestricted use.

FINANCIAL ASSURANCE – BONDING

To assure full compliance with the NRC Materials License requirements, bonding is required. Total bonding requirements for the four sites amounts to $43 million over the life of the project. The following shows the full bonding requirements for each site and the total for the entire operation.

Location	Bonding Required
Church Rock, Section 8	$9,457,893
Church Rock, Section 17	$5,130,646
Unit 1	$12,102,219
Crownpoint	$16,393,941
TOTAL BONDING REQUIRED	$43,084,699

EMPLOYMENT

HRI intends to operate the Church Rock Section 8 site and the Crownpoint site so that they each produce about one millions pounds of uranium per year. Employment for each site is estimated to be 62 persons with an annual payroll of about $1 million for each site. The Church Rock site, about 30 acres in extent, is expected to produce about eight

millions pounds of uranium, enough to power the Palo Verde Nuclear Plant near Phoenix for about 20 years. The expected life of the Crownpoint site is estimated to be 14 years.

MINERS SAFETY

This issue is not directly related to water and therefore is not the charge of the McKinley County Water Board.

CONCERNS OF THE EASTERN NAVAJO DINE AGAINST URANIUM MINING

Ms. Wynoma Foster represented this organization at a meeting of the McKinley County Water Board. Her presentation was a heartfelt complaint against all that has been wrong with uranium mining in the past. She discussed the cancer suffered by Navajo miners, the dam break that occurred north of Church Rock, and former mining sites left un-reclaimed, in some cases close to residential housing with potentially unhealthy levels of radiation. She argued that uranium mining is inherently dangerous to the population no matter what measures are taken.

For the current project she argued particularly that the Church Rock mining would contaminate groundwater that will be used for drinking at the Navajo Nation's proposed housing project at the former Springstead Property located several miles away and also argued that the mining at Crownpoint would cause contamination because there are underground "pipelines" from the mining area to one of the wells currently being used by Crownpoint for water. She presented no evidence for these assertions, but instead relied on statements previously made by "our experts" who are representatives of the Southwest Research and Information Center, Albuquerque, New Mexico. No one from the Southwest Research and Information Center appeared before the McKinley County Water Board.

REVIEW OF OBJECTIONS

Since no technical presentation was made by those objecting to the mining and to gain a better understanding, a review was made of the records of the Atomic Safety and Licensing Board Panel of the U. S. Nuclear Regulatory Commission that concerned the appeals of ENDAUM and the Southwest Research and Information Center (SRIC) to the Final Environmental Impact Statement issued for the mining.[2]

In the Hearing Report dated August 20, 1999 SRIC and ENDAUM made objections to the Final Environmental Impact Statement with regards to the hydrogeology at the Church Rock site. The following is from the written record of that hearing: ENDAUM and SRIC assert that the Westwater Formation "consists of thin, stacked, and crisscrossing sand channels bounded by less permeable siltstones and shales". And they are concerned because they believe that these channels form a pathway for rapid water

[2] U. S. Nuclear Regulatory Commission, *Final Environmental Impact Statement to Construct and Operate the Crownpoint Uranium Solution Mining Project, Crownpoint, New Mexico*, Docket No. 40-8968, February 1997.

travel, carrying toxic elements released by mining over large distances in a relatively short time thus poisoning the aquifer and adversely affecting its use for drinking water.

The hearing officers state that ENDAUM and SRIC differ from the published literature in their belief that channels will rapidly transport water through the Westwater Formation and that the ore has been deposited in a series of vertically stacked channelways. Such deposition along channelways contradicts conventional uranium deposit models. The published literature does not suggest in any way that these uranium ore fronts are ancient channelways. SRIC relies on references to channelways in American Association of Petroleum Geologist Studies in Geology Number 22. In examining the literature, the judges found no references to channelways. SRIC's expert witness at the hearing is Mr. Michael Wallace.[3] He presented a model that assumes a channelway, which is contrary to the weight of the evidence. The judge concluded that Mr. Wallace's model makes no supportable assumptions. The statement that sand channels in the Westwater Formation function as "pipelines" is without basis. I (the judge) see no misrepresentation on the part of HRI. SRIC and ENDAUM have an incorrect understanding of the origin of this type of uranium deposit. The above is from the August 20, 1999 hearing report.

The same claim that channelways exist, this time in the Crownpoint site, was made by the ENDAUM representative before the Water Board. We see from above that the claim has been refuted above. In addition, in a separate NRC Hearing at which this proposition was discussed dated 20 July 2005 the judge states: "(SRIC and ENDAUM's) assertion that mining contaminants from Crownpoint may reach the Crownpoint municipal wells not only is insubstantial, it is disingenuous, because it fails to acknowledge that (HRI is required), in an abundance of caution, to move the Crownpoint municipal wells to a more distant location prior to commencing mining operations at Crownpoint" [page 62].

Another hearing was held because SRIC and ENDAUM wanted the Federal Environmental Impact Statement to be supplemented to account for the proposed Springstead Housing Project. In a detailed 25 page report dated October 22, 2004 the judge rejected the claims in strong terms: "(the NRC) staff notes that the tilt of the rock formations underlying Church Rock ... causes the groundwater in that area to flow to the north-northeast, which is directly away from the (Springstead Project)"[page 12]. On page 15, "HRI and (the NRC) staff argue that Mr. Wallace offers no geologic evidence, only speculation, to refute this finding and lend support to these concerns [of an underground pipeline]". On page 16 the report states "(SRIC and ENDAUM) offers no technical data to counter the findings in the Federal Environmental Impact Statement". There are more examples, but we stop here.

The Water Board recognizes that the Federal Government in the past has been less than forthright with its citizens with regard to many issues, and in particular with those related to nuclear power. So we felt it important to explore the allegations of ENDAUM. What we find however, are unsupportable propositions. The expert witness from the Southwest Research and Information Center provides lots of speculation, theories that could never

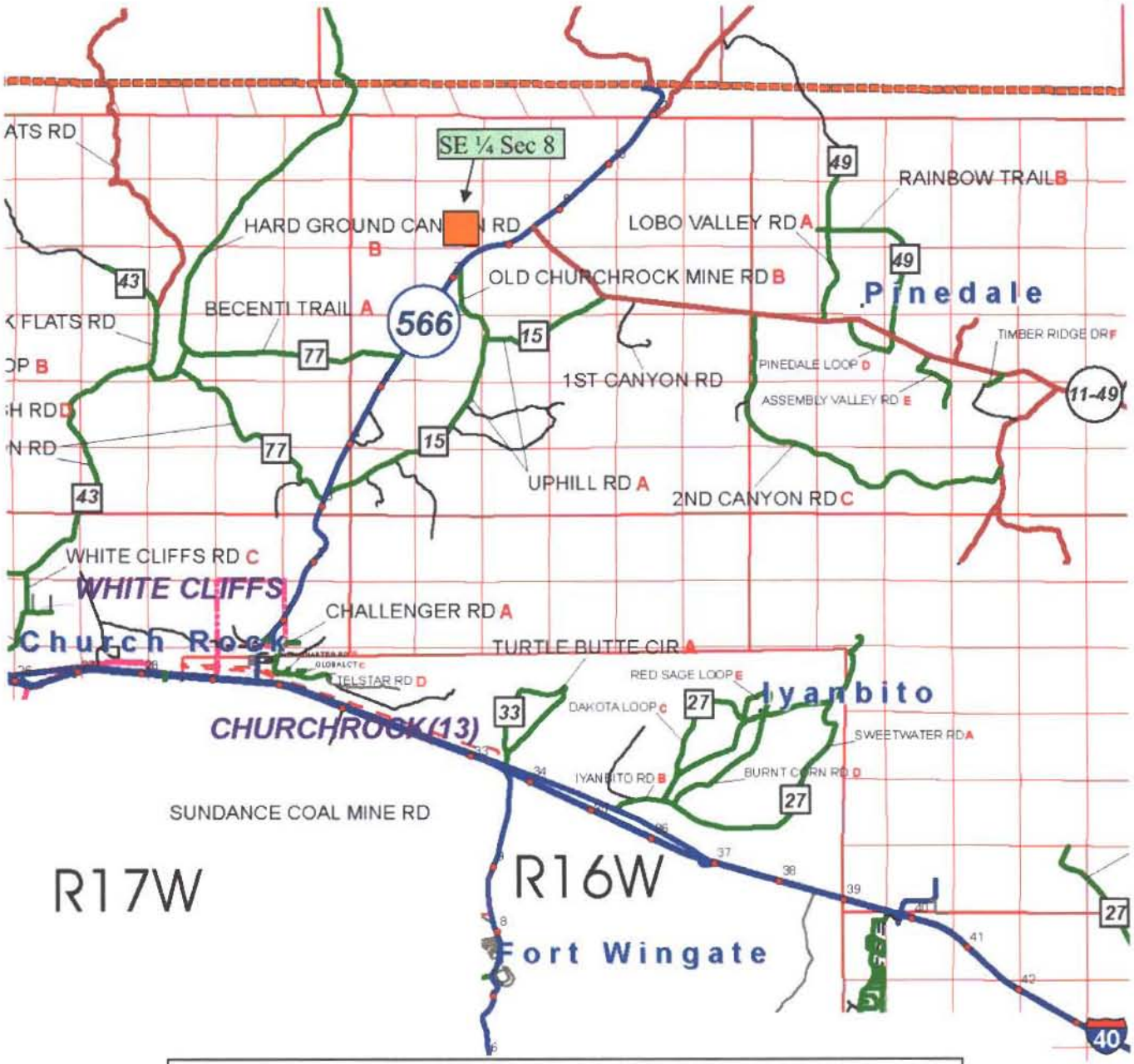
[3] In the NRC Hearing Report dated October 22, 2004 the credentials of Mr. Wallace, SRIC's expert, are laid out. He earned an M.S. degree in Hydrology and a B.A. degree in Plant and Soil Science.

be proved or disproved and headlines of gory consequences. This is not science. Science asks that we look at the data and come to a conclusion based on the evidence presented. The Nuclear Regulatory Commission relied on technical literature, well logs, water well pump tests and seismic studies as well as a history of such mining operations to conclude that the HRI proposal is most likely a safe mining operation. The Commission has built in layers of tests to protect the public and the groundwater, so that the mining operation proceeds safely.

The Water Board does recommend that the McKinley County Commission have a county representative approach Mr. Ron Curry, Secretary of the New Mexico Environment Department and request that split sampling from the monitor wells be performed at least monthly by Environment Department personnel during the course of the mining to assure that the mining operator maintains compliance.

We conclude that the mining operation as proposed by HRI and approved by the Nuclear Regulatory Commission is safe and effectively protects our groundwater sources.

McKinley County Water Advisory Board
October, 2005



LEGEND

COMMUNITY

MILE MARKERS

POLITICAL BOUNDARY

TYPE

- Military Reservation
- Municipal Boundary
- Indian Reservation
- County Boundary

PUBLIC LAND SURVEY SYSTEM

- Section Line
- Township Line
- Interpolated Township Line

ROADS

TYPE

- Federal/State Road
- County Road
- Navajo/BIA Road
- Private or Non-Maintained Road
- On/Off Ramp
- Maintained - Other
- Interstate Highway
- US Highway
- State Highway
- Navajo/BIA Route
- County Road

PLSS SECTIONS

McKINLEY COUNTY, NM ROAD MAP