{In Archive} Blackburn-Friedman Letter to EPA R6 Re UEC Uranium Mine

Jose Torres to: Stacey Dwyer, Philip Dellinger, Ray Leissner 02/07/2012 01:02 PM

From: Jose Torres/R6/USEPA/US

To: Stacey Dwyer/R6/USEPA/US@EPA, Philip Dellinger/R6/USEPA/US@EPA, Ray Leissner/R6/USEPA/US@EPA

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Attached is a copy of the letter sent to R6 by Blackburn - Friedman on behalf of Goliad County. Thought you might wish to use this one as well in the package. Please let me know if you wish for me to send you the ten or so attachments. Thanks,

JETorres

Letter to EPA Region 6 Evidentiary Hearing on Aquifer Exemption 5-6-11.pdf

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May 6, 2011

Via Federal Express and Electronic Mail

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RE: State of Texas Aquifer Exemption Request within Goliad County

Dear Mr. Armandariz, Mr. Flores and Mr. Dellinger:

This letter is being sent on behalf of Goliad County and a group of its citizens to express concerns for their groundwater. As you are aware, a large portion of the Evangeline Aquifer within Goliad County is the target of the anticipated request for an aquifer exemption to Environmental Protection Agency, Region 6 ("EPA-Region 6") by the Texas Commission on Environmental Quality ("TCEQ"). Goliad County strongly urges that this request should be denied. Groundwater is the sole source of domestic water supply for Goliad County, and, therefore, the backbone of its livelihood. Approximately 5,000 domestic and livestock water wells are located throughout Goliad County. More specifically, there are approximately fifty (50) domestic and agricultural water wells located within a one-kilometer radius of the proposed mining boundary. Each of these wells is believed to be screened at the same depths that uranium mining is being proposed. The close proximity of these wells to the proposed mining presents a great health risk to the citizens of Goliad County due to the migration of contaminants. Approving the requested exemption would authorize contamination of a relatively substantial portion of the aquifer on which Goliad County currently depends.

As described herein, the proposed aquifer exemption does not satisfy the necessary legal prerequisites for approval. Additionally, should the exemption be granted, Goliad County does not believe the groundwater quality will be restored, because no mining operator in Texas has ever restored water quality to its original state. It is for these reasons that the TCEQ's aquifer exemption request should be denied.

In the alternative, Goliad County hereby formally requests that the EPA conduct a hearing on the merits and that Goliad County be permitted to participate as a party to the proceeding. Based on prior communications, it is our understanding that the EPA may conduct a hearing on the merits at its own discretion. However, should a formal designation as a "substantial" amendment to the Texas Underground Injection Control program be necessary to hold a hearing, the large size of the requested exemption, which consists of four distinct sand layers combining for more than 1,600 acres, coupled with the close proximity of a large number of domestic water wells, clearly warrants such a designation. *See* 40 CFR § 145.32(b)(2). If a hearing is held, Goliad County will present the following material in greater detail. The purpose of this letter, however, is to provide the basic information that demonstrates the failure to satisfy the legal prerequisites for an aquifer exemption.

I. Legal Framework

Underground Sources of Drinking Water ("USDWs") are to be protected by the state program approved pursuant to the Safe Drinking Water Act ("SDWA") unless the USDW has been exempted. Applicant Uranium Energy Corp's ("UEC") proposed mining site in Goliad County is underlain by a non-exempt USDW. The in situ process requires injection of mining fluids into the USDW. Therefore, before mining may commence, UEC must obtain an exemption from the protection of the SDWA.

Pursuant to 40 C.F.R. § 146.4, an aquifer or a portion thereof which meets the criteria for an USDW may be determined to be an "exempted aquifer" if it meets the following criteria:

"(a) It ***does not currently serve*** as a source of drinking water; ***and***

(b) It ***cannot now and will not in the future*** serve as a source of drinking water because:

(1) It is mineral, hydrocarbon or geothermal energy producing, or can be demonstrated by a permit applicant as part of a permit application for a Class II or III operation to contain minerals or hydrocarbons that considering their quantity and location are expected to be commercially producible;

(2) It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical;

(3) It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption; or

(4) It is located over a Class III well mining area subject to subsidence or catastrophic collapse..."[1]

[1] 40 CFR § 146.4 (emphasis added).

As this letter explains, an overwhelming amount of evidence demonstrates that the requested aquifer exemption does not satisfy the foregoing criteria.

II. Aquifer Exemption Request Does Not Meet Prerequisites of Approval

When the EPA approves an aquifer exemption, it essentially authorizes indefinite contamination of the water within the exemption. The policy behind this action is premised on the notion that the water within the exemption does not currently and never will serve as a source of drinking water that is fit for human consumption. Therefore, establishing accurate baseline water quality conditions—before exploration and mining—within the aquifer exemption boundary is crucial so that the EPA does not authorize contamination of good quality water. Here, UEC's baseline water quality assessment was severely flawed: first, the baseline water quality data collected by UEC was derived from an insufficient number of sampling events. Second, almost all of the sampling events were targeted to sample water within the absolute highest areas of uranium ore concentration. Importantly, UEC's approach misrepresented natural conditions within the proposed exemption boundary. As discussed below, when analyzed properly, UEC's data actually shows that the groundwater could now, or in the future, be used as a source of drinking water.

Additionally, some of UEC's own water samples taken from water wells within the "Area of Review" indicated that the water directly adjacent to, and even directly within, the proposed exemption is suitable for human consumption. *See* Exhibit 1. For example, and perhaps most notably, the Albrameit Windmill which is located ***inside*** the proposed aquifer exemption was tested by UEC, and its results indicated that this water complied with maximum contaminant levels ("MCLs") for all constituents, thus making the water perfectly suitable for human consumption. *See* Exhibit 2. Another example is the Braquet water well, which is used for domestic purposes. The Braquet well is merely 75 feet from the proposed aquifer exemption boundary. When sampled by UEC, water quality was determined to be perfectly fit for human consumption.

In addition to the Area of Review wells, UEC developed and sampled twenty additional water wells for purposes of applying for its Class III injection well permit. These wells were labeled in the application as regional baseline wells ("RBLs"). All twenty wells were within the requested aquifer exemption boundary. *See* Exhibit 3. Five of the RBLs are screened in the A-sand, five are screened in the B-sand, five are screened in the C-sand, and five are screened in the D-sand. These wells were used to characterize the water quality throughout the entire proposed exemption area, which is more than 1,600 acres. As discussed below, water quality data from these twenty wells did not indicate that the groundwater throughout the proposed exemption boundary could not now or in the future serve as a future source of drinking water for human consumption, which is the requirement established in 40 C.F.R. § 146.4(b).

Finally, an undisputed hydrologic connection exists between the groundwater within the proposed exemption and a number of domestic water wells directly adjacent to the proposed exemption area. This connection indicates that the water that will be contaminated by the in situ mining process is currently migrating from within the exemption boundary to the nearby domestic water wells that are used by Goliad citizens as a source of drinking water. Because this water is currently serving as a source of drinking water, the proposed exemption area is precluded from exemption pursuant to 40 C.F.R. § 146.4(a).

a. Sampling data indicates that water within the proposed aquifer exemption boundary could serve now or in the future as a source of drinking water, in violation of 40 C.F.R. § 146.4(b)

First, according to Goliad County Groundwater Conservation District ("GCGCD") records, a large number of water wells are located within a three-mile radius of the proposed mining boundary in Goliad County, illustrating the extent of the potential health risks associated with granting the exemption. *See* Exhibit 4. UEC sampled approximately fifty of these domestic and agriculture water wells that were within a closer, one kilometer area of review. *See* Exhibit 5. The average values from the fifty wells—some located within and all others located just outside the proposed mining boundary—for ***all constituents*** were under EPA MCLs for drinking water. *See* Exhibit 6. This result is strong circumstantial evidence that the water within the exemption boundary that is directly adjacent and hydrologically connected to the drinkable area of review wells could now or in the future serve as a source of drinking water—making any exemption a violation of the federal regulation.

Additionally, UEC tested the Albrameit Windmill, which is located ***inside*** the proposed aquifer exemption and screened 342 feet below the surface—the same depth as the proposed mining in the D-sand. The Albrameit Windmill water quality met EPA drinking water MCLs for all constituents. This result also serves as independent grounds for concluding that water within the requested exemption could serve as a future source of drinking water. To the extent that any domestic water wells adjacent to the proposed mining boundary are screened at the same depth, the Albrameit Windmill also demonstrates that the water within the requested exemption is currently used as a source of drinking water at wells downgradient from the proposed aquifer exemption.

Moreover, the results for the baseline wells that were presented by UEC to the TCEQ did not demonstrate that the water was undrinkable because the results were not representative of true water quality. To define baseline water quality within the proposed exemption area, UEC relied on twenty RBLs. The RBLs were evenly distributed across the four sand layers—five in each of sand layers A, B, C and D. Each sand layer represents a distinct 423.8-acre portion of the aquifer being requested for exempt status. Essentially, UEC relied on a mere twenty samples to represent the water quality of 1,696 acres. Based on sampling from these RBLs, UEC submitted to the TCEQ that the average concentration of uranium and radium-226 throughout the entire exemption is 0.401 mg/l and 579 pCi/l, respectively. However, this sample set was inadequate to conclude that this water is unusable now or in the future: specifically, this few number of samples would not satisfy the TCEQ's own rule for establishing background concentration in a production area authorization. Under TCEQ rules, 30 T.A.C. § 331.104(c) requires a minimum of one baseline well per every four acres of production area. UEC did not achieve anything close to that ratio.

Compounding the misleading nature of baseline conditions, UEC deliberately located and screened each of the twenty RBL wells in the areas where uranium ore concentrations were projected to be the highest and densest. *See* Exhibit 7.[2] Relying on such a limited sample set that was also hand-picked to detect the highest concentrations, UEC has, at best, failed to establish with any reliability that the water within the exemption area is unusable. At worst,

[2] This map only reflects four RBL wells in the B-Sand. UEC located the fifth RBLB well outside the proposed mining boundary.

UEC has significantly misrepresented the true conditions of water quality throughout the entire requested aquifer exemption boundary. Consequently, by not only using an exceptionally small sample size relative to the total acreage of water, but also by using unrepresentative samples, UEC has mischaracterized the true water quality conditions. Accordingly, UEC's representations should not be relied upon to establish the requirements of 40 C.F.R. § 146.4.

In sum, neither UEC nor the TCEQ has met the burden of establishing that the proposed exemption complies with the federal requirement that it could not serve as a source of drinking water now or in the future.

b. Comparing the three rounds of UEC's sampling data indicates that even the water within the proposed production areas could serve now or in the future as a source of drinking water, in violation of 40 CFR § 146.4(b)

UEC's suggested background conditions for the water quality within the proposed exemption derive from samples at only twenty distinct locations, all within projected mineral areas, and only at one point in time. UEC also constructed 14 Pump Test Wells ("PTWs") in the B-sand that were sampled for the purpose of establishing baseline water quality specifically within the production area application in the B-sand ("PAA-B"). Concentrations of constituents from these fourteen wells and the four RBL wells in the B-sand were averaged together for the baseline water quality proposed in UEC's PAA-B Application.

Although the data from the first time these wells were sampled reflects poor water quality, when sampling the RBLs in the B-sand for the second time,[3] uranium concentrations decreased dramatically. Similarly, when the RBLs and PTWs were sampled for the third and final time, uranium concentrations plummeted, and the overall water quality within the proposed production area in the B-sand met EPA drinking water standards for all MCLs, except radium. As explained in the subsequent section, the reason for the plummeting concentrations is explained by strong evidence that UEC solubilized uranium and liberated radium into the groundwater, causing the elevated levels it detected during its first round of sampling. In other words, it was UEC that caused the initial high levels of uranium concentrations in the first round of sampling; the water quality in the aquifer otherwise would be good and in compliance with EPA standards.

In sum, the available water quality data demonstrates that most, if not all, of the water within the proposed production areas can currently or in the future serve as a source of drinking water. But for UEC's activity causing the increased radium concentrations, it is likely that all water within the requested exemption area would have been measured to contain low uranium and radium concentrations, and to be of drinking water caliber.

i. <u>In drilling exploration boreholes and developing wells for testing, UEC solubilized uranium and liberated trapped radium, causing elevated levels in the groundwater that are not accurate representations of the water quality.</u>

Dr. Ron Sass presented at hearing before the TCEQ and subsequently to EPA-Region 6 regarding UEC's activities. He explained that actions taken by UEC, such as exploration and jetting the wells for testing with an air hose, introduced oxygen into the subsurface. The oxygen

[3] RBLs in the B-Sand were only RBLs sampled for a second and third time.

came into contact with the uranium ore, essentially initiating the in-situ mining process on a smaller scale. The evidence is compelling that by its actions, UEC caused uranium that was in its reduced state to solubilize and artificially elevate uranium concentrations in the groundwater. This groundwater with elevated uranium levels was then tested and the results were included in the UEC's Permit Application as a basis for establishing a "Regional Baseline." Dr. Sass further testified that as time passed after sampling, the solublized uranium encountered the natural reducing environment at the site and re-precipitated back into mineral ore.

This process, as explained by Dr. Sass, is directly supported by the sampling data. UEC sampled RBLs in the B-sand and the fourteen PTWs three times each.[4] RBLB-1, RBLB-3 and RBLB-5 were sampled for the first time on July 12, 2007, and RBLB-4 was sampled for the first time on July 11, 2007. UEC's proposed baseline water quality was based solely on this first round of sampling data and included a uranium concentration of 0.115 mg/L. However, when the exact same eighteen wells were sampled for the second time, the average uranium concentration dropped from 0.115 mg/L to 0.029 mg/L – below the EPA MCL for uranium. Then, on or around November 10, 2009, approximately two years after the first round of sampling and over a year after all exploration ceased, the wells were sampled for a third time and *all 18 wells* experienced a drastic decrease in uranium concentrations. In fact, every well detected uranium concentrations well below the EPA MCL for uranium of 0.03 mg/L. This final round of sampling detected an average uranium concentration of 0.005 mg/L, which is 23 times lower than the proposed baseline in the PAA-B Application. *See* Exhibit 8. This uniform decline demonstrates that UEC, in its exploration activities, caused the uranium to solubilize, which in turn artificially inflated the uranium concentrations detected in the aquifer.

Finally, Dr. Sass testified that UEC also caused elevated levels of radium. When uranium becomes soluble and dissolves into the groundwater, any trapped decay products such as radium are liberated from the ore body and, therefore, become soluble. Thus, radium can enter groundwater by dissolution of uranium ore. Goliad County cannot quantify the amount of radium that was released as a result of UEC's actions because, unlike uranium, radium remains in solution and does not re-precipitate back out from solution. Unfortunately, we cannot now know, and will never know, the true baseline levels of radium within the proposed permit boundary due to UEC's oxidizing activity prior to sampling. What we can be confident about is that the radium levels UEC has suggested as naturally occurring baseline are actually inflated by the liberated radium, caused by UEC.

In sum, comparing the third round of water quality data to the first round, which was taken during exploration activities and shortly after the wells were developed, indicates that most, if not all, the water within the proposed exemption area may be fit for human consumption. To the extent that any water is not suitable for human consumption, it is likely a direct result of UEC's exploration and well development activities. Importantly, at a minimum, the substantial decline in uranium concentrations over time underscores the severe problems with UEC only using a minimal amount of data (twenty RBLs) to establish the water quality throughout the entire requested exemption.

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[4] RBLA-5, RBLC-1, and RBLD-2 were sampled a second time, but not a third. RBLA-5 and RBLD-2 experienced a substantial decrease in uranium concentration. RBLC-1 experienced a slight increase.

c. The aquifer within the proposed exemption currently serves as a source of water for human consumption, in violation of 40 C.F.R. § 146.4(a)

The portion of the aquifer requested for exempt status is a part of the Evangeline Aquifer and currently serves as a source of drinking water to many. The closest water well used for domestic purposes is only 75 to 80 feet east of the requested exemption boundary. This well, the Braquet well, is screened in the B-sand and is hydrologically connected back into the mining area proposed in the B-sand. Mr. Neil Blandford, the expert hydrologist presented by the GCGCD, offered unchallenged testimony that the water supply for these domestic wells is obtained from the portion of aquifer upgradient of the wells and that based on the hydraulic properties of the sand B aquifer, water within the proposed exemption zone will reach the Braquet wells within a period of 2 years. *See* Exhibit 9. Even Mr. Murry, the geoscientist from the Executive Director's office of the TCEQ, agreed with Mr. Blandford's premise that a well in such close proximity as one foot, or even further away, if pumped, can draw water from the exempted area, or certainly water from the exempted area will eventually flow into that well. *See* Exhibit 10.

Two additional wells are located at the Church, southeast of the project site and down gradient from the proposed exemption. These wells are also sources of drinking water for human consumption. Other water wells within the Area of Review and beyond are likely hydrologically connected with the proposed aquifer exemption.

Despite groundwater from within the proposed exemption ultimately being used domestically once it migrates downgradient, the TCEQ argues that the aquifer exemption request still satisfies the statutory requirements because those wells are not *physically* located within the proposed exemption boundaries.

However, it seems incredibly odd to imagine that the SDWA was designed to allow for such gerrymandering and clear manipulation, as urged by the TCEQ, such that a well located just one foot outside the requested exempted area would be denied the protection of a federal law designed to protect underground sources of drinking water. For this reason, Goliad County and GCGCD have always maintained that the proposed exemption is currently serving as a source of drinking water to the adjacent water wells. Goliad County urges the EPA to be cognizant of the gerrymandering proposed by the TCEQ, and to recognize that the water is currently used for consumption, making it ineligible for exempt status under 40 C.F.R. § 146.4.

III. <u>Uranium mining operators in Texas have never restored groundwater to pre-mining water quality conditions</u>

Unlike the Texas legal framework, the Safe Drinking Water Act does not require restoration of groundwater to pre-mining conditions once mining ceases. Essentially, once an aquifer is exempted by the EPA, the portion of the aquifer subject to that exemption is deemed forever unusable. As previously stated, it is for this reason that it is crucial that the EPA ascertain the true groundwater quality within the proposed exemption. On the other hand, Texas regulations that purport to require post mining restoration provide scant comfort to the citizens of Goliad County. According to a United States Geological Survey report, in the history of in situ uranium mining in Texas, no uranium mining operator has *ever* returned all analytes to baseline at any Production Area. *See* Exhibit 11.

Of the 76 production area authorizations issued in Texas, an approximate 51 operators have applied for and received amendments to the originally established baseline water quality, allowing for elevated levels on contaminants to remain in the groundwater.[5] As Dr. Bruce Darling presented at the contested case hearing, TCEQ records indicate that the agency has *never* denied an application for amended levels for restoration. The records show that such amended restoration levels significantly alleviate a polluter's responsibility of clean-up obligations. For example, Dr. Darling testified at hearing that the highest increase in the restoration goal from the original requirement for concentrations of uranium was an 8,000 % increase. The vast majority of the 51 amendments allotted for at least a doubling or tripling the amount of permitted contamination to be left in the groundwater.[6]

Data shows that, once mined, water quality at the mining location will be significantly deteriorated. Goliad County and its citizens know that the proposed Goliad project will be no different. Thus, according to the water quality data, UEC's Goliad project would cause what appears to be relatively good quality water to become completely unusable. Making matters worse, Mr. Murry from the TCEQ testified that once the amended restoration values are granted, there is no longer a requirement to monitor groundwater quality or its migration pattern – leaving all down gradient well users completely in the dark as to the suitability and safety of the water. *See* Exhibit 12. For this reason as well, Goliad County urges the EPA to deny the request for aquifer exemption, and enable Goliad County to continue to enjoy its good quality drinking water.

IV. <u>The EPA's approval of the entire aquifer exemption would be premature because it is unknown whether Applicant can mine the uranium in sands A, C and D while sufficiently protecting groundwater, due to the uncertainty of transmissivity across an existing fault line</u>

The vast majority of the proposed mining operation straddles the Northwest Fault. *See* Exhibit 13. At the conclusion of the contested case hearing, the Administrative Law Judge ("ALJ") held that "[u]ntil the transmissivity of the Northwest Fault is resolved the ALJ concludes that *USDWs within Goliad County outside the proposed aquifer exemption area may be adversely impacted by UEC's proposed in situ uranium operations*."[7] In addition to safety concerns associated with mining adjacent to the Northwest Fault, UEC is unsure whether it can feasibly mine those mineral deposits due to uncertainty of transmissivity of the fault. *See* Exhibit 14.

In its review, the TCEQ discounted the ALJ's recommendation and never addressed the uncertainty surrounding the Northwest Fault. Rather, the TCEQ delayed the issue. Specifically, the TCEQ concluded that "future [production area authorization] applications will include the results of hydrologic testing and an interpretation of those results with respect to any faults to determine the hydrologic connection both across the fault and vertically along the fault." In other words, the TCEQ deferred answering the hard question of whether mining around the Northwest Fault can be done without contaminating groundwater. Accordingly, issuing the entire

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[5] A report completed by Dr. Darling documenting this information was provided to the EPA at a previous time.
[6] *Id.*
[7] Proposal for Decision. (emphasis added).

aquifer exemption at this time, when so little is known about 75%[8] of the deposits, is premature. Any exemption, at this point, should, at most, tightly border the proposed PAA in the B-sand.

Furthermore, and importantly, pending legislation in the Texas House of Representatives casts doubt on whether Goliad County will be able to challenge any UEC application for a production area authorization. Specifically, H.B. 3163 eliminates the opportunity for protestants to request and participate in a contested case hearing for production area authorizations. As previously stated, the TCEQ ignored the recommendation of the ALJ that the permit be denied, issuing the Injection Well Permit in spite of unresolved issues regarding whether mining operations will be sufficiently protective of Goliad County's groundwater. The TCEQ's decision was entirely premised on the understanding that these issues would be addressed in the future, once subsequent production area authorizations are submitted. This bill, if passed, will preclude Goliad County from having a voice in that discussion regarding protection of its *own* groundwater. Such an outcome underscores the importance of EPA taking action and denying the requested exemption.

Sincerely,

BLACKBURN CARTER, P.C.

by Adam Friedman
Adam M. Friedman

Enclosures

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[8] Sands A, C and D combine for approximately 104 acreage of the approximate total 140 acreage of uranium deposits proposed for mining. *See* UEC Exhibit 6, Holmes Pre-filed Direct at Exhibit 3.