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Oct 01, 2012

Jim Ruby, Executive Secretary
Environmental Quality Council

418 North 44th Street
Rapid City, South Dakota 57702
(605) 343-1332
September 28, 2012

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Nancy Nuttbrock
Administrator, Land Quality Division
Wyoming Department of Environmental Quality
122 West 25th Street
Cheyenne, WY. 82002

Dear Ms. Nuttbrock:

These comments address the draft permit for Strata Energy's proposed Ross in situ leach (ISL) uranium project. I am commenting as a private citizen. My background includes a Ph.D. in Political Science with a focus on Environmental Policy. I will address four main topics: water contamination, water use, geology, and regulation.

As your Department knows from experience with other ISL projects – and with uranium operations more generally -- uranium operations bring documented negative impacts on water. For example, ISL operations in Wyoming have brought "excursions" of mining solutions out of the mined area, which contaminate water during mining. That contamination is difficult, if not impossible, to clean up.

Even if excursions are caught and cleaned up, ISL uranium mining leaves water contaminated. According to Bill Von Till of the Uranium Branch of the Nuclear Regulatory Commission, trying to achieve cleanup of ISL operations to baseline water condition is "virtually impossible." My own research on dozens of sites in a number of states confirms that water is not returned to baseline condition after ISL mining. I could not find even one occasion in which water quality was returned to baseline, and common contaminants included uranium, radium, arsenic, lead, molybdenum, vanadium, manganese, and selenium.

Research by the Tennessee Valley Authority in southwestern South Dakota points to another risk. cross-contamination of aquifers. According to this study, water in one aquifer was contaminated with uranium from another aquifer. According to the study's authors, this was due to leaky rock layers between the aquifers and/or to old exploration holes. The study site included many old exploration holes that had not been capped properly, as is the case at Strata's proposed mine site. So, in addition to the contamination that results from the actual mining process in the mined aquifer, there is a risk of cross-contamination of other aquifers in the area, if Strata is allowed to proceed.

In summary, water contamination is not just a possible impact of ISL mining. It can be expected.

ISL operations also consume tens of millions of gallons of water. The uranium industry attempts to minimize its impacts by focusing on the water "bleed" during the operation. This "bleed" is only 1 – 5 percent of the total water used, and it still adds up to tens of millions of gallons. Other water used in the ISL process is injected below aquifers that can be used for drinking water, which is designed to make it unavailable for future surface use.

Our part of the country needs clean groundwater to support our communities and our economy. To permit a project that will contaminate groundwater and use substantial amounts of water in a drought year would be short-sighted, at best.

My third topic is geology. The proposed mine would be located where the Powder River Basin meets the Black Hills uplift. The rim of the Black Hills is a very complex geological environment, characterized by faults, folds, breccia pipes, artesian groundwater, and rapidly changing geological features. A rock layer that is present in one location may not be present nearby, making the characterization of any proposed ISL site in this area incomplete. This complex geology and hydrology, especially in the presence of old drill holes, will not produce the controlled conditions necessary for pumping chemicals under pressure into the groundwater, taking radioactive materials and heavy metals out of a stable state, and pumping those materials back to the surface.

Fourth, I have concerns about the nature of regulation. According to Dr. Ronald Sass of Rice University, "Although in-situ leaching is highly regulated both by the state and by the federal government, the regulations that have been followed for more than 30 years appear to be faulty and do not adequately protect the local groundwater from excessive contamination by uranium and radium." With all due respect, and with a clear understanding of the challenges that state agencies face, I believe that ISL operations have been under-regulated in the past. With the re-opening of old sites and the number of proposed new ISL mines, I fear that the WDEQ will be unable to keep up with the oversight needed to protect water, the economy, and public health. This leaves uranium companies to monitor their own operations, never a good idea, given the industry's history of contamination and abandonment of uranium mines and mills. If this mine is permitted, I believe the public interest will not be served.

In situ leach uranium mining is fundamentally flawed, because it necessarily contaminates groundwater. It is not good policy for our governments to permit this process to take place directly in our groundwater, especially when oversight may be inadequate. Thus, I urge you to stop the permitting process on this proposal.

If you have any questions, please feel free to contact me.

Sincerely,

Lilias Jones Jarding, Ph.D.

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Rapid City, SD 57702

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