

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

INT-020

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the matter of )  
 )  
POWERTECH (USA) INC. ) Docket No. 40-9075-MLA  
 ) ASLBP No. 10-898-02-MLA-BD01  
(Dewey-Burdock In Situ Uranium )  
Recovery Facility) )


**REBUTTAL WRITTEN TESTIMONY OF DR. HANNAN LAGARRY**

The following is my response or rebuttal to some of the facts and/or opinions of Powertech's witnesses.

**Contention 3**

In their written testimonies, DeMuth (APP-013) and Lawrence (APP-037) assert that the law does not require Powertech, the Applicant, to have well field specific data prior to licensing, but that the acquisition of such data is a phased process once operation begins. DeMuth concedes the absence of pump testing in every proposed well-field for this reason. It appears by their testimonies that DeMuth and Lawrence concede that there will be excursions, which Powertech will try to correct as they mine and fix them once they become apparent. However, it would seem prudent that a license application presented for NRC review and evaluation would contain well field specific data in order to anticipate the location and nature of expected problems and to be able to develop detailed plans to rectify the problem.

Where is Powertech's plan for each well-field? Where has it worked before? Why is the Dewey-Burdock area so hydro-geologically identical to other mines to permit an evaluation of whether the "standard" plans will work there? Where is the independent evaluation by the NRC Staff? Instead, DeMuth extends simply a promise by Powertech to have plans that will work in place to fix the inevitable lack of containment it finds as the well-fields grow. This seems like a backhanded way of saying that in the end, confinement doesn't matter. It must as it relates to

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containment necessary to prevent contamination of water resources outside the license boundary.

Examination of Powertech's experts' CVs (APP-014, APP-038) reveals that, rather than use independent third-party academics or researchers, Powertech instead relies on insiders who stand to benefit from future contracts related to this project, should the issuance of the NRC licenses be upheld by this board. Such conflicts of interest are troubling where peoples' health and safety is at risk and objectivity is required.

I note that Technical Report (APP-015A) describes "periodic releases of water from storage ponds." I find substantively lacking information as to how much contaminated water Powertech plans to release during any discharge, how often such releases are thought to be necessary, a discussion and analysis of environmental impacts from the contaminants in the water released. Again, it seems that promises of fixing any problems not known from the limited testing conducted by the Applicant are used as a substitute for site-specific plans to prevent the need for releases. If releases are necessary, detailed site specific plans to mitigate introduction of the numerous toxic and carcinogenic chemicals and minerals in this water should have been presented and evaluated by the NRC staff to ascertain its real effectiveness in protection water resources.

I also note that the Technical Report (APP-015B) has many of the same admissions and concessions as the FSEIS, including that mineralization at the site is contaminating local water, and that therefore contaminant pathways are already present (2.9.4.3). Almost all of the photos in the geology section of the Technical Report show the unmapped joints and faults I've opined about in several prior Expert Opinions regarding ISL mining in northwestern Nebraska and southwestern South Dakota. If faults and joints are so pervasive and ubiquitous in this region, why is Dewey-Burdock viewed as an exception? Is it because they're there but not being recognized? Is it because if recognized it would add to the problems of containment of this mining operation, indicate that regional water sources are threatened by it, and that issuing a license to Powertech was a mistake to be corrected? Is it because Powertech's recognition of such features would be fatal to their proposed mining operation?

The radiological survey (APP-015C) reports statistically anomalous high radiation levels left over from past mining but says they're not relevant without explaining

how they got there or why they don't matter. What if they are the product of contamination by artesian flow? Wouldn't such circumstances constitute a future problem and lead to more contamination? Powertech's expert testimony does not address this. Furthermore, Powertech's experts seem to be unaware that their proposed land application areas are on river terraces that will transmit the applied waste directly into local watersheds.

DeMuth and Lawrence specifically refute my 2010 assertion presented in this case that the Inyan Kara is unconfined by using cross sections based on e-logs (APP-015D, APP-15E). A copy of my 2010 Opinion is attached hereto as Ex INT-020a. Cuttings or core samples are less subjective, and would be available for third-party inspection.

However, the FSEIS concedes that the units are unconfined for the specific reasons I laid out in the most recent 2014 opinion in my Opening Testimony. Lawrence defers to DeMuth on the use and interpretation of the cross sections supplied by Powertech, based on e-logs. These are contradicted by the FSEIS which concedes that the upper confining layer thins to 0. Also, Lawrence defers to USGS publications for the generalized structural geology and dismisses jointing, faulting, and breccia pipes because Powertech didn't report any. Did they look? Did they see joints (joints and small faults are visible but unmentioned in photographs in the Technical Report)? Were they focused on displacement or seismic activity? What about minor joints that in aggregate might constitute a problem? I would note from my experience and study, the nearby ISL mine at Crow Butte has faults which are visible from space and cut through the existing and proposed operation. Yet CAMECO, like Powertech is attempting to do, has never reported or acknowledged them.

DeMuth makes no mention of Powertech's FSEIS admissions and concessions, and doesn't address my main concern regarding jointing and faulting in the proposed project area. If they are correct, that applicable laws and regulations don't require that they gather their own site-specific data before receiving an ISL mining license, then somehow, the actual hydrogeology is of no real concern to the NRC. I would opine that such a "one size fits all" legal and regulatory framework is flawed and prejudices the process in favor of mining.

Powertech provides a structural map (APP-015D) that is largely blank over project area. Neither Powertech's experts or the provided exhibits describe how faults and

joints were prospected and mapped in the area, especially where photos Powertech presented in its Technical Report, show them in significant numbers (see also my response to APP015B, above).

APP016A shows that NRC had concerns about lack of confinement and artesian springs, something DeMuth urges, are not problems which have been found yet. Again, if found later, after the mining operation has started, whatever the problem is, it will somehow be dealt with. Demuth, Lawrence, Fritz (APP-046), and McKee (APP-053) all assert "these mines have operated safely for decades." However, the long list of safety and environmental violations listed at <http://www.wise-uranium.org/umopusa.html> substantially shows otherwise. Definitions of "safe" must vary widely to include so-called "reclaimed" water that is more contaminated than prior to the ISL mining of the aquifer.

Fundamentally the FSEIS infers that the NRC Staff trusts Powertech explicitly to act in the public's best interest and report potentially fatal data. History shows otherwise.

I swear that the above is true and correct to the best of my knowledge.

Dated this 15<sup>th</sup> day of July, 2014.

/s/ Hannan LaGarry

HANNON LaGARRY