APP-046

June 20, 2014

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

William J. Froehlich, Chairman
Dr. Richard F. Cole, Special Assistant
Dr. Mark O. Barnett, Special Assistant

In the Matter of:	)	
POWERTECH USA, Inc.	)	
(Dewey-Burdock Project	)	Docket No. 40-9075-MLA
In Situ Uranium Recovery Facility)	)	ASLBP No. 10-898-02-MLA-BD01
	)	
	)	

WRITTEN TESTIMONY OF DOYL FRITZ

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1. WITNESS BACKGROUND INFORMATION

Q.1. Please state your name, position and employer, including duration of employment.
A.1. Doyl Fritz. I am employed by WWC Engineering. I co-founded that firm in 1978, serving as vice-president and then president. I recently sold my interest in the firm to the employees and since 2012 have worked there in my present position as senior technical advisor. My curriculum vitae is included as Exhibit APP-047.

Q.2. Please state your education, professional registration and memberships.
A.2. I have a B.S. in Civil Engineering from the University of Wyoming and an M.S. in Civil Engineering from Arizona State University. I am a licensed professional engineer in Wyoming and Colorado. I am a Life Member of the American Society of Civil Engineers.

Q.3. What ISR projects have you worked on while with WWC and other entities?
A.3. My first experience with ISR occurred between 1976 and 1978, while I was the Northeastern Wyoming District Engineer for the Wyoming Department of Environmental Quality (DEQ), Land Quality Division. That agency was responsible for permitting and compliance monitoring of all mining operations in the state, including ISR. During that time Wyoming Minerals Corporation, a subsidiary of Westinghouse Electric, was in the process of permitting and operating an ISR facility at Irigaray Ranch. My duties included reviewing the permit application and monitoring field activities at the Irigaray operation. I also helped the DEQ prepare rules and regulations for regulating ISR operations. During the early 1980s, as a consultant with WWC, I helped obtain approval for restoration and site closure activities for Nubeth Joint Venture's Oshoto ISR pilot operation in northeastern Wyoming. Throughout my career at WWC, I have provided a variety of engineering and environmental services to various firms involved in operating and licensing ISR operations, including Ferret Exploration of Nebraska (pond design), Malapai Resources and Christensen Ranch (pond design, road design), Strata Energy Ross ISR Project (hearing support, water rights, NRC license application support), URI's Crownpoint Uranium Project (license renewal application support, including socioeconomic impact analysis), and Powertech's Dewey-Burdock Project (license application support, socioeconomic impact analysis, and state permit application support – water rights, large scale mine permit, and groundwater discharge permit for land application).

Q.4 What is your experience with preparing NEPA-compliance documents?
A.4. One of the services provided by WWC for many years is the preparation of NEPA compliance documents as a third-party contractor for various federal agencies. During my tenure at WWC I have participated in or been in responsible charge of preparation of approximately 50 NEPA compliance documents, ranging from Categorical Exclusions for federally-funded highway reconstruction projects to Environmental Impact Statements. Most of the EISs have been completed under a third-party contract for the Bureau of Land Management and have dealt with federal mineral lease applications and modifications.

Q.5. What is your experience in preparing or evaluating water right applications?

A.5. Water rights services have been another major specialty of WWC since the inception of the firm. Our services include water rights research, preparation of applications for new water rights and modifications to existing water rights, and providing expert witness services in contested-case hearings and trials regarding water rights and related issues. My professional experience with water rights began in my first professional position after receiving my M.S. in Civil Engineering. For three years I was a water resources engineer for the Wyoming Water Planning Program, a division of the State Engineer's Office. The State Engineer is responsible for the administration of water rights in Wyoming. In general, my duties with the Water Planning Program included preparing a tabulation of existing water rights, quantifying water uses under those rights, quantifying water availability to meet new uses, and developing basin-wide plans to develop water supplies to meet these new uses. Quantifying water available for new uses was done in light of physical availability of water as well as institutional constraints on water development, such as water rights and interstate compacts and court decrees.

My experience regarding water rights while at WWC has included preparation of water right applications for new uses, including reservoir applications, direct-flow diversions of surface water, and water supply wells. I have prepared hundreds of such applications. Applications for permits to develop water and petitions to change existing water rights are often controversial, and on numerous occasions I have prepared expert reports and provided expert testimony in the defense of a permit application or petition to change a permit.

From 2007 to the present I have been under contract to the Wyoming Attorney General and Wyoming State Engineer to provide expert witness services in an interstate compact case before the Supreme Court, No. 137 Original (Montana vs. Wyoming and North Dakota). Duties have included research of water rights and water uses in the Tongue and Powder River Basins of Wyoming, preparation of an expert report, rebuttal of Plaintiff's expert reports, and testimony at trial before the Special Master.

2. CONTENTION 4

Q.6. Please describe the nature of your written testimony on this contention.

A.6. My testimony focuses on two key issues identified in the Board's ruling on the admissibility of Contention 4. These include (1) detailed description of the sources and amounts of groundwater to be used and (2) potential impacts of groundwater use on local and regional groundwater resources.

Groundwater use was a primary focus of the June 2011 TR RAI responses (Exhibit APP-016-A through 016-BB), including providing a project-wide water balance in support of the discussion on handling liquid waste (P&R-14(c), Exhibit APP-016-B at 68-73). This RAI response provides a detailed description of the quantity of water anticipated to be used from the production zone aquifer (Inyan Kara) and from the Madison aquifer (primarily for groundwater restoration) during production and groundwater restoration operations. Much of this information has been incorporated into the FSEIS (i.e., Sec. 2.1.1.1.3.3).

In addition, Powertech has submitted applications to the South Dakota Department of Environment and Natural Resources (SDDENR) for water appropriation permits from the Inyan Kara and Madison aquifers. Information from the applications and SDDENR's review and recommended approval of those applications is provided in the FSEIS. SDDENR has recommended approval on the basis that sufficient water is available, the proposed withdrawals will not exceed average annual recharge, and there is not anticipated to be harm to nearby water users.

It is my testimony that both the license application and FSEIS describe in detail the sources and amounts of groundwater to be used by the project, including during uranium production and groundwater restoration. They also describe the potential impact of this groundwater use on area water resources.

2.1 The FSEIS Consistently Describes the Volumes of Water to Be Used

Q.7. How do you respond to the allegation that the FSEIS provides conflicting information on the volumes of water to be used such that the water consumption impacts of the project cannot be accurately evaluated (CI 2013 at 27, CI 2014a at 25, Moran 2013 at 12, OST 2013 at 19, OST 2014a at 19)?

A.7. The statement that there is "conflicting information" in the FSEIS on the volumes of water to be used is vague and is not supported by specific examples. To the contrary, it is my testimony that the FSEIS contains consistent information on water usage from the Inyan Kara aquifer, which contains the uranium mineralization, and the Madison aquifer, which will be used to supply water for groundwater restoration, domestic water supply, and, potentially, as a supply to local ranchers.

Q.8. Please summarize information in the FSEIS on water use from the Inyan Kara aquifer.

A.8. The FSEIS contains consistent estimates of groundwater consumption of up to 170 gpm from the Inyan Kara aquifer due to production and restoration bleed used to maintain hydraulic wellfield control (see FSEIS, Exhibits NRC-008-A and 008-B, at 4-54, E-67, E-126 and E-133).

The FSEIS citations describe how Powertech has applied for a water permit application from SDDENR for the Inyan Kara aquifer for a gross pumping rate up to 8,500 gpm (including production and restoration); however, 98% or more of this water will be recirculated such that the maximum consumption rate will not exceed 170 gpm (2% of 8,500 gpm).

The intervenors may be confused about the difference between the 4,000 gpm gross production pumping rate in the NRC license application and the 8,000 gpm gross production pumping rate in the SD and EPA Class III UIC permit applications. This is not an inconsistency; both pumping rates are addressed in the FSEIS as follows: Powertech currently proposes to operate at a gross production pumping rate up to 4,000 gpm (see FSEIS at 2-15, 2-35, 4-61, E-91, E-134 and E-147), but to evaluate potential impacts at the higher gross production pumping rate, groundwater impacts were modeled for a gross production pumping rate of up to 8,000 gpm plus groundwater sweep during aquifer restoration (see FSEIS at 4-61, E-134, and E-147).

Q.9. Please describe the same information for the Madison aquifer.

A.9. The FSEIS consistently reflects Powertech's proposed use of up to 551 gpm from the Madison aquifer in the land application option, or up to 160 gpm in the deep well disposal option. The Madison water will be used for groundwater restoration, domestic water supply, and, potentially, as a supply to local ranchers (see FSEIS at 4-55, E-67, E-93, E-126, E-127, and E-134).

Q.10. Are the potential impacts from this water usage addressed consistently in the FSEIS?

A.10. Potential impacts due to the consistent use of these maximum withdrawal rates are described throughout the FSEIS, including:

- Potential drawdown impacts of up to 12 feet in the Fall River and 10 feet in the Chilson aquifer outside the project area (e.g., at 4-61).
- Recovery in the Fall River and Chilson to near pre-operational water levels within 1 year after groundwater withdrawals cease (e.g., at 4-61).
- Support from numerical modeling that the Inyan Kara can sustain the average extraction rate anticipated over the modeled life of the project (e.g., at 4-62, E-134, E-145 and E-147)
- SDDENR has recommended approval of the Inyan Kara and Madison water appropriation permits and concluded that (i) withdrawal at the permitted rates will not result in average annual withdrawals that exceed the average annual recharge to the aquifers, (ii) there is a reasonable probability of adequate unappropriated water available, and (iii) there is a reasonable probability that the withdrawals proposed by Powertech can be made without unlawful impairment of existing water rights or domestic wells (e.g., at 4-55, E-126 and E-134).
- NRC staff's independent analysis of potential drawdown impacts of the Madison aquifer based on a three-layer model resulted in their conclusion that the drawdown induced by the proposed project is not likely to affect the operation of the Edgemont water supply wells (at E-135).

2.2 Expressing Water Usage in Millions or Billions of Gallons Might Have Shock Impact but Does Not Accurately Reflect the Magnitude of the Proposed Usage

Q.11. Please respond to the allegation that water consumption may total billions of gallons over the life of the project (CI 2013 at 28, Moran 2013 at 12-13, OST 2013 at 19).

A.11. As stated in A.10 above, SDDENR has recommended approval of Powertech's water right applications for the Inyan Kara and Madison aquifers based in part on the conclusion that use of these water rights, even at the maximum permitted diversion rate, would not exceed the average annual recharge to these aquifers. As discussed below, Powertech does not plan to divert at the maximum permitted rate throughout the life of the project.

SDDENR has recommended approval of Powertech's Inyan Kara water right application for a consumptive usage rate of up to 274.2 acre-feet per year, which is equivalent to 170 gpm

(Exhibit APP-048 at PDF page 15). Since 1 acre-foot is equivalent to 325,851 gallons of water, this could be expressed as a consumptive usage rate of up to 89.35 million gallons per year from the Inyan Kara aquifer. As stated in Powertech's license application, the typical usage rate, even during concurrent production and restoration, is anticipated to be lower than 170 gpm (e.g., Exhibit APP-016-B at 70 indicates that typical project-wide Inyan Kara usage is anticipated to be 40-118 gpm during concurrent production and restoration). Nevertheless, the Inyan Kara water right permit, if granted by SDDENR, would authorize Powertech to use up to 89.35 million gallon per year from the Inyan Kara aquifer. While expressing the total water use in smaller units (gallons rather than acre-feet) might have more shock impact to people not used to working with such terms, it does not change the three basic conclusions in SDDENR's recommended approval of Powertech's Inyan Kara water right (see A.10 above).

Q.12. Do you agree with the characterization of the proposed Inyan Kara aquifer water usage as "massive" (e.g., Moran 2013 at 12)?

A.12. No. To help put Powertech's requested Inyan Kara water usage into perspective, a water right was requested by one of the intervenors in this hearing, Dayton Hyde, and approved by SDDENR in 2008 to use up to 278 acre-feet per year from the Inyan Kara or other aquifers (Exhibit APP-049 at PDF page 3). The purpose of the appropriation is to irrigate 139 acres using a center pivot irrigation system. The consumptive usage rate for this permit, expressed in the same units as this allegation, is therefore up to 90.6 million gallons per year, or slightly more than what has been requested by Powertech and recommended by SDDENR for approval from the Inyan Kara aquifer for the Dewey-Burdock Project. Sufficient water to irrigate 139 acres generally would not be considered to be a "massive" amount of groundwater as has been characterized by the intervenors.

Q.13. Do you agree with the characterization of the proposed Madison aquifer water usage as "massive"?

A.13. No. SDDENR has recommended approval of Powertech's Madison water right application for up to 551 gpm or 1.228 cubic feet per second (Exhibit APP-028 at 13) on the basis that there is a reasonable probability that unappropriated water is available, it will not result in average annual withdrawals that exceed average annual recharge, and there is a reasonable probability that the appropriation can be made without adversely impacting existing water rights including domestic users (see A.17 for further information). Again, Powertech does not anticipate using the water at the peak diversion rate (e.g., Exhibit APP-016-B at 70 shows that the anticipated Madison usage during concurrent production and restoration will be 79 to 507 gpm, depending on the wastewater disposal option and groundwater restoration method). Nevertheless, if someone wanted to express the consumptive usage rate in gallons, it would be up to 290 million gallons per year.

The maximum Madison aquifer usage would occur if land application, which is not the preferred wastewater disposal option, is used. In this case the vast majority of this water would

be used during groundwater restoration by injecting Madison water into the ISR wellfields in the Inyan Kara aquifer, while withdrawing a slightly larger quantity of Inyan Kara water that is treated and disposed by land application (center pivot irrigation). The amount of land required for land application is up to 630 acres (FSEIS at 2-26). Again, sufficient water to irrigate 630 acres generally would not be characterized as a "massive" amount of groundwater.

2.3 Previous Water Usage Estimates Were Updated in the June 2011 TR RAI Response

Q.14. Please respond to the allegation that the DSEIS does not describe the Environmental Report estimate of 320 gpm water consumption (CI 2013 at 28, Moran 2013 at 12, OST 2013 at 19).

A.14. Water consumption estimates in the 2009 ER and TR were replaced by the June 2011 TR RAI responses. The water balance in Exhibit APP-016-B at 68-73 provides the typical water consumption estimates for the Inyan Kara and Madison aquifers during each project phase (production, production/restoration, restoration) and for each wastewater disposal option. Also refer to A.11 through A.13 of this written testimony, which describe how Powertech has requested authorization from SDDENR to consume up to 170 gpm from the Inyan Kara aquifer and up to 551 gpm from the Madison aquifer. The typical usage is anticipated to be lower than the maximum usage rates, as shown by the water balance diagram described above. This is also demonstrated by Powertech's estimate of the typical water usage and wastewater disposal rates during concurrent uranium recovery and groundwater restoration shown in the table in Exhibit APP-016-B at 70. The estimated typical usage rate from the Inyan Kara aquifer (Fall River and Chilson) is 40 to 118 gpm, depending on whether or not groundwater sweep is used during groundwater restoration. The estimated typical Madison aquifer usage is 79 to 157 gpm in the deep disposal well option and 429 to 507 gpm in the land application option. The higher maximum diversion rates (170 gpm for the Inyan Kara aquifer and 551 for the Madison aquifer) were requested to allow for operational flexibility and, in the case of the Madison, to allow for a small amount of water to be made available to local landowners as necessary to replace stock and domestic wells that are temporarily removed from private use during ISR operations.

2.4 Groundwater Quantity Impacts Have Been Evaluated for the Madison Aquifer in Powertech's Madison Water Right Permit Application and SDDENR's Review of the Permit Application

Q.15. What was your role in preparing the Madison water right permit application for the Dewey-Burdock Project?

A.15. I assisted in preparing the water right application for this project and was a primary author on the report to accompany the water right application (Exhibit APP-027-A through 027-C). I also helped to develop the conceptual flow model in that report, based on a flow-net technique similar to that used by the USGS in Carter, et al., 2001. This flow-net analysis was

used to support my opinion that there is a reasonable probability that water is available to support the proposed use described in the permit application.

Q.16. Please summarize information in the Madison water right permit application regarding water availability and potential impacts to nearby and regional water supplies.
A.16. There are no wells completed in the Madison aquifer within 5 miles of the Dewey-Burdock Project area. Therefore, the report contains local and regional geologic and hydrologic information compiled by federal (primarily USGS) and state (DENR) agencies and uses this information to demonstrate that there is a reasonable probability that there is unappropriated water for the proposed use, that the use can be developed without unlawful impairment of existing rights, and that the proposed use is a beneficial use and is in the public interest. The report also demonstrates that there will be no adverse impacts on regional hydrologic features such as caves and springs. It is shown that the nearest wells completed in the Madison aquifer are several miles away from the Dewey-Burdock Project area and are unlikely to see any significant drawdown from the Dewey-Burdock Project wells.

Q.17. Are you familiar with SDDENR's review of the Madison water right permit application?
A.17. Yes.

Q.18. Would you please summarize their findings?
A.18. The report was reviewed by Ken Buhler, Natural Resources Engineer for the Water Rights Program of DENR. Based on this review, Mr. Buhler reported to the Chief Engineer that he had reached the following conclusions (Exhibit APP-028 at 13):

1. The Madison aquifer is a major regional aquifer and a viable source of water for this proposed appropriation.
2. This application proposes to appropriate 1.228 cubic feet of water per second. There is no limit to the annual volume of water that can be diverted other than the physical constraints of the maximum diversion rate.
3. There is a reasonable probability that unappropriated water is available in the Madison aquifer to supply this appropriation.
4. Approval of this application will not result in average annual withdrawals from the Madison aquifer to exceed the average annual recharge to the aquifer.
5. There is a reasonable probability this appropriation can be made without adversely impacting existing water rights including domestic users.
6. Information is not available to justify issuing these permits without a term limitation of 20 years (Note: Powertech did not request a longer term limitation).
7. Following notice and a public hearing, the Water Management Board may cancel this permit or amend it with a new term limitation after twenty years.

Based on this review by the Natural Resources Engineer, the Chief Engineer of the Water Management Program recommended approval of the Madison water right permit application because 1) there is "…reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use, and 4) it is in the public interest…(Exhibit APP-028 at PDF page 16)"

2.5 The Inyan Kara and Madison Water Rights Will Provide Protection for Nearby Water Users

Q.19. Will the Inyan Kara and Madison right rights issued by SDDENR provide additional protection for nearby water users?

A.19. Yes. Powertech will be required by South Dakota water right permits to not adversely affect existing water rights or domestic wells. This is explained in Exhibit APP-028 at PDF page 16:

> "The wells approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights."

It is important to note that lowering of water levels in an existing well is not in and of itself considered an adverse impact, as described in Exhibit APP-028 at 11:

> "An increase in operating expense that may result from interference between wells is not necessarily an adverse impact. The Water Management Board considered this situation in the matter of Water Permit Application 2313-2, Coca-Cola Bottling Company of the Black Hills (Water Rights, 1995). The Board adopted finding of fact and conclusion of law that basically states that if the increased cost or decreased production is considered an adverse impact, it could be in conflict with DCL 46-1-4, which require South Dakota's water resource to be put to beneficial use to the fullest extent of which they are capable."

2.6 Potential Impacts to Regional Groundwater Supplies Have Been Evaluated and Will Be Small

Q.20. Please respond to the allegation that the DSEIS or FSEIS fails to reliably portray or predict the regional extent of water level declines and impacts to well yields outside the project boundaries (OST 2013 at 20; CI 2013 at 25, 29; Moran 2013 at 13-14).

A.20. The FSEIS addresses potential impacts on regional water sources due to groundwater consumption by the project, including:

- Addressing SDDENR's conclusion that there is a reasonable probability that unappropriated water is available in the Inyan Kara and Madison aquifers to supply the proposed appropriations, that approval of the applications will not result in average

annual withdrawals from the two aquifers that exceed the average annual recharge, that approval of the Madison water right application will not adversely affect caves and springs in the area, including Jewel Cave and Wind Cave, and that there is a reasonable probability that the withdrawals proposed in the applications can be made without impacting existing water rights including domestic users (FSEIS at 4-55).

- Describing the 3-layer model NRC staff conducted to evaluate the effects of operation on the Edgemont Madison water supply wells, the closest municipal wells to the project area (FSEIS at E-135).
- Evaluating the potential impacts to major area springs such as the Cascade Springs and concluding that they will not be impacted (FSEIS at 5-32 and E-147).
- Evaluating the potential impacts to site conditions at the Black Hills Army Depot and the conclusion that the project will have no effect (FSEIS at E-237).

Refer again to A.11 through A.13 of this written testimony, which show that characterizing Powertech's groundwater consumption as "large" or "massive" is not supported by comparison with typical irrigation use for moderately sized center pivot irrigation systems.

3. CONTENTION 6

3.1 Mitigation Measures Are Described throughout the FSEIS and License Application

Q.21. Are you familiar with Chapter 6, entitled "Mitigation," in the Dewey-Burdock Project FSEIS?
A.21. Yes.

Q.22. Do you agree with the allegation that "The current mitigation measure discussion consists of a multi-page chart which simply lists mitigation measures, with no elaboration or other analysis of how the operator expects to accomplish these items, or the expected effectiveness/limitations of each measure, as required by NEPA"?
A.22. No. The allegation seems to reflect either a lack of understanding or an incomplete reading of what is contained in the FSEIS. The "multi-page chart" referred to in this allegation is apparently FSEIS Table 6.2-1 (beginning at 6-2), which provides a summary of mitigation measures proposed by Powertech, and/or Table 6.3-1 (beginning at 6-13), which provides a summary of additional mitigation measures identified by the NRC that could potentially reduce impacts. These tables are summaries of proposed mitigation measures, and it is not correct to state that they are provided with no elaboration or analysis of how they will be accomplished or their effectiveness. The following examples for each resource area listed in Table 6.2-1 identify relevant portions of the FSEIS that address the implementation and effectiveness of each mitigation measure.

- Land use: See FSEIS Sections 2.1.1.1.2, at 2-6; 2.1.1.1.2.3.5, at 2-18; 2.1.1.1.2.3.6, at 2-19; and 4.4.1.1.1, at 4-31 for descriptions of implementation and effectiveness of the relevant measures summarized in Table 6.2-1. Also, FSEIS Sec. 4.6.1.1.1.1.1, at 4-81 describes how interim reclamation is anticipated to be a requirement of the SDDENR large scale mine permit.
- Transportation: See FSEIS at 4-18 and 4-205. This latter page describes how LC 12.2 will require Powertech to coordinate emergency response activities with local authorities, fire departments, medical facilities, and other emergency services before operations begin and to document the coordination activities and maintain the documentation onsite.
- Geology and soils: Refer to FSEIS at 2-6 and 4-31.
- Surface water: Refer to FSEIS at 3-24 and 3-25.
- Groundwater: Refer to FSEIS Sections 2.1.1.1.2.3.3 and 2.1.1.1.2.3.4 (at 2-18) and FSEIS at 7-11.
- Ecology: See FSEIS at E-159.
- Air quality: See FSEIS Sec. 4.7.1.1.1 (at 4-128), Sec. C2.1 (at C-2), and at 4-130.
- Noise: See FSEIS Sec. 4.8.1 (at 4-157).
- Cultural and historic resources: See FSEIS at 4-167 and LC 9.8 (Exhibit NRC-0012 at 5-6). Additionally, Powertech has an MOA with the SD State Archeologist that provides protection in the event of unanticipated discoveries.
- Visual and scenic resources: See FSEIS Sec. 4.10.1.1.1, at 4-192.
- Socioeconomics: See FSEIS Sec. 4.11.1.1 (at 4-199) and Sec. 4.11.1.2 (at 4-202).
- Occupational and public health and safety: See FSEIS at 4-221 and 2-10.
- Waste management: See FSEIS Sec. 2.1.1.1.5.1 (at 2-41), Sec. 2.1.1.1.5.2 (at 2-42), and Sec. 2.1.1.1.5.3 (at 2-42).

To the extent that the allegation also refers to Table 6.3-1 (beginning at 6-13), which summarizes potential additional mitigation measures identified by NRC, these are also described in the FSEIS. A few examples include:

- Hydrologic test data packages will be submitted for NRC review and written verification or approval prior to development of any proposed well fields (required by LC 10.10 and addressed in FSEIS Sec. 2.1.1.1.2.3.4, at 2-18)
- Alternatives or mitigation measures will be implemented to manage drilling fluid during well drilling operations (addressed at 4-32).
- Licensee will follow the Avian Power Line Interaction Committee guidance (Avian Power Line Interaction Committee, 2006) (addressed on at 4-89).

With respect to the effectiveness/limitations of mitigation measures, in many cases these are enforced by license conditions in the NRC license and permit conditions in the EPA and

State permits. When evaluating the potential impacts of a project, it cannot be assumed that the operator will violate conditions of its permit or any applicable statutes or regulations.

Q.23. Do you agree with the allegation that "Proposed mitigation measures consist largely, if not exclusively, of a list of plans to be developed later, outside the NEPA process"?
A.23. No. This allegation is totally false. Mitigation measures listed in Chapter 6 of the FSEIS are described throughout the FSEIS (refer to previous answer for specific examples). Mitigation measures also are described throughout the license application. For example:

- ER Sections 4 and 5 describe mitigation measures for all resource areas (Exhibit APP-040-C at 4-1 through 5-13).
- ER RAI responses address additional mitigation measures (e.g., RAI AQ-7 specifically asked for "the rationale or supporting documentation regarding proposed mitigation measures" for dust control, and the response described how specific water application rates and speed limit reductions have proven effective at dust control in published studies – Exhibit APP-050 at 8).
- The TR and TR RAI responses describe mitigation measures used to protect workers, public health and the environment. Examples include:
    - TR RAI P&R-2 response (Powertech commits to avoiding ISR within the Fall River Formation near historical mining areas – Exhibit APP-016-B at 4).
    - TR RAI P&R-3 response (all buildings, structures, foundations and equipment will be designed per latest building codes and design manuals re: seismic loadings – Exhibit APP-016-B at 18).
    - TR RAI P&R-9 response (Powertech commits to plug and abandon or mitigate any historical wells and exploration holes or wells failing MIT should they have the potential to impact the control and containment of ISR solutions - Exhibit APP-016-B at 31).
    - TR RAI P&R-10 response (Powertech will replace any nearby supply well determined to have the potential to be impacted by ISR operations or to interfere with ISR operations. Powertech also commits to remove all domestic wells within the license boundary from private use prior to ISR operations and all stock wells within ¼ mile of potential well fields from private use prior to ISR operations in the associated well field – Exhibit APP-016-B at 34-36).
    - TR RAI P&R-14(i) response (Powertech commits to remove a pond from service and transfer its contents to a spare pond in the event that a leak is confirmed – Exhibit APP-016-B at 91).
    - TR RAI P&R-14(j) response (potential for tank failure will be minimized through proper design, installation and inspection and concrete containment curbs and sumps will be provided with sufficient capacity to contain the largest liquid-containing vessel within the process building [CPP or satellite facility] should a spill or tank failure occur – Exhibit APP-016-B at 92-93).

- TR RAI P&R-14(k) response (Powertech commits to installing an automated control system on the Class V deep disposal wells that will alert the operator and automatically shut down injection if certain conditions are encountered such as high pressure or low annulus differential pressure – Exhibit APP-016-B at 95).
- TR RAI MI-1(a) response (Powertech commits to chemical handling and storage and mitigation measures such as secondary containment that will minimize potential impacts of accidents – Exhibit APP-016-B at 112-115).
- TR RAI MI-3 response (Powertech commits to providing backup generators to maintain continuous instrumentation monitoring and alarms in the processing facilities and using generators to operate wellfield pumps sufficiently to maintain a cone of depression within each wellfield in a long-term power outage – Exhibit APP-016-B at 123-124).
- TR RAI MI-5 response (Powertech commits to constructing facilities outside of flood inundation boundaries or using other specific mitigation measures such as diversions or deep burial to avoid potential impacts from flooding – Exhibit APP-016-B at 132).
- TR RAI MI-6 response (diversions will be designed with appropriate erosion control lining to prevent surface runoff up to and including the 100-year, 24-hour event from entering the ponds – Exhibit APP-016-B at 133).
- TR RAI 2.7-12 response (describes the well replacement procedures to be used if a replacement well or alternate water supply is needed due to removal of a private well from use by its owners – Exhibit APP-016-C at 213).
- TR RAI 2.7-13 response (describes specific mitigation measures for various private wells – Exhibit APP-016-C at 215-222).
- TR RAI 3.1-1 response (describes the instrumentation and control systems that will be used to ensure timely detection of any unanticipated release or spill, including manual and automatic shutdown controls for header houses and pipelines – Exhibit APP-016-D at 380-381).
- TR RAI 3.1-4 response (describes the procedures Powertech will follow to maintain and verify hydraulic well field control – Exhibit APP-016-D at 380-385).
- TR RAI 3.1-8 response (describes procedures to be used to minimize potential conflicts between land application areas and well fields – Exhibit APP-016-D at 390-392).
- TR RAI 4.1-1(b) response (describes how Powertech will measure radon emissions from the processing plant ventilation system and radon decay products at occupied areas in and around the plant and adjust monitoring programs and upgrade ventilation and/or other effluent control equipment as necessary during operations to ensure exposure levels are ALARA – Exhibit APP-016-D at 395).
- TR RAI 4.1-4 response (describes procedures to ensure airborne effluents are ALARA, including use of pressurized, downflow IX vessels and ventilation system

with the exhaust point located away from building intakes – Exhibit APP-016-D at 398).

- TR RAI 4.1-5 response (describes procedures to reduce potential radiological consequences to workers and members of the public in the event of an accident such as providing a trained team of emergency responders, training local emergency responders in the potential hazards present within the project area, evacuating normal operating personnel within spill areas, and using appropriate PPE – Exhibit APP-016-D at 399-401).
- TR RAI 5.2-3 response (describes Powertech's commitments to administer a historic and cultural resources inventory before engaging in any development activity not previously assessed by NRC or any cooperating agency; addressing any disturbances in compliance with the MOA with the SD State Archeologist and any future agreements developed by Powertech or NRC under the NHPA; and immediately ceasing any work resulting in the discovery of previously unknown cultural artifacts – Exhibit APP-016-D at 405).
- TR RAI 5.3-1(a) response (describes institutional and engineering controls Powertech will use to ensure airborne effluent releases are ALARA – Exhibit APP-016-D at 407-409).
- TR RAI 5.5-1 response (describes how Powertech will ensure that the radiation dose to an embryo/fetus of a declared pregnant worker will be maintained ALARA – Exhibit APP-016-D at 412).
- TR RAI 5.7.8-14 response (describes in detail the pump testing procedures that will be used to verify hydrologic isolation of each ISR well field and adequacy of monitoring wells – Exhibit APP-016-D at 519-522).
- TR RAI 5.7.8-16 response (describes corrective actions to retrieve excursions – Exhibit APP-016-D at 524).
- TR RAI 6.1-4 response (describes groundwater restoration methods and methods to control and capture flare – Exhibit APP-016-D at 545-547).
- TR RAI 6.1-6 response (demonstrates effectiveness of the proposed groundwater restoration methods – Exhibit APP-016-D at 549-550).
- TR RAI 6.1-8 response (describes corrective actions for potential excursions during groundwater restoration – Exhibit APP-016-D at 554).
- TR RAI 6.1-10 response (describes mitigation measures for hot spots identified during groundwater restoration – Exhibit APP-016-D at 556-557).
- TR RAI 6.2-2 response (describes pre-reclamation radiological survey procedures used to identify areas with surface contamination – Exhibit APP-016-D at 564).
- TR RAI 6.3-3 response (describes procedures for surveying, decontaminating and disposing concrete slabs – Exhibit APP-016-D at 567).

- TR RAI 6.4-1 through 6.4-8 responses (describe methodologies for conducting post-reclamation and decommissioning radiological surveys – Exhibit APP-016-D at 568-575).
- TR RAI 7.0-1 through 7.0-4 responses (describe procedures to monitor for, remediate and prevent accidents – Exhibit APP-016-D at 576-583).
- Mitigation measures are enforced in many cases by license conditions. Standard license conditions for the Dewey-Burdock ISR Project are listed in Appendix A of the SER. These conditions are written specifically into the license and then become commitments that are enforced through periodic NRC inspections (see FSEIS, at 6-1).

- Mitigation measures have been developed as part of Powertech's State and EPA permit applications, many of which are more stringent than those contained in the NRC license application and described in the FSEIS. For example:
  - Diversions designed for the 6-hour probable maximum precipitation (PMP) event around the processing facilities and dual-lined ponds as required by the LSM permit.
  - Wildlife protection measures (e.g., to protect raptors and migratory birds) are required by the groundwater discharge plan (GDP) and LSM permits.

Q.24. Does the FSEIS contain detailed plans regarding minimization and mitigation of air quality impacts, or does it simply imply that such plans will be submitted in the future?
A.24. As explained in A.19 above, the air quality mitigation measures that are summarized in Tables 6.2-1 and 6.3-1 of the FSEIS are fully described in the various referenced sections of the FSEIS.

Q.25. Does the license application or FSEIS describe plans to mitigate areas on site which receive radioactive waste?
A.25 No. Such mitigation will not be necessary because radioactive waste will not be disposed of in the project area. As explained throughout the FSEIS, wastewater will have to be treated to meet NRC release requirements for radionuclides in 10 CFR Part 20, Appendix B and to meet SDDENR requirements imposed by the GDP (e.g., FSEIS at E-56).

Land application mitigation measures are detailed throughout the FSEIS, including:

- Powertech will be required to treat wastewater to meet applicable NRC and SDDENR limits (at 2-52)
- Treatment methods will include ion exchange to remove uranium and treatment with barium chloride to remove radium (at 2-52).
- Treated wastewater will be sampled in the ponds prior to land application to verify it is within South Dakota and NRC discharge limits (at 2-52).
- Powertech will regularly monitor air, soil, crops, livestock, surface water and groundwater to identify the presence of NRC and SDDENR-regulated constituents. (at 2-52)

- More specific information on monitoring is provided in FSEIS Sec. 7.5. For example, compliance limits will be established for alluvial compliance wells based on the baseline water quality in each well, and a contingency plan will be implemented if monitored constituent concentration increases (at 7-20).
- Monitoring results will be reported to NRC semiannually (at 2-53).
- During decommissioning, radiological surveys will be required to ensure soil concentrations limits are met; if limits are exceeded, NRC will require removal of contaminated soil (at 2-53).

The FSEIS frequently references Powertech's GDP and LSM permit applications, which list more specific mitigation measures that have already been developed and reviewed by SDDENR staff. These include:

- Applying water at an agronomic application rate that avoids ponding and minimizes deep percolation to groundwater (GDP application, Exhibit APP-051 at 153-154).
- Monitoring water movement through the subsoil via suction lysimeters and adjusting the application rate as needed to avoid deep percolation to alluvial groundwater (Exhibit APP-051 at 153a-154).
- Specifying contingency measures in the event of an out-of-compliance condition at a compliance well or significantly increasing trend at an interior monitor well (e.g., change operating parameters or initiate pump back or pump and treat plan) (Exhibit APP-051 at 155-156).
- Constructing earthen catchment berms to capture land applied water and precipitation up to a 100-year event from land application areas (Exhibit APP-051 at 164-167).
- Establishing trigger values for metals in land application soil protective of baseline conditions and implementing contingency measures if trigger values are approached including modifying operating parameters, implementing additional treatment, excavating contaminated soil, etc. (Exhibit APP-051 at 168).
- Establishing trigger values for metals in vegetation and wildlife (LSM permit application responses to technical comments, Exhibit APP-045 at 15-18).

4. CONTENTION 9

4.1 The FSEIS Demonstrates Engagement with Other Federal Agencies

Q.26. To your knowledge, did NRC fully engage other federal agencies responsible for permitting the proposed ISR project?

A.26. Yes. With respect to federal permitting requirements other than the NRC license, BLM and EPA have primary permitting authority for the Dewey-Burdock Project. Both agencies have been fully engaged, as shown by specific examples below.

- BLM involvement:

- FSEIS at 1-1 verifies that the FSEIS was prepared with BLM acting as a cooperating agency. This is supported by the Nov. 22, 2011 letter from BLM to NRC requesting that NRC be designated as the lead agency for Section 106 consultation (FSEIS at A-55).
- FSEIS Sec. 1.7.3.1 (at 1-16) describes coordination efforts with BLM, including numerous conference calls, meetings, and negotiation of an MOU between NRC and BLM.
- FSEIS Sec. 1.7.3.5 (at 1-18) describes how BLM participated in various meetings associated with the identification and protection of historic and cultural resources including traditional cultural properties. Supporting documentation is found in the July 20, 2012 letter from BLM to Powertech regarding evaluative testing of 20 sites (FSEIS at A-80 through A-81) and the January 14, 2014 letter from BLM to SD SHPO indicating its NRHP-eligibility status recommendation for sites on BLM-administered lands (Exhibit APP-052).
- FSEIS Sec. 2.1.1.1.5 (at 2-40) describes how Powertech will be required to comply with reclamation requirements in 43 CFR Part 3800 to ensure there is no unnecessary or undue degradation of BLM-administered lands.
- FSEIS Sec. 3.6.1.2.1 (at 3-45) describes BLM's determination that there are no crucial birthing or wintering habitats for pronghorn antelope, mule deer, white-tailed deer, elk, bighorn sheep, or moose west of the project site in Wyoming.
- FSEIS Sec. 3.6.1.2.2 (at 3-45) describes BLM's determination that the nearest sage-grouse lek is almost 5 miles west of the project site in Wyoming.
- FSEIS Table 3.6-6 (at 3-52) lists BLM special status (sensitive) species that may occur within the project area.
- FSEIS Sec. 3.9.3.3 (at 3-91) describes how NRC consulted with BLM regarding the visual impacts assessment for cultural resources.
- FSEIS Table 4.6-3 (at 4-90) presents BLM-recommended seasonal wildlife stipulations for raptors and wildlife species.
- FSEIS Sec. 4.6.1.1.1.1.4 (at 4-94) describes potential impacts to BLM-sensitive species
- FSEIS Sec. 4.9.1.1.1 (at 4-158) describes BLM's involvement with the development of mitigation measures and the Programmatic Agreement (PA). This is evidenced by BLM's March 25, 2014 signature of the PA in Exhibit NRC-0018-F.

o EPA involvement:
- FSEIS Sec. 1.7.3.5 (at 1-18) describes how EPA was involved in interactions with tribal governments.
- FSEIS Sec. 2.1.1.1.2.3.1 (at 2-11) describes EPA's role in the Class III UIC permitting and aquifer exemption processes for ISR injection wells.

- FSEIS Sec. 2.1.1.1.2.4.1 (at 2-22) describes EPA's role in the Class V UIC permitting process for deep disposal wells.
- FSEIS Sec. 4.7.1 (beginning on at 4-115), Appendix C and Appendix E at E-165 through 167 describe EPA's role in the assessment of potential air quality impacts, including participating in the development of the protocol for air modeling and evaluating air modeling results.
- FSEIS Sec. 7.3.1.1 (at 7-8) describes how NRC will consult with EPA before establishing water quality standards for each well field (e.g., Commission-approved background and UCLs).
- FSEIS at E-26 explains that under Section 309 of the Clean Air Act, EPA is responsible for independently reviewing and evaluating the potential environmental impacts of a proposed project, including:
    - On January 12, 2010 NRC issued a public notice of intent to prepare an SEIS for the Dewey-Burdock Project
    - Prior to issuance of the DSEIS to the public, EPA was provided preliminary drafts for review and comment as described on FSEIS at E-67.
    - EPA issued formal comments on the DSEIS by letter dated January 10, 2013, which NRC addressed in the FSEIS as described at E-26, E-71, E-88, E-92, E-93, E-110, E-119, E-121, E-142, E-163, E-172, E-212, E-244, E-245 and E-254.
    - EPA issued notice to NRC that it had reviewed the FSEIS by letter dated March 10, 2014 (Exhibit NRC-0093). The letter states that "The EPA Region 8 office provided extensive comments on the scoping of this project and the Draft SEIS in January 2013, as well as participating in conference calls and reviews of draft materials during the development of the Draft and Final SEIS. The EPA rated the Draft SEIS EC-2 (environmental concerns – insufficient information). We recognize and appreciate the many revisions made in the Final SEIS to address our concerns and the concerns of others." The letter suggested a revision to the groundwater monitoring requirements, which NRC incorporated into the final license.

Other federal and state agencies also have responsibility for specific aspects of the Dewey-Burdock Project. These include the Advisory Council on Historic Preservation (ACHP), who participated in consultation to develop the Programmatic Agreement (PA) and signed the PA; the U.S. Fish and Wildlife Service, who corresponded with NRC on threatened and endangered (T&E) species that potentially could occur in the project area and who are reviewing Powertech's Avian Monitoring and Mitigation Plan; the South Dakota State Historic Preservation Office (SHPO), who reviewed the Level III cultural resources survey and eligibility recommendations; and the SDDENR, who reviewed and has recommended approval for

Powertech's large scale mine, GDP and water right permit applications. Evidence of engagement with all of these agencies is documented in the FSEIS.

4.2 The FSEIS Evaluates the Potential Environmental Impacts of Class III and Class V Injection Wells

Q.27. Did the FSEIS conduct all required NEPA analyses of the EPA application for Class III and V injection wells and the aquifer exemption?

A.27. 40 CFR 124.9(b)(6) specifically precludes the preparation of an EIS in conjunction with a UIC permit. Therefore, no separate NEPA analysis was conducted specifically for the UIC permit applications. However, as stated in A.23 above, EPA was fully engaged in the license application process and NRC's NEPA analysis. The Class III injection wells proposed in Powertech's Class III UIC permit application are the same injection wells proposed for uranium recovery and aquifer restoration in Powertech's NRC license application.

NEPA analysis of the construction, operation and decommissioning of Class III injection wells is carried out throughout the FSEIS, including but not limited to:

- Sec. 2.1.1.1.2.3.1 (description of injection wells as Class III wells as part of the Proposed Action (at 2-15))
- The analysis of construction impacts of Class III injection wells as an integral part of ISR wellfields is provided in Sections 4.2.1.1.1, at 4-4 through 4-6 (land use), 4.3.1.1.1, at 4-14 through 4-16 (transportation), 4.4.1.1.1, at 4-31 through 4-32 (geology and soils), 4.5.1.1.1.1, at 4-41 through 4-44 (surface water and wetlands), 4.5.2.1.1.1, at 4-56 through 4-58 (groundwater), 4.6.1.1.1, at 4-80 through 4-94 (ecological resources), 4.7.1.1.1, at 4-127 through 4-132 (air quality), 4.8.1.1.1, at 4-147 through 4-149 (noise), 4.8.1.1.1, at 4-159 through 4-182 (historical and cultural resources), 4.10.1.1.1, at 4-192 through 4-193, (visual and scenic resources), 4.11.1.1.1, at 4-198 through 4-201 (socioeconomics), 4.12.2, at 4-211 through 4-212 (environmental justice), 4.13.1.1.1, at 4-215 through 4-216 (public and occupational health and safety), and 4.14.1.1.1, at 4-234 (waste management).
- The analysis of operations impacts of Class III injection wells as an integral part of ISR wellfields is provided in Sections 4.5.1.1.1.2 (operations impacts to surface water, at 4-44), 4.5.2.1.1.2 (operations impacts to groundwater, at 4-58), 4.6.1.1.2 (operations impacts to ecological resources, at 4-100), 4.7.1.1.2 (operations impacts to air quality, at 4-132), 4.8.1.1.2 (operations noise impacts, at 4-149), 4.9.1.1.2 (operations historical and cultural resources impacts, at 4-211), 4.10.1.1.2 (operations impacts on visual and scenic resources, at 4-193), 4.11.1.2 (operations impacts on socioeconomics, at 4-202 through 4-205), Sec. 4.12.2 (environmental justice), at 4-211), and 4.13.1.1.2 through Sec. 4.13.1.1.2.4 (public and occupational health and safety impacts, at 4-216 through 4-225), and 4.14.1.1.2 (operations waste management impacts, at 4-234).

Similarly, the Class V injection wells proposed in Powertech's Class V UIC permit application are same Class V deep disposal wells proposed for disposal of treated wastewater in Powertech's NRC license application.

- NEPA analysis of the construction, operation and decommissioning of Class V deep disposal wells is carried out throughout the FSEIS, e.g., Sec. 4.2.1.1 (at 4-4), 4.3.1.1 (4-14), 4.4.1.1 (at 4-31), 4.5.1.1.1(at 4-41), 4.5.2.1.1 (at 4-55), 4.6.1.1 (at 4-80), 4.7.1.1 (at 4-127), 4.8.1.1 (at 4-147), 4.9.1.1 (at 4-158), 4.10.1.1 (at 4-191), 4.11.1 (at 4-198), 4.12.2 (at 4-211), 4.13.1.1 (at 4-215) and 4.14.1.1 (at 4-234).

4.3 The FSEIS and SER Demonstrate that NRC Conducted an Independent Analysis of the Potential Environmental Impacts of the Dewey-Burdock Project

Q.28. Does NRC rely solely on other agencies, such as the EPA and SDDENR, for environmental analysis of the proposed projects or does NRC conduct its own analysis?

A.28. The allegation that NRC did not conduct an independent analysis of all potential environmental impacts of the proposed project is contrary to the extensive environmental and safety review that is documented for this project. This includes but is not limited to the RAIs issued by NRC staff on Powertech's Environmental Report and Technical Report; Powertech's responses to these RAIs; documentation throughout the DSEIS, FSEIS and SER of NRC's independent analysis of specific potential impacts (e.g., independent review of the 2012 numerical groundwater model and development of a 3-layer model to evaluate potential drawdown impacts in the Madison aquifer); and draft and final licenses incorporating specific conditions to ensure that potential impacts are minimized or eliminated. The following testimony addresses specific allegations that NRC staff did not conduct an independent analysis of potential impacts from Class V deep disposal of treated wastewater and potential surface water impacts.

It is understood that EPA will evaluate the suitability of the formations proposed for Class V well injection, and Class V injection disposal will be allowed only when the applicant demonstrates liquid waste can be isolated safely in a deep aquifer (see FSEIS at 4-34). Although the EPA injection authorization process for Class V DDWs is an important protective measure, it is not the only information relied upon by NRC in its environmental impact analysis. The FSEIS describes many other pieces of evidence supporting the conclusion that Class V injection zones will be hydrologically and hydraulically isolated, including:

- Description of confining layers between the Minnelusa and Madison formations and between the Madison and Deadwood formations (at 3-33, 4-66).
- Reference to SDDENR determination that there is a distinct potentiometric surface between the Minnelusa and Madison aquifers, supporting the conclusion that these aquifers are hydraulically separated in the vicinity of the project area (at 3-33, 4-66).
- Summary of the occurrence of breccia pipes in the southern Black Hills and conclusion that they do not occur in the project area (at 3-19, 3-33, E-130, E-131)

Moreover, migration of Class V injection fluids into and between USDWs would be prohibited by federal law (see, for example, 40 CFR Parts 144.82 and 144.83)

While South Dakota, through its NPDES permitting process, will set limits on the amounts of pollutants entering ephemeral drainages and will specify mitigation measures and best management practices (BMPs) to prevent and clean up spills, the FSEIS also describes mitigation measures with respect to protecting surface waters, including:

- Locating facility buildings away from drainage channels (at 4-43)
- Placing surface piping outside identified 100-year floodplain levels (at 4-44)
- Minimizing disturbance of drainage channels and constructing stream crossings at right angles with adequate embankment and culvert installations to minimize erosion (at 4-32, 4-44)
- Locating topsoil stockpiles away from drainage channels and constructing berms around the base of the stockpiles (at 4-31)
- Reestablishing temporary and permanent vegetation as soon as possible after disturbance (at 4-31)
- Stabilizing slopes (at 4-44)
- Decreasing stormwater runoff from disturbed areas by using structures to temporarily divert and/or dissipate surface stormwater runoff (at 4-31)
- Retaining sediment within disturbed areas by using silt fencing, retention ponds and hay bales (at 4-32)
- Implementing drainage designs to minimize potential erosion and/or providing riprap or other soil stabilization controls (at 4-32)
- Avoiding unnecessary off-road travel (at 4-44)
- Providing rapid response cleanup procedures and training for potential spills (at 4-44)
- Storing hazardous materials and chemicals in bermed or curbed areas (at 4-44)
- Providing concrete containment curbs and sumps in the central processing plant and satellite facility capable of containing the largest liquid-containing vessel (at 4-221)

The SEIS also repeatedly indicates that Powertech will be required to obtain construction and industrial stormwater NPDES permits from SDDENR. Although mitigation measures will be spelled out more specifically in those permits, the commitments made by Powertech with respect to protecting surface water runoff will be enforceable by NRC and the conclusion in the FSEIS that environmental impacts will be SMALL is supported by and even based in part on the mitigation measures described in the FSEIS.

5. REFERENCES

Carter, J.M., D.G. Driscoll, G.R. Hamade and G.J. Jarrell, 2001, Hydrologic Budgets for the Madison and Minnelusa Aquifers, Black Hills of South Dakota and Wyoming, Water Years 1987-96, USGS Water-Resources Investigation Report 01-4119.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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 Project	)	
In Situ Uranium Recovery Facility)	)	

AFFIDAVIT OF DOYL FRITZ

I declare under penalty of perjury that my statements in prefiled Exhibits APP-046 (Doyl Fritz Initial Testimony) and APP-047 (Doyl Fritz CV) are true and correct to the best of my knowledge and belief.

Doyl Fritz

Executed in Sheridan, WY
this 20 day of June, 2014