

United States Nuclear Regulatory Commission Official Hearing Exhibit	
In the Matter of:	POWERTECH USA, INC. (Dewey-Burdock In Situ Uranium Recovery Facility)
	ASLBP #: 10-898-02-MLA-BD01
	Docket #: 04009075
	Exhibit #: NRC-174-00-BD01
	Admitted: 11/13/2014
	Rejected: Other:
	Identified: 11/13/2014 Withdrawn: Stricken:

Exhibit NRC-174  
Submitted: October 24, 2014

October 24, 2014

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 In Situ Uranium Recovery	)	
Facility)	)	

**NRC STAFF’S RESPONSIVE TESTIMONY**

**Q1: Please state your name and position.**

A1a: (J. Prikryl) My name is James Prikryl. I am a Senior Research Scientist in the Geosciences and Engineering Division of the Southwest Research Institute. My statement of professional qualifications can be found at Exhibit NRC-006.

A1b: (T. Lancaster) My name is Thomas Lancaster. I am a Hydrogeologist with the Uranium Recovery Licensing Branch in the NRC’s Office of Nuclear Materials Safety and Safeguards (NMSS). My current statement of professional qualifications can be found at Exhibit NRC-005-R.

**Q2: Have you testified previously in this hearing?**

A2: (J. Prikryl, T. Lancaster) Yes. We submitted written testimony on June 20, 2015 (Ex. NRC-001) and written rebuttal testimony on July 15, 2014 (Ex. NRC-151). We also testified in person at the August 19–21, 2014 oral hearing in this proceeding. In addition, on October 14, 2014, we submitted supplemental testimony addressing well log data that Powertech disclosed to the parties on September 14, 2014 (Ex. NRC-158).

**Q3: Why are you testifying today?**

A3: (J. Prikryl, T. Lancaster) We are testifying to address the Oglala Sioux Tribe's motion to admit into evidence two documents from the U.S. Environmental Protection Agency (EPA). The Tribe moved to admit these documents into evidence on October 14, 2014. The first document is a two-page announcement stating that the EPA has completed a Preliminary Assessment of the Darrow/Freezeout/Triangle abandoned uranium mines (Ex. OST-025). The second document is the Preliminary Assessment of the Darrow/Freezeout/Triangle uranium mine site prepared for the EPA by Seagull Environmental Technologies, Inc. (Ex. OST-026). Both documents were issued in September 2014.

**Q4: Where are the Darrow/Freezeout/Triangle mines?**

A4: (J. Prikryl, T. Lancaster) They are approximately 13 miles northwest of Edgemont, South Dakota, in the eastern portion of Powertech's Dewey-Burdock Project.

**Q5: Have you reviewed the Tribe's motion to admit the exhibits into evidence?**

A5: (J. Prikryl, T. Lancaster) Yes. The Tribe claims that the exhibits show additional data is needed to characterize the environment. The Tribe argues that the EPA's announcement and the Preliminary Assessment support their claim that the Staff had insufficient data when preparing the Final Supplemental Environmental Impact Statement (FSEIS) for the Dewey-Burdock Project. The Tribe further argues that the exhibits confirm data gaps in the materials used by Powertech and NRC Staff. The Tribe claims that these alleged data gaps corroborate the testimony of the Intervenors' expert witnesses and support their positions on Contentions 2, 3, 4, and 6.

**Q6: Why did the EPA arrange for a Preliminary Assessment?**

A6: (J. Prikryl, T. Lancaster) The EPA arranged for the Preliminary Assessment to assess whether the Darrow/Freezeout/Triangle area poses a risk to human health or the environment that warrants further investigation in the form of a Site Investigation (Exs. OST-025 and OST-026 at 7). The EPA also sought to determine whether further investigation is warranted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). We would note that the Darrow/Freezeout/Triangle abandoned mine site is listed in the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database as EPA ID SDN000803095.

As further explained in Exhibit OST-26 at page 7, the objective of the Preliminary Assessment was to: (i) evaluate existing information and analytical data; (ii) assess the presence, quantity, or absence of uranium-mine-related contaminants at the site; (iii) document any releases to the environment from the site; (iv) acquire information regarding exposure pathways, surrounding population density, and environmentally sensitive receptors; (v) assess whether the site warrants further investigation under CERCLA; and (vi) identify data gaps or limitations of existing data reviewed in the Preliminary Assessment.

**Q7: How is the Preliminary Assessment related to the Dewey-Burdock Project?**

A7: (J. Prikryl, T. Lancaster) The Darrow/Freezeout/Triangle mines are within and adjacent to the Dewey-Burdock Project. However, as the EPA states in Exhibit OST-25, the Preliminary Assessment is separate from decisions about the Dewey-Burdock Project and the Project's underground injection control permits (see Ex. APP-042). In other words, the EPA considers the Preliminary Assessment to be unrelated to the regulatory

licensing and permitting actions needed to conduct in-situ recovery (ISR) activities at the Dewey-Burdock site.

**Q8: What data did the Preliminary Assessment consider?**

A8: (J. Prikryl, T. Lancaster) The Preliminary Assessment considered existing environmental data that was collected by Powertech and submitted to the NRC in its Dewey-Burdock license application. The analytical data used in the Preliminary Assessment were taken from Powertech's Technical Report (Ex. OST-026 at 11). These data include analytical information on groundwater, surface water, sediment, soil, and air sampled within and surrounding the Preliminary Assessment study area.

**Q9: What were the conclusions of the Preliminary Assessment?**

A9: ((J. Prikryl, T. Lancaster) Based on the results of environmental sampling, and taking into account the regulatory objectives of a CERLCA investigation, the EPA concluded that there should be additional surface soil sampling within the abandoned mine area in order to better characterize and define radiological source areas. The EPA also concluded that additional sampling of surface water and sediment is warranted to further determine if releases from the abandoned uranium mines are affecting downstream environments.

**Q10: Is the data presented in the Preliminary Assessment consistent with the data in the FSEIS?**

A10: (J. Prikryl, T. Lancaster) Yes. The data on groundwater, surface water, sediment, soil, and air presented in the Preliminary Assessment are consistent with those in the FSEIS. As explained in Exhibit OST-26 at page 11, the Staff referred to the same data on groundwater, surface water, sediment, soil, and air when preparing the FSEIS. For

example, the data on groundwater presented in Table 1 of the Preliminary Assessment (see OST-26 at page 15) is identical to the data on baseline groundwater quality presented in Table 3.5-4 of the FSEIS (see NRC-008-A-1 at page 211). Likewise, the radiological data on surface water presented in Table 3 of the Preliminary Assessment (see OST-26 at page 21) is identical to baseline radiological data on surface water in Table 3.5-2 of the FSEIS (see NRC-008-A-1 at page 199).

**Q11: Are the results of environmental sampling in the Preliminary Assessment consistent with the results of environmental sampling presented in the FSEIS?**

A11: (J. Prikryl, T. Lancaster) Yes. The results of the EPA's analysis of the data on groundwater, surface water, sediment, soil, and air are presented in Exhibit OST-26 at pages 12–29. These results are consistent with the results documented in Section 3.12.1 of the FSEIS (Ex. NRC-008-A-1 at pages 276–285). For example, both the Preliminary Assessment and FSEIS report that: (1) surface soils near the abandoned uranium mines contain levels of radionuclides above health-based standards; (2) surface and water samples obtained taken from the mine pits (e.g., the Triangle Pit and Darrow Mine Pit) and streams (e.g., Pass Creek, Beaver Creek, and the Cheyenne River) contain radionuclides; (3) air samples collected at the uranium mines have elevated levels of radionuclides; and (4) groundwater samples contain levels of radionuclides that exceed drinking water standards.

**Q12: The Tribe argues that data gaps identified by the EPA in Section 8 of the Preliminary Assessment (see Ex. OST-26 at page 35) confirm that the Staff relied on inadequate data when preparing the FSEIS. Do you agree?**

A12: (J. Prikryl, T. Lancaster) No. The Tribe is attempting to equate the EPA's data needs for its CERCLA investigation with the NRC's data needs for assessing the impacts of the

Dewey-Burdock Project on the surrounding environment. As stated by the EPA in Exhibit OST-25, however, the Preliminary Assessment is separate from decisions about the ISR project and its underground injection control permits. In other words, the EPA considers the Preliminary Assessment to be unrelated to the licensing and permitting actions needed to conduct ISR activities at the Dewey-Burdock site.

We would further note that the EPA submitted public comments on the Draft SEIS for the Dewey-Burdock Project (see Ex. NRC-008-B-2, Appendix E, comment document number 049). None of the EPA's comments questioned the adequacy of the environmental data presented in the SEIS or raised concerns about potential contamination associated with the abandoned uranium mines.

**Q13: When preparing the Dewey-Burdock FSEIS, did the Staff consider the environmental impacts of potential contamination from abandoned uranium mines?**

A13: (J. Prikryl, T. Lancaster) Yes. We consider such impacts in Chapter 5 of the FSEIS, which discusses cumulative impacts (Ex. NRC-008-A-2 at 569–634). For example, as we explain in Chapter 5, geology and soil resources have been impacted by past conventional uranium mining in the eastern part of the Dewey-Burdock site, where abandoned open mine pits and mine waste overburden are present (Ex. NRC-008-A-2 at 594). Based in part on the impacts from past conventional underground and open pit surface mining, we conclude in the FSEIS that the cumulative impact on geology and soils within the Dewey-Burdock site will be MODERATE (see Ex. NRC-008-A-2 at page 595). As we further explain in Chapter 5, runoff from snowmelt and heavy rains may leach and transport contaminants from overburden waste piles associated with the abandoned open pit mines to surface waters and wetlands in the Beaver Creek and

Pass Creek watersheds (Ex. NRC-008-A-2 at page 596). Based in large part on the potential impacts from leaching and transport of contaminants from overburden waste piles associated with past conventional uranium mining, we conclude that the cumulative impact on surface water and wetlands within the Dewey-Burdock site is MODERATE to LARGE (see Ex. NRC-008-A-2 at page 598).

**Q14: Let's turn directly to the issue raised in admitted Contention 2. Did the Staff take into account contamination in the Darrow/Freezeout/Triangle area when assessing baseline water quality at the Dewey-Burdock site?**

A14: (J. Prikryl, T. Lancaster) Yes. In both our initial and rebuttal testimony, we address the Tribe's arguments concerning the need to evaluate the impact of past mining activities when assessing baseline water quality (Ex. NRC-001 at A2.4, Ex. NRC-151 at A2.1). In both answers, we explain that the Staff appropriately considered the impact of past mining activities on water quality in the context of *cumulative impacts*, rather than in the context of preoperational water quality. In other words, we address past mining activity, including activity in the Darrow/Freezeout/Triangle area, in Chapter 5 of the FSEIS, "Cumulative Impacts" (Ex. NRC-008-A-2).

**Q15: Regarding Contention 3, did the Staff consider how the Darrow/Freezeout/Triangle area may affect hydrogeological confinement at the Dewey-Burdock site?**

A15: (J. Prikryl, T. Lancaster) Yes. On page 3-6 of the FSEIS (NRC-008-A-1) and page 29 of the SER (Ex. NRC-134), we explain that both underground and open-pit mining in the Darrow/Freezeout/Triangle area extracted uranium from shallow sandstone orebodies within the Fall River Formation, which overlies the Fuson Shale. There is no evidence that the underground or open-pit mines pierced the Fuson Shale. As we further explain on page 29 of the SER, the Fuson Shale is approximately 50 feet thick in the Triangle

Mine area. Moreover, according to cross-section information in Powertech's revised Technical Report, the Fuson Shale is continuous across the area of the Darrow mine pits and underground workings (Ex. APP-015-E, Plate 2.7-12f). In summary, there is no evidence that the mines in the Darrow/Freezeout/Triangle area have affected the Fuson Shale's ability to provide hydrogeologic confinement at the Dewey-Burdock site.

**Q16: The Tribe also claims the EPA documents are relevant to Contention 4 (groundwater consumption) and Contention 6 (mitigation measures). Can you address this claim?**

A16: (J. Prikryl, T. Lancaster) Based on the brief statement regarding the EPA documents at page 3 of the Tribe's motion, we are unable to determine how they believe the documents might be relevant to Contentions 4 and 6. We are therefore unable to respond to the Tribe's claim at this time.

October 24, 2014

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**AFFIDAVIT OF JAMES PRIKRYL**

I declare under penalty of perjury that my statements in prefiled Exhibits NRC-174 (NRC Staff's Responsive Testimony) and NRC-006 (Statement of Professional Qualifications for James Prikryl) are true and correct to the best of my knowledge and belief.

***/Executed in accordance with  
10 C.F.R. § 2.304(d)/***

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**AFFIDAVIT OF THOMAS LANCASTER**

I declare under penalty of perjury that my statements in prefiled Exhibits NRC-174 (NRC Staff's Responsive Testimony) and NRC-005-R (Revised Statement of Professional Qualifications for Thomas Lancaster) are true and correct to the best of my knowledge and belief.

***/Executed in accordance with 10 C.F.R.  
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Executed in Rockville, Maryland  
October 24, 2014