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
	)	
(Dewey-Burdock In Situ Uranium Recovery Facility)	)	

PETITION TO INTERVENE AND REQUEST FOR HEARING OF THE OGLALA SIOUX TRIBE

I. INTRODUCTION

Pursuant to 10 C.F.R. § 2.309, the notice published by the Nuclear Regulatory Commission (NRC or Commission) at 75 Fed.Reg. 467 (Jan. 5, 2010), and the Commission Order of March 5, 2010, Petitioner Oglala Sioux Tribe (Tribe or Petitioner) hereby requests a hearing and petitions to intervene in this proceeding regarding the application of Powertech (USA) Inc. (Powertech) for a uranium recovery license for the Dewey-Burdock Project, a proposed in-situ leach (ISL) uranium mine in Custer and Fall River Counties, South Dakota. The Tribe's standing to intervene is described in Section II of this pleading, and the Tribe's contentions are set forth in Section III.

The Tribe submits this petition because the project may pose serious threats to the Tribe's cultural, historic, economic, and conservation interests. As detailed herein, the Environmental Report, the Technical Report, and the Supplemental Report that comprise the application contain serious defects, such that the application as a whole fails to satisfy the requirements of federal law, including the Atomic Energy Act, the National Historic Preservation Act, and the National Environmental Policy Act, along with the implementing regulations for these laws. As discussed in more detail in Section III on contentions, the primary concerns are the lack of compliance with

both federal law and NRC regulations and guidance regarding protection of the Tribe's cultural and historic resources, and the lack of information necessary to determine the hydrogeology and geochemistry of the site. The latter includes the lack of a defensible baseline ground water characterization or a thorough review of the natural and manmade interconnections between aquifers in the area that may allow for cross-contamination with the aquifer slated for chemical mining.

With respect to the environmental impacts of ISL operations, the long-term track record of ISL mine sites in the United States is replete with examples of failure to accurately predict groundwater dynamics, especially with respect to prevention of horizontal or vertical excursions and the inability to restore ground water to pre-mining conditions. These impacts have occurred despite the repeated assurances from prospective mine operators that ISL mining is a safe and even "benign" activity. *See, e.g.*, http://www.eoearth.org/article/In_situ_leach_%28ISL%29_mining_of_uranium (World Nuclear Association co-author of article). The recent factual record demonstrates that these projects are not benign, and that grounds for serious concerns exist concerning proper regulation of ISL mining.

For instance, despite being directly subject to NRC regulatory authority, the Smith Ranch-Highland ISL operation was cited by the State of Wyoming in 2008 for multiple serious violations of law, some dealing with fundamental aspects of protection for public health, ground water, and against taxpayer liabilities. March 7, 2008 Notice of Violation (attached as Exhibit 1). These violations were far from insignificant. In its Investigative Report accompanying the Notice of Violation, the State of Wyoming reprimands the operation:

> Given that PRI's [Power Resources, Inc.] operation has for many years been the major uranium producer in Wyoming, there is an expectation that the operation might serve as a model for excellence in ISL mining. Unfortunately, that is not the case. There are a number of major long-standing environmental concerns at this operation that demand immediate attention.

Wyoming Department of Environmental Quality Report of Investigation (attached as Exhibit 2) at 1.

The Report of Investigation goes on to charge the facility with numerous violations, including "major deficiencies" in both of its state permits. Id. at 2. Among the more serious problems are inadequate reclamation, where "[i]t is readily apparent that groundwater restoration is not a high priority for PRI," in part because "both production and restoration timeframes have doubled or tripled and yet additional wellfields are being brought into production." Id. at 3. Further, the Report details "an inordinate number of spills, leaks and other releases," such that "it appears that such occurrences have become routine." Id. at 4. Lastly, with respect to bonding, the Report finds that "[r]ough calculations based primarily on PRI's figures reveal an alarming scenario," such that the mine's approved reclamation and bonding plan "is totally infeasible and unsupported by any critical path timeline or water balance," resulting in a finding that "clearly the public is not protected." Id. at 4-5. These findings, just two years old, raise serious doubts for the Tribe as to the adequacy of the regulatory framework applicable to ISL uranium mining. At minimum, these concerns are ones that the federal regulatory system ought to have been well aware of and corrected long before they were ever allowed to reach such extremes.

Unfortunately, the apparent inability of ISL uranium mines to succeed in accomplishing ground water restoration is not an isolated occurrence. For example, the U.S. Geological Survey has recently confirmed that "[t]o date, no remediation of an ISR operation in the United States has successfully returned the aquifer to baseline conditions." Otton, J.K., Hall, S., *In-situ*

recovery uranium mining in the United States: Overview of production and remediation issues (Abstract), U.S. Geological Survey, 2009, IAEA-CN-175/87ISL (attached as Exhibit 3). This report goes on to express its authors' findings that "[o]ften at the end of monitoring, contaminants continue to increase by reoxidation and resolubilization of species reduced during remediation; slow contaminant movement from low to high permeability zones; and slow desorption of contaminants adsorbed to various mineral phases." Id. See also Hall, Susan, *Groundwater Restoration at Uranium In-Situ Recovery Mines, South Texas Coastal Plain*, U.S.G.S. Open-File Report 2009–1143 (2009) at 30 (attached as Exhibit 4).

As demonstrated, the NRC Staff routinely allows for reductions in ground water standards away from baseline water quality. Thus, it appears from all the available evidence that all NRC-regulated ISL mining has resulted in some degradation of ground water quality over the long-term. The question then becomes one of how much ground water degradation the NRC will allow, and how far the resulting contamination will spread. In view of this track record, and particularly in considering standing, the Board must assume a certain level of ground water contamination.

Apart from the risks associated with ISL mining, as discussed above, recent testimony before the Commission from NRC Staff and U.S. Environmental Protection Agency ("EPA") representatives demonstrates that the regulatory guidance and processes currently in place for ISL mining application reviews are in some instances sorely out of date, and being substantially revised at the current time. For instance, at a March 2, 2010 briefing to the Commission, NRC Staff explicitly recognized that its "regulatory infrastructure, the regulatory guidance, the Standard Review Plans" for ISL mine applications are out of date, and that "the staff is actively working on updating those documents." March 2, 2010 U.S. NRC Briefing on Uranium

Recovery, at 6 (attached as Exhibit 5). The fact that projects such as the Dewey-Burdock Project are currently moving through a regulatory regime that is admittedly out of date raises serious concerns with respect to the ability of such a project to adequately protect the public health and environment, along with the Tribe's other concrete interests.

Indeed, throughout the March 2, 2010 NRC briefing, the broad extent of the needed and ongoing revisions to the NRC's regulatory oversight of ISL mining became clear. NRC staff testified that because of the outdated nature of the ISL regulatory framework "[s]taff is currently revising the standard review plan for in-situ recovery application reviews and ten regulatory guides." Exhibit 5 at 13. NRC staff also indicated that a major revision to the applicable regulatory requirements for ground water protection and restoration at ISL mines was imminent and would be submitted to the Commission as early as April of 2010 (this month). Id. at 9.

Representatives from EPA also testified at the March 2, 2010 briefing that the EPA is updating its fundamental regulations under 40 C.F.R. Part 192 with respect to ISL mining, which the NRC is bound by statute to implement at all ISL mine sites. With respect to the need for this update, EPA representatives confided that:

> These regulations have not been substantially changed to recognize the environmental challenges faced by significantly increased use of in-situ leaching recovery technology, as well as possible use of heap leaching by the uranium industry. Nor have they been revised to incorporate potentially relevant recent changes in EPA groundwater and drinking water standards, as well as the most recent updates in good science for radon and radiation protection since the rule was last revised.

Id. at 47-48. This is in addition to the changes EPA is making to its regulatory controls for ISL mines with respect to hazardous air pollutants, including radon under 40 C.F.R. Part 61, Subpart W, and "doing so with recognition of the environmental challenges faced by significantly increased use of ISL recovery technology by the uranium industry." Id. at 49.

In addition to this testimony regarding the outdated nature of the regulatory program, EPA has recently submitted comments on an ongoing NEPA process for ISL uranium mining in Wyoming, expressing substantial concerns with respect to the integrity of the environmental analysis. March 3, 2010 Letter from Carol Rushin, Acting Regional Administrator, Region 8, U.S. EPA to Michael Lesar, Chief, Rulemaking and Directives Branch, NRC (attached as Exhibit 6). This EPA comment letter rates the NEPA documents for three ISL uranium mines in Wyoming as "inadequate" in part because of the failure of NRC to "evaluate the potential effects that non-attainment of baseline groundwater restoration would have on surrounding [underground sources of drinking water]." Among the primary concerns raised related to ground water are the frequent use of alternate concentration limits and a lack of sufficient discussion of the causes of excursions as ISL uranium mine sites. Id. at 4-5.

Overall, the significant problems evidenced at ISL mine sites in Wyoming and elsewhere, which are under direct NRC regulatory authority, and the candid admissions from both the NRC staff and the EPA that the regulatory structure for the protection of public health and the environment at ISL mine sites is out of date, elevates the Tribe's concerns with respect to the ability of the Dewey-Burdock Project to achieve such protections in the context of this regulatory process. As a result, the strictest review must be afforded to this project, and better yet, review should be delayed until a current and legally sound regulatory framework can be put in place.

II. STANDING

The Oglala Sioux Tribe is a federally-recognized Indian Tribe, located on the Pine Ridge Reservation. The Oglala Sioux Tribe is a body politic comprised of approximately 41,000 citizens, with territory of over 4,700 square miles in the southwestern portion of South Dakota. The Oglala Sioux Tribe is the freely and democratically-elected government of the Oglala Sioux

people, with a governing body duly recognized by the Secretary of Interior. The Oglala Sioux Tribe is the successor in interest to the Oglala Band of the Teton Division of the Sioux Nation, and is a protectorate nation of the Unites States of America. The Oglala Band reorganized in 1936 as the "Oglala Sioux Tribe of the Pine Ridge Indian Reservation" under section 16 of the Indian Reorganization Act of June 18, 1934, ch. 576, 48 Stat. 987, 25 U.S.C. § 476, and enjoys all of the rights and privileges guaranteed under its existing treaties with the United States in accordance with 25 U.S.C. § 478b. The Tribe's address is P.O. Box 2070, Pine Ridge, South Dakota 57770-2070.

Pursuant to 10 C.F.R. § 2.309(d)(1), a request for hearing must address: 1) the nature of the petitioner's right under the Atomic Energy Act ("AEA") to be made a party to the proceeding, 2) the nature and extent of the petitioner's property, financial, or other interest in the proceeding, and 3) the possible effect of any order that may be entered in the proceeding on the petitioner's interest.

The AEA states that "the Commission shall grant a hearing upon the request of any person whose interest may be affected by the proceeding, and shall admit any such person as a party to such proceeding." 42 U.S.C. § 2239(a)(1)(A). Given this broad and inclusive language, the Atomic Safety and Licensing Board ("ASLB") has summarized these standing requirements as follows:

> A petitioner's participation in a licensing proceeding hinges on a demonstration of the requisite standing. The requirements for standing are derived from section 189a of the Atomic Energy Act of 1954 (AEA), which instructs the NRC to provide a hearing "upon the request of any person whose interest may be affected by the proceeding." The Commission's implementing regulation, 10 C.F.R. § 2.309(d), directs a licensing board, in ruling on a request for a hearing, to consider (1) the nature of the petitioner's right under the AEA or the National Environmental Policy Act (NEPA) to be made a party to the proceeding; (2) the nature and extent of the petitioner's property, financial, or other interest in the proceeding; and (3) the possible effect of any decision or order that may be

> issued in the proceeding on the petitioner's interest. In that regard, the Commission has long applied the test employed in the federal courts in resolving standing issues — i.e., the petitioner must allege "a concrete and particularized injury that is … fairly traceable to the challenged action and [is] likely to be redressed by a favorable decision." In addition, the claimed injury must be arguably within the zone of interests protected by the governing statute. In order to determine whether an interest is in the "zone of interests" of a statute, "it is necessary 'first [to] discern the interests "arguably … to be protected" by the statutory provision at issue,' and 'then to inquire whether the [petitioner's] interests affected by the agency action are among them.' "

In The Matter of Crow Butte Resources, Inc. (In Situ Leach Facility, Crawford, Nebraska), 68 N.R.C. 691, 701-702 (2009)(citations omitted). When NEPA is among the relevant statutes, the zone of interests is quite wide and includes procedural protections and impacts to aesthetic and other non-economic values. See, *Rocky Mt. Oil & Gas Assoc. v. United States Forest Serv.*, 157 F. Supp. 2d 1142, 1144 (D. Mont. 2000), *aff'd.* 12 Fed. Appx. 498 (2001) *cert denied* 534 U.S. 1018 (holding that "the possibility of oil and gas technology spoiling the pristine scenery and diverse resources" and "value of place" are proper factors to consider when raised by the public in a NEPA analysis).

The Tribe's standing to participate in this proceeding is demonstrated by the attached declarations of Oglala Sioux Tribe government officials, Wilmer Mesteth, the Oglala Sioux Tribal Historic Preservation Officer (Declaration attached as Exhibit 7), and Denise Mesteth, Director of the Oglala Sioux Tribal Land Office (Declaration attached as Exhibit 8). These Declarations testify to the Tribe's interest in protecting its cultural and historical resources, along with its lands, natural resources, economic prosperity, and the health, safety, welfare of the tribal members as well as the public. Further, these declarations, along with the attached Declaration of Dr. Robert E. Moran and the Declaration of Dayton Hyde (submitted previously in this proceeding by other proposed petitioners), demonstrate the threats to the Tribe's interest from the proposed project.

As set forth in the Declaration of Wilmer Mesteth, the Tribe seeks to participate in this proceeding to protect its historical, archaeological, and traditional cultural values and sites included within the proposed project area. The Tribe also seeks standing under the National Historic Preservation Act (NHPA) based on the Tribe's procedural rights in identifying, evaluating, and establishing protections for historic and cultural resources. These substantive and procedural interests in protecting cultural and historic resources related to the Tribe's heritage have recently been held by the Commission to adequately establish standing of the Oglala Sioux Tribe to intervene in a source material licensing proceeding. *In The Matter of Crow Butte Resources, Inc. (In Situ Leach Facility, Crawford, Nebraska),* CLI-09-09, Nuclear Reg. Rep. P 31589, at 3-4 (May 18, 2009).

As stated in the Declaration of Wilmer Mesteth, the project lands are within the traditional aboriginal territory of the Oglala Sioux Tribe. This is confirmed by the fact that the project lands were included in the 1851 Fort Laramie Treaty and the 1868 Fort Laramie Treaty (15 Stat., 635). Further, as set forth in Mr. Mesteth's Declaration, and detailed in the Environmental Report for the Project, a significant number of cultural, historic, and archaeological resources have been identified in the Project area. ER at 3-178 to 3-180. Powertech's Application materials indicate that a small number of identified Euroamerican sites are eligible for the National Register of Historic Places. ER, Appendix 4.10-A, at ii. A large number of the sites identified (87) remain unevaluated for eligibility for the National Register of Historic Places. Id.

The Tribe has not had the opportunity to be involved in the assessment or determination of the significance of the identified sites, nor had the opportunity to identify additional sites that may warrant evaluation or listing. The Applicant has entered into a Memorandum of Agreement

with the State of South Dakota regarding analysis and evaluation of historic, cultural, and archaeological sites, but has not included the Tribe in this Memorandum.

The Tribe also asserts a concrete interest in the protection of its lands, natural resources, economic prosperity, and the health, safety, and welfare of tribal members, which are all threatened by the proposed project. This basis for standing is premised on the Tribe's ownership of lands in proximity to the proposed Project such that the Project may cause air, water, and ground water impacts to the Tribe's land. As set forth in the Declaration of Denise Mesteth, Director of the Oglala Sioux Tribal Lands Office, the Tribe owns lands in the vicinity of the proposed Project, which it leases for domestic, agricultural, water development, conservation, and other purposes. The Tribe relies on revenue from these leases to provide essential services for Tribal members. The Tribe also derives benefit and value, economically and otherwise, from its lands, and has a strong interest, economic and otherwise, in ensuring that these lands and the water resources associated with them remain in an unpolluted state. Thus, any impacts to these lands or to the air, water, or ground water associated with them from the proposed Project will negatively affect the Tribe's interests.

Included among the Tribe's lands are parcels leased to Mr. Dayton Hyde, a proposed Petitioner in this proceeding. See Declaration of Dayton Hyde (attached as Exhibit 9). As described therein, Mr. Hyde owns and operates a horse sanctuary on lands in the direct vicinity of the proposed Project. Portions of the lands Mr. Hyde uses for such purposes are leased from the Oglala Sioux Tribe. Thus, any negative impacts to Mr. Hyde's properties as a result of the Project that threaten his ability to maintain his operations threaten his ability to maintain the lease for lands with the Tribe.

The attached Declaration of Dr. Robert E. Moran details the potential impacts to ground water associated with the proposed Project (Declaration attached as Exhibit 10). In particular, Dr. Moran points to the fractured geology of the area, and to the historic drilling and other anthropogenic disturbances in the area that could serve as pathways for contaminated ground water from the Project area to migrate into adjoining aquifers, thus potentially contaminating other properties in the vicinity of the proposed Project. These properties include lands owned by Mr. Hyde and lands owned by the Tribe. As such, the Tribe has a particularized interest in this proceeding by virtue of its land ownership and economic and aesthetic interests in lands that it leases in the area.

These interests as described above will be protected should the project not obtain a license for any reason. Further, the Tribe's interests will be protected to the extent the Applicant is required to demonstrate full compliance with all federal laws and regulations.

III. CONTENTIONS

As required by the federal register notice and 10 C.F.R. § 2.309, the Tribe sets forth below the specific contentions that it seeks to have litigated in this proceeding. Each contention raises issues with respect to the sufficiency of the Application under NRC regulations, as specified therein, as well as compliance with the National Environmental Policy Act ("NEPA"). Although no NRC NEPA document has yet been prepared for this project, the Tribe references NEPA to preserve its ability to raise these same issues, or others based on any newly available information, once a NEPA document is prepared. See 10 C.F.R. § 2.309(f)(2). The Tribe also contends that the failure to have a completed site-specific environmental impact statement available to (and informing the process of) NRC Staff evaluation of the license application violates the NEPA and its implementing regulations.

Contention 1: **Failure to Meet Applicable Legal Requirements Regarding Protection of Historical and Cultural Resources, and Failure to Involve or Consult the Oglala Sioux Tribe as Required by Federal Law**

The Application fails to meet the requirements of 10 C.F.R. §§ 51.60 and 51.45, and the National Environmental Policy Act because it lacks an adequate description of either the affected environment or the impacts of the project on archaeological, historical, and traditional cultural resources. The Application also fails to demonstrate compliance under the National Historic Preservation Act, and the relevant portions of NRC guidance included at NUREG-1569 section 2.4.

Basis and Discussion:

This contention is supported by the Declaration of Wilmer Mesteth, Oglala Sioux Tribe Tribal Historic Preservation Officer (Attached as Exhibit 7).

10 C.F.R. § 51.60 requires each applicant to submit with its application an environmental report containing the information specified in 10 C.F.R. § 51.45. 10 C.F.R. § 51.45(b) requires a "description of the environment affected" and a discussion of the "impacts of the proposed action on the environment." These requirements are also mandated under the National Environmental Policy Act. In this case, the Environmental Report, at Appendix 4.10-A, demonstrates that a significant number of archaeological, historical, and traditional cultural resources on site have not been evaluated; therefore, the potential impacts to these resources have not been addressed. Among these are 87 known sites. ER, Appendix 4.10-A at ii. Given the lack of involvement by the Tribe, however, as discussed below, this number may be higher. Further, there are discrepancies between the number of sites identified in the report included in the Application at ER, Appendix 4.10-A and sworn testimony given by the state historic preservation officer in a State of South Dakota proceeding related to this matter, such that it appears that some significant

sites may not be included or discussed in the Application. See Declaration of Wilmer Mesteth at ¶¶ 15-19.

NUREG-1569 Section 2.4 imposes several requirements in terms of Section 2.4.3 Acceptance Criteria that have not been met in this case. In particular, Section 2.4.3(1) requires a listing for all properties included in, or eligible for inclusion in, the National Register. As stated, the application materials admit that scores of sites have not been evaluated for listing eligibility. Section 2.4.3(3) specifically mandates consultation with tribal authorities on the likely impacts on Native American cultural resources, which has not occurred in this case. Similarly, section 2.4.3(4) requires evidence of contact with appropriate state historical preservation office and tribal authorities – information lacking in the application with respect to tribal contact. Lastly, section 2.4.3(5) explicitly contemplates a memorandum of agreement "among the state historic presentation officer, tribal authorities, and other interested parties regarding their satisfaction with regard to the protection of historic, archaeological, architectural, and cultural resources during site construction and operations." The Memorandum of Agreement presented in the application includes only the state personnel, ignoring tribal authorities and other interested parties. ER, Appendix 4.10-B. Given these inadequacies, the application should never have been deemed complete.

Among the additional requirements are those under the National Historic Preservation Act ("NHPA") and related Executive Orders. Under these authorities, the NRC is required to fully involve Native American Tribes in all aspects of decision-making affecting Tribal interests such as those directly impacted by the project. These mandates require NRC to consult with Tribes as early as possible in the decisionmaking process. Here, despite having the applicant's materials for approximately a year, and already having begun review of the project with respect

to completeness of the application, the NRC has not yet engaged in the required consultation process. This is especially troubling as the applicant has included an entire report on what it believes is the significance of the archaeological, historical, and traditional cultural resources it has identified at the site, but at no time has the Tribe been involved in the determination as to the significance of these resources or the completeness of the proffered Report, as contemplated by the NHPA. The failure to engage the Tribe in a meaningful way at the earliest possible time presents a ripe contention in this proceeding.

The federal courts have addressed the strict mandates of the National Historic Preservation Act:

> Under the NHPA, a federal agency must make a reasonable and good faith effort to identify historic properties, 36 C.F.R. § 800.4(b); determine whether identified properties are eligible for listing on the National Register based on criteria in 36 C.F.R. § 60.4; assess the effects of the undertaking on any eligible historic properties found, 36 C.F.R. §§ 800.4(c), 800.5, 800.9(a); determine whether the effect will be adverse, 36 C.F.R. §§ 800.5(c), 800.9(b); and avoid or mitigate any adverse effects, 36 C.F.R. §§ 800.8[c], 800.9(c). The [federal agency] must confer with the State Historic Preservation Officer ("SHPO") and seek the approval of the Advisory Council on Historic Preservation ("Council").

Muckleshoot Indian Tribe v. U.S. Forest Service, 177 F.3d 800, 805 (9th Cir. 1999). See also 36 CFR § 800.8(c)(1)(v)(agency must "[d]evelop in consultation with identified consulting parties alternatives and proposed measures that might avoid, minimize or mitigate any adverse effects of the undertaking on historic properties and describe them in the EA.")

The Advisory Council on Historic Preservation ("ACHP"), the independent federal agency created by Congress to implement and enforce the NHPA, has exclusive authority to determine the methods for compliance with the NHPA's requirements. See *National Center for Preservation Law v. Landrieu*, 496 F. Supp. 716, 742 (D.S.C.), *aff'd per curiam,* 635 F.2d 324 (4th Cir. 1980). The ACHP's regulations "govern the implementation of Section 106," not only

for the Council itself, but for all other federal agencies. Id. See *National Trust for Historic Preservation v. U.S. Army Corps of Eng'rs*, 552 F. Supp. 784, 790-91 (S.D. Ohio 1982).

NHPA § 106 ("Section 106") requires federal agencies, prior to approving any "undertaking," such as this Project, to "take into account the effect of the undertaking on any district, site, building, structure or object that is included in or eligible for inclusion in the National Register." 16 U.S.C. § 470(f). Section 106 applies to properties already listed in the National Register, as well as those properties that may be eligible for listing. See *Pueblo of Sandia v. United States*, 50 F.3d 856, 859 (10th Cir. 1995). Section 106 provides a mechanism by which governmental agencies may play an important role in "preserving, restoring, and maintaining the historic and cultural foundations of the nation." 16 U.S.C. § 470.

If an undertaking is the type that "may affect" an eligible site, the agency must make a reasonable and good faith effort to seek information from consulting parties, other members of the public, and Native American tribes to identify historic properties in the area of potential effect. *See* 36 CFR § 800.4(d)(2). See also *Pueblo of Sandia*, 50 F.3d at 859-863 (agency failed to make reasonable and good faith effort to identify historic properties).

The NHPA also requires that federal agencies consult with any "Indian tribe ... that attaches religious and cultural significance" to the sites. 16 U.S.C. § 470(a)(d)(6)(B). Consultation must provide the tribe "a reasonable opportunity to identify its concerns about historic properties, advise on the identification and evaluation of historic properties, including those of traditional religious and cultural importance, articulate its views on the undertaking's effects on such properties, and participate in the resolution of adverse effects." 36 CFR § 800.2(c)(2)(ii).

Apart from requiring that an affected tribe be involved in the identification and evaluation of historic properties, the NHPA requires that "[t]he agency official **shall ensure that the section 106 process is initiated early in the undertaking's planning**, so that a broad range of alternatives may be considered during the planning process for the undertaking." 36 CFR § 800.1(c) (emphasis added). The ACHP has published guidance specifically on this point, reiterating in multiple places that consultation must begin at the earliest possible time in an agency's consideration of an undertaking, even framing such early engagement with the Tribe as an issue of respect for tribal sovereignty. ACHP, Consultation with Indian Tribes in the Section 106 Review Process: A Handbook (November 2008), at 3, 7, 12, and 29.

Regarding respect for tribal sovereignty, the NHPA requires that consultation with Indian tribes "recognize the government-to-government relationship between the Federal Government and Indian tribes." 36 CFR § 800.2(c)(2)(ii)(C). *See also* Presidential Executive Memorandum entitled "Government-to-Government Relations with Native American Tribal Governments" (April 29, 1994), 59 Fed. Reg. 22951, and Presidential Executive Order 13007, "Indian Sacred Sites" (May 24, 1996), 61 Fed. Reg. 26771. The federal courts echo this principle in mandating all federal agencies to fully implement the federal government's trust responsibility. See *Nance v. EPA*, 645 F.2d 701, 711 (9th Cir. 1981) ("any Federal Government action is subject to the United States' fiduciary responsibilities toward the Indian tribes").

In another proceeding before the Commission involving the Oglala Sioux Tribe, it was determined that the contention regarding compliance with the consultation requirements of the NHPA was not ripe. See *In The Matter of Crow Butte Resources, Inc. (In Situ Leach Facility, Crawford, Nebraska),* CLI-09-09, Nuclear Reg. Rep. P 31589, at 9-11 (May 18, 2009). However, the legal and factual issues in this case are sufficiently distinguishable. Specifically,

in this case, the Tribe argues that the NHPA requires consultation under Section 106 to begin as early as possible in the consideration of an undertaking.

Here, as discussed above, the application was initially submitted to the NRC in February of 2009, well over a year ago. Further, the NRC Staff has already begun processing the application, including making an affirmative determination that the information contained in the application was acceptable to the agency. This analysis necessarily considered whether the applicant's efforts to identify and assess the impacts on historic and cultural resources, as presented in the application, meet the NRC's standards under the NHPA. To exclude the Tribe until a NEPA document is prepared harms the Tribe's ability to participate in the initial identification of historic/cultural properties and hampers its ability to effectively participate at the later stage when the specific impacts from a particular project are analyzed. *See, e.g.,* 36 CFR §§ 800.4 ("Identification of historic properties") and 800.5 ("Assessment of adverse effects"). Given these requirement of the NHPA, the harms to the Tribe began accruing immediately upon NRC consideration of the Application in the absence of tribal consultation. Thus, the harms to the Tribe are ongoing, and the Tribe's contention with respect to this issue is ripe.

Contention 2: Failure to Include Necessary Information for Adequate Determination of Baseline Ground Water Quality

The Application violates 10 C.F.R. § 51.45 and the National Environmental Policy Act, requiring a description of the affected environment, in that it fails to provide an adequate baseline groundwater characterization or demonstrate that ground water samples were collected in a scientifically defensible manner, using proper sample methodologies.

Basis and Discussion:

This contention is supported by the Declaration of Dr. Robert E. Moran (attached as Exhibit 10), particularly ¶¶ 16-24, 29, 33, 47-51, 62.

10 C.F.R. § 51.45 and the National Environmental Policy Act require a description of the affected environment containing sufficient data to aid the Commission in its conduct of an independent analysis. 10 C.F.R. Part 40, Appendix A, criterion 7 requires the applicant to provide "complete baseline data on a milling site and its environs." NUREG-1569 section 2.7.1(4) requires that ISL applications must provide an "assessment of available ground-water resources and ground-water quality within the proposed permit boundaries and adjacent properties, including a quantitative description of the chemical and radiological characteristics of the ground water and potential changes in water quality caused by operations." NUREG-1569 section 2.7.3(4) sets forth acceptance criteria for the Application requiring a "reasonably comprehensive chemical and radiochemical analysis of water samples, obtained within and at locations away from the mineralized zone(s)...to determine pre-operational baseline conditions." NUREG-1569, section 2.7.3(4). This acceptance criteria also requires an applicant to "show that water samples were collected by acceptable sample procedures…." Id. See also NUREG-1569 Section 2.7.4. Lastly, NUREG-1569 requires that "[t]he applicant should identify the list of constituents to be sampled for baseline concentrations. The list of constituents in Table 2.7.3-1 is accepted by the NRC for *in situ* leach facilities." NUREG-1569, section 2.7.3.

The Declaration of Dr. Robert E. Moran, at ¶ 16, states:

> The Powertech Application fails to define pre-operational baseline water quality and quantity—both in the ore zones and peripheral zones, both vertically and horizontally. Without adequate baseline water quality data (both ground water and surface water), there is no reasonable method for either the public or the NRC to evaluate the success or failure of either fluid containment or aquifer restoration. The Powertech Application documents repeatedly attempt to convey the impression that the D-B ground water quality is already degraded, rather than compile statistically-defensible data from both the

ore zones and non-mineralized zones. This approach contradicts NRC guidance, which requires that pre-mining baseline conditions be defined before licensing (NRC, 2003, pg. 2-24).

Dr. Moran continues to describe in depth the analytical deficiencies associated with the ground water baseline characterization as set forth in the application materials:

> 22. No coordinated, statistically-sound data set for **all** Baseline Water Quality data (both surface and ground water) is presented in these documents—as is required in NUREG--1569. For example, on pg. 2-14 and 2-15 of the Technical Report (TR), Sect. 2.2.3.2.2., Powertech states: "At the project site, baseline groundwater sampling was conducted in general (sic) accordance with NRC Regulatory Guide 4.14 (NRC, 1980). ... A summary of the results and methods for the groundwater quality monitoring program, as well as the historical TVA data, is presented in Section 2.7." However, when the reader goes to TR Section 2.7, there are no tables that actually summarize, statistically, complete baseline field and lab water quality data for the complete data sets—both historic and recent. Instead, for ground waters, Powertech presents statistics for field data from individual wells or selected aquifers, but fails to statistically-summarize the laboratory data and leaves out the historic TVA data. Powertech then states (TR, pg. 2-203): "Complete groundwater quality data results are available in Appendix 2.7-G." However, on TR, pg. 2-205 (Sect. 2.7.3.2.2.2, Results for Laboratory Parameters) Powertech then states: "Summary statistics for baseline monitoring program laboratory samples are contained in Appendices 2.7-H and 2.7-I. Appendix 2.7-H gives statistics for all groundwater constituents detected at or above PQL by constituent." Thus, it appears that Powertech has not included "qualified values," that is data reported as "less than" some concentration. By deleting the "less than" values, Powertech has severely biased the data set, rendering it useless as a reliable source for evaluating baseline conditions.
>
> 23. Furthermore, Powertech states (TR, pg. 2-217-218) that they have arbitrarily selected some analyses from the voluminous, historic TVA data, but the reviewer is never allowed to see a statistical summary of the total original data set. Portions of the relevant data are scattered throughout the Appendices of the various documents, and disingenuously organized to leave out all baseline data that had concentrations reported below the detection limits (i.e. "less than" values). Obviously, this approach biases the data. Powertech must statistically summarize all historic water quality data and all recently collected data in separate tables, including all "less than values." Both historic and recent baseline data should be segregated by water-bearing unit. Even should averaging of water quality data over a portion of the aquifer be acceptable, the methodology employed in the Application of discounting relevant data points is untenable.
>
> 24. To further confuse the baseline issues, Powertech's Supplement to the Application (August 2009) states on pg. 3-3: "A minimum of eight baseline water quality wells will be installed in the ore zone in the planned well field area." Thus it appears that the Applicant intends that the massive amounts of water quality data (historic and recent)

> presented in both the TR and ER (Environmental Report) will not actually be used to determine baseline. More importantly, it is unclear whether Powertech has baseline (pre-operational) ground water quality data that describes the **non-ore zone regions of the relevant aquifers.** It is imperative that baseline data for the non-ore zone ground waters be collected and summarized separate from those of the ore zones. Lastly, the Application should already contain a statistically-reliable database of baseline ground water quality data from all known wells within at least a one-kilometer radius of the project boundary.

Declaration of Dr. Moran at ¶¶ 22-24.

Dr. Moran goes on to discuss the deficiencies in the Application with respect to the inadequate characterization of the non-ore regions of the relevant aquifers. Dr. Moran states:

> Much of the Application discussion concerning ground water quality seems focused on showing that the site waters are already contaminated. This would not be surprising given the presence of the uranium mineralization and the past mining and exploration activities---all of which would have caused increased concentrations of numerous chemical constituents above true, pre-mining baseline. However, based on statements made in the ER, pg 1-16, Powertech has not adequately defined whether zones peripheral to the D-B ore-bearing geologic formations and bounding formations (above and below) also contain zones of high-quality, possibly potable ground water. Such zones should already have been defined as part of the Application documents.

Declaration of Dr. Robert E. Moran at ¶ 29.

Lastly, with respect to field sampling protocol and methodology, and the resulting integrity of the resulting data obtained, Dr. Moran opines:

> The Application is inadequate in its attempt to demonstrate that the ground water quality data are of suitable quality, as on ER pg. 3-61, 62. Here they state that a comparison of field and lab pH and specific conductance data "are within reasonable limits." Despite the vagueness of the language, this statement / section demonstrates a failure to understand the basics of applied water quality. Ground water chemistry routinely changes between the time a water sample is lifted from a well--where field pH and S.C. measurements should be made immediately--and much later when investigated in a laboratory. Hence, it is inappropriate to argue that, for example, the highest measured field pH was 12.67 and it "was verified by the contracting laboratory which reported a pH of 12.4 in the sample" (p. 3-62). Of course the chemistry changed as the temperature and pressure of the sample changed, the sample de-gassed, and various chemical reactions occurred. However, the authors failed to comment on the significance of the actual, reported pH of 12.67. In such a hydrogeologic setting, a site that had been previously drilled by thousands of exploration boreholes, and possibly previously mined, the logical conclusion is that such a pH represents evidence of some form of contamination---possibly from the incorrect

> completion of a well with cement and / or bentonite grout, a spill of some alkaline chemicals, or from some past attempts to test the leachability of these ores using an alkaline lixiviant. The same is true for the insufficient discussion of the field versus lab specific conductance values at well 677, which were reported to be 12,220 µS/cm versus 11,000 µS/cm (pg. 3-62). The authors ignore the more reasonable conclusions that some form of contamination has occurred.

Declaration of Dr. Robert E. Moran at ¶ 62.

Based on this evidence, the application fails to adequately describe the affected aquifers at the site and on adjacent lands and fails to provide the required quantitative description of the chemical and radiological characteristics of these waters necessary to assess the impacts of the operation, including potential changes in water quality caused by the operations.

Contention 3: Failure to Include Adequate Hydrogeological Information to Demonstrate Ability to Contain Fluid Migration

The application fails to provide sufficient information regarding the geological setting of the area to meet the requirements of 10 C.F.R. § 40.31(f); 10 C.F.R. § 51.45; 10 C.F.R. § 51.60; 10 C.F.R. Part 40, Appendix A, Criteria 4(e) and 5G(2); the National Environmental Policy Act; and NUREG-1569 section 2.6. The application similarly fails to provide sufficient information to establish potential effects of the project on the adjacent surface and ground-water resources, as required by 10 C.F.R. § 51.45, NUREG-1569 section 2.7, and the National Environmental Policy Act.

Basis and Discussion:

This contention is supported by the Declaration of Dr. Robert E. Moran (attached as Exhibit 10) and Exhibit 6 (EPA comments).

10 C.F.R. § 40.31 and 10 C.F.R. § 51.60 require an applicant to submit an environmental report with its license application. 10 C.F.R. § 51.45 and the National Environmental Policy Act require that the environmental report include a description of the affected environment and the

impact of the proposed project on the environment, with sufficient data to enable the Commission to conduct its independent analysis. 10 C.F.R. Part 40, Appendix A, Criterion 4(e) requires that uranium processing facilities, including ISL uranium mining facilities, be located away from faults that may cause impoundment failure. Criterion 5G(2) requires an adequate description of the characteristics of the underlying soils and geologic formations.

The descriptions of the affected environment under the above authorities must be sufficient to establish the potential effects of the proposed ISL operation on the adjacent surface water and ground water resources. As discussed in NUREG-1569 at 2.7.1(3), the application must include a description of the "effective porosity, hydraulic conductivity, and hydraulic gradient" of site hydrogeology, including any "other information relative to the control and prevention of excursions." At minimum, the applicant must develop an acceptable conceptual model of site hydrology adequately supported by the data presented in the site characterization. NUREG-1569 section 2.7.2. This data and model must demonstrate with scientific confidence that the area hydrogeology, including horizontal and vertical hydraulic conductivity, will result in the confinement of extraction fluids and expected operational and restoration performance.

In this case, the application fails to present sufficient information in a scientifically-defensible manner to adequately characterize the site and off-site hydrogeology to ensure confinement of the extraction fluids. These deficiencies include unsubstantiated assumptions as to the isolation of the aquifers in the ore-bearing zones and failure to account for natural and man-made hydraulic conductivity through natural breccias pipe formations and the historic drilling of literally thousands of drill holes in the aquifers and ore-bearing zones in question, which were not properly abandoned. As described in depth by Dr. Moran:

36. The application presents overly-optimistic conclusions about the isolation of the ore-

bearing zones, aquifers, and the lack of fluid excursions that will occur, both vertically and horizontally. Powertech's description and evaluation of possible water-related impacts [ER pg. 8-2 (Table 8.1-1)] are unreasonably optimistic. It is unlikely that the process waters can be contained within the project boundaries given the following sources of the evidence.

37. The D-B uranium deposits occur in subsurface, fluvial channel, sandstone deposits in the Lakota and Fall River formations (Smith, 2005). These sandstones inter-finger with finer-grained silts and shales, often associated with lignites and coals, which form the typical lithologic sequences often seen in classic sedimentary uranium deposits (Abitz, 2005; Gott, 1974; Henry, 1982; Galloway, 1982; Henry, 1980; Harshman, 1972).

38. Hydraulically, such sedimentary packages typically allow ground waters to flow between the inter-fingering facies, both vertically and horizontally, when the coarser-grained sediments are stressed by long-term pumping. The hydraulic inter-connections are verified by conducting long-term aquifer tests integrated with sequential water quality sampling and in-situ measurement of field parameters (Henry, 1982; Galloway, 1982; Moran, R.E.—hydrogeochemical research activities, U.S.G.S., Water Resources Div., 1973—1978).

39. Thus, ore-bearing sandstones in typical sedimentary packages associated with roll-front uranium deposits do not routinely behave as hydraulically-isolated bodies. Numerous specific lines of evidence from the D-B Application documents indicate that the project sediments possess various pathways for the migration of water and contaminants from the ore zones into neighboring sediments, both vertically and laterally. For example, thousands of exploration boreholes have been drilled since the 1950's at the D-B site (Smith, 2005; TR, ER), many of which were not correctly plugged and abandoned (TR, Pg. 2-157; Append. 2.7-B, sub-Appendix D, pg. 1484; TR, Append. 2.6-A, pg. 972-1111). In addition, several sources (Smith, 2005, pg. 9; ER, pg. 3-106) report that the area contains historic, shallow mine workings, both open pits and short tunnels that would provide additional flow pathways.

40. There are numerous old and existing water wells and old oil test wells in the D-B area, many with rusty and leaky casings, often unplugged or partially-plugged, drilled through several formations which act as potential pathways for flow between water-bearing units (ER, pg.3-40; TR, Append. 2.2-A, pg. 740-779; 2.2-B, especially pg. 864-902).

41. The TR, pg. 2-153-154, states that hydraulic connections between local D-B aquifers often result because confining units thin or are absent in many areas (ER, pg.3-56-57). In addition, Gott (1974) and others have mentioned the presence of breccia / evaporite pipes (collapse structures), which create vertical permeability pathways between aquifers. Gott (1974, pg. 27-29) and others discuss the common presence of faults and joints throughout the region, which could easily act as flow pathways.

42. Vertical and lateral hydraulic connectivity between the ore zones and the neighboring facies / formations are also indicated by the aquifer test results conducted in both 1979

and 2008 (ER, pg.3-56-57; TR, pg. 2-170 & 2-180, for example; TR Append. 2.7-B, Knight-Piesold Pumping Test Report, pg. 1290).

43. It seems obvious that the aquifer testing already performed demonstrates leakage between the various formations / facies bounding the ore zone. However, it seems equally likely that longer-duration aquifer tests conducted at even higher pumping rates would demonstrate even more clearly the leaky nature of these site sediments.

44. Repeatedly throughout the Application, Powertech states that the project will bleed 0.5 to 3% of leachate to maintain a cone of depression, which will prevent flow of leachate outwards (i.e. ER, pg. 1-14). Rather than supporting this allegation with long-term, technical data from other operating sites, Powertech has inserted a public relations statement from the mining industries' lobbying group, the National Mining Association (NMA, 2007).

45. D-B Application Supplement, pg. 5-5 describes an aquifer exemption boundary, which acts as an additional buffer zone outside the monitor well rings "to provide protection to adjacent water from the excursions that occur in the normal course of operations." Page 5-6 of the Supplement further states that the aquifer exemption boundary is proposed to be up to 1200 ft. outside the monitor well ring, and would be considered the point of regulatory compliance. Apparently simply pumping to create an inward flow direction is not adequate to control "excursions". It appears this aquifer exemption boundary is actually an expanded ground water sacrifice zone.

Potential hydrogeologic pathways to nearby wells have not been adequately investigated and documented.

46. The discussion above presents ample evidence that the D-B area sediments contain numerous possible subsurface pathways for project leach fluids to migrate vertically between water-bearing units and outside the project boundaries. Unfortunately, as noted above, Powertech has not adequately defined the baseline water levels or water quality conditions of neighboring wells within a 1 to 2 mile radius of the D-B project. In addition, the TR, pg. 2-180, states that no public data are available on the use of aquifers in Fall River or Custer counties. Such data should have been compiled by Powertech as part of the Application, and must be required before any licenses are given.

Declaration of Dr. Robert E. Moran (attached as Exhibit 10).

The concerns expressed by Dr. Moran are echoed in Exhibit 6, at 4-5, where EPA critiques the environmental review process conducted by NRC for ISL operations proposed in Wyoming. That discussion is directly applicable here, and provides evidence of the impacts associated with failure to properly assess the baseline site conditions and impacts of lixiviant injection, attempts at restoration, and excursions.

Based on this evidence, the application fails to provide an adequate site characterization of geology and hydrogeology and fails to demonstrate the ability of the applicant to determine effective porosity of the affected aquifers or to demonstrate the ability to confine the leaching fluids.

Contention 4: Inadequate Analysis of Ground Water Quantity Impacts

The application violates the National Environmental Policy Act in its failure to provide an analysis of the ground water quantity impacts of the project. Further, the application presents conflicting information on ground water consumption such that the water consumption impacts of the project cannot be accurately evaluated. These failings violate 10 C.F.R. § 40.32(c), 40.32(d), and 51.45.

Basis and Discussion:

This contention is supported by the Declaration of Dr. Robert E. Moran (attached as Exhibit 10).

10 CFR 40.32(c) requires the applicant's proposed equipment, facilities, and procedures to be adequate to protect health and minimize danger to life or property; 10 CFR 40.32(d) requires that the issuance of the license not be adverse to the common defense and security or to the health and safety of the public; and 10 CFR 51.45 and the National Environmental Policy Act require the applicant to provide sufficient data for a scientifically-defensible review of the environmental impacts of the operation and for the Commission to conduct an independent analysis. The application as submitted fails to meet these requirements in that it does not provide reliable and accurate information as to the project's ground water consumption. Thus, the applicant has not established that its procedures are adequate to protect, and to not be adverse to, human health or that they will minimize danger to life or property.

The Declaration of Dr. Robert E. Moran sets forth the primary concerns related to the application's lack of credible analysis of ground water quantity impacts:

> 12**.** The D-B project area is semi-arid, having an average yearly precipitation of about 12 to 13 inches. While the application documents fail to report yearly evapotranspiration (ET), estimates of ET are roughly 70 inches per year, about 5 times the yearly precipitation (ER, pg. 3-176 and 177; Fig. 3.6-27). Because the project is presently expected to operate for between 7 and 20 years, it will require the use of tremendous volumes of local ground water.
>
> 13. Unfortunately, the Application documents present conflicting estimates of the volumes of water actually needed to operate the project. The ER, pg. 4-25, section 4.6.2.7.2 Water Requirements for the Proposed Action Facilities states:
>
> "Water requirements of the CPP and other facilities are estimated to have a maximum requirement of **65 gpm**. As this requirement is relatively large, it is expected that most of this water will be derived from a water supply well in the Madison formation. Some of this water may be withdrawn from the Inyan Kara formation, but if so, it will not occur in a fashion to affect any well field operations."
>
> While the last sentence is totally unclear as to specific details, the greater problem comes on reading ER pg. 8-2 (Table 8.1-1), which states that ground water consumption will be **320 gpm.** Aside from the obvious lack of consistency, both of the estimates translate into massive amounts of ground water when considered over the full life of the project.
>
> The water usage data for the conflicting water usage numbers referenced in the Application result in total water consumption over the life of the project as follows:
>
> **65 gpm = 34.2 Million gpy (gals / yr).**
> **After 7 yrs = 239,148,000 gallons, or 239.15 Million gals.**
> **After 17 yrs = 580,788,000 gals or 580.8 Million gals.**
>
> **320 gpm = 168.2 Million gpy (gals. / yr)**.
> **After 7 yrs = 1,177,344,000 = 1.2 Billion gallons**
> **After 17 years = 2,859,264,000 gallons = 2.86 Billion gallons**.
>
> 14. The TR, pg. 2-181, also says water requirements will be 65 gpm, but the subsequent discussion (pg. 2-181 and 2-182) indicates great uncertainty. These inconsistencies need to be rectified to enable effective public and NRC staff review. Clearly, both of these estimates indicate that vast quantities of ground water will be extracted from these aquifers over the long-term, and it seems overly-optimistic to simply state that no significant impacts will occur. At a minimum, Powertech should be required to construct a credible, project water balance and to more seriously investigate the potential that such large-volume water use might impact local / regional ground water levels. At present, I see no evidence that the Application contains a reliable compilation of baseline water level data for the surrounding domestic and agricultural wells (see discussion below). Without such reliable,

> summarized data, there will be no viable method to demonstrate that ground water levels (and related pumping costs) have not been impacted by project-related activities.

Declaration of Dr. Robert E. Moran (attached as Exhibit 10).

Contention 5: Failure to Adequately Calculate Bond for Decommissioning

The application fails to provide a sufficient and acceptable financial assurance cost estimate, as required by 10 C.F.R. Part 40, Appendix A, Criterion 9, to assure the availability of sufficient funds to complete the reclamation plan and the activities in the application by an independent contractor.

Basis and Discussion:

This contention is supported by the Declaration of Dr. Robert E. Moran (attached as Exhibit 10) and the Technical Report, Appendix 6.6-A, and Section 1.0.

10 C.F.R. Part 40, Appendix A, Criterion 9 requires:

> Financial surety arrangements must be established by each mill operator prior to the commencement of operations to assure that sufficient funds will be available to carry out the decontamination and decommissioning of the mill and site and for the reclamation of any tailings or waste disposal areas. The amount of funds to be ensured by such surety arrangements must be based on Commission-approved cost estimates in a Commission-approved plan….This will yield a surety that is at least sufficient at all times to cover the costs of decommissioning and reclamation of the areas that are expected to be disturbed before the next license renewal.

In this case, the application states that the operation will continue for 7 to 20 years and extract approximately one million pounds of uranium each of those years. TR at 1-8. See also Figure 1.9-1 Projected Construction, Operation, Restoration and Decommissioning Schedule. The estimates of both restoration and reclamation costs, however, are based on full production only in 2011, minor production levels in 2012, and no production anticipated beyond 2012. TR, Appendix 6.6-A. The costs of decontamination and decommissioning as portrayed in the application are thus grossly underestimated and insufficient for the reclamation of all activities as

required by 10 C.F.R. Part 40, Appendix A, Criterion 9. Further, the application states that the restoration times may be longer than originally anticipated, and this fact is not incorporated into the financial surety calculation. TR at 1-8. See also Exhibit 6 at 4 (EPA stating that "Studies-cited in the GEIS concluded that, for sites that were reviewed, aquifer restoration took longer and required more aquifer pore volume flushing than originally planned.").

Contention 6: Inadequate technical sufficiency of the application and failure to present information to enable effective public review resulting in denial of due process

The application fails to present relevant information in a clear and concise manner that is readily accessible to the public and other reviewers, as required by the National Environmental Policy Act, Regulatory Guide 3.46, and NUREG 1569.

Basis and Discussion:

This contention is supported by the Declaration of Dr. Robert E. Moran (Declaration attached as Exhibit 10).

NUREG-1569 is the NRC's current updated standard review plan. NUREG-1569 states:

> The standard review plan complements Regulatory Guide 3.46, Standard Format and Content of License Applications, Including Environmental Reports for *In Situ* Uranium Solution Mining (NRC, 1982) which is guidance to applicants and licensees on an acceptable format and contents for a license application. Sections of this standard review plan are keyed to sections in Regulatory Guide 3.46 (NRC, 1982). Applicants should use Regulatory Guide 3.46 (NRC, 1982) as guidance in preparing their applications.

NUREG-1569 at xv. Regulatory Guide 3.46 provides explicit instruction for applicants in presenting information in an application, cautioning, "[t]he applicant should strive for clear, concise presentation of the information in the license application." Regulatory Guide 3.46 at vii. Regulatory Guide 3.46 goes on to require:

> An evaluation of information or data should clearly state the conclusions of the evaluation and should present the analyses and supporting data in sufficient detail to

> permit an independent reviewer to verify this result. Tables, line drawings, and photographs should be used wherever they contribute to the clarity and brevity of the application. The number of significant figures stated in numerical data should reflect the accuracy of the data. Descriptive and narrative passages should be brief and concise. In cases where test results to support conclusions are presented, the procedures, techniques, and equipment used to obtain the test data should be included.

Id.

Similarly, NEPA regulations require that environmental documents "be written in plain language and may use appropriate graphics so that decisionmakers and the public can readily understand them." 40 C.F.R. § 1502.8. See also 40 C.F.R. § 1500.2(b)("Environmental impact statements shall be concise, clear, and to the point….").

In this case, the Application has not been presented in a form acceptable under NEPA or NRC regulations. As set forth by Dr. Moran:

> 5. Powertech D-B Application is so disorganized and technically-deficient that it does not comply with the terms of NUREG-1569 and other relevant NRC regulations and should be revised. The various portions of the D-B Application total almost 6000 pages and are composed of:
>
> - Technical Report (TR)-- 3103 pages;
> - Environmental Report (ER)-- 2615 pages;
> - Supplement to Application-- 66 pages.
>
> The relevant information, if compiled in a direct, transparent manner using predominantly maps, tables and graphs, could easily have been summarized in 150 pages for the main volume. Instead, the Application is so duplicative and poorly-organized that it makes informed review by both the regulators and general public largely impossible. The Table of Contents for both the TR and ER provide no page numbers for the masses of information presented in the Appendices. The Appendices, in places, seem to have been thrown together with little or no logic to the organization. The authors of the main portions of the ER and TR, whoever they are, have made the review process unnecessarily convoluted, for both the NRC and the public. To that point, for numerous sections of the Application, it is not possible to discern whose opinions are being stated – Powertech's, one of their consultants, or some other source.
>
> 6. What follows in paragraphs (6-10) are a few examples of the disorganized nature of these documents: For both the ER and TR, the tables of contents present basic titles, but no page numbers for the thousands of pages of appendices. As it is the Appendices that contain much of the corroborating data, such careless organization makes document review and substantiation of claims written in the text unnecessarily difficult. The headings of the

appendices, figures and tables often are far too vague to be useful. For example, regarding ER Append. 3.4-A, the title simply says: WELL LOCATION DATA. This is an inadequate presentation and several questions are evident. Data complied by whom? When was the data compiled? For what types of wells (domestic? agricultural?)? Are those wells still in use? Are those wells monitored?

7. There are several other similar examples. One title says: Wells in Dewey-Burdock Database. Was this database originally compiled by Powertech? TVA?

8. Surface water sites discussed on pg. 2-192 through 2-194 of the TR have no specific names; they are simply labeled BVC01, BVC04, CHR01, CHR05. The field data for these sites are not integrated with the lab data from the same samples.

9. Application documents fail to provide summary tables and figures where they are most necessary. For example, the ER, pg. 3-39-40 provides no summary of the wells discussed, their uses, water-bearing units / formations, etc. such tables should be included in the text where the discussions are taking place.

10. Water-related discussions / data are scattered throughout the ER and present inconsistent findings. For example, a reviewer (NRC or public) of water-related issues must search through the following sections:

3.4 Affected Environment [WQ and Q discussions not integrated];

4.6 Potential WR Impacts

6.1.8 GW Sampling

6.2 Physiocehmical GW Monitoring

7.4.3 Potential GW Impacts

8.1 Summary of Env. Consequences

Appendices:

3.3A, D

3.4A, B, C, D, E

3.5I

6.1B, C, D, E, F, G

Given the need for the applicant to submit supplemental information, these deficiencies should have been resolved at that time.

Declaration of Dr. Robert E. Moran (attached as Exhibit 10).

Contention 7: Failure to Include in the Application a Reviewable Plan for Disposal of 11e2 Byproduct Material

The Environmental Report indicates that Powertech intends to use some unidentified facility for disposal of the 11e2 Byproduct generated at the proposed ISL Facility. See Powertech ER at 1-7, 4-6. It is not sufficient, however, for an applicant to merely state that permanent disposal will occur in conformance with applicable laws.

The very reason for the licensing process is to ensure that the problems associated with mill tailings which UMTRCA addresses do not recur under the modern licensing regime. Nowhere do the regulations at 10 C.F.R. Part 40, Appendix A allow an applicant to merely assert that tailings will be handled in accordance with applicable law. The opposite is required by federal law: an applicant must address permanent disposal at the time it seeks a license for activities which create 11e2 Byproduct.

Basis and Discussion

The relevant regulations applicable to new uranium processing operations state in plain language:

> ***Every applicant for a license to possess and use source material in conjunction with uranium or thorium milling***, or byproduct material at sites formerly associated with such milling, is required by the provisions of § 40.31(h) to include in a license application ***proposed specifications relating to*** milling operations and ***the disposition of tailings or wastes resulting from such milling activities***.

40 C.F.R. Part 40 Appendix A (emphasis added). This regulation implements the UMTRCA amendments to the Atomic Energy Act, which require the NRC to ensure that the specific proposal for disposition of tailings and wastes involved in milling is subjected to review in the initial license application. However, it is impossible to determine, based on the application, Environmental Report, and NEPA documents, whether any specific plans exist for the

disposition of the 11(e)2 Byproduct that will be produced by Powertech and what impacts such disposition would entail.

For this reason alone, the Powertech application must be summarily denied, without conduct of further proceedings. Such result is contemplated by the regulations:

> Each application must clearly demonstrate how the requirements and objectives set forth in appendix A of this part have been addressed. Failure to clearly demonstrate how the requirements and objectives in appendix A have been addressed shall be grounds for refusing to accept an application.

40 C.F.R. § 40.31(h). Even where the regulations recognize flexible implementation, specific plans for handling the tailings is a mandatory requirement:

> In many cases, flexibility is provided in the criteria to allow achieving an optimum tailings disposal program on a site-specific basis. However, in such cases the objectives, technical alternatives and concerns which must be taken into account in developing a tailings program are identified. As provided by the provisions of § 40.31(h) applications for licenses must clearly demonstrate how the criteria have been addressed.

40 C.F.R. Part 40 Appendix A.

The failure to address disposal requirements for 11e2 byproduct is not a technical deficiency that can be cured by expending NRC staff resources to cure minor defects. Where the applicant has a duty to provide specific information on this major feature of an ISL license application, and such information is omitted, the NRC staff must not expend federal resources and must instead reject the license without further inquiry or assistance to an applicant who fails to meaningfully address this critical licensing requirement. In sum, the application (including the Environmental Report) does not provide the necessary information to fulfill the applicant's burden to demonstrate that its proposal satisfies the criteria set out in Part 40 Appendix A.

Moreover, the policies set forth by NEPA prevent the NRC staff from segmenting the disposal issues from the inquiry into whether applicant will be allowed to create 11e2 Byproduct

material in the first instance. *In re Pac. Gas & Elec. Co.*, 67 N.R.C. 1, 13 (N.R.C. Jan. 15, 2008).("There is no genuine dispute that NEPA and AEA legal requirements are not the same [. . .] and NEPA requirements must be satisfied."). Failure to identify the permanent disposal facility avoids examination of all direct, indirect, and cumulative impacts of the proposal, as required by NEPA. *Custer County Action Ass'n v. Garvey*, 256 F.3d 1024, 1035 (10th Cir. 2001)(Where a "federal action" exists, the NEPA process must "analyze not only the direct impacts of a proposed action, but also the indirect and cumulative impacts of 'past, present, and reasonable foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.'").

Where "federal action" triggers NEPA -- here, the applicant's proposal to conduct ISL mining activities -- an agency cannot define "the project's purpose in terms so unreasonably narrow as to make [NEPA] 'a foreordained formality.'" *City of Bridgeton v. FAA*, 212 F.3d 448, 458 (8th Cir. 2000)(citations omitted). Here, NEPA mandates that the NRC consider the ISL mining activities which create tailings at the same time it considers the specific method, transportation requirements, and site for tailings disposal. This mandate of federal law attaches at such time as the need for disposal is reasonably foreseeable, which occurs before submission of an application to the NRC for a license to create 11e2 Byproduct by processing uranium, not after the NRC rules on the admissibility of contentions submitted without benefit of NEPA documentation.

The CEQ regulations that apply to each agency's implementation of NEPA state that the requisite site-specific environmental impact statement should be available at all stages of the decision-making process, not merely at the end of that process as a "rubber stamp" to approve the environmental impacts of the process. Because the application in this case involves

extensive, site-specific consideration -- including but not limited to, access, geology, hydrogeology, quantitative impacts upon water supplies for domestic use, livestock, agriculture, non-domesticated plants and animals, and qualitative on-going and subsequent impacts to water supplies of all the same due to releases of chemicals into the surface, groundwater and aquifers flowing through the licensed site -- failure of the site-specific environmental impact statement to inform every step of the license application decision-making process means that the final decision cannot comply with NEPA. At a minimum, without a completed, site-specific environmental impact statement as a guide, NRC staff, the public, and the Tribe have no basis to identify and access alternatives to the license application and find ways to avoid or mitigate possible adverse environmental impacts of the licensed activity.

These NEPA requirements are consistent with the requirement in Subpart 40, Appendix A's *Criteria One,* which requires that the applicant and the NRC examine "alternative tailings disposal sites" when considering a milling application. *See Natural Resources Defense Council v. Hodel*, 865 F.2d 288, 299 (D.C.Cir. 1988)(*citing Kleppe v. Sierra Club*, 427 U.S. 390, 410 (1976)(formulation of alternatives during the NEPA disclosure and study process is at the heart of the NEPA-mandated procedures).

The history, legal requirements, and policies embodied in federal laws applicable to the present proceedings require NRC staff to refuse further analysis of an application which lacks any analysis of the specifications for a reasonable range of alternatives for final disposition of the 11e2 byproduct material. The deficiencies in the application require denial or rejection of the application without further inquiry or expenditure of scarce government resources.

Contention 8: Requiring the Tribe to Formulate Contentions before an EIS is Released Violates NEPA

The procedure used by NRC to consider the Powertech application fails to satisfy the public participation and informed decision-making mandates of NEPA. The procedural requirements of NEPA are designed to benefit those who participate in agency decision-making processes and to require that the agency take a "hard look" at the impacts, alternatives, mitigation measures, and other aspects of a federal action at the earliest stages of the decision process, in recognition that when a "decision is made without the information that NEPA seeks to put before the decisionmaker, the harm that NEPA seeks to prevent occurs." *See*: *Sierra Club v. Marsh,* 872 F.2d 497, 500 (1st Cir. 1989) *quoting Commonwealth of Massachusetts v. Watt*, 716 F.2d 946 at 953 (1st Cir. 1983)

By contrast, the procedure used in the present proceedings denies the Tribe and the NRC the information that a NEPA analysis provides. Importantly, this interdisciplinary analysis and information is provided during the NEPA process by the applicant, staff, and members of the public. All of these sources of information are recognized by NEPA, but the Tribe is prejudiced here when significant sources of information are not available until the NRC has taken final action to accept or deny its contentions. It is of no consequence that the NRC provides an opportunity to seek permission to pursue new or rejected contentions later in the proceedings, based on information revealed in the NEPA analysis. *See*: *Id.* ("Once large bureaucracies are committed to a course of action, it is difficult to change that course - even if new, or more thorough, NEPA statements are prepared and the agency is told to 'redecide.'").

Basis and Discussion

NRC Staff has violated NEPA by requiring that the Tribe formulate and submit detailed contentions before the NEPA process is complete, denying the Tribe the benefit of NEPA analysis. This statutory violation is not remedied by providing a *post hoc* NEPA analysis, as is

contemplated by the NRC regulations. Failure to conform to the timing policies and requirements of NEPA wastes resources of both the NRC Staff and the Tribe. The procedural harms are demonstrated by previously aborted attempts to gain approval of plans to mine in the Dewey-Burdock area: "A Draft Environmental Statement (DES) was prepared by TVA to address the impact of a proposed underground mine in the Dewey-Burdock area, but TVA never completed the NEPA process." Powertech Environmental Report at 1-4.

Conducting NEPA analysis early in the process is necessary to meet the requirement that NEPA analysis must precede the decision-making process, lest the agency unleash a "bureaucratic steam roller" aimed at approval, but without the public participation and informed decisionmaking requirements of NEPA." *See Davis v. Mineta*, 302 F.3d 1104, 1115 (10th Cir. 2002. In short, the procedures the NRC used for the present application fail to satisfy NEPA's purpose, which is to influence the decision making process "by focusing the [federal] agency's attention on the environmental consequences of a proposed project," so as to "ensure[] that important effects will not be overlooked or underestimated only to be discovered after resources have been committed or the die otherwise cast." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989).

Contention 9: Failure to Consider Connected Actions

The Powertech proposal to conduct ISL operations and conduct associated waste disposal activities is being considered by multiple federal agencies. However, NRC, the lead agency for purposes of NEPA - has failed engage these other agencies and therefore has failed to comply with the "action-forcing" mandate and purpose of NEPA.

Basis and Discussion:

The mandate and purpose of NEPA is to influence the decision making process "by focusing the [federal] agency's attention on the environmental consequences of a proposed project," so as to "ensure[] that important effects will not be overlooked or underestimated only to be discovered after resources have been committed or the die otherwise cast." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989). The NEPA analysis must be prepared by the NRC in a manner which timely addresses, identifies, and analyzes any actions that are "connected" to the project under review. *See* 40 C.F.R. § 1508.25; *Utahns for Better Transp. v. United States Dep't of Transp.*, 305 F.3d 1152, 1182 (10th Cir. 2002), *modified in part on other grounds*, 319 F.3d 1207 (2003).

For example, Powertech has recently filed an application with the Environmental Protection Agency ("EPA") for a Class V deep injection well. However, there appears to have been no attempt by the NRC (or EPA) to conduct any NEPA analysis of the proposal for deep injection of hazardous materials in conjunction with the pending AEA license application. The Class V deep injection well is a "connected action" and even though EPA is the permitting agency, the deep injection proposal must be analyzed in the same NEPA analysis as the full Powertech proposal. Even if the disposal plans could somehow avoid analysis as "connected action" the deep well disposal activities must still be fully analyzed in the "cumulative impacts" analysis. See Exhibit 6, at 2-3 (providing evidence applicable here as to the requirements of NEPA with respect to analysis of waste disposal alternatives and impacts).

Here, the Tribe would be harmed should NRC continue to ignore the EPA permitting process on the basis that the "EIS has neglected to mention a serious environmental consequence, failed adequately to discuss some reasonable alternative, or otherwise swept

stubborn problems or serious criticism . . . under the rug.'" *Lee v. United States Air Force*, 354 F.3d 1229, 1242 (10th Cir. 2004) c*iting Sierra Club v. Peterson*, 228 F.3d 559 (5th Cir. 2000).

Contention 10:The Environmental Report does not Examine Impacts of a Direct Tornado Strike

The Environmental Report provides an encyclopedic recital of considerable irrelevant information, but fails to provide information on reasonably foreseeable impacts of the proposal. As one example, although tornado strikes are common occurrences in the region, there is no recognition of this reasonably foreseeable impact, even though it is coupled with catastrophic consequences. See Exhibit 11 (NOAA announcement regarding tornado preparedness in region surrounding Rapid City, South Dakota). This is but one example of the applicant's failure to provide a complete Environmental Report and the NRC failure to comply with the NEPA requirements at the earliest stages of the proceedings.

Basis and Discussion

The CEQ has published NEPA regulations at 40 C.F.R. § 1502.22(b)(3), which are applicable to all federal agencies and which require the NRC "to consider low-probability environmental impacts with catastrophic consequences, if those impacts are reasonably foreseeable." Here, neither the applicant's environmental report nor any NEPA document produced by the NRC has examined the impacts which would occur if the proposed ISL facility received a direct or indirect hit from a tornado. Tornadoes are not uncommon occurrences in the region and planning for tornado impacts is a common practice among all levels of government. http://dps.sd.gov/emergency_services/emergency_management/natural_hazard_info.aspx

The impact of a tornado strike is not only reasonably foreseeable, a tornado has impacted radioactive materials at the Fansteel Plant in Muskogee, Okalohoma (NRC License No. SMB-911) where on June 1, 1999, an F1 tornado was accompanied by a storm that also produced very

large hail. The tornado struck the Fansteel plant, and damaged numerous buildings. According to documents in NRC files, the liners of Pond Numbers 3, 8, and 9 were torn above the water line and a stored soils cover was ripped. Damage to the Sodium Reduction Building allowed bagged material to fall out of the building and tear open with approximately 500 pounds of material released to the ground surface within a 10-foot-diameter area before being recovered and bagged. *See*: *Docket No: 40-7580, Safety Evaluation Report For License Amendment Application To Approve Decommissioning Dated July 24, 2003.*

Where it is reasonably foreseeable that a tornado could strike the proposed ISL facility and damage the control facilities, with the associated winds dispersing toxic and radioactive materials across the landscape, the NRC and the applicant have ignored an important, and foreseeable, environmental impact with potentially catastrophic consequences.

IV. CONCLUSION

For the foregoing reasons, the Tribe has demonstrated that it has standing and that its contentions are admissible. Therefore, the Tribe is entitled to a hearing on its contentions.

Respectfully Submitted,

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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
	)	
(Dewey-Burdock In Situ Uranium Recovery Facility)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing Petition to Intervene and Request for Hearing in the captioned proceeding were served via the Electronic Information Exchange ("EIE") on the 6th day of April 2010, which to the best of my knowledge resulted in transmittal of same to those on the EIE Service List for the captioned proceeding.

/s/ signed electronically by_____

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