

April 12, 2010

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 RESPONSE TO HEARING  
REQUEST OF CONSOLIDATED PETITIONERS

INTRODUCTION

The Nuclear Regulatory Commission (NRC or Commission) Staff responds to the hearing request that David Frankel, Esq., filed on March 9, 2010. Mr. Frankel filed the hearing request on behalf of himself and various individual and organizational clients (collectively, the Petitioners).<sup>1</sup> The Petitioners request a hearing on Powertech (USA) Inc.'s application for an NRC license to be used in connection with an in-situ leach (ISL) uranium recovery facility near Edgemont, South Dakota. The Atomic Safety and Licensing Board should deny the Petitioners' hearing request because the Petitioners have not submitted any contention that meets the NRC's standards for contention admissibility.

BACKGROUND

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<sup>1</sup> "Consolidated Request for Hearing and Petition for Leave to Intervene" (March 8, 2010) (Petition). Apart from himself, Mr. Frankel filed the Petition on behalf of the following persons and organizations: Theodore P. Ebert; Gary Heckenlaible; Susan Henderson; Dayton Hyde; Liliias C. Jones Jarding; Clean Water Alliance; and Aligning for Responsible Mining. Petition at 1.

On February 25, 2009, Powertech submitted its application for a combined NRC source and 11e.(2) byproduct material license.<sup>2</sup> In response to the NRC's request for additional data, Powertech submitted revisions to its application on August 10, 2009.<sup>3</sup> On October 2, 2009, the Staff notified Powertech that it found the revised application acceptable for detailed technical and environmental review.<sup>4</sup> Powertech seeks an NRC license in order to operate the proposed Dewey-Burdock ISL uranium recovery facility in Fall River and Custer Counties, South Dakota. The proposed site, which is near the communities of Dewey and Burdock, is close to State Highway 471 and approximately 13 miles northwest of Edgemont, South Dakota.

I. The Proposed Action

Powertech's proposed uranium recovery method, ISL recovery, involves injecting lixiviant into an underground geological formation containing uranium deposits (*i.e.*, the "ore zone").<sup>5</sup> Lixiviant is a mixture of groundwater charged with oxygen and bicarbonate. As lixiviant is pumped through the ore zone, the uranium dissolves into the lixiviant. The uranium-bearing lixiviant is then pumped back to the surface, where the uranium is separated from the lixiviant, processed into yellowcake, and shipped to other facilities to be enriched for use as reactor fuel. After the uranium is removed, the lixiviant is re-charged with oxygen and bicarbonate and re-injected into the ore zone to repeat the cycle.

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<sup>2</sup> "Powertech (USA), Inc.'s Submission of an Application for a Nuclear Regulatory Commission Uranium Recovery License for its Proposed Dewey-Burdock In Situ Leach Uranium Recovery Facility in the State of South Dakota" (Agencywide Documents Access Management System (ADAMS) Accession No. ML091030707) (February 25, 2009). The application's supporting documentation can be found in ADAMS by searching under Docket No. 04009075.

<sup>3</sup> The revisions to Powertech's application can be found in ADAMS at Accession No. ML092870155 (August 31, 2009).

<sup>4</sup> "Results of Acceptance Review, Powertech (USA), Inc.'s Proposed Dewey-Burdock Facility, Fall River and Custer Counties, South Dakota" (ADAMS Accession No. ML092610201) (October 2, 2009).

<sup>5</sup> Powertech provides an overview of its proposed uranium recovery method and process in Section 1.7 of the Technical Report submitted with its application.

In order to conduct its ISL operations, Powertech plans to build a number of well fields at both the Dewey and Burdock sites. ISL well fields consist of geometric-shaped patterns of injection and production wells, along with monitor wells that surround the ore zone . The injection wells form the corners of the geometric-shaped patterns, while the production wells are at the center. Figure 3.1-5 in Powertech's Technical Report (TR) provides a cross-sectional view of typical well placement at an ISL facility.

As part of its ISL operations, Powertech will draw 0.5 to 3 percent more groundwater through the production wells than is supplied through the injection wells (TR Section 1.7). The excess water drawn through the production wells, referred to as "bleed," creates and maintains a cone of depression in the pressure surface of the aquifer; This forces groundwater to flow continually to the center of the production zone. This procedure is used in order to maintain a flow of outside baseline-quality groundwater into the well field and prevent the flow of lixiviant to the monitor wells surrounding the ore zone. This procedure is also designed to prevent "excursions," *i.e.*, the migration of fluids toward the surrounding aquifer.

The ore zone from which Powertech proposes to extract uranium is within the Inyan Kara aquifer. As stated in the application, the Inyan Kara is the shallowest of four main aquifers in southwestern South Dakota.<sup>6</sup> It is separated by a confining layer from the next shallowest aquifer, the Minnelusa. Below the Minnelusa is the Madison and, below that, the Deadwood aquifer. According to the application, the directional flow in these aquifers is generally southwestward and away from the central part of the Black Hills region.<sup>7</sup> Figures 2.2.-2 and 2.2-

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<sup>6</sup> Section 2.2.3.2.1 of the TR provides an overview of Regional Groundwater Hydrology.

<sup>7</sup> See TR Section 2.2.3.2.1, "Regional Groundwater Hydrology," at page 2-10; Section 2.7.2.2.8, "Groundwater Flow," at page 2-161.

3 in the TR and Plate 3.3-5 provide overviews of the hydrogeology and stratigraphy underlying Powertech's proposed facility.

II. Licensing and Regulation of Uranium Recovery Facilities

As with other uranium recovery applications, the NRC Staff will conduct a detailed technical review of Powertech's application. The Staff's review will include both a safety review and an environmental review. The Staff's safety review will focus on the TR that Powertech submitted with its application, while the environmental review will focus on Powertech's Environmental Report (ER). The Staff will conduct its safety review to determine whether Powertech's application meets all applicable requirements in 10 C.F.R. Part 20 and 10 C.F.R. Part 40. In particular, the Staff will assess whether the application meets the requirements in Appendix A of Part 40, "Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Wastes Produced by the Extraction or Concentration of Source Material from Ores Processed Primarily for Their Source Material Content." The Staff will conduct its environmental review in accordance with the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §§ 4321 *et seq.*, and the NRC's NEPA-implementing regulations at 10 C.F.R. Part 51. For Powertech's application, the Staff will satisfy the requirements of NEPA and Part 51 by preparing a supplemental environmental impact statement (SEIS). The SEIS will supplement the analysis in NUREG-1910, "Generic Environmental Impact Statement for In-Situ Leach Uranium Milling Facilities."

As appropriate, the Staff will propose license conditions to ensure that Powertech's operations adequately protect health and safety and the environment. As an example, all current NRC licensees operating ISL facilities have license conditions intended to prevent or eliminate excursions of lixiviant and other extraction fluid.<sup>8</sup> These conditions require the

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<sup>8</sup> See "Data on Groundwater Impacts at the Existing ISR Facilities" (ADAMS Accession No. Continued . . .

licensees to (1) establish approved parameters for excursions and set up acceptable excursion monitoring well networks; (2) perform bi-monthly sampling at the monitoring wells; (3) promptly report any excursion to the NRC; and (4) in the event of an excursion, perform weekly confirmatory monitoring until the excursion has been eliminated. These ISL licensees are also required by license condition to maintain onsite, and make available for NRC inspection, a record of excursions and the associated corrective actions. Other conditions included in all current ISL licenses require that mechanical integrity tests be performed on all injection and production wells. In addition, by license condition all current ISL licensees must prepare an annual report that provides data on radionuclide levels in regional aquifers.

### DISCUSSION

In order for a hearing request to be granted, a petitioner must demonstrate that it has standing to intervene in the proceeding and submit at least one admissible contention. 10 C.F.R. § 2.309(a).

#### I. Standing

##### A. Legal Standards Governing Standing to Intervene

Under the NRC's Rules of Practice:

[a]ny person whose interest may be affected by a proceeding and who desires to participate as a party must file a written request for hearing or petition for leave to intervene and a specification of the contentions which the person seeks to have litigated in the hearing.

10 C.F.R. § 2.309(a). NRC regulations further provide that the presiding officer "will grant the request [for a hearing] if it determines that the requestor has standing under the provisions of

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ML091770385) (July 10, 2009) at 3–5 (describing license conditions in current ISR licenses). This paper was submitted to the Commission as part of a "Staff Assessment of Groundwater Impacts from Previously Licensed In-Situ Uranium Recovery Facilities" (ADAMS Accession No. ML091770187) (July 10, 2009). The Staff prepared the paper in response to SRM-M081211, which directed the Staff to "provide the Commission with the data that it has in hand that assesses environmental impacts to the groundwater from previously licensed in-situ uranium recovery (ISR) facilities."

[10 C.F.R. § 2.309(d)] and has proposed at least one admissible contention that meets the requirements of [10 C.F.R. § 2.309(f)].” *Id.*

Under the general standing requirements in 10 C.F.R. § 2.309(d)(1), a request for hearing must state:

- (i) The name, address and telephone number of the requestor or petitioner;
- (ii) The nature of the requestor’s/petitioner’s right under the [Atomic Energy Act (AEA) of 1954, 42 U.S.C. § 2011 *et seq.*] to be made a party to the proceeding;
- (iii) The nature and extent of the requestor’s/petitioner’s property, financial or other interest in the proceeding; and
- (iv) The possible effect of any decision or order that may be issued in the proceeding on the requestor’s/petitioner’s interest.

At the heart of the standing inquiry is whether the petitioner has ‘alleged such a personal stake in the outcome of the controversy’ as to demonstrate that a concrete adverseness exists which will sharpen the presentation of issues.” *Sequoyah Fuels Corp. and Gen. Atomics (Gore, Oklahoma Site)*, CLI-94-12, 40 NRC 64, 71 (1994) (citing *Duke Power Co. v. Carolina Env’tl. Study Group, Inc.*, 438 U.S. 59, 72 (1978), and quoting *Baker v. Carr*, 369 U.S. 186, 204 (1962)). The Commission has long applied contemporaneous judicial concepts of standing to determine whether a party has a sufficient personal interest to intervene as a matter of right. *Calvert Cliffs 3 Nuclear Project, LLC & Unistar Nuclear Operating Servs., LLC* (Combined License Application for Calvert Cliffs, Unit 3), CLI-09-20, 70 NRC \_\_\_\_ (Oct. 13, 2009) (slip op. at 2). To establish standing, a petitioner must allege

- (1) an “injury in fact” that is
- (2) “fairly traceable to the challenged action” and
- (3) is “likely” to be “redressed by a favorable decision.”

*Sequoyah Fuels*, CLI-94-12, 40 NRC at 71–72 (quoting *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560–61 (1992)) (citations and internal quotation marks omitted).

Commission practice allows petitioners an alternate way of establishing standing, without an inquiry into traditional standing requirements, through presumptions based on geographical proximity. The Commission has historically presumed standing in power reactor construction permit and operating license proceedings based on a petitioner's 50-mile proximity to the facility. *Florida Power & Light, Co.* (St. Lucie, Units 1 and 2), CLI-89-21, 30 NRC 325, 329 (1989); *Calvert Cliffs 3*, CLI-09-20, 70 NRC \_\_\_\_ (slip op. at 5). In nuclear materials cases, however, "proximity alone does not suffice for standing, absent an 'obvious' potential for offsite harm." *Nuclear Fuel Servs., Inc.* (Erwin, Tennessee), CLI-04-13, 59 NRC 244, 248 (2004). "Whether and at what distance a petitioner can be presumed to be affected must be judged on a case-by-case basis, taking into account the nature of the proposed action and the significance of the radioactive source." *Georgia Tech Research Reactor*, CLI-95-12, 42 NRC at 116-17. For instance, "a presumption based on geographical proximity (albeit at distances much closer than 50 miles) may be applied where there is a determination that the proposed action involves a significant source of radioactivity producing an obvious potential for offsite consequences." *Sequoyah Fuels Corp.*, CLI-94-12, 40 NRC at 75 n.22.

"Where there is no 'obvious' potential for radiological harm at a particular distance frequented by a petitioner, it becomes the petitioner's 'burden to show a specific and plausible means' of how the challenged action may harm him or her." *USEC, Inc.* (American Centrifuge Plant), CLI-05-11, 61 NRC 309, 311-12 (2005) (quoting *Nuclear Fuel Servs., Inc.*, CLI-04-13, 59 NRC at 248). Although the Commission has applied a "proximity-plus" theory to evaluate claims of standing in materials licensing actions, a presumption of standing based on geographical proximity to the proposed facility is only applied "where there is a determination that the proposed action involves a significant source of radioactivity producing an obvious potential for offsite consequences." *Georgia Institute of Technology* (Georgia Tech Research Reactor), CLI-95-12, 42 NRC 111, 116 (1995) (citing *Sequoyah Fuels Corporation* (Gore, Oklahoma Site), CLI-94-12, 40 NRC 64, 75 n.22 (1994)). In a licensing decision involving an ISL uranium

recovery facility, petitioners demonstrated standing by showing that they use a substantial quantity of water from a source that is “reasonably contiguous” to the ISL injection or processing sites. *Hydro Resources, Inc.* (2929 Coors Road, Suite 101, Albuquerque, NM 87120), LBP-98-9, 47 NRC 261 (1998), *rev'd on other grounds*, CLI-98-16, 48 NRC 119 (1998); *see also Crow Butte Resources, Inc.* (In Situ Leach Facility, Crawford, Nebraska), LBP-08-24, 68 NRC 691, 704–05 (2008). However, “[c]onclusory allegations about potential radiological harm” are not sufficient to establish standing. *Nuclear Fuel Services, Inc.*, CLI-04-13, 59 NRC at 248.

I. Individual Petitioners

The Consolidated Petitioners include six individual petitioners: Theodore P. Ebert, David Frankel, Gary Heckenlaible, Susan Henderson, Dayton Hyde and Liliac C. Jones Jarding, Ph.D. Ms. Henderson lives closest to the proposed Dewey-Burdock site, but her residence is still approximately 18 miles away. The other petitioners all live between 30 and 100 miles from the proposed site. Except for Mr. Hyde, none of the individual petitioners has provided information sufficient to demonstrate standing.

None of the individual petitioners claim to draw water from the specific portion of the Inyan Kara aquifer in which Powertech plans to conduct ISL operations. Further, all the individual petitioners claim to live either east or southeast of the proposed Dewey-Burdock site. This is significant because groundwater in southwestern South Dakota generally flows away from the petitioners’ residences. As stated in the application:

The general pattern of groundwater flow is, as expected, away from the highlands and is similar for all aquifer local units. Throughout the southwestern Black Hills including the study area, the groundwater gradient is generally southwestward. Analyses of regional information indicate that similar flow patterns should exist from ground surface to the Precambrian aquifer.

TR at 2.7.2.2.8 at page 2-161. *See also* TR Section 2.2.3.2.1 at page 2-10 (“Regionally, the general direction of groundwater flow is downdip or radially away from the central part of the Black Hills where the aquifers are recharged via infiltration from local rainfall.”) The application

also refers to data from the United States Geological Survey (USGS), which confirm that groundwater flows southwestward and away from the Black Hills region.<sup>9</sup>

Although the Petitioners' expert, Hannan LaGarry, Ph.D., argues that contaminants from Powertech's operations could infiltrate surrounding aquifers, nowhere does he challenge Powertech's statements regarding the directional flow of groundwater in southwestern South Dakota.<sup>10</sup> Further, the pathways described by Dr. LaGarry involve contaminants flowing *downgradient* into adjacent water supplies.<sup>11</sup> Dr. LaGarry therefore fails to explain how Powertech's operations might plausibly harm the groundwater used by any specific petitioner. Because the petitioners all appear to use water that would be upgradient from Powertech's proposed ISL operations, and because no petitioner explains how contaminated material from the Dewey-Burdock site might plausibly enter the water upon which he or she relies, the petitioners fail to demonstrate standing.

The Staff will next address the specific standing arguments made by each individual petitioner.

Theodore P. Ebert

Mr. Ebert lives in Hot Springs, South Dakota and states that he draws water from the Ogallala Aquifer. Ebert Affidavit at ¶¶ 1, 3. (The Petition states that Mr. Ebert's "water is Hot Springs tap water which comes from the Madison Aquifer." Petition at 23.) Mr. Ebert states that

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<sup>9</sup> See TR at pages 2-160 through 2-161 (referring to "Potentiometric Surface of the Inyan Kara Aquifer in the Black Hills Area, South Dakota" (Strobel, M.L., Galloway, J.M., Hamade, G.R., and Jarrell, G.J., 2000), available at [http://pubs.usgs.gov/ha/ha745\\_a/ha745aSheet2.pdf](http://pubs.usgs.gov/ha/ha745_a/ha745aSheet2.pdf)).

<sup>10</sup> "Expert Opinion Regarding the Proposed Dewey-Burdock Project ISL Mine Near Edgemont, South Dakota" (ADAMS Accession No. ML100680016) (March 9, 2010).

<sup>11</sup> See LaGarry Opinion at 3 ("Once into adjacent water-bearing strata or the land surface, contaminants can . . . flow downgradient into other water supplies."); LaGarry Opinion at 4 (" . . . down gradient flow along the Cascade and Chilson anticlines . . . would transmit contaminants to the major, mapped faults north of the Pine Ridge in Nebraska in less than 5 years. . . .").

he has lived in Fall River County for nine years and during this time his water has worsened in quality. Ebert Affidavit at ¶ 4.

Mr. Ebert does not allege an injury in fact that is fairly traceable to Powertech's proposed action. To the contrary, the only injury Mr. Ebert mentions, a recent decline in water quality, predates Powertech's application. Mr. Ebert also does not explain why it is plausible that Powertech's operations might affect him. Mr. Ebert states only that he uses water from the Ogallala Aquifer, and he does not claim to rely on water from any specific regional aquifer. Even assuming that Mr. Ebert uses water from the Madison Aquifer, he has not shown that Powertech's operations might plausibly harm that aquifer. In his affidavit Mr. Ebert does not describe any pathway by which leach solution from the Inyan Kara would reach the Madison Aquifer, which is separated from the Inyan Kara by confining layers and by another major aquifer, the Minnelusa.

In addition, Mr. Ebert appears to live approximately 40 miles upgradient from the proposed Dewey-Burdock site. Neither Mr. Ebert nor Dr. LaGarry contradicts Powertech's statements regarding the groundwater gradient in the southwestern Black Hills area. Accordingly, even if leach solution from Powertech's operations somehow entered the Madison Aquifer, Mr. Ebert does not show how he would be harmed.

David Frankel

Mr. Frankel lives in Buffalo Gap, South Dakota. Frankel Affidavit at ¶ 1. Buffalo Gap is approximately 50 miles east of the proposed Dewey-Burdock site. Mr. Frankel states that he uses water from the Madison Aquifer for personal, household, and domestic purposes, as well as drinking and bathing. *Id.* ¶ 3. He further states that he uses a well in the Inyan Kara for gardening and irrigation at his residence. *Id.*

Mr. Frankel fails to describe a plausible pathway by which Powertech's operations might harm him. Mr. Frankel lives approximately 50 miles upgradient from Powertech's proposed site. The water he uses for personal and domestic purposes comes from the Madison Aquifer, which

is separated from the Inyan Kara by confining layers and by the Minnelusa Aquifer. However, Mr. Frankel does not describe any pathway by which leach solution from the Inyan Kara would reach the Madison Aquifer, which is separated from the Inyan Kara by confining layers and by another major aquifer, the Minnelusa. Moreover, Mr. Frankel fails to describe how Powertech's proposed action might affect his gardening or irrigation. Accordingly, the Board should find that Mr. Frankel has not established standing.

Gary Heckenlaible

Mr. Heckenlaible lives in Rapid City, South Dakota. Heckenlaible Affidavit at ¶ 1. He states that he uses water from the Madison Aquifer for personal, household and domestic purposes, including gardening, irrigation, bathing and drinking. *Id.* at ¶ 3. Mr. Heckenlaible lives approximately 100 miles north of the proposed Dewey-Burdock site, and the general flow of the regional aquifers is not in his direction.

Mr. Heckenlaible does not allege any injury that might be caused by Powertech's proposed operations. In particular, Mr. Heckenlaible does not explain how the water in the Madison Aquifer might be harmed by these operations. Mr. Heckenlaible also does not describe any pathway by which contamination from Powertech's operations might reach his water supply.

Susan Henderson

Ms. Henderson lives in Edgemont, SD. She states that she draws water from the Lakota Sandstone Aquifer (part of the Inyan Kara Aquifer) for personal and agricultural uses.

Henderson Affidavit at ¶¶ 4–5. She also states:

It is my understanding from published scientific research studies that a portion of the Inyan Kara formation . . . flows first southwest from the proposed mining area and then flows eastward toward the southern boundary of the Black Hills. This would include the area where I live and operate my ranching business in western Fall River County.

*Id.* at ¶ 8.

Ms. Henderson does not describe the research studies to which she is referring. Thus, it is impossible to determine whether her claim regarding the Inyan Kara's directional flow has support. Ms. Henderson does not demonstrate that there is a plausible pathway by which contamination from the Dewey-Burdock site might reach her water supply. Although Ms. Henderson need not establish conclusively that the Inyan Kara flows in the direction of her residence in order to demonstrate standing, she must show why her alleged injury would be "fairly traceable" to the proposed action. *Sequoyah Fuels*, CLI-94-12, 40 NRC at 71–72. Because Ms. Henderson does not provide sufficient information to support her standing claim, she fails to make the necessary showing.

#### Dayton Hyde

Mr. Hyde lives on and operates The Black Hills Wild Horse Sanctuary, which is in Hot Springs. Hyde Affidavit at ¶¶ 1, 3–4. Mr. Hyde states that he and the horses, cattle and wildlife in the Sanctuary rely on water from the Cheyenne River. *Id.* at ¶ 8. Mr. Hyde further states that "[t]he Cheyenne River flows through our land downstream from where the Beaver and Pass Creeks flow through the Dewey-Burdock project area and into the Cheyenne River." *Id.* at ¶ 9. He asserts that spills or leaks from the Dewey-Burdock site could thereby reach waters in the Sanctuary. *Id.* at ¶¶ 8–9. Mr. Hyde states that if this water becomes contaminated, he will have no way to water his horses and his land will become useless. *Id.* at ¶ 8.

Neither Mr. Hyde nor Dr. LaGarry addresses sections of Powertech's application that are relevant to assessing whether contaminated material could migrate from the Dewey-Burdock site to the Cheyenne River.<sup>12</sup> They therefore fail to describe a specific pathway by which material from the site could reach Mr. Hyde's land. Mr. Hyde and Dr. LaGarry also fail to explain why any material entering the Cheyenne River would be likely to cause the injuries described by

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<sup>12</sup> See, e.g., Section 3.1.6, "Surface Water Management"; Section 7.2.6.1 "Potential Surface Waters and Wetlands."

Mr. Hyde. The Dewey-Burdock site would be approximately 45 miles upstream from Mr. Hyde's land, and this distance renders it implausible that Mr. Hyde would be harmed by surface water carrying material from the site. Accordingly, Mr. Hyde has not demonstrated standing to intervene in this proceeding.

Lilias C. Jones Jarding

Dr. Jarding is Executive Director of the Clean Water Alliance (CWA). Jarding Affidavit at ¶ 1. She does not provide her personal address, but she lists a mailing address for her as CWA Executive Director that is in Rapid City. *Id.* Although Dr. Jarding's Affidavit does not provide further information on her personal water use, the Petition states that she uses "Rapid City tap water, which comes from the Madison Aquifer." Petition at 26. The Petition also states that Dr. Jarding uses water from the "Mennelusa which is hydrologically connected to the Madison." *Id.*

Dr. Jarding has not provided information sufficient to demonstrate personal standing. Neither her affidavit nor the Petition provides Dr. Jarding's personal address. Dr. Jarding's claim of personal standing therefore does not satisfy 10 C.F.R. § 2.309(d)(1)(i), which requires a petitioner to state her address. Further, Dr. Jarding does not describe any personal injury that might plausibly result from operations at the Dewey-Burdock site. Although the Petition states that Dr. Jarding is "concerned" about water consumption at the site, nowhere does Dr. Jarding describe how such consumption might affect her personal interests.

II. Organizational Petitioners

The organizational petitioners are Aligning for Responsible Mining (ARM) and the CWA. Petition at 27. When an organization requests a hearing, the organization may seek to establish standing either on its own behalf or on behalf of one or more of its members. *Entergy Nuclear Operations, Inc. and Entergy Nuclear Palisades, LLC* (Big Rock Point Plant), CLI-08-19, 68 NRC 251, 258–59, 266 (2008).

1. Organizational Standing

“Organizations seeking to intervene in their own right must satisfy the same ‘standing’ requirements as individuals seeking to intervene.” *Consumers Energy Co.* (Palisades Nuclear Plant), CLI-07-18, 65 NRC 399, 411 (2007). The injury to an organization must be a “palpable injury” in fact to its organizational interests. *Florida Power and Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), ALAB-952, 33 NRC 521, 528–30 (1991). In addition, the injury must be within the zone of interests protected under applicable law. *Id.* at 529; *Hydro Resources, Inc.*, LBP-98-9, 47 NRC at 271, *rev’d on other grounds*, CLI-98-16, 48 NRC 119.

2. Representational Standing

An organization seeking to establish representational standing must show that at least one of its members may be affected by the proceeding. *Palisades*, CLI-07-18, 65 NRC at 408–09; *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), CLI-00-20, 52 NRC 151, 163 (2000). The organization must identify that member, and it must show that the member has authorized the organization to represent him or her and request a hearing on his or her behalf. *Palisades*, CLI-07-18, 65 NRC at 409; *Vermont Yankee*, CLI-00-20, 52 NRC at 163.

3. ARM and CWA Fail to Demonstrate Organizational Standing

ARM is “an NGO [Non-Governmental Organization] based at Pine Ridge Indian Reservation founded to prevent abusive mining which is mining that does not comply with the International Precautionary Principle.” Petition at 27. CWA is “a South Dakota nonprofit which was formed in 2009 to protect the natural resources of the Black Hills of South Dakota with a focus on groundwater contamination from uranium mining.” *Id.* Dr. Jarding, CWA’s Executive Director, states that CWA is also concerned about the NRC “authorizing an in-situ mining permit to [a] foreign corporation whose corporate headquarters and primary investor are outside the United States.” Jarding Affidavit at ¶ 12.

Neither ARM nor CWA meets the requirement that it identify a discrete institutional injury

it might suffer if the NRC grants the applicant's request. *Georgia Tech*, CLI-95-12, 42 NRC at 115; *Turkey Point*, ALAB-952, 33 NRC at 528–30. Neither ARM nor CWA states that it holds land or other property in the vicinity of the Dewey-Burdock site. Further, neither organization identifies property it holds elsewhere that might be adversely affected by Powertech's proposal. Both ARM and CWA are concerned about groundwater contamination from uranium mining, and CWA is additionally concerned about foreign ownership of an ISL facility. These are general policy concerns that are insufficient to establish organizational standing. See *Big Rock Point*, CLI-08-19, 68 NRC 251, 270 ("Nor does [the petitioner's] status as an anti-nuclear advocate and a source of information for its community qualify it for organizational standing. Mere involvement in such issues is insufficient to merit intervenor status."). See also *Sierra Club v. Morton*, 405 U.S. 727, 734–35 (holding that a petitioner cannot assert injury-in-fact to itself as an organization based upon nothing more than a broad interest—shared by many others—in the preservation of the environment).

ARM and CWA fail to identify any discrete injury to their organizational interests that may result from operations at the Dewey-Burdock site. They instead raise only "general environmental and policy interests of the sort [the Commission] repeatedly [has] found insufficient for organizational standing." *Big Rock Point*, CLI-08-19, 68 NRC at 270; *Turkey Point*, ALAB-952, 33 NRC at 528–30. Accordingly, both ARM and CWA fail to demonstrate organizational standing.

#### 4. ARM Fails to Demonstrate Representational Standing

The Petition identifies Mr. Ebert, Mr. Frankel and Mr. Heckenlaible as members of ARM. Petition at 27. As explained above, none of these individuals has demonstrated personal standing to intervene in this proceeding. An organization seeking to establish representational standing must show that at least one of its members may be affected by the proceeding. *Palisades*, CLI-07-18, 65 NRC at 408–09. ARM does not make the necessary showing and therefore fails to establish representational standing.

5. CWA Does Not Demonstrates Representational Standing

The Petition identifies Ms. Henderson, Mr. Hyde and Dr. Jarding as members of CWA. Petition at 27. Because the Staff opposes Mr. Hyde's claim of personal standing, the Staff also opposes standing for CWA as the representative of Mr. Hyde.

II. Contentions

A. Legal Requirements for Contentions

The legal standards governing admissibility of contentions are set forth in the NRC's Rules of Practice at 10 C.F.R. § 2.309 (f)(1). In order to be admissible, a contention must:

(i) Provide a specific statement of the legal or factual issue sought to be raised or controverted;

(ii) Provide a brief explanation of the basis for the contention;

(iii) Demonstrate that the issue raised is within the scope of the proceeding;

(iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding;

(v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which the petitioner intends to rely at the hearing, together with references to the specific sources and documents, which the petitioner intends to rely to support its position on the issue; and

(iv) Provide sufficient information to show that a genuine dispute with the applicant/licensee exists on a material issue of law or fact. This information must include references to specific portions of the application (including the applicant's environmental report and safety report) that the petitioner disputes and the supporting reasons for each dispute, or, if the petitioner believes that the application fails to contain information on a relevant matter as required by law, the identification of each failure and the supporting reasons for the petitioner's belief.

10 C.F.R. § 2.309(f)(1).

The purpose of the Commission's contention pleading requirements is to "focus litigation on concrete issues and result in a clearer and more focused record for decision." *Changes to*

*Adjudicatory Process (Part II)*, 69 Fed. Reg. 2182, 2202 (January 14, 2004). The Commission “should not have to expend resources to support the hearing process unless there is an issue that is appropriate for and susceptible to, resolution in an NRC hearing.” *Id.* The “contention admissibility ‘requirements are deliberately strict, and [the Commission] will reject any contention that does not satisfy the requirements.’” *Progress Energy Carolinas, Inc.* (Shearon Harris Nuclear Power Plant, Units 2 & 3), CLI-10-09, 71 NRC \_\_\_\_ (March 11, 2010) (slip op. at 4) (quoting *USEC, Inc. (American Centrifuge Plant)*, CLI-06-9, 63 NRC 433, 437 (2006)). Mere “notice pleading” does not suffice. See *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Unit 3), CLI-09-5, 69 NRC 115, 120 (2009) (citing *Consumers Energy Co. (Palisades Nuclear Plant)*, CLI-07-18, 65 NRC 399, 414 (2007)). A contention must be rejected where, rather than raising an issue that is concrete or litigable, it reflects nothing more than a generalization regarding the petitioner’s view of what the applicable policies ought to be. *Private Fuel Storage, L.L.C.*, (Independent Spent Fuel Storage Installation), CLI-04-22, 60 NRC 125, 129 (2004) (citing *Philadelphia Electric Co. (Peach Bottom Atomic Power Station, Units 2 & 3)*, ALAB-216, 8 AEC 13, 20–21 (1974)).

B. Threshold Legal Issue: Petitioners’ Reliance on 10 C.F.R. § 40.9

Before turning to the Petitioners’ specific contentions, the Staff will address the Petitioners’ interpretation of 10 C.F.R. § 40.9, an interpretation that serves as the basis for a number of the Petitioners’ contentions. In Contention D and in bases 69–90 of Contention I the Petitioners allege that, because Powertech has violated section 10 C.F.R. § 40.9(a) or (b), the Staff cannot properly issue Powertech an NRC license.

10 C.F.R. § 40.9(a) states that “Information provided to the Commission by an applicant for a license . . . shall be complete and accurate in all material respects.” The Petitioners interpret this language as requiring an applicant to disclose in its application “all information that a reasonably prudent regulator would consider important in making a licensing decision.”

Petition at 30. This is incorrect. Rather, section 40.9(a) provides that

[i]nformation provided to the Commission by an applicant for a license or by a licensee or information required by statute or by the Commission's regulations, orders, or license conditions to be maintained by the applicant or the licensee shall be complete and accurate in all material respects.

Section 40.9(a) does not create, as the Petitioners claim, an independent obligation on the part of the applicant to submit all information that a reasonably prudent regulator would consider. In other words, if there is no requirement in NRC regulations that an applicant must provide certain information in its application; 10 C.F.R. § 40.9(a) does not require the applicant to provide additional information.

The Petitioners also rely on 10 C.F.R. § 40.9(b), which “requires the Applicant to notify the Commission if Applicant has identified information having a significant implication for public health and safety or common defense and security.” Petition at 30. Section 40.9(b), however, only applies to certain categories of information. This subsection states:

An applicant or licensee violates this paragraph only if the applicant or licensee fails to notify the Commission of information that the applicant or licensee has identified as having a significant implication for public health and safety or common defense and security. . . . This requirement is not applicable to information which is already required to be provided to the Commission by other reporting or updating requirements.

Thus, according to its plain language, 10 C.F.R. § 40.9(b) applies only where an applicant (1) has identified certain information as having a significant implication for public health and safety or common defense *and* (2) is not otherwise required to provide the information to the NRC.

The Petitioners' reliance on section 40.9(b) regarding Commission notification is similarly misplaced. If NRC regulations require that an applicant provide information to the NRC, as the Petitioners argue in almost all cases where they cite section 40.9, then subsection (b) does not apply. As the Petitioners can only contest the omission of information required to be submitted by the Applicant as part of the Application, within the scope of this proceeding, 10 C.F.R. § 40.9(b) is categorically unavailable to the Petitioner as cause for the materiality of an omission.

In sum, the Petitioners fail to show there is a legal issue regarding whether Powertech

has violated section 40.9. This is significant, because Petitioners rely on section 40.9 in multiple contentions or bases. As a threshold matter, then, the Board should reject all the Petitioners' contentions or bases to the extent the Petitioners' arguments rely on 10 C.F.R. § 40.9.

C. Petitioners Have Not Set Forth an Admissible Contention

Contention A:

The Application does not accurately describe the environment affected by its proposed mining operations or the extent of its impact on the environment as a result of its use and potential contamination of water resources, through mixing of contaminated groundwater in the mined aquifer with water in surrounding aquifers and drainage of contaminated water into the Cheyenne River.

Petition at 34.

In this one-sentence contention the Petitioners do not point to any specific deficiency in Powertech's application or any regulation that requires Powertech to provide additional information on aquifers and drainages. The Petitioners implicitly assert that contaminated groundwater could infiltrate surface water and surrounding aquifers. They do not cite facts or expert testimony explaining how this might occur. Where a petitioner claims the application omits required information, the petitioner must set forth the facts or expert opinion upon which it relies. 10 C.F.R § 2.309(f)(1)(v). The petitioner must also identify specific omissions in the application "*and the supporting reasons for the petitioner's belief.*" 10 C.F.R § 2.309(f)(1)(vi) (emphasis added). The Petitioners' broad claim that Powertech "does not accurately describe the environment affected by its proposed mining operations" is insufficient to support admitting Contention A. *See Fansteel, Inc.* (Muskogee, Oklahoma Site), CLI-03-13, 58 NRC 195, 203 (2003) (holding that a "petitioner's issue will be ruled inadmissible if the petitioner 'has offered no tangible information, no experts, no substantive affidavits,' but instead only 'bare assertions and speculation'"). *Shearon Harris*, CLI-10-09, 71 NRC, footnote 99 \_\_\_\_ (slip op. at 13).

Further, in Contention A the Petitioners do not identify any specific section of Powertech's application that allegedly omits required information. Where a contention fails to

controvert the application, as here, the contention must be dismissed. 10 C.F.R. § 2.309(f)(1)(vi). See *Shearon Harris*, CLI-10-09, 71 NRC \_\_\_\_ (slip op. at 13).

The Petitioners may believe that Contention A should be admitted because a similar contention (as reformulated by the Commission) was admitted in *Crow Butte Resources, Inc.* (License Renewal for the In Situ Leach Facility, Crawford, Nebraska), Docket No. 40-8943-OLA. The admission of a similar contention in *Crow Butte*, however, does not exempt Petitioners from complying with the rules on admissibility of contentions by addressing site-specific factors and providing bases for their assertions. Powertech's application presents a proposed action with activities, siting, and hydrologic and geological factors that differ from those at issue in *Crow Butte*. The Petitioners should not be allowed to rely on a contention that fails to address factors specific to Powertech's application. The plain language of 10 C.F.R. § 2.309(f)(1) requires that all petitioners provide an explanation of the bases for their contentions, statements of the facts or expert opinion upon which they intend to rely, and sufficient information to show they have a dispute with the applicant on a material issue of law or fact. Cf. *PPL Bell Bend, LLC* (Bell Bend Nuclear Power Plant), CLI-10-07, 71 NRC \_\_\_\_ (Jan. 7, 2010) (slip op. at 3) ("Further, our case law is clear that a petitioner must make a fresh standing demonstration in *each* proceeding in which intervention is sought because a petitioner's circumstances may change from one proceeding to the next."). If a petitioner fails to meet *any* requirement, its contention must be rejected. Here, where Contention A fails to meet multiple requirements in 10 C.F.R. § 2.309(f)(1), the Board must reject the contention.

#### Contention B

Applicant's proposed mining operations will use and contaminate water resources, resulting in harm to public health and safety, through mixing of contaminated groundwater in the mined aquifer with water in surrounding aquifers and drainage of contaminated water into the Cheyenne River.

Petition at 34.

This contention must be rejected because the Petitioners fail to support their allegations

with documentation or expert opinion. The Petitioners do not explain which hydrologic processes or mechanisms could result in contaminated groundwater entering the Cheyenne River, nor do they explain how this might occur. Other than their bare assertion that contaminated groundwater will threaten public health and safety, the Petitioners offer no support for Contention B. This contention is therefore inadmissible. 10 C.F.R. § 2.309(f)(1); *Fansteel*, CLI-03-13, 58 NRC at 203.<sup>13</sup>

Contention B must also be rejected because the Petitioners do not demonstrate that they have a genuine dispute with Powertech. The Petitioners do not cite any section of Powertech's TR or ER that is relevant to the issues they identify. Accordingly, the Petitioners have not shown that there is a dispute over the effectiveness of the methods by which Powertech intends to prevent excursions of contaminated water. Contention B therefore fails to satisfy 10 C.F.R. § 2.309(f)(1)(vi).

#### Contention C

Relying on 10 C.F.R. § 51.45(c), the Petitioners argue that the "Cost Benefits as discussed in the Application fail to include economic value of environmental benefits." Petition at 35. According to the Petitioners,

[t]he Application does not contain any quantification of the negative impacts predicted and estimated by Applicant and mentioned in the Application such as the value of the millions of gallons of water that will be taken from the Inyan Kara and Madison Aquifers; and the loss in real property values from aquifer drawdowns. . . .

*Id.* The Petitioners cite several studies and papers that briefly discuss the quantification of an economic value for goods and benefits provided by "unconverted" ecosystems and natural

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<sup>13</sup> See, e.g., Section 3.1.6, "Surface Water Management"; Section 7.2.6.1 "Potential Surface Waters and Wetlands." see also *Amergen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-06-24, 64 NRC 111, 118-119 (2006) (holding that the NRC's rules on admissibility of contentions require petitioners to provide "a clear statement as to the basis for the contentions and the submission of . . . supporting information and references to specific documents and sources that establish the validity of the contention. . . . "[m]ere 'notice pleading' does not suffice.").

features (*i.e.*, ecosystems and natural features that are undisturbed by humans). Based on these studies and papers, the Petitioners argue that “it is possible to quantify the qualitative considerations involved with negative impacts to the groundwater, surface water, Beaver Creek, Pass Creek and Cheyenne River and the Application fails to conform to that requirement of Section 51.45(c).” *Id.*

The Board should reject Contention C for a number of reasons. First, the Petitioners do not provide any support for their claim that the Dewey-Burdock Project will cause negative impacts. The Petitioners simply assume that a drawdown of water from regional aquifers will cause real property values to decline. The Petitioners cite no authority for this claim, and they do not address specific sections of Powertech’s application that are relevant to their claim.<sup>14</sup> As for the Petitioners’ claim that the Dewey-Burdock Project will cause negative impacts to Beaver Creek, Pass Creek and the Cheyenne River, the Petitioners fail to offer any explanation of what those impacts might be. To the extent the Petitioners disagree with Powertech’s analyses of the impacts to these bodies of water, the Petitioners fail to specifically dispute relevant sections of the application.

Second, the Petitioners provide no support for their claim that 10 C.F.R. § 51.45(c) requires Powertech to further assess water consumption. Section 51.45(c) states in part:

The analyses for environmental reports shall, to the fullest extent practicable, quantify the various factors considered. To the extent that there are important qualitative considerations or factors that cannot be quantified, those considerations or factors shall be discussed in qualitative terms.

In its application Powertech does, in fact, quantify water consumption. Powertech describes the amount of water it expects to use during production and provides drawdown estimates for

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<sup>14</sup> For example, Powertech discusses drawdown estimates and impacts in Section 4.6.2.6 of the ER.

regional aquifers.<sup>15</sup> To the extent the Petitioners are arguing that Powertech needs to further quantify water consumption, they fail to explain how this should be done. The Petitioners refer to the “value” of water, but they provide no information on what this value is supposed to take into account or how this value might be quantified. The Petitioners cite studies and papers suggesting that in certain cases it is possible to quantify impacts to ecosystems in terms of the lost value of goods and services. These references, however, provide no guidance as to how this type of quantification might be applied to the Dewey-Burdock Project.<sup>16</sup> In any event, the Petitioners do not show that whatever type of quantification they have in mind would be “practicable” and thus required by 10 C.F.R. § 51.45(c).

In sum, the Petitioners fail to support their claim that Powertech violated 10 C.F.R. § 51.45(c) by not further quantifying factors relating to the Dewey-Burdock Project. The Petitioners also fail to address relevant portions of Powertech’s application and explain why they dispute Powertech’s analyses. The Board must therefore reject Contention C under 10 C.F.R. §§ 2.309(f)(1)(v) and (vi).

#### Contention D

Section 51.45(e) requires disclosure of adverse information. Section 40.9 requires disclosure of all material facts and that the Application be complete. As described in the LaGarry Opinion and the Moran Opinion, the Application fails to disclose all required information in a comprehensible manner.

Petition at 35–39.

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<sup>15</sup> Section 4.6 addresses “Potential Water Resource Impacts,” with more specific information provided in Section 4.6.2.6, “Potential Impacts of Groundwater Consumption During Operations and Restoration,” Table 4.6-1, “Net Water Usage with Reverse Osmosis,” and Table 4.6-2, “Net Water Usage without Reverse Osmosis.”

<sup>16</sup> For example, the Petitioners make no attempt to show that the factors considered in, and the conclusions drawn from, the University of Adelaide study is relevant to the Dewey-Burdock Project. See *Shearon Harris*, CLI-10-09, 71 NRC \_\_\_\_ (slip op. at 10 n.99) (“We expect our licensing boards to examine cited materials to verify that they do, in fact, support a contention.”) (quoting *USEC Inc.*, CLI-06-10, 63 NRC at 457)

In Contention D the Petitioners rely on a letter from Robert Moran, Ph.D.,<sup>17</sup> and the LaGarry Opinion<sup>18</sup> to make several broad claims that Powertech's application violates various regulations in 10 C.F.R. Part 40 and Part 51. Petition at 35-39. The Petitioners argue that Powertech's application violates (1) 10 C.F.R. §§ 40.9 and 51.45(c) by being "disorganized" and failing to provide important information; (2) 10 C.F.R. § 51.45(c) because it does not present a "coordinated, statistically-sound data set for *all* Baseline Water Quality" (emphasis in original); and (3) Criterion 5B in Appendix A of Part 40 by failing to properly analyze the host aquifer with respect to confinement, secondary porosity, artesian flow and horizontal flow. Each of these claims lacks support and rests on a misunderstanding of applicable regulations. Accordingly, Contention D must be rejected.

1. The Petitioners Fail to Adequately Support Their Assertion that the Application is "Disorganized" and in Violation of 10 C.F.R. § 40.9 or § 51.45(c).

Dr. Moran states:

*After reviewing a large portion of the approximately 6000 pages of relevant documents [Technical Report is 3103 pg.; Environmental Report is 2615 pg.; Supplement is 66 pg.], I find it is not possible to provide a meaningful expert review and technical comment on the adequacy of the documents within the time provided because they are quite disorganized, often with little consistency between the various documents, and frequently presenting information and interpretations in a technically inadequate manner. More importantly, the reports fail to provide the most important information necessary to commenting intelligently on these matters. Further details are presented below.*

Petition at 36 (emphasis in original). Dr. Moran lists three examples of the alleged "disorganization" reflected in the application. First, Dr. Moran claims that the titles of Tables 2.7-27, 2.7-28 and 2.7-29 in the TR "are so inadequate . . . the reader has no way of knowing what

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<sup>17</sup> The Petitioners seek to incorporate by reference a letter from Robert E. Moran, Ph.D., that accompanied the Oglala Sioux Tribe's request for an extension of time to file a hearing request in this proceeding. (ADAMS Accession No. ML100680012) (February 23, 2010).

<sup>18</sup> (ADAMS Accession No. ML100680016) (March 98, 2010).

sampling dates are represented.” Petition at 36 (citing Moran Letter at 1). Second he claims that a reader cannot interpret the usefulness of the data in Table 2.7-27 because “total depths and screened intervals for many of the wells . . . are not known.” Moran Letter at 1–2. Finally, he states that while the text on page 2-199 of the TR refers to Table 2.7-29, it is fact discussing Table 2.7-30.” Moran Letter at 2.

Dr. Moran’s claims of “disorganization” are not supported. The sampling and well data Dr. Moran claims are missing from the application can readily be located. Appendix 2.7-G provides sampling dates for the values reported in Tables 2.7-27, 2.7-28 and 2.7-29.<sup>19</sup> Appendices 2.2-A and 2.2.B, on the other hand, provide extensive data on well depths and screened intervals.<sup>20</sup> Dr. Moran’s first two claims of “disorganization” therefore have no basis. Although Dr. Moran is correct that page 2-199 of the TR mistakenly refers to Table 2.7-29 instead of 2.7-30 (the text on page 2-199 states, “Table 2.7-29 lists constituents analyzed for in groundwater samples”), this is a trivial misstatement. Table 2.7-30 is the very next table appearing after page 2-199, and it is titled “Number of Groundwater Samples Collected, Analytical Method, and PQL by Constituent.”

Even if Dr. Moran’s specific claims had merit, three misstatements in a 6000-page application would not support Dr. Moran’s broad claim that Powertech’s application is so disorganized an expert cannot meaningfully review the document. The NRC Staff accepted the application for technical and environmental reviews, did not come to that conclusion.<sup>21</sup>

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<sup>19</sup> See “Groundwater Quality Data” (ADAMS Accession No. ML091040358). Further, the TR at Section 2.7.3.2.2.1 states: “Complete groundwater quality data results are available in Appendix 2.7-G.”

<sup>20</sup> See “Appendix 2.2.A, Well Locations, Appendix 2.2.B, Well Completion Reports (2007-2008))” (ADAMS Accession No. ML091040351).

<sup>21</sup> Powertech states that its application was prepared in accordance with NUREG-1748, “Environmental Review Guidance for Licensing Actions Associated with NMSS Programs” (NRC, 2003). TR at Section 1-2. This NUREG prescribes guidance on the organization and contents of materials license applications. On its face, Powertech’s application appears to generally follow the organizational guidance of NUREG-Continued . . .

Further, neither 10 C.F.R. § 40.9 nor § 51.45(c) imposes any document organizational requirements on an application. Section 40.9(a) requires that information submitted to the NRC be complete and accurate in all material respects. Section 40.9(b) requires Commission notification where an applicant has identified information as having significant implications for public health and safety or common defense and security. Neither section requires that an application for an NRC license be organized in any particular manner. Section 51.45(c), states that an ER “must include an analysis that considers and balances the environmental effects of the proposed action, the environmental impacts of alternatives to the proposed action, and alternatives available for reducing or avoiding adverse environmental effects.” This section is concerned only with the contents of the ER; it does not prescribe organizational requirements.

The Petitioners fail to support their claim that Powertech’s application is “disorganized,” and the regulations they cite do not impose organizational requirements on an application. The Board must therefore reject the Petitioners’ claim under 10 C.F.R. § 2.309(f)(1)(v). In addition, because the Petitioners do not cite any authority for their claim that an application must be organized in a particular manner, the Petitioners fail to show the issue they raise is material to any finding the NRC must make in this licensing proceeding. The Petitioners’ claims therefore fail under 10 C.F.R. § 2.309(f)(1)(iv).

2. The Petitioners Fail to Support Their Claim that the Application Needs to Provide Additional Information on Baseline Water Quality

Dr. Moran argues that “[n]o coordinated, statistically-sound data set for all Baseline Water Quality (both surface and ground water) is presented in [the application]—as is required in NURGEG—1569 [sic].”<sup>22</sup> Petition at 37, Letter at 2. Dr. Moran also argues that the

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1748. This further calls into question Dr. Moran’s claim that the application is “quite disorganized.”

<sup>22</sup> NUREG-1569, “Standard Review Plan for In Situ Leach Uranium Extraction License Application” (NRC, Continued . . .

application is deficient because, while Powertech provides both laboratory data and water quality data from the Tennessee Valley Authority (TVA), it fails to statistically summarize the laboratory data and leaves out historic TVA data. *Id.* Dr. Moran claims that Powertech “further confuse[s] the baseline issues” because its application “states on pg. 3-3 [of the TR]: ‘A minimum of eight baseline water quality wells will be installed in the ore zone in the planned well field area.’” Petition at 37, Letter at 3. According to Dr. Moran, this is significant because it shows 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.” *Id.*

Dr. Moran fails to support his claims that Powertech needed to provide additional information on baseline water quality. In fact, Dr. Moran’s claims appear to be based on a misunderstanding of applicable requirements. NUREG-1569, which Dr. Moran cites, does not require that an application include specific data. Rather, the NUREG, like all NUREGs, only sets forth the NRC Staff’s guidance on how an applicant or licensee *may* comply with NRC regulations.<sup>23</sup> In any event, Dr. Moran appears to simply assume that NUREG-1569 requires Powertech to include historic TVA data and statistically summarize laboratory data in its application. Petition at 37-38. Dr. Moran does not cite specific sections of the NUREG to support his claim that additional analysis is required. More significantly, he fails to cite any NRC regulation in support of his claim.<sup>24</sup>

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2003).

<sup>23</sup> NUREG-1569 describes programs acceptable to the NRC Staff for typical uranium extraction facilities, including programs for establishing baseline water quality. As explained in NRC Regulatory Guide 4.14 at page 2, programs described in NUREGs are not requirements. Licensing requirements are determined by the NRC Staff on a case-by-case basis during individual licensing reviews. Individual applicants or licensees may propose alternative programs that are not necessarily consistent with the guidance in the NUREG. The justification for such alternatives will be reviewed by the NRC Staff, and the acceptability of proposed alternatives will be determined on a case-by-case basis during individual licensing reviews.

<sup>24</sup> Dr. Moran also claims that Powertech’s baseline assessments are unreliable because they do not include all well data points. Petition at 37, Letter at 2. Dr. Moran does cite any requirement that an  
Continued . . .

Dr. Moran suggests that Powertech's plan to install a minimum of eight baseline water quality wells in the ore zone shows that its current baseline water quality data are deficient. Petition at 37, Moran Letter at 2. Dr. Moran appears to misunderstand the requirements for establishing preoperational baseline water quality, as he suggests that water quality data from all existing wells must be statistically analyzed to arrive at the preoperational baseline. That is not the case. Rather, the applicable requirement is that "[a]t least one full year prior to any major site construction, a preoperational monitoring program must be conducted to provide complete baseline data on a milling site and its environs. . . ." 10 C.F.R. Part 40, Appendix A, Criterion 7. Dr. Moran does not claim that Powertech's preoperational monitoring program fails to meet Appendix A requirements, and he does not address Section 2.7.3.1.1 of the TR, where Powertech describes the sample collection and analysis methods to be implemented at Dewey-Burdock.

Finally, Dr. Moran claims that "it is unclear whether Powertech has baseline (pre-operational) ground water quality data that describes the *non-ore zone regions of the relevant aquifers*." Petition at 38, Moran Letter at 3 (emphasis in original). Dr. Moran does not identify the "relevant aquifers," however, and he fails to cite any standard that requires Powertech to provide this type of analysis in its application. Criteria 5, 7 and 13 in Appendix A set forth procedures an applicant must follow to comply with groundwater protection standards imposed by the EPA in Subparts D and E of 40 C.F.R. Part 192. Dr. Moran does not address these criteria, nor does he explain why any other regulation requires Powertech to provide additional baseline data in its application.

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applicant use all well data points in its analyses, however, and he fails to explain why the exclusion of certain well points necessarily renders data unreliable. Additionally, Dr. Moran claims that Powertech arbitrarily selected data points and analyses from the TVA data and "the reviewer is never allowed to see a statistical summary of the total original data set." *Id.* Powertech has provided citations to the original TVA data set, however, and the Petitioners do not cite any requirement that Powertech reproduce the entire data set in its application.

In sum, Dr. Moran fails to identify any requirement that Powertech provide additional information on baseline water quality. He also fails to address relevant sections of Powertech's application. Dr. Moran's claims therefore cannot be admitted as a contention. 10 C.F.R. §§ 2.309(f)(1)(v), (vi).

3. The Petitioners Fail to Support Their Claims that Powertech's Analyses of Hydrogeology Are Inadequate, and They Fail to Dispute Relevant Sections in the Application

The Petitioners argue that the application violates Criterion 5B in Appendix A and 10 C.F.R. §§ 51.45(c) and (e) because it does not adequately consider the possibility of excursions of leach solution from the ore zone. The Petitioners rely on an opinion from Dr. LaGarry, who argues that Powertech needs to further address (1) confinement of the host aquifer, (2) secondary porosity through faults and joints, and (3) artesian flow and horizontal flow within the ore zone. Petition at 36, LaGarry Opinion at 2–4. The Petitioners' claims do not form an admissible contention, however, because they fail to satisfy 10 C.F.R. §§ 2.309(f)(1)(iv), (v) and (vi).

The Petitioners do not explain why Criterion 5B or section 51.45 requires additional analysis of the issues they identify. Criterion 5B contains six subparts and covers almost two full pages in 10 C.F.R. Part 40. The Petitioners do not identify any specific part of Criterion 5B that Powertech's application violates. The Petitioners simply identify issues that they believe prove *some* violation of Criterion 5B. They do not demonstrate that the issues they raise are material to any specific finding the Staff must make under Criterion 5B, and they do not provide specific reasons for their belief. The Petitioners must do more to comply with the NRC's contention pleading rules. 10 C.F.R. § 2.309(f)(1)(iv), (vi); *Fansteel*, CLI-03-13, 58 NRC at 203.

The Petitioners' claim that the application violates §§ 51.45(c) and (e) similarly lacks support. Section 51.45(c) states that an ER "must include an analysis that considers and balances the environmental effects of the proposed action[.]" Section 51.45(e), on the other hand, states that "information submitted pursuant to paragraphs (b) through (d) of this section

should not be confined to information supporting the proposed action but should also include adverse information.” Because neither section specifies what information needs to be included in a uranium recovery application, the Petitioners must provide other support for their claim that Powertech’s application insufficiently considers hydrogeological issues.

The Petitioners attempt to support their claim of a § 51.45 violation through the LaGarry Opinion. Dr. LaGarry refers to various sections of the ER that discuss issues such as confinement of the ore zone, artesian flow, and horizontal flow. Petition at 38–39, Opinion at 3–4. Dr. LaGarry does not dispute the accuracy of the information in these sections, but merely argues that Powertech must perform additional analyses. In arguing that Powertech must perform additional analyses, however, Dr. LaGarry fails to address numerous sections of the TR and ER that provide information relevant to the concerns he identifies. For example, Dr. LaGarry fails to address the pump tests that Powertech conducted at both the Dewey and Burdock sites. These tests provide information on confinement of the host aquifer and artesian flow, issues that Dr. LaGarry claims Powertech must further address.<sup>25</sup> Dr. LaGarry also does not discuss Powertech’s well monitoring systems, which are designed to prevent or limit excursions.<sup>26</sup> Further, Dr. LaGarry does not address Powertech’s plans for a groundwater quality monitoring program.<sup>27</sup> These plans are obviously relevant to assessing the likelihood and extent of any excursions from operations at Dewey-Burdock. Because Dr. LaGarry does not address relevant sections of the application, the Petitioners fail to show they have a genuine dispute with Powertech on a material issue. 10 C.F.R. § 2.309(f)(1)(vi).

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<sup>25</sup> See TR pages 2-149 through TR 2-181 and Appendix 2.7-B.

<sup>26</sup> See, e.g., TR Section 2.7.3.2.1, “Groundwater Monitoring Network and Parameters,” TR Section 3.1.3 “Monitoring Well Layout and Design.”

<sup>27</sup> See TR Section 5.7.8 and Figure 5.7-10.

Dr. LaGarry suggests that Powertech has not adequately considered local and regional geology. Petition at 38, Opinion at 2–3. He does not explain, however, which additional studies Powertech should have considered in its application. Dr. LaGarry also suggests that geologic knowledge of the region surrounding the Dewey-Burdock site may have changed significantly in recent years:

[i]n my view, the use of outdated scientific literature, or in this case, a general lack of review of recent study, should not be seen as an opportunity to operate in a knowledge vacuum. Much of the Great Plains region was studied prior to the 1980's and the general acceptance of Plate Tectonics Theory, and therefore generally misrepresents the geologic setting of the region.

LaGarry Opinion at 4. Dr. LaGarry does not support his statements by citing any recent paradigm shift in geological theory, and he does not explain why recent developments call into question the data collection and analysis conducted by Powertech. Nor does he explain why surveys as recent as 2002 should be considered “outdated.” See Section 3.3.6.1, “Seismic Hazard Review” (relying on the 2002 U.S. Geological Survey's Quaternary Fault and Fold Database). Further, Dr. LaGarry fails to specifically address relevant sections of Powertech's application. For example, he fails to address Section 3 of the ER, which describes in detail the local and regional geology, soils, seismology, and hydrogeology. He also does not address Section 3.4 of the ER or Section 2.6 of the TR, which discuss local and regional hydrogeology, including faults, joints, surface waters and aquifers.<sup>28</sup> Because Dr. LaGarry does not address these sections, it is impossible to determine whether his broad claims are based on a complete reading of the application.

A contention that fails to controvert the application or that mistakenly asserts the

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<sup>28</sup> Section 3.4.3.1.3 discusses the Minnelusa aquifer and section 3.4.3.1.4 discusses the Madison aquifers. Aquifers in general are discussed in Sections 3.3.1.2, 3.3.2.1, 3.4.1.1, 3.4.3.1.7, 3.4.3.1.8, 3.4.3.1.10, 3.4.3.2 and fig. 3.3-2 as well as TR Section 2.6. Groundwater and surface water impacts are discussed in Section 4.6 of the ER.

application does not address a relevant issue is subject to dismissal. *Sacramento Municipal Utility District* (Rancho Seco Nuclear Generating Station), LBP-93-23, 38 NRC 200, 247-48 (1993), *review declined*, CLI-94-2, 39 NRC 91 (1994); *Texas Utilities Electric Co.* (Comanche Peak Steam Electric Station, Unit 2), LBP-92-37, 36 NRC 370, 384 (1992)). Because the Petitioners fail to support their claims that Powertech needed to provide additional data on hydrogeological issues, and because they fail to specifically challenge the analysis in Powertech's application, the Board must reject the Petitioners' claims. 10 C.F.R. §§ 2.309(f)(1)(v), (vi).

Contention E:

The License may not be granted because it would violate Section 40.32(d)<sup>29</sup> because of lack of adequate confinement of the host Inyan Kara aquifer, the proposed operation would be inimical to public health and safety in violation of the AEA and NRC Regulations cited above in the "Applicable Law" section.

Petition at 39. Contention E is a reiteration of Contention D, as well as Contentions A and B. The Petitioners argue that "it is not possible to provide assurance that the confinement [of the aquifers] will be adequate to protect public health and safety." *Id.* at 40. To support their position, the Petitioners again cite the LaGarry Opinion. Dr. LaGarry claims that:

1. [M]ined strata must be isolated from rocks above and below by confining layers.
2. [C]ontaminated water could migrate away from the uranium-bearing strata through adjacent confining layers.
3. [F]low pathways within the uranium-bearing rocks will change, potentially creating circumstances in which any one of these wells could allow lixiviant to breach confinement.

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<sup>29</sup> Section 40.32(d) states that "[a]n application for a specific license shall be approved if [t]he issuance of the license will not be inimical to the common defense and security or to the health and safety of the public."

4. Once into adjacent water-bearing strata or the land surface, contaminants can enter rivers and flow downstream with each successive rain event, or flow downgradient into other water supplies.

Petition at 39–40 (citing LaGarry Opinion at 3).

Dr. LaGarry's claims do not form an admissible contention. As a threshold matter, the Petitioners fail to explain why the concerns identified by Dr. LaGarry would make issuing Powertech a license "inimical" to public health and safety. The Petitioners do not allege that Powertech's application fails to comply with any Criterion in Appendix A of Part 40. Apart from § 40.32(d), the Petitioners do not allege that Powertech's application fails to comply with any other section in Part 40. Nor do the Petitioners claim that operations at Dewey-Burdock will exceed the public or occupational dose limits in Part 20. Conversely, the Petitioners fail to explain how, to the extent its application satisfies all other regulatory criteria, issuing a license to Powertech can be considered inimical to public health and safety. Because the Petitioners do not cite any standard supporting their claim that issuing Powertech a license would be inimical to public health and safety, Contention E must be rejected under § 2.309(f)(1)(vi).

Except for the inimicality finding required by § 40.32(d), the Petitioners do not argue that the issues raised by Dr. LaGarry are material to any finding the NRC must make in determining whether to issue Powertech a license. The Petitioners suggest that Powertech must demonstrate there is an impenetrable barrier between the ore zone and surrounding aquifers. Petition at 39. That is not required under Appendix A, however, which instead relies on detection monitoring systems (Criterion 7) and other measures to prevent excursions of leach solution. The Petitioners' argument constitutes an impermissible attack on the NRC requirements. See *Shearon Harris*, CLI-10-09, 71 NRC \_\_ (slip op. at 38).

As in Contention D, the Petitioners fail to address sections of the application that are relevant to the issues they raise. Here, the Petitioners fail to dispute numerous sections of the TR and ER that explain why, in Powertech's view, issuing a license would be consistent with NRC regulations and *not* inimical to public health and safety. Because the Petitioners'

underlying claim is that excursions of leach solution could result in the public being exposed to radioactive materials, the Petitioners are required to address sections of the application relevant to their claim. 10 C.F.R. § 2.309(f)(1)(vi). The LaGarry Opinion does not provide this type of analysis. Dr. LaGarry merely refers to certain sections of the application and, without disputing the information in those sections, argues that Powertech must provide additional analysis. Dr. LaGarry does not address other sections of the application that are relevant to whether further analysis is actually required. For example, Dr. LaGarry does not dispute the conclusions in TR Section 3.1.3, "Monitoring Well Layout and Design," TR Section 5.7.8, "Ground-Water and Surface-Water Monitoring Programs," TR Section 7.3.2, "Exposures from Water Pathways," ER Section 1.2.6, "Monitoring Well Layout and Design," ER Section 6.1.8, "Groundwater Sampling" or ER Section 6.2, "Physiochemical Groundwater Monitoring." Because all these sections contain information relevant to assessing the likelihood and consequences of excursions, and because the Petitioners do not controvert this information, Contention E must be rejected. 10 C.F.R. § 2.309(f)(1)(vi).<sup>30</sup>

#### Contention F

The Application violates Section 51.45(c), (e) and 51.45(b)(5) by failure to describe ir retrievable commitment of resources in the form of water resources taken from the Inyan Kara and Madison Aquifers in the form of the 'bleed' and in connection with restoration which involves 320 gpm from the Inyan Kara and up to 500 gpm from the Madison, as described in the Application and referenced in this Petition above.

This contention fails because the Petitioners overlook sections of the application where Powertech provides the very information the Petitioners claim is missing. Powertech addresses

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<sup>30</sup> At the end of Contention E, the Petitioners claim "the Application states that so much is unknown about the area and its hydrology, and the inter-connection between the aquifers that it is not possible to provide assurance that the confinement will be adequate to protect public health and safety." Petition at 40. This appears to simply be a misstatement of the language in the application, and the Petitioners do not cite the section where the statement allegedly appears.

the consumptive use of water at pages 4-21 through 4-29 of the TR.<sup>31</sup> Because the Petitioners do not dispute any of the data or conclusions in this section of the application, the Board must reject Contention F. 10 CFR § 2.309(f)(1)(vi). To the extent the Petitioners are suggesting that Powertech's analyses of water usage are somehow inadequate, Contention F must still be rejected because the Petitioners fail to identify any facts or expert opinion in support of such a claim. 10 CFR § 2.309(f)(1)(v).

#### Contention G

The Application violates Section 51.45(c) and (e) by failing in ER Section 1.3 to explain the details involved and exposures related to Applicant's proposal to "receive and process uranium loaded resins from other Proposed Projects such as Powertech's nearby Aladdin and Dewey Terrace Proposed Satellite Facility Projects planned in Wyoming or from other licensed ISL operators or other licensed facilities generating uranium-loaded resins. . . .

The Petitioners claim that Powertech's application violates section 51.45 because the ER does not address impacts resulting from the receipt and processing of uranium-loaded resins from other projects. The Petitioners, however, fail to support their contention as required by 10 C.F.R. § 2.309(f)(1)(v). Powertech's application states that the receipt of uranium loaded resins from other projects is *part of* the proposed action. As explained in Section 1.3 of the Environmental Report (page I-25):

The Proposed Action is for the plant to continue to receive and process uranium loaded resins from other Proposed Projects such as Powertech's nearby Aladdin and Dewey Terrace Proposed Satellite Facility Projects planned in Wyoming or from other licensed ISL operators or other licensed facilities generating uranium-loaded resins that are compatible with the Powertech (USA) production process.

To the extent the Petitioners are claiming that Powertech's ER inadequately considers impacts from the potential receipt of such uranium-loaded resins, the Petitioners fail to offer a

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<sup>31</sup> See, e.g., Section 4.6.2.6, "Potential Impacts of Groundwater Consumption During Operations and Restoration," Section 4.6.2.6.1, "Drawdown Estimates," and Table 4.6-2 "Net Water Usage Without Reverse Osmosis."

single example in support of their claim. The Petitioners do not refer to sections of the ER addressing the processing of uranium-loaded resins, and they do not explain why the analyses in those sections are inadequate to address the receipt of resins from other locations.<sup>32</sup> In brief, the Petitioners' fail to support their contention as required by 10 C.F.R. § 2.309(f)(1)(v).

It is unclear whether the Petitioners are also claiming that Powertech has violated 10 C.F.R. § 51.45(b) because the Dewey-Burdock Project and the Aladdin and Dewey Terrace Proposed Projects are connected actions that should have been addressed in the same ER. If this is the Petitioners' claim, it must also be rejected. Although federal agencies are expected to consider connected actions in a single NEPA document, the phrase "connected action" has a specific regulatory meaning. Under regulations issued by the Council on Environmental Quality (CEQ), actions are "connected" only if they:

- (i) Automatically trigger other actions which may require environmental impact statements,
- (ii) Cannot or will not proceed unless other actions are taken previously or simultaneously, [or]
- (iii) Are interdependent parts of a larger action and depend on the larger action for their justification.

40 C.F.R. § 1508.25(a). Applying this definition, courts have found actions "connected" only where they are "inextricably intertwined," such as where an agency has proposed both timber sales and the construction of a logging road to facilitate the timber sales, or where the agency

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<sup>32</sup> Any license issued to Powertech will include limits on the processing, or "throughput," of resins. See TR Section 1.8, "Operating Plans, Design Throughput, and Production" (stating that "[t]otal production from both sites is expected to produce approximately 1,000,000 pounds of U<sub>3</sub>O<sub>8</sub> per year.") The throughput limits will apply regardless of whether the resins originate onsite or are received from other locations. In other words, Powertech's analysis of impacts relating to the throughput of resins applies equally to resins originating onsite or offsite. Accordingly, the present ER considers the potential impacts from the receipt of resins from other sites, at least up to the throughput limit. The Staff would additionally note that Powertech would need to obtain a license amendment before receiving resins from other sites. Accordingly, any additional impacts associated with the receipt of resins from other sites, such as transportation impacts, would be addressed in the ER and the Staff's NEPA document for the license amendment.

has proposed a development plan consisting of multiple phases.<sup>33</sup> Courts have found actions to *not* be connected where at least one of the actions has “independent utility”—that is, where one of the actions would have been taken even without the other action. See *Blue Ocean Preservation Soc. v. Watkins*, 754 F.Supp. 1450, 1458 (D. Haw. 1991) (holding that the inquiry under the “cannot or will not proceed” language in 40 C.F.R. § 1508.25(a)(ii) is directed not toward whether a later action could go forward without previous actions, but rather whether the earlier actions could go forward without the later action ever being completed).

Here, the Petitioners do not address applicable law explaining when a proposed action and other potential actions may or may not be considered “connected actions.” The Petitioners appear to assume that, merely because Powertech has identified certain actions as possibilities, those actions must be addressed in the Dewey-Burdock ER. This is incorrect. Under federal case law, the potential future actions identified in Powertech’s application would not be considered “connected actions” with respect to the Dewey-Burdock action. The Petitioners offer no evidence that the Dewey-Burdock Project would “automatically trigger” other actions, that the Project would not go forward *but for* those future actions, or that the Project and other proposed projects are all part of a single, larger action.<sup>34</sup> Accordingly, the Petitioners fail to provide support for their contention, as required by 10 C.F.R. § 2.309(f)(1)(v).

#### Contention H

Section 51.45(c) and (e) is violated because in the Application Section 3.4.3.1.7 ER on hydraulic connection of aquifers, the Applicant provides information that is not local and fails to include studies that are closer to the proposed project area.

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<sup>33</sup> *Thomas v. Peterson*, 753 F.2d 754, 759 (9th Cir. 1985); *Trout Unlimited v. Morton*, 509 F.2d 1276, 1285 (9th Cir. 1974).

<sup>34</sup> To this date, Powertech has not submitted a letter of intent for either Aladdin or Dewey Terrace. <http://www.nrc.gov/about-nrc/regulatory/adjudicatory/hearing-license-applications.html#1> (April 12, 2010). The NRC therefore has no specific information that Powertech plans to go forward with those projects. It is also uncertain whether, if either project were to go forward, Powertech would seek to ship resins from Aladdin or Dewey Terrace to Dewey-Burdock.

This contention is inadequate for a number of reasons. First, the Petitioners overlook other sections of Powertech's ER, including sections adjacent to the cited section, that provide local information relevant to potential hydraulic connections between aquifers.<sup>35</sup> Second, the Petitioners fail to address pump tests that Powertech conducted at the proposed site, which provide local information relevant to assessing hydraulic connectivity.<sup>36</sup> Third, the Petitioners do not cite any requirement that local information be included in an ER or any standard by which information may be measured as sufficiently or insufficiently "local." Because the Petitioners fail to dispute relevant portions of Powertech's ER, Contention H must be rejected under 10 C.F.R. § 2.309(f)(1)(vi). Because the Petitioners fail to cite any legal basis for their claim, their contention must also be rejected under 10 C.F.R. § 2.309(f)(1)(v).

#### Contention I

The Petitioners offer 100 wide-ranging bases in support of Contention I. Rather than grouping the bases by subject matter, the Petitioners have grouped them according to the regulations they claim Powertech has violated (or the NRC would violate, if it grants Powertech a license). Bases 1–68 are offered in support of the Petitioner's claim that Powertech has violated 10 CFR §§ 51.45(c) and (e) by failing to provide certain information. Bases 69–90 relate to the Petitioners' claim that Powertech has violated 10 C.F.R. § 40.9 by misrepresenting information in its Application. Finally, bases 91–100 are provided as support for the Petitioner's claim that granting Powertech a license would violate 10 C.F.R. § 40.32(d) because it would be inimical to public health and safety.

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<sup>35</sup> See Section 4.3.1.4, "Madison Aquifer" ("Locally, these confining layers may be absent or their hydraulic characteristics are higher such that intercommunication between the Madison and Minnelusa occurs"); Section 3.4.3.1.5, "Deadwood Aquifer" (Regionally, "the Precambrian rocks act as a lower confining unit to the Deadwood aquifer, *although local connection can exist* (Williamson and Carter, 2001)") (emphasis added); Section 3.4.3.1.6, "Minor Aquifers" (Locally, beds within the confining units may also contain aquifers (Driscoll et al., 2002)").

<sup>36</sup> The results of the pump tests are summarized at TR 2-149 through TR 2-181, with more specific information provided in Appendix 2.7-B.

Most of the Petitioners' 100 bases are merely two- or three-sentence assertions with no apparent factual, legal or expert support. In many cases the Petitioners claim information is missing from a particular section of the TR or ER, overlooking that the allegedly missing information appears in another section of the application. For bases 1–90, not once do the Petitioners go beyond the bare assertion that the missing or allegedly missing information constitutes a violation of 10 C.F.R. § 51.45, 10 C.F.R. § 40.9 or Appendix A in Part 40. The Petitioners do not cite the specific language of these regulations and explain why, as a matter of law, the information they identify must be included with the Application. Nor do the Petitioners cite any NRC or federal case law in support of their arguments.

Bases 91–100 are similarly lacking in support. Here, the Petitioners argue that “unacceptable environmental impacts . . . make issuance of the License inimical under section 40.32(d).” The Petitioners do not explain why the impacts they allege are “unacceptable,” or in what sense those impacts would be inimical to public health and safety. For example, the Petitioners do not make any claim that the impacts they allege would result in radioactive exposures exceeding the limits under 10 C.F.R. Part 20 or other applicable regulation or law. Nor do the Petitioners address sections of Powertech’s application describing measures that will be taken to prevent the very impacts the Petitioners allege. For example, although the Petitioners suggest that granting Powertech a license will lead inevitably to large-scale excursions of leach solution, the Petitioners do not address sections of the application describing Powertech’s plans for monitoring wells, which are intended to limit the scope of any excursion.

Below the Staff addresses each of the Petitioners' 100 bases in order. The Staff submits that the vast majority of the Petitioners' bases are facially devoid of support and do not require a point-for-point rebuttal. Nonetheless, because the Petitioners frequently overlook relevant sections of the application, the Staff believes it will be beneficial to address each of the Petitioners' bases, if only briefly. This may provide a better sense of what information an

applicant is expected to provide in an ISL application, and what information Powertech provided in the application that the Staff accepted for detailed review.

### Bases 1–68

The Petitioners allege 68 violations of 10 C.F.R. § 51.45(c), 10 C.F.R. § 51.45(e) and Appendix A in 10 C.F.R. Part 40. For the overwhelming number of these bases, the Petitioners merely allege facts that, in their view, constitute violations of the cited regulations. The Petitioners do not refer to specific language in the regulations and explain why, as a matter of law, Powertech has violated those regulations. For example, with one exception, the Petitioners never identify which of the 13 criteria in Appendix A they are claiming Powertech has violated.<sup>37</sup> In all cases the Petitioners fail to support their claims as required by 10 C.F.R. § 2.309(f)(1).

(1) a coordinated, statistically-sound data set for all Baseline Water Quality (both surface and ground water) is presented in these documents—as is required in NURGEG [sic]—1569. Powertech states 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. Failure to do so violates the above-referenced NRC Regulations. The Dewey-Burdock project area has been historically mined and thousands of exploration holes have been drilled within the properties. Hence, it is imperative that high-quality baseline data be supplied to evaluate the actual extent of impacts to water resources, and the success of containment or aquifer restoration.

The Petitioner’s first basis merely repeats Contention D. Petition at 36–37. The Board should reject this basis for the same reasons it should reject contention D: the Petitioners fail to support their claims that Powertech needs to provide additional data on hydrogeological issues,

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<sup>37</sup> The sole exception is basis 4, where the Petitioners refer to Criterion 5B. Even here, however, the Petitioners fail to specifically describe the alleged violation. Criterion 5B contains six subparts and, as stated previously, covers almost two full pages in 10 C.F.R. Part 40. The Petitioners do not explain which subpart they are alleging Powertech has violated.

and they fail to specifically challenge the analysis in Powertech's application. The Staff respectfully refers the Board to the Staff's discussion of Contention D above.

(2) detailed data on the chemical composition of pregnant solutions (ore reacted with lixiviant) and detailed analyses of these waters following ion exchange. Mining projects that have progressed to this stage routinely conduct Feasibility Studies and release Feasibility Reports that contain such chemical data. For example, a review of the D-B properties by Smith & Assoc. (2005) mentions that such a Feasibility study was performed for TVA. Leaching of such ores traditionally mobilizes elevated concentrations of many metals and metalloids, plus other constituents: i.e. arsenic, antimony, molybdenum, vanadium, uranium, strontium, iron, manganese, lead, lithium, nickel, chromium, sulfate, chloride, etc. Reliable, complete baseline data are crucial for understanding the chemistry of potential releases to the environment.

In Section 2.7.3 of the TR, Powertech provides baseline groundwater quality information addressing the requirements in Criterion 7 of Part 40, Appendix A. In Table 3.1-1 of TR, Powertech addresses "expected or typical lixiviant concentrations and compositions." Further, in Sections 2.6, 2.7, and 3.1 of the TR Powertech provides geochemical information for the production zone, including information on both pre-operational and operational geochemistry. The Petitioners do not address any of these sections of the TR, and they do not provide any support for their claim that Powertech's analyses are inadequate. Further, the Petitioners do not even attempt to explain why, in this particular case, section 51.45 and Appendix A require that Powertech conduct a feasibility study. Because the Petitioners neither address relevant sections of the application nor cite authority for their claims, the Board must reject this basis under 10 C.F.R. §§ 2.309(f)(1)(v) and (vi).

(3) detailed data on the chemical composition of liquid wastes that may undergo deep well injection and / or land application. Such data should also be available in Feasibility Studies.

This basis must be rejected because the Petitioners fail to show they have a genuine dispute with Powertech. Table 3.1-1 of the TR shows typical lixiviant concentrations that could be expected for deep disposal injection. Section 4.2.2.1.2.3 of the TR, on the other hand, provides an estimate of land application water quality for constituents. This section further states:

Table 4.2-7 provides the estimated water quality to be applied to crops at both the Dewey and Burdock land application sites. It is anticipated that trace metal concentrations will be at or below EPA Primary Drinking Water Standards. In addition, the effluent concentration limits for the release of radionuclides to the environment as contained in 10 CFR Part 20, Appendix B will be met.

The Petitioners do not address Section 4.2.2.1.2.3, Table 3.1-1 or Table 4.2-7. Because the Petitioners fail to address relevant portions of the application and show there is a genuine dispute on a material issue, basis (3) must be rejected under 10 C.F.R. § 2.309(f)(1)(vi). The Petitioners' claim that the allegedly missing data "should also be available in Feasibility Studies" is a wholly unsupported assertion that must be rejected under 10 C.F.R. § 2.309(f)(1)(v).

(4) a realistic description and evaluation of possible water-related impacts, as contemplated by Criterion 5B of Appendix A of Part 40. It is unlikely that the process waters can be contained within the project boundaries given all of the evidence of:

- thousands of exploration boreholes drilled since the 1950's, many of which were not correctly abandoned;
- hydrogeologic leakage between the ore-bearing formations;
- faults / fractures acting as potential pathways;
- geologic facies inter-connections;
- vertical "breccia pipes" and collapse structures;
- diapir structures?
- historic mine workings as flow pathways.

In this basis the Petitioners merely identify areas of concern. They do not dispute specific sections of the TR or ER, and they do not provide factual or expert support for their assertion that "it is unlikely process waters can be contained." To the extent the Petitioners are relying on the LaGarry Opinion, they fail to cite that document. In any event, the concerns the Petitioners raise here are no different than concerns they raised previously in other contentions, including Contentions D and E. The Board should reject this basis for the same reasons it should reject those contentions.

(5) a rational and analytic discussion of site fluid containment using current research literature.

The Petitioners fail to refer to any "current literature," which would support their bald assertion that a "rational and analytic" review of site fluid containment is missing from the Application. The Petitioners fail to address numerous sections of the TR and ER that provide

information relevant to the concerns they identify. They do not address the information contained in TR Section 3.1.3, "Monitoring Well Layout and Design," TR Section 5.7.8, "Ground-Water and Surface-Water Monitoring Programs," TR Section 7.3.2, "Exposures from Water Pathways," ER Section 1.2.6, "Monitoring Well Layout and Design," ER Section 6.1.8, "Groundwater Sampling" or ER Section 6.2, "Physiochemical Groundwater Monitoring." Powertech's preoperational monitoring program is presented TR Section 2.7.3.1.1, where the sample collection and analysis methods to be implemented at Dewey-Burdock are described. In addition, ER Section 4.6 describes potential water resource impacts and methodologies to contain and mitigate such impacts, including, surface water impacts from construction (4.6.1.1) and operations (Section 4.6.1.2), groundwater impacts from production operations (Section 4.6.2), ore zone groundwater quality (Section 4.6.2.2) and groundwater impacts from land application (4.6.2.3). Because the Petitioners do not address any of these sections or dispute any of the relevant information and conclusions contained within, their claim fails to satisfy 10 C.F.R. § 2.309(f)(1)(vi).

(6) realistic estimates of water resources to be irretrievably committed as required by Section 51.45(b)(5); rather, the Environmental Report unreasonably minimizes the potential project water impacts [p.8-2], where they estimate that net ground water consumption will be 320 gpm, which is **168.2 gals. per year**. After the anticipated life-of-mine, 17 years, net ground water consumption would equal **roughly 2.86 Billion gallons**. (Emphasis added.)

The Petitioners claim that Powertech does not provide "realistic estimates" of water use, but they provide no support for their claim. Instead, the Petitioners rely on data in the application to obtain their estimates of total water use over 17 years. To the extent the Petitioners are claiming that Powertech was required to include these 17-year totals in the table on page 8-2 of the ER, they cite no authority in support of their claim. To the extent the Petitioners are claiming that Powertech's water use data is "unrealistic" for some other reason, the Petitioners fail to explain the basis of their claim and fail to address other sections of the application providing detailed information on water use. See ER at pages 4-21 through 4-29.

Basis (6) therefore fails to satisfy either 10 C.F.R. § 2.309(f)(1)(v) or (vi).

(7) The discussion of geological “formations of interest” at the Dewey-Burdock site excludes the Madison and Minnelusa Aquifers, which would be used for large amounts of project water (Section 3.3.2.2 ER).

The Petitioners fail to address numerous sections of the application where Powertech discusses the Madison and Minnelusa Aquifers. These sections include Sections 2.7.2.1.3 (Minnelusa) and 2.7.2.1.4 (Madison) of the TR, and Sections 3.4.3.1. (Minnelusa) and Section 3.4.3.1.4 (Madison) of the ER. Other sections of the application that provide information on these and other aquifers include ER Sections 3.3.1.2, 3.3.2.1, 3.4.1.1, 3.4.3.1.7, 3.4.3.1.8, 3.4.3.1.10, 3.4.3.2 and fig 3.3-2, as well as TR Section 2.6. Because the Petitioners do not address any of these sections, their claim fails to satisfy 10 C.F.R. § 2.309(f)(1)(vi).

(8) The potential impacts of the presence of 26 flowing artesian wells on the proposed project or the environment are not discussed (Section 3.4.1.2 ER).

The Petitioners do not explain what “potential impacts” they are suggesting Powertech was required to, but did not, consider. Without information on the potential impacts to which the Petitioners are referring, it is impossible to conclude that the Petitioners have identified a genuine dispute with Powertech. The Petitioners also fail to address Section 4.6 of the ER, which discusses groundwater and surface water impacts. Further, the Petitioners fail to address the pump tests Powertech conducted, which provide information relevant to local wells. For these reasons, basis (8) must be rejected under 10 C.F.R. § 2.309(f)(1)(vi).

(9) In Section 3.4.2.2 ER, the applicant discusses surface water quality. This discussion includes only the State of South Dakota’s Beneficial Use Numeric Criteria. It neglects to discuss known contamination from past uranium activities in the area, including radioactive contamination of the Cheyenne River.

The Petitioners provide no support for their claim that Powertech is required to provide additional information. Further, although the Petitioners claim that Powertech has failed to address contamination in areas such as the Cheyenne River, they overlook sections of the application that provide such information. See TR Section 2.7.3.1.1 and Table 2.7-20, TR Section 2.8.5.6.1.2.3 and Tables 2.8-23 and 2.8-30. The Petitioners therefore fail to identify a

genuine dispute with Powertech and, in any event, fail to provide support for their claims. Basis (9) therefore fails under 10 C.F.R. § 2.309(f)(1)(v) and (vi).

(10) Section 3.4.3.1.3 ER provides a limited discussion of porosity in the Minnelusa Aquifer. The sources provided in Table 3.4-3 include only one local piece of research. Sources are available that discuss this issue closer to the project area.

The Petitioners provide no support for their claim that there are other sources containing data “closer to the project area” that Powertech should have considered. Nor do the Petitioners provide any support for their underlying claim, which is that Powertech violated 10 C.F.R. § 51.45 and Appendix A in Part 40 by not including certain information in Table 3.4-3. Because the Petitioners claims are wholly unsupported, basis (10) must be rejected under 10 C.F.R. § 2.309(f)(1)(v).

(11) In Section 3.4.3.1.7 ER on hydraulic connection of aquifers, the Applicant provides information that is not local and fails to include studies that are closer to the proposed project area.

This basis merely restates Contention H. The Staff respectfully refers the Board to the discussion of Contention H above, where the Staff explains why the Petitioner’s arguments must be rejected under 10 C.F.R. §§ 2.309(f)(1)(v) and (vi).

(12) The Applicant assumes that its workforce will be local, thus minimizing housing impacts (Section 4.12.3 ER). To be valid, this assumption should be tied to some sort of research. Is a population that is generally older, majority 12th grade education, and characterized by government employment suited to mining?

The Petitioners err in stating the Powertech “assumes that its workforce will be local.” In fact, Powertech assumes that the workforce will be drawn from “the more populated communities of Custer City and Hot Springs, South Dakota and Newcastle, Wyoming.” ER 4.12.3. Because these communities are near to the proposed facility, it is unlikely the entire workforce would relocate to Custer and Fall River counties, but instead many workers would commute. *Id.* However, Powertech considered the effect of the entire workforce and families relocating to these counties, and determined the population of Custer and Fall River counties

would increase by 6.9 percent (total population 15248). *Id.* Powertech concluded this is a very conservative estimate because:

[t]he impacts associated with an increase in population are expected to be dispersed because of the remoteness of the project site and the phased nature of construction, operation and reclamation. While this is a moderate increase in the overall percentage of the local population, this influx of immigration could be partially mitigated by implementing a preferential hiring scheme and using regional educational/training institutions to help train workers and to ensure that as many of the local residents are hired as possible.

*Id.* The Petitioners fail to evidence in support of their claim and fail to controvert parts of the ER 4.12.3 that provide additional information and analysis of the effects an increased workforce would have on regional housing. Basis (12) should be rejected because it fails to satisfy 10 C.F.R. § 2.309(f)(1)(v) and (vi).

(13) The Applicant ignores critical environmental justice issues in Section 4.13 ER. The Black Hills region is home to the Lakota (western Sioux) people, who have ongoing treaty rights and cultural/historical interests in the area. To the Lakota, the Black Hills are sacred, and mining activity a sacrilege. Mining in the Hills is tantamount to digging up the Vatican or Jerusalem. The Pine Ridge Reservation, home to the Oglala Lakota, is downstream along the Cheyenne River and is already plagued by radioactive water. This is one of the largest reservation populations within the United States. These factors need to be carefully researched and made a critical aspect of the consideration of mining impacts.

The Petitioners do not specify which “critical environmental justice issues” Powertech has ignored in ER Section 4.13, Potential Environmental Justice Impacts and which “factors need to be carefully researched.” In the ER, Powertech states:

[t]he U.S. Census 2000 Decennial Population program provides information about race and poverty characteristic for Census Tracts for the areas surrounding the PAA. The 2000 Census Tract data for South Dakota was used to compare the demographic data for the counties surrounding the PAA. These data were also used to determine if there was a disproportionate percentage of minorities or low-income populations that might be affected by the PAA relative to the State.

The Applicant concludes that significant adverse environmental impacts to natural resources in

the area are not expected; they also conclude that there will not be disproportionate environmental consequences to minority groups or low income populations. The Petitioners do not challenge the use or analysis of U.S. census data or controvert Powertech's conclusion of no disproportional impact with facts, studies or expert opinion. In addition, the Plaintiffs make unsupported allegations, for example, "[t]he Pine Ridge Reservation, home to the Oglala Lakota, is downstream along the Cheyenne River and is already plagued by radioactive water." The Petitioners fail to raise a genuine issue of material fact and, in any event, fail to provide support for their claims. Basis (13) therefore fails under 10 C.F.R. § 2.309(f)(1)(v) and (vi).

(14) Mitigation of damage to historical and cultural impacts is not discussed in Section 5.8 ER.

In ER Section 5.8, Powertech recognizes that impacts to potential historic and cultural resources could occur during construction and operations. Powertech states that "[m]itigation measures that will be implemented at the project site to minimize impacts to historical and cultural resources may include . . . [c]onsultation with appropriate SHPO and THPO, and immediate response procedures for protecting such resources during all phases of the Proposed Action." In ER Section 4.10, Powertech also discusses the phased approach it is employing in assessing impacts to potential historic and cultural resources.

*As construction takes place any previously undetected historical or cultural resources will be reported to the proper agency. The site will be evaluated and released by the proper agency before construction continues within the specific area. The phased approach that Powertech (USA) proposes will increase the likelihood of safeguarding historical and/or cultural resources. Another example of phasing is a license condition that requires cessation of any site activities and the conduct of a cultural resources inventory if previously undetected historic or cultural properties are discovered during the development and construction of wellfields. (emphasis added.)*

The Petitioners do not argue that making a final determination on how to mitigate previously undetected resources, in consultation with the state or tribal historic preservation officers, is improper. Nor do the Petitioners present studies or expert

opinion supporting a different procedure for mitigation. The Petitioners fail to raise a dispute with the Applicant, and they do not provide support for their allegations, as required by 10 C.F.R. § 2.309(f)(1)(v) and (vi).

(15) Section 5.8 ER mentions a Memorandum of Agreement with the State of South Dakota. Agreements should also be completed with the seven bands of the Lakota people.

The Petitioners do not represent a federally recognized Indian Tribe. They do not provide support for the suggestion that Powertech acted improperly by not negotiating memoranda of agreement with the “seven bands of the Lakota people. The Petitioners fail to raise a dispute with the Applicant and they do not provide support for their allegations, as required by 10 C.F.R. § 2.309(f)(1)(v) and (vi).

(16) Section 5.6 ER, which discusses potential air quality impacts, mentions only nonradioactive particulate emissions and fugitive dust. These emissions and dust may also carry radioactivity.

In the TR, Powertech proposes an air monitoring system to detect radioactivity. See Section 5.7.7.1, Figure 5.7-10, Figure 2.9-8. In ER Section 4.8, Powertech discusses air quality impacts, including the potential for radioactive emission. The Petitioners does not address the proposed system or controvert the air quality impacts and, for those reasons, fail to identify a genuine dispute with Powertech. The Board must reject this basis under 10 C.F.R. § 2.309(f)(1)(vi).

The Applicant’s ER 5.6 discusses mitigation measures to minimize air impact. In TR Section 4.8, Powertech discusses the potential for airborne radioactive emissions and its proposed air monitoring system to detect airborne radioactivity. The Petitioners do not address sections of the Application describing airborne radioactivity; therefore, the Petitioners fail to raise a dispute with the Applicant and they do not provide support for their allegations, as required by 10 C.F.R. § 2.309(f)(1)(v) and (vi).

(17) The Applicant does not mention local first responders in its emergency training plans (Section 5.12 ER).

The Petitioners do not cite to any law or regulation which requires Powertech to discuss local first responders in its emergency training plans. Therefore, the Petitioners fail to raise a dispute with the Applicant, and they do not provide support for their allegations, as required by 10 C.F.R. § 2.309(f)(1)(v) and (vi).

(18) Applicant discusses weather without mentioning the presence of dust devils and tornados in the area, which could cause the release of radioactive materials and heavy metals into the environment (Sections 3.5.2 and 3.5.3. ER, which repeat information, and Section 3.6.2.4 ER). The company also fails to mention heavy snow events, which can impact building integrity.

The Petitioners fail to provide any facts, studies, or expert opinions that support their assertion that “dust devils,” “tornados,” or “heavy snow events” are significant to the proper management of the proposed facilities. The Petitioners fail to show there is a genuine dispute on a material issue and they fail to provide support for their assertions.

Basis (18) must therefore be rejected pursuant to 10 C.F.R. § 2.309(f)(1)(v) and (vi).

(19) Discussion of precipitation does not include a 100- or 500-year rain event (Section 3.6.2.3 ER). A single rain event in one of the study years is used to characterize a heavy rainfall, and the Applicant does not discuss what the impacts of such a storm would be on its operations (Section 3.6.3.4 ER). In the Black Hills area, rain often comes in heavy downpours. As an example, in 1972 a flash flood killed more than 200 people on the eastern side of the Black Hills. The Applicant should discuss the impacts of flash flooding and what would be done if a flood moves radioactive and/or toxic materials off the proposed project site or overtops ponds.

The Petitioners fail to provide any facts, studies, or expert opinions that support their assertion that a “100- or 500-year rain event,” “heavy downpours,” “tornados,” or “flash flooding” are significant to the proper management of the proposed facilities. Furthermore, the Petitioners fail to note that sections 2.7.1.3.4, 2.7.1.4.1, 2.7.1.4.2, and 2.7.1.4.3 all contain hydrologic analyses presenting flood stages for various return intervals including the 100-yr and 500-yr floods. Section 2.2.3.1 contains information regarding the relationship between precipitation and flooding, and sections 2.5.1 and 2.5.2.3 present precipitation and snowfall

information. The Petitioners fail to show there is a genuine dispute on a material issue and they fail to provide support for their assertions. Basis (19) must therefore be rejected pursuant to 10 C.F.R. § 2.309(f)(1)(v) and (vi).

(20) There is a similar problem with the discussion of land application in Section 4.4.2 Supplement. Applicant says that precipitation will not wash materials off those areas, but gives no back-up information.

As is discussed below in Basis (26), in ER Section 4.6.2.3 describing the potential groundwater impacts from land application Powertech states:

wastewater applied to the land will be treated to meet EPA Primary Drinking Water Standards and NRC effluent criteria for radionuclides as referenced in 10 CFR part 20 Appendix B. Therefore, potential adverse impacts to groundwater are not anticipated.

TR Section 4.2.2.1.2.3 states:

Table 4.2-7 provides the estimated water quality to be applied to crops at both the Dewey and Burdock land application sites. It is anticipated that trace metal concentrations will be at or below EPA Primary Drinking Water Standards. In addition, the effluent concentration limits for the release of radionuclides to the environment as contained in 10 CFR Part 20, Appendix B will be met.

The Petitioners fail to address relevant portions of the application or controvert the information within and therefore fail to show there is a genuine dispute on a material issue. Basis (20) must therefore be rejected pursuant to 10 C.F.R. § 2.309(f)(1)(v) and (vi).

(21) Oglala Lakota College, which has a campus in Rapid City and 10 other campuses on the Pine Ridge Reservation, is not mentioned in the discussion of post-secondary schools (Section 3.10.2.2 ER).

Powertech has provided information on the number and size of elementary and secondary schools as part of the ER, in order to assess the impact an increase in the number of workers and their families might have on the community educational resources. The information on post-secondary schools is provided for the same purpose, but also as an indication of the ability of the region to provide trained workers

and/or training for prospective workers. The fact that the Petitioners identified the Oglala Lakota College facilities, which were omitted by Powertech, demonstrates that even more post-secondary educational facilities are available in the region than originally suggested. The omission does not rise to a material level and does not impact the reliability of the ER. The Petitioners do not show there is a genuine dispute on a material issue. Basis (21) must therefore be rejected pursuant to 10 C.F.R. § 2.309(f)(1)(vi).

(22) The Applicant's discussion of the area labor force is incomplete. The implications of an older population, the majority of whom have 12 years of education, is not discussed as far as how it relates to the company's labor needs (Section 3.10.3.1).

The Petitioners cite from Powertech's Application without raising a genuine issue of material fact on which they and the Applicant differ. Powertech in ER Section 3.10.3.1 described the characteristics of the workforce based on SD Department of Labor statistics. The Petitioners do not even suggest how the age or educational level of the workforce in Custer and Fall River counties should have been addressed differently by Powertech or "what the implications of an older population, the majority of who have 12 years of education" might be. The Petitioners do not show that they have a genuine dispute with Powertech as required by 10 C.F.R. § 2.309(f)(1)(vi).

(23) There is no consideration of the impacts of wildfire or how this danger will be mitigated. A wildfire threatened the Crow Butte ISL facility, and these fires are common in the area.

The Petitioners do not cite any law or regulation that requires that Powertech consider wildfires. They provide no facts, studies, or expert opinions that support their allegations. Therefore, the Petitioners fail to raise a dispute with the Applicant, and they do not provide support for their allegations, as required by 10 C.F.R. § 2.309(f)(1)(v) and (vi).

(24) Food sampling was done on one cow on one date. It is not clear if that "locally grazing cow" was anywhere near the proposed mine site (Section 6.1.11 ER).

As part of its radiological monitoring program of the environment at the *proposed action area*, discussed in ER Section 6.1, Powertech collects baseline radiological data for surface soils (0-5 and 0-15 cm), subsurface soils to a depth of 1 m, vegetation, cattle, direct gamma radiation, and radon-222 flux rates, [and] radon-222 in air from the project property. ER Section 6.1.11. The sampling work was performed by Environmental Restoration Group and included field investigations, sample collection, and other quality-related work between August 2007 and July 2008, in accordance with standard operating procedures delineated in the ER Section 6.1.1. *Id.* Table 6.1-1: Summary of Baseline Radiological Investigation Scope Task Baseline Investigation Scope describes the methods used, items samples, and parameters evaluated, including one cow. The Petitioners do not show that they have a genuine dispute with Powertech as required by 10 C.F.R. § 2.309(f)(1)(vi).

(25) The Applicant appears to suggest that it might do deep well disposal into the Minnelusa Aquifer, an important aquifer that is hydrologically linked to the Madison Aquifer, which is the most important aquifer in the region (Section 4.2 Supplement). This information and its ramifications are not included in the Application.

In TR Section 4.2 of the supplement, Powertech states it “intends to apply for a Class V (Non Hazardous) deep injection permit for disposal of liquid wastes generated from the project through a permitting process with USEPA” for two wells. In addition, Powertech considered the regional geology and measurements of water character which show the Minnelusa horizon of ‘has sufficient permeability and sufficiently low water quality that deep well injection would be viable for disposal of process liquid waste with removal of hazardous constituents.” *Id.* The waste stream will fall under the classification of non-hazardous, that is, 11 (e)2 waste which suitable for deep injection well disposal under EPA Class V regulations. *Id.* Powertech considers the Madison and other aquifers and presents this information in the Section 4.2 of the Supplement:

The injection zone for each well is intended to be determined from deep exploratory drilling and collection of fluid sample data from multiple injection target zones. The expected targeted zones

consist of the Minnelusa formation or deeper. Formations in consideration are the Minnelusa, Leo Sandstone, Madison, and Deadwood. Regional cross sections (Figures 2.1-2 and 2.1-3) including, existing geophysical data which typically ends in the lower portion of the Leo formation and upper Madison formation. Current data does not include the Deadwood formation which is a potential target below the Madison formation. *Results of the exploratory sampling prior to installing the wells, will allow proper selection location of the injection activity based upon the determination of water quality throughout all of these formations.*

Impacts of deep well disposal, if used, are described in ER Section 4.6.2.4, where the applicant states that it must obtain an Underground Injection Control (UIC) permit from EPA or the appropriate state agency. The permitting process requires demonstrating adequate separation between the over and underlying aquifers. *Id.* Although identification and discussion of waste disposal is required the ER, EPA regulates the actual UIC permitting. The Petitioners' assertions have not contradicted the information in the Application. Thus, the Petitioners do not show that they have a genuine dispute with Powertech as required by 10 C.F.R. § 2.309(f)(1)(vi).

(26) The wastewater to be land applied is characterized as "non hazardous" in Section 4.3 Supplement. This is contrary to research that indicates that land application of uranium mine wastewater may create zones that are highly toxic.

Powertech in ER Section 4.6.2.3 describing the potential groundwater impacts from land application states:

wastewater applied to the land will be treated to meet EPA Primary Drinking Water Standards and NRC effluent criteria for radionuclides as referenced in 10 CFR part 20 Appendix B. Therefore, potential adverse impacts to groundwater are not anticipated.

TR Section 4.2.2.1.2.3 states:

Table 4.2-7 provides the estimated water quality to be applied to crops at both the Dewey and Burdock land application sites. It is anticipated that trace metal concentrations will be at or below EPA Primary Drinking Water Standards. In addition, the effluent concentration limits for the release of radionuclides to the environment as contained in 10 CFR Part 20, Appendix B will be met.

In addition, Powertech provides numerous references to the quality of waste water to be used in land application throughout the Technical Report; TR Section 4.2.2.1 describes the type of treatment that would be undertaken before water is discharged, TR Section 8.3.2.3 states that other treatment maybe required before discharge, TR Section 4.2.2.1.2.3 provides an estimate of land application water quality for constituents. The Petitioners fail to address relevant portions of the application or controvert the information within and therefore fail to show there is a genuine dispute on a material issue. The Petitioners allege that “research” suggests “wastewater may create zones that are highly toxic” however, they present no specific references to scientific studies or reports which support their beliefs. Basis (26) should be rejected under 10 C.F.R. § 2.309(f)(1)(v) and (vi).

(27) In its supposed discussion of nonradiological impacts (Section 4.14.1 ER), the Applicant doesn't talk about nonradiological impacts. As arsenic and selenium are typically found with uranium in this region, these impacts need to be discussed.

Powertech discusses potential nonradiological impacts, specifically chemical impacts, in ER Section 4.14. 1.1. The Petitioners do not address relevant portions of the application or controvert the information within and therefore fail to show there is a genuine dispute on a material issue. Basis (27) must therefore be rejected pursuant to 10 C.F.R. § 2.309(f)(1)(vi).

(28) The Applicant repeatedly refers to “standard operating procedures” or “best management practices” in a safety context (Sections 4.14.11, 5.2.2, 5.12 ER). Critical protections to the public and the environment should not be glossed over in this manner and need to be detailed.

The Petitioners mistakenly suggest that the terms “standard operating procedures”<sup>38</sup> or “best management practices”<sup>39</sup> are open-ended terms. The Staff holds

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<sup>38</sup> Standard operating procedures are industry accepted practices for accomplishing a task; they do not connote an erosion of protection. An example of the term is found in the ER; “Field methods for sampling surface waters followed South Dakota Department of Environment and Natural Resources *Standard Operating Procedures for Field Samplers*, Volume I (SDDENR, 2003).” TR 2.7.3.1.1 at 2-187, Sample Collection and Analysis Methods.  
Continued . . .

licensees and applicants to a high standard; in reviewing licensing applications the Staff determines the issuance of a specific license pursuant to 10 C.F.R. § 40.32.<sup>40</sup> The Petitioners fail to show there is a genuine dispute on a material issue. Basis (28) must therefore be rejected pursuant to 10 C.F.R. § 2.309(f)(1)(vi).

(29) Applicant says that it will keep runoff from disturbed areas from entering local waterways. It refers to documents that “provide confidence” that this will be the case, as well as to unspecified Best Management Practices (Section 4.15.2.3 ER). Given the importance of preventing deterioration of surface water resources in the area, this information should be presented in detail.

TR Section 3.1.6 discusses quality control measure and standard operating procedures, Section 4.2.1.4 discusses storm water runoff, project facilities design in conjunction with the Best Management Practices (BMP) Plan , Section 5.7.1.3 discusses spill provision plans and BMPs , and Section 7.1.3 presents potential surface water effects from construction. In addition, TR Section 5.7.1.3 at pp. 5-21 and 5-22, provides a description of the BMPs that will be implemented to demonstrate the minimal effects of runoff during precipitation events.

Powertech addresses runoff in disturbed areas in ER Section 4.15.2.3:

Runoff from disturbed areas will be prevented from entering local waterways. The permitting process through DENR and Powertech (USA)’s Storm Water Management Plan (SWMP) provides confidence that potential environmental impacts will be limited. Facility drainage will be designed to contain disturbed area runoff. The design of the project facilities, combined with engineering and procedural controls contained in a Best Management Practices

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<sup>39</sup> BMPs is a term used by regulatory agencies or standard setting bodies use to establish industry standards. The Bureau of Land Management defines the term as: “Best management practices (BMPs) are state-of-the-art (sic) mitigation measures applied to oil and natural gas drilling and production to help ensure that energy development is conducted in an environmentally responsible manner. BMPs protect wildlife, air quality, and landscapes as we work to develop vitally needed domestic energy sources.”

[http://www.blm.gov/wo/st/en/prog/energy/oil\\_and\\_gas/best\\_management\\_practices.html](http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices.html)

<sup>40</sup> I.e., that a licensing action will not be inimical to the common defense and security or to the public health and safety of the public.

(BMP) Plan, will ensure that the disturbed area runoff is not a potential source of pollution.

Proposed mitigation measures for geologic and soil impacts from the proposed actions are stated in the ER Section 5.3. The Petitioners fail to show there is a genuine dispute on a material issue. Basis (29) must therefore be rejected pursuant to 10 C.F.R. § 2.309(f)(1)(vi).

30) The information provided gives no reason to expect that the proposed land application areas are adequate to the proposed rate of application (Section 4.15.2.4.2 ER).

In TR sections 3.1.5.1 and 4.2.2.1, the Applicant provides detailed information regarding the design of the land application facilities and associated ponds. Both the designs for the land application facilities and ponds were accomplished using the SPAW model, as discussed in these sections. The Petitioners failed to acknowledge these substantive discussions. Therefore, the Petitioners fail to show there is a genuine dispute on a material issue. Basis (30) must therefore be rejected pursuant to 10 C.F.R. § 2.309(f)(1)(vi).

(31) Estimated land application water quality (Table 4.15-1) is based, among other things, on unspecified, undated historical data from Wyoming and Nebraska. This is vague. It is also unclear whether conditions at the other sites are comparable to conditions at the Dewey-Burdock site.

In TR Table 4.2-7, Powertech states

Estimates of land application water quality were based on the results of laboratory scale leach tests conducted on ore samples from the Dewey (Fall River) and Burdock (Lakota) sites, as well as from historical end-of-production water quality data from other ISL sites in Wyoming and Nebraska, with adjustments as necessary to account for planned post-production water treatments. TR at p. 4-19. n. 1.

In addition, Powertech states “[i]t is anticipated that trace metal concentrations will be at or below EPA Primary Drinking Water Standards. Furthermore,, the effluent concentration limits for the release of radionuclides to the environment as contained in 10 CFR Part 20, Appendix B will

be met.” *Id.* at p. 4-18. Because the Petitioners neither address relevant sections of the application nor cite authority for their claims, the Board must reject this basis under 10 C.F.R. §§ 2.309(f)(1)(v) and (vi).

(32) The Applicant repeatedly omits or underestimates the impacts of the approximately 4000 old exploration drill holes located in the proposed mining area. This goes to a basic issue, the ability of surrounding rock layers to contain the in situ leach mining operation. Examples include:

- a. Section 3.3.2.2 ER on the Fuson Member, characterizing it as having “low vertical permeability.”
- b. In the same section, the Skull Creek Shale is similarly characterized.
- c. In its characterization of regional hydrostratigraphic units (Section 3.4.3.1.1 ER et seq.), the Applicant fails to mention the drill holes.
- d. The Applicant fails to mention old drill holes in its discussion of regional hydraulic connection of aquifers (Section 3.4.3.1.7 ER).
- e. In its discussion of the Morrison formation as a confining unit in Section 3.4.3.2 ER, the Applicant states that the formation is a barrier to all deeper aquifers.
- f. The Applicant concludes that the impacts of deep well injection will be “SMALL” [sic] “if” aquifers are confined (Section 4.6.2.4 ER). This is a very broad assumption.
- g. In Section 6.2.2.4.1 ER, the Applicant says “vertical excursions are not a primary concern.”
- h. Section 5.2.4 suggests that overlying monitor wells “may be installed.” In Section 5.2.5, it says it “prefers not to use underlying aquifer monitor wells.” The number of old drill holes suggests that monitor wells must be installed in both overlying and underlying aquifers.

The Petitioners, in this basis, ignore a substantial quantity of information regarding this topic. For example, Powertech has provided detailed information on the exploratory drill holes TR Sections 2.6.2, 2.6.4, 2.7.2.2.5, and 2.7.2.2.16, as well as, in the TR Supplement. Furthermore, pumping test information provided in the application demonstrates that the vertical hydraulic isolation of the production zones in the Inyan Kara by the underlying Morrison

Formation (lower confining unit).<sup>41</sup> The Petitioners have not provided any information contradicting the application in this basis. TR Section 2.7.2.1.8. The Staff will not address each sub-basis because the information which the Petitioners assert is missing or does not consider adequately is in fact found in the sections of the Application mentioned above. In addition, Basis (32) and its subparts have been addressed by the Staff in Contentions C, D, E, H, and subparts of I.

This contention is inadequate for a number of reasons. The Petitioners overlook sections of Powertech's TR, which provide information relevant to potential hydraulic connections between aquifers and pump tests that Powertech conducted at the proposed site. Because the Petitioners fail to dispute relevant portions of Powertech's ER, Basis (32) must be rejected under 10 C.F.R. § 2.309(f)(1)(vi). Because the Petitioners fail to cite any legal basis for their claim, their contention must also be rejected under 10 C.F.R. § 2.309(f)(1)(v).

(33) The Applicant minimizes the disturbance to land at all stages of the analysis. The applicant states that only 108 acres out of a total proposed action area (PAA) of 10,580 acres would be impacted by mining, facilities, and roads (1.2.3 ER; see also Table 2.11-1 and Section 4.3.1 ER). Their basis for this number is not provided, but it apparently includes only part of the initial mine units, which appear to take up most of a section, or 640 acres (Supplemental Exhibit 3.2-1).

Powertech addresses these issues in ER Sections 1.2.3 and 4.3.1:

While, the PAA encompasses 10,580 acres, the land potentially disturbed by the proposed action will be approximately 68 acres (facilities, piping, ponds, well fields and roads) during the year proceeding operation. The potentially disturbed area during the life of the project (*production to restoration*) is estimated to increase over time to a maximum of 108 acres. If the maximum area for land application of treated wastewater is included in the footprint of the Proposed Action, then a maximum of an additional 355 acres potentially would be affected by the Proposed Action for most of the project life. The maximum potential land disturbance at any given time is expected to be 463 acres. (emphasis added).

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<sup>41</sup> The results of the pumping tests are summarized at TR 2-149 through TR 2-181, with more specific information provided in Appendix 2.7-B.

The TR Supplement Section 3.1.5.1 states the land application areas will occupy 875 acres. Powertech's Exhibit 3.1-2 in the TR Supplement shows the land application areas, from which areas can be calculated. The Petitioners fail to show there is a genuine dispute on a material issue. Basis (33) must therefore be rejected pursuant to 10 C.F.R. § 2.309(f)(1)(vi).

(34) The Applicant also minimizes the disturbance created by its proposed land application of wastewater. It states that a maximum of 355 acres would be used for this purpose (Section 1.2.3 ER). However, maps of the proposed land application area show that application would be done over most of two sections (1,280 acres). This does not include the additional storage, settling, or spare ponds required by this process (Supplemental "Land Application and Irrigation Site Investigation-Test Pit Locations" Map).

The TR Supplement Section 3.1.5.1 states the land application areas will occupy 875 acres. Powertech's Exhibit 3.1-2 in the TR Supplement shows the land application areas, from which areas can be calculated. The Petitioners fail to show there is a genuine dispute on a material issue. Basis (33) must therefore be rejected pursuant to 10 C.F.R. § 2.309(f)(1)(vi).

(35) In section 3.1.1 ER, the Applicant says both that "there are no recreational lands present" in or within 2 km of the proposed project site and that a "recreational use" of the proposed project area is large game hunting – in contiguous sentences.

Read in context, it is clear that "recreational lands" refers to lands open to the public. See ER at 3.1.1, page 3-2 ("Within the PAA or within the surrounding 2.0 kilometers there are no recreation lands present because most of the land is private with a small portion (240 acres) belonging to the BLM."). "Recreational use," on the other hand, refers to activities that may take place on either public or private lands. Accordingly, there is no inconsistency between the statements in the ER. Moreover, even if there were some inconsistency, the Petitioners fail to explain how this would be a material issue in the proceeding. This basis therefore fails to satisfy either 10 C.F.R. § 2.309(f)(1)(v) or (vi).

(36) Table 3.4-3 ER and Section 3.4.3.1.4 ER provide information on the Madison Aquifer that is not site-specific. There is a lot of research on the aquifer that provides relevant information. This is not corrected in the Supplement.

The Petitioners claim that the Application is missing "relevant information" about

the Madison aquifer is not supported by facts, studies, or expert opinion. Although the Petitioners refer to “a lot of research on the aquifer,” they do not cite to individual scientific sources or particular facts. Powertech presents site-specific data on the Madison aquifer in ER Section 3.4.3.1.4; however, because of the importance of the regional hydraulic connection of aquifers significant amounts of Powertech’s data and analysis concern this issue. ER Section 3.4.3.1.7, *see also* TR at 1-9, Table 1. *Locations of All Wells in the Dewey-Burdock Database* and TR 14-22, Table 3. *Wells Noted in Data Sources but Not Located in Field*, which provide data on wells located in the Madison aquifer.

Powertech relies on a wide-range of hydrogeological reports and studies concerning the Madison aquifer and its relationship to aquifers at the proposed site, as well as, within the region; those are cited in ER Section 9.3.4, *References for Water Resources*. The Petitioners do not challenge the data collection, the methodologies, or the conclusions presented in these references, nor do they challenge the credentials of the authors of these technical works. The Petitioners do not raise a genuine issue of material fact in dispute with Powertech, and they do not provide any support for their assertions. Basis (36) fails to satisfy either 10 C.F.R. § 2.309(f)(1)(v) or (vi).

(37) The Applicant mentions exchange between subsurface and surface water in Section 3.4.3.1.10 ER. This is not discussed in the rest of the Application, despite high uranium readings in alluvial aquifers (Section 3.4.3.3.2 ER), and it is unclear whether this type of exchange occurs in the relevant alluvial aquifers. This is important information.

Powertech addresses the relevant aquifers and related concerns in a number of places in TR Sections 2.6 and 2.7. Specific consideration has been given in TR Sections 2.7.2.1.10 9 (regional groundwater and surface water interactions, 2.7.2.2.5 (Inyan Kara Aquifer), 2.7.2.2.7 (alluvial aquifers), 2.7.2.2.8 (groundwater flow, including references such as Appendix 2.7-A), 2.7.2.2.9 (site groundwater recharge and discharge), 2.7.2.2.10 (site-specific groundwater / surface water interactions), and Table 2.9-16 (dissolved radiological groundwater parameters).

In addition, TR Section 2.7.3.2.2 provides recent sampling results of for the alluvial aquifer in the license area to demonstrate the alluvial baseline (background) groundwater water quality.

The Petitioners have not identified a contradiction in the Application. They have not offered facts, studies, or expert opinion that supports their claims. The Petitioners fail to identify a genuine dispute with Powertech and, in any event, fail to provide support for their claims. Basis (37) therefore fails under 10 C.F.R. § 2.309(f)(1)(v) and (vi).

(38) The Applicant took water quality samples directly from uranium ore bodies (Sections 3.4.3.3.2.2 and 3.4.3.3.3.3 ER). This does not provide representative information on water quality in the proposed project area. We are also asked to accept the Applicant's word that sampling results are representative in Section 6.1.8.4 ER.

The Petitioners do not provide expert opinion supporting their claim that sampling methodology and results are not representative; they do not provide citations to law or regulations that require Powertech to utilize another sampling methodology. Section 2.7.3 of the Technical Report (TR) provides baseline (background) water quality information to demonstrate compliance with 10 C.F.R. Part 40, App. A, Crit. 7. The Petitioners fail to mention, that Powertech collected groundwater samples from locations outside the extraction zone, as discussed in TR Section 2.7.3.2.1. Furthermore, background samples collected from the extraction zone provide an understanding of overall water quality of the extraction zone, which is part of the overall water quality of the project area. Noting that the above stated assertion does not have a basis, the assertion does not contradict information in the application. The Petitioners fail to identify a genuine dispute with Powertech and, in any event, fail to provide support for their claims. Basis (37) therefore fails under 10 C.F.R. § 2.309(f)(1)(v) and (vi).

(39) Information on area vegetation and stream flows was gathered soon after an extended period of drought. While this is mentioned (Section 3.5.5.1.1 ER, quoting Powertech's Project Manager), the implications are not considered in the ER.

Section 3.5.5.1.1 of the ER states "[a]ll sampling procedures and methodologies are consistent with standard industry practices utilized in applications for AEA licenses including

those for: Smith Ranch, Nichols Ranch, Moore Ranch and Highlands Ranch.” *Id.* at 78. The methodology is further detailed in Appendix 3.5-A of the ER. Petitioners assert that Powertech did not consider “the implications” of conducting a survey after a drought,<sup>42</sup> but without specifying what implications Powertech was required to consider. Moreover, Petitioners do not provide any support for their claim that the ecological survey Powertech completed in 2008 was not properly conducted or that problems exist with the survey’s research objectives, survey methodologies, or data collection techniques. Because the Petitioners neither identify a genuine dispute with Powertech nor cite authority for their claims, the Board must reject basis (39) under 10 C.F.R. §§ 2.309(f)(1)(v) and (vi).

40) The applicant relies on a survey for black-footed ferrets that was completed in 1977. This was during a period of time when the ferret was believed to be extinct in South Dakota (Section 3.5.5.4.1 ER). Since that time, populations have rebounded.

The Petitioners do not demonstrate that Powertech was required to conduct a survey of black-footed ferrets as part of its ecological studies. Further, the Petitioners fail to mention that the U.S. Fish and Wildlife Service issued a block-clearance for ferrets<sup>43</sup> for the entire state of South Dakota, which means that Powertech was not required to conduct a ferret survey in connection with its proposed action. See Section 3.5.5.4.1 of ER at 3-121. Because there was no requirement for Powertech to conduct a black-footed ferret survey under NEPA, the Endangered Species Act, 10 C.F.R. § 51.45, or Appendix A, the Petitioners fail to identify a genuine dispute with Powertech and fail to provide support for their claims. Basis (40) therefore

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<sup>42</sup> The Staff is unable to locate the alleged statement by the project manager in the section cited by Petitioners.

<sup>43</sup> “Block clearance is a strategy developed by the Service to determine the likelihood of black-footed ferret occurrence in a geographic area and provide sufficient information to allow the Service to assess an area for the biological potential for contributing to recovery of the ferret. The act of block clearing an area negates the need to conduct future ferret surveys to comply with section 7 of the Endangered Species Act. See n.4 <http://www.fws.gov/southdakotafieldoffice/endsppbycounty.htm>§

fails under 10 C.F.R. §§ 2.309(f)(1)(v) and (vi).

(41) The representativeness of meteorological information taken on the site was determined using data from Chadron, NE, a site that is 53 miles away and has very different topography (Section 3.6.1 ER).

The Petitioners allege that meteorological data taken at the nearest National Weather Service (NWS) site at Chadron, Nebraska lacks “representativeness” due to distance and topography. However, the Petitioners fail to provide any support for the proposition that the geographical location and topography of the Dewey-Burdock site and the Chadron weather station differ so significantly as to invalidate the data collection. Furthermore, the Petitioners neglect to point out that “[t]o complete the site-specific analysis, a weather station was installed in coordination with the South Dakota State Climatology office at approximately the center of the PAA in July 2007.” ER Section 3.6.1. The Dewey-Burdock weather station “collects temperature, humidity, solar radiation, wind speed/direction, barometric pressure, and precipitation at 1-minute, 5-minute, and hourly time steps.” *Id.* Therefore, Powertech did not rely solely on the Chadron station data in developing its meteorological analyses for the proposed site.<sup>44</sup> The Petitioners fail to identify a genuine dispute with Powertech and fail to provide support for their claims. Basis (41) therefore fails under 10 C.F.R. §§ 2.309(f)(1)(v) and (vi).

(42) The Applicant also uses information from Oral, SD, in its weather analysis. Predominant wind directions on the Oral site are different from the directions measured on the proposed project site (Sections 3.6.3.2 and 3.6.2.4 ER).

Powertech provides wind data for the project site based on meteorological data collection at the Dewey-Burdock station and the Oral, S.D. station. The Oral site data was analyzed because it was the only site in the region with representative data for wind speed and

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<sup>44</sup> See also ER Table 3.6-1: Meteorological Stations Included in Climatology Analysis, which lists nine weather stations surrounding the Dewey-Burdock station and Figure 3.6-1: Meteorological Sites, which maps the nine weather stations and the Dewey-Burdock station.

direction, until the Dewey-Burdock station was established. Wind speed at Oral averaged 6.4 mph between November 2002 and July 2008 with approximately 51 percent of the winds blowing from the southwest. ER Section 3.6.2.4, Figure 3.6-14. At the Dewey-Burdock station average wind speed was approximately 5 mph with 51 percent of the winds from the southeast during the July 18, 2007 to July 17, 2008 period. ER Section 3.6.3.2, Table 3.6-7. Petitioners seem to be asserting that the use of Oral weather station data is in some way a violation of section 51.45 or Appendix A; however, the Petitioners fail to provide any support for this claim. The Petitioners also do not identify a genuine dispute with Powertech and fail to provide support for their claim. Basis (42) therefore fails under 10 C.F.R. §§ 2.309(f)(1)(v) and (vi).

(43) It is unclear how a continental measure of the radiation impacts is relevant to a local measure of radiation exposure. The numbers shown in Table 3.11-1 ER are suspect, as the project area is higher altitude than where most of the continent's population is located and contains over 100 old uranium mines.

10 C.F.R. § 20.1301(d) establishes radiation dose limits for individual members of the public, while subpart (e) subjects a licensee to the provisions of the EPA's generally applicable environmental radiation standards in 40 C.F.R. Part 90. Sections 3.11.2.1.1 and 4.14.2.3.12 of the ER provide details on total effective dose equivalents (TEDE) of the proposed action pursuant to NRC and EPA radiation dose standards. The Petitioners allege that the continental dose referred to in Table 3.11-1 is not applicable to the Dewey-Burdock area because of site-specific characteristics. The Petitioners err in assuming that the continental dose is used in the calculation of TEDEs. Continental dose is included in Table 3.11-1 as a figure for comparison. ER at 3-213. The Petitioners' assertion does not contradict information in the application. Thus, the Petitioners do not show that they have a genuine dispute with Powertech as required by 10 C.F.R. § 2.309(f)(1)(vi).

(44) In Section 4.4.3.3 ER, the Applicant notes that the Nuclear Regulatory Commission concludes that a transportation accident involving a truck carrying yellowcake is 11% per year per uranium extraction facility. This means that the probability is 100% over ten years. The Applicant fails to discuss the implications of this probable accident.

In discussing the shipment of yellowcake from Dewey-Burdock in Section 4.4.3.3 of the ER, Powertech states:

The yellowcake will be loaded into [sic] a gasketed and sealed 55-gallon (208-L) drums which will be trucked to a conversion facility via qualified and certified carrier. Specific routes are to be determined by contract with the carrier. The carrier will meet all safety controls and regulations promulgated by 10 CFR 71.5.

According to NUREG/CR 6733 earlier analyses concluded that the probability of a truck accident, involving the transport of yellowcake, for any given year was 11 percent for each uranium extraction facility.

The Petitioners mistakenly assume that the probability of a transportation accident occurring over a period of years is the product of the annual percentage of probability and the number of years. That is obviously not the case. In addition, the Petitioners do not challenge the specifications of the transportation drums or the transportation safety controls presented in the Powertech's application. In doing so, they overlook the probability of a *radiological release* due to a transportation accident. It is the probability of a radiological release that is of significance, not merely the probability of a transportation accident. The Petitioners do not provide any support for their claim that Powertech has not considered "the implications of this probable accident." Therefore, the Petitioners do not show that they have a genuine dispute with Powertech and fail to provide support for their claim. Basis (44) therefore fails under 10 C.F.R. §§ 2.309(f)(1)(v) and (vi).

(45) The Applicant uses the National Mining Association, a trade group that promotes mining, as the source for sections of its ER. These include Sections 4.5.2 – 4.5.5, 4.6.2.2, and 4.6.2.8.1 ER, which include the applicant's discussion of excursions, a critical risk factor from ISL mines. These sections are overly vague, as they are designed as a general description of a mining operation.

The Petitioners cite sections of the ER that describe potential impacts due to construction and operation of the facility; however, they fail to controvert any specific point in the ER. They state sections of the ER are "overly vague," without more. Additionally, the Petitioners fail to point to a regulatory requirement that obligates Powertech to provide

additional details or reach specific conclusions. The Petitioners have not even suggested what type of information is missing from the ER. The Petitioners also have presented no reasons why reports<sup>45</sup> published by the National Mining Association (NMA), a trade association, should be wholly dismissed. The Petitioners offer no expert opinion challenging the data, the research methodologies, the analyses, or the qualifications of the researchers preparing MNA studies. Likewise, they do not specifically challenge the validity of the conclusions in MNA publications. Accordingly, the Petitioners fail to support basis (45) as required by 10 C.F.R. § 2.309(f)(1)(v).

(46) The Applicant analyzes (vaguely) the potential impacts of sedimentation from its proposed project in the context of the watershed of the Angostura Reservoir (Section 4.6.1.1 ER). This is not the appropriate unit of analysis. The analysis needs to be specific to the area of its project.

The Petitioners refer to Section 4.6.1.1 of the ER, which describes potential sedimentation impacts due to construction and operation of the facility. However, they fail to dispute any specific point in the ER. Additionally, the Petitioners fail to point to a regulatory requirement that obligates Powertech to provide additional details or reach specific conclusions. The Petitioners have not even specified what type of information is missing from the ER, why the “unit of analysis” is inappropriate, or what unit of analysis Powertech should have used. The Petitioners also fail to mention or dispute Powertech’s proposed mitigation measures for surface water impacts from the proposed action, which are presented in Section 5.4 of the ER. See *also* Appendix 3.5-H of the ER. Accordingly, the Petitioners fail to provide the support for basis (46) required by 10 C.F.R. § 2.309(f)(1)(v).

(47) Because the Applicant says that its tests showed no percolation beyond the base of the soil profile, it “assumes” that there will be no lateral or vertical movement of water that could impact groundwater under the land application sites (Section 4.6.2.3 ER). This ignores the presence of alluvial aquifers, as well as being poor science.

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<sup>45</sup> The NMA report to which the Petitioners refer is the "Generic ER in Support of the Nuclear Regulatory Commission's Generic Environmental Impact Statement for In Situ Uranium Recovery Facilities," National Mining Association (2007).

The Petitioners do not challenge the quality of wastewater to be applied in land applications. They do not dispute Powertech's statement in Section 4.6.2.3 of the ER that wastewater applied to the land will be treated to meet the EPA's Primary Drinking Water Standards and the NRC's effluent criteria for radionuclides in 10 C.F.R. Part 20, Appendix B. The Petitioners also ignore the Soil Plant Air Water (SPAW) model Powertech used to design land application areas, which is discussed in Section 4.2.2.1.1 of the TR and Sections 4.0 and 5.0 in Powertech's supplemental application. The SPAW model is used to estimate infiltration among other parameters. The Petitioners fail to refute the methodology or the results of the SPAW model. The Petitioners raise the issue of alluvial aquifers, but do not provide factual or expert support for their claim that the presence of alluvial aquifers has any bearing on Powertech's proposed land application sites. Because the Petitioners claims are wholly unsupported and because the Petitioners fail to address relevant sections of the application, basis (47) must be rejected under 10 C.F.R. §§ 2.309(f)(1)(v) and (vi).

(48) It is unclear how a phased approach to well field construction will minimize groundwater impacts, as the company states in Section 4.6.2.5 ER.

The Petitioners merely question whether Powertech's statement is correct. They do not show that they have a genuine dispute with Powertech and, to the extent they dispute the statement in the ER, they fail to support for their claim. Basis (48) therefore fails under 10 C.F.R. §§ 2.309(f)(1)(v) and (vi).

(49) In Section 4.6.2.6.1 ER, which discusses drawdown, the Applicant makes at least three assumptions that are not appropriate for the proposed project area: that the aquifer is homogeneous, that the aquifer is confined; and that there is no recharge (Section 4.6.2.6.1 ER).

The Petitioners misinterpret Section 4.6.2.6.1 of the ER, which explains the calculation of drawdown estimates. The Petitioners contend that "the Applicant makes at least three assumptions" about the proposed project area "which are inappropriate." In reality, Powertech does not make any assumptions. Rather, it uses the well-accepted Theis equation to arrive at confined aquifer calculations for the proposed project area. The Petitioners do not challenge

the validity of the Theis equation, which has been used since 1935.<sup>46</sup> The Petitioners also do not explain why the use of the Theis equation in the calculation of drawdown is inappropriate, nor do they suggest the use of another equation for this purpose. The Application at Sections 4.6.2.6.2 and 4.6.2.6.3 of the ER and Sections 7.2.5.1, 7.2.5.1.1, and 7.2.5.1.2 of the TR describe the aquifer parameters, assumptions about the aquifers, and specific pump test data used in assessing drawdown impacts for the Fall River and Lakota Aquifers. The Petitioners do not refer to these data. Because the Petitioners do not cite any facts, studies or expert opinion in support of their claims, Basis (49) must be rejected. 10 C.F.R. § 2.309(f)(1)(v).

(50) The Applicant opines that the Dewey Fault Zone contains the project area's aquifers (Section 4.6.2.6.1 ER). Fault Zones are fractures in the earth that may conduct fluids among aquifers or may move either horizontally or vertically.

The Petitioners do not dispute any part of Powertech's application. Rather, they merely note the general existence of fault zones, without explaining how such zones are relevant in the present licensing proceeding. Basis (50) must therefore be rejected under 10 C.F.R. §§ 2.309(f)(1)(iv) and (v).

(51) Drawdown impact estimates are based on only a few test wells (Sections 4.6.2.6.2 and 4.6.2.6.3 ER). It is unclear whether these tests are representative of the entire proposed project area.

The Petitioners suggest that the drawdown impact estimates in the ER are incomplete or not representative. The Petitioners do not specifically describe their concerns, however, and they do not actually challenge the data or conclusions in the ER. Further, the Petitioners do not challenge sections 2.6 and 2.7 of the TR, Appendix 2.7-B of the TR, or section 1.0 of the TR

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<sup>46</sup> See Theis, Charles V. (1935) "The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using ground-water storage", *Transactions, American Geophysical Union* 16: 519–524. see also Halford, K.J. and E.L. Kuniatsky, 2002, "Documentation of Spreadsheets for the Analysis of Aquifer-test and Slug-test Data", U.S. Geological Survey Open File Report 02-197.

supplement.<sup>47</sup> All these portions of the application address drawdown issues. Because the Petitioners fail to dispute relevant portions of the application and fail to show there is a genuine dispute on a material issue, basis (51) must be rejected under 10 C.F.R. § 2.309(f)(1)(vi).

(52) The Applicant assumes that there will no physical impacts on Cottonwood Gallery and Ponderosa Pine vegetative communities (Section 4.7 ER). This is impossible, given the extensive disturbance of project operations, as well as the certainty of above-ground spills and leaks.

In Section 4.7 of the ER, Powertech states: “[t]he vegetative communities (Cottonwood Gallery and Ponderosa Pine) that indicated the strongest associations between terrestrial species and habitats during baseline surveys will not be physically impacted by construction or operation of the proposed ISL Uranium project.” Powertech subsequently discusses potential impacts to vegetation. ER Section 4.7.1. In addition, Powertech discusses the effects of potential excursions and spills, along with mitigation measures. See ER Sections 4.6.2.8.1 and 4.6.2.8.2. Because the Petitioners do not challenge the analyses in these sections, basis (52) must be rejected under 10 C.F.R. § 2.309(f)(1)(vi). Further, although the Petitioners state that it is “impossible” that there will be no physical impacts on Cottonwood Gallery and Ponderosa Pine, they fail to present any facts, studies or expert opinion in support of their claim. This basis therefore fails to meet 10 C.F.R. § 2.309(f)(1)(v).

(53) The Applicant speculates that land application will actually “enhance” habitat (Section 4.7 ER). This contradicts research indicating that land application from in situ mines can concentrate contaminants to toxic levels.

The Petitioners fail to present any facts, studies or expert opinion in support of their claim. Further, the Petitioners overlook numerous sections of the application where Powertech provides information on land application methods and protections. See, e.g., Sections 4.0, 5.0, 6.0, and 7.0 of the ER and parallel sections in Powertechs’ August 2009 Supplemental

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<sup>47</sup> Section 1.0 of the Supplemental TR, *Narrative of TVA and Powertech (USA) Inc. Pumping Tests: Conclusions and Results*, (August 2009).

Application.<sup>48</sup> The Petitioners therefore fail to dispute any part of the application that discusses proposed land application methodologies. Basis (53) must therefore be rejected under 10 C.F.R. §§ 2.309(f)(1)(v) and (vi).

(54) In Section 4.12, the Applicant makes a number of assumptions about local socioeconomic impacts of the project that are not supported by any evidence, and that there is reason to believe are untrue. Its data about local socioeconomic impacts should be calculated to reflect the situation on the ground. These include: (a) “[N]ew workers living within Custer and Fall River Counties would spend their income locally.” People from rural counties in the area do substantial shopping and other economic activity in Rapid City. (b) There would be \$45.8 million in non-payroll capital expenditures. The nature of these expenditures is unclear. For example, contractors Knight Piésold are from Denver. Most equipment, including expensive items like drill rigs and mining and transportation equipment, are not manufactured locally, so the financial benefits of these purchases would not be local.

Section 4.12.5 of the ER summarizes Powertech’s cost-benefit analysis (CBA) findings and concludes the construction and operation costs, including capital costs, of this project will result in positive economic benefits to the local and regional economy by the creation of hundreds of jobs and millions of dollars in tax revenue over the life of the project. In Section 7.2.2.3 of the ER, Powertech states it used the guidance set out in NUREG-1569 to define the direct zone of influence for the project cost-benefit analysis. The direct zone includes a radius of 80 km from the center of the project area and includes the townships, towns, and unincorporated areas within the two South Dakota counties surrounding the project, Custer and Fall River. Rapid City, which is 161 km away, and other communities in Pennington County fall within the project’s indirect zone of influence.

The Petitioners’ arguments contain only unsupported assertions. The Petitioners do not provide any factual or other support for their claim that Powertech insufficiently considered local

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<sup>48</sup> For example, Section 4.15.2.4.2 of the ER states “in the land application option of wastewater disposal, bleed water from the process circuit will be extracted and treated using ion-exchange columns to remove uranium and other metals.” In addition, the Supplemental Application presents extensive discussion on the methodologies and protections which are part of the proposed land application program.

socioeconomic benefits in its CBA. The Petitioners also fail to provide any support for their underlying claim, which is that Powertech violated 10 C.F.R. § 51.45 by including regional information in calculating the CBA. Because the Petitioners' claims are wholly unsupported, basis (54) must be rejected under 10 C.F.R. § 2.309(f)(1)(v).

(55) In calculating production releases of radon, the Applicant includes "small unavoidable leaks in well field and ion exchange equipment" (Section 4.14.2.3.4 ER). The definition of "small" is open to interpretation. However, most in situ operations include larger spills. This is well-known and should be included in this analysis.

The ER states that the potential Rn-222 releases from the production well fields were estimated using methods described in agency guidance.<sup>49</sup> The Petitioners suggest that Powertech has not defined "small" in its calculations of Rn-222 releases. That is not the case. Powertech states "the annual Rn-222 released from production in the well field and at the main plant facility is *212 and 191 Ci y-1*; these are quantifiably small quantities, not open to interpretation. ER Section 4.14.2.3.4 at 4-65. (emphasis added.) The Petitioners do not provide facts, studies or expert opinion in support of their claim that it is well-known that most in situ spills are large. Furthermore, the section which the Petitioners cite, concerns Rn-222 airborne releases from production well fields rather than excursions, which are addressed elsewhere in the Application. The Petitioners do not show they have a genuine dispute with Powertech on a material issue, and basis (55) must be rejected. 10 C.F.R. § 2.309(f)(1)(vi).

(56) Atmospheric releases of radon are calculated using 1978 data from Casper, WY, which may not be representative of current or local conditions (Section 4.14.2.3.12 ER).

The Petitioners fail to identify a genuine dispute with the Applicant on a material issue. Powertech does not claim that the Wyoming release is representative of current or local

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<sup>49</sup> See U.S. Nuclear Regulatory Commission, Regulatory Guide 3.59, "Methods for Estimating Radioactive and Toxic Airborne Source Terms for Uranium Milling Operations" (March 1987).

conditions at the proposed facility. Rather, in the ER Powertech provides the data from Casper, Wyoming as a point of comparison. (The results of these calculations are included in Table 4.14-6 of the ER.) In any event, the Petitioners fail to support their claim that data from Wyoming “may not be representative.” The Petitioners’ claim must be rejected under 10 C.F.R. §§ 2.309(f)(1)(v) and (vi).

(57) The Applicant assumes that radionuclide concentrations in soil will be “the most important pathways to flora and fauna exposure” (Section 4.14.2.4 ER). It is not clear whether this includes land application, which can concentrate contaminants in both flora and fauna.

Section 4.14.2.3 of the ER states that “[s]ources of radionuclide emissions are Pb-210, natural uranium, Ra-226, and Th-230 released into the atmosphere from the land application areas. The land application areas could also be a source of Rn-222.” Section 4.14.2.4 of the ER states in pertinent part:

Recent site specific surface soil (0-15 cm) data show that the background concentration of radium-226 ranges from 0.76 (25 percentile) to 2.2 (75 percentile) pCi g-1 with a geometric mean of 1.3 pCi g-1 and geometric standard deviation of 1.3 pCi g-1. *The increase in soil radioactivity is less than the geometric mean soil radioactivity prior to operations and if added to the geometric mean (1.3 pCi g-1) is still within normal background variability observed at the site.* (emphasis added.)

The Petitioners do not specifically dispute these sections of the ER. Nor do the Petitioners provide facts, studies or expert opinion in support of their claim that land application of treated wastewater concentrates contaminates in flora and fauna. The Petitioners do not raise a genuine issue of material fact with Powertech, and they fail to support their claim. Basis (57) must be rejected under 10 C.F.R. §§ 2.309(f)(1)(v) and (vi).

(58) There is contradictory information on the Applicant's plan for deep well disposal. It both shows on-site options and says that there are suitable zones for disposal in Wyoming and Nebraska. This section is also very vague in its discussion of impacts from deep well disposal (Section 4.15.2.4.1 ER).

Section 4.1 of the Technical Report in the August 2009 Supplemental Application states:

Powertech originally proposed that one method of liquid waste disposal would be to pipeline liquid waste from Dewey-Burdock to

a deep well injection site(s) located in Wyoming. A second potential method of liquid waste disposal was to truck concentrated liquid waste to licensed disposal wells in Wyoming or Nebraska. In Powertech's discussion with both states, it has been determined that neither state is willing to accept liquid waste from an adjacent state. Therefore, the *proposed options described in Section 4.2.2.2 of the Technical Report and Section 4.15.2.4.1 of the Environmental Report, are not viable at this time and are hereby withdrawn.* (Emphasis added.)

Thus, there is nothing "contradictory" in the application, and the Petitioners do not show that they have a genuine dispute with Powertech. Basis (58) therefore must be rejected under 10 C.F.R. § 2.309(f)(1)(vi).

(59) The Applicant states "Considering the distance between the existing projects and the proposed project and the almost half a century since the previous uranium development in the area, cumulative environmental impacts are considered to be small to negligible" (Section 4.16.1 ER). This statement fails to consider the 169 known old uranium mines and prospects in the southern Black Hills. There are also old surface and underground mines directly on the proposed project area.

The Petitioners do not clearly state whether they are alleging that Powertech improperly failed to consider certain impacts, or whether they are challenging Powertech's conclusion that cumulative impacts are "small to negligible." If the former, they fail to support their claim that Powertech was required to more specifically consider abandoned or closed uranium mines in the ER sections addressing cumulative effects. The Petitioners do not cite facts, studies, or expert opinion to support their claim that such analysis is required. If the Petitioners are claiming that the impacts for old mines invalidates Powertech's conclusion that cumulative impacts are "small to negligible," on the other hand, they likewise fail to support their claim, and they fail to explain what the true impacts would be. Basis (59) must be rejected under 10 C.F.R. §§ 2.309(f)(1)(v).

(60) In its calculations of existing gamma count rates in the proposed mining area, the Applicant removes what it determines to be "outliers," including 9% of the readings in the old surface mine areas (Section 6.1.2.2.1 ER). Similarly, 16% of the first 80 readings on Radium-226 and 20% of those done in the surface mine area were rejected as "outliers." This depresses the area's readings and minimizes the existing disturbance. If all readings were included, it might become clear that the area should not be disturbed further.

The Petitioners provide no support for their claim that it was improper for Powertech to exclude outliers from the calculations in Section 6.1.2.2.1 of the ER. The Petitioners do not cite any facts, studies or expert opinion in support of this claim. Further, the Petitioners overlook other sections of the application, in which Powertech provides the information the Petitioners allege is missing. See TR at page 2-315 (providing information on outlying gamma ray counts), TR at page 2-320 (providing similar information for Ra-226). The Petitioners arguments must therefore be rejected under both 10 C.F.R. § 2.309(f)(1)(v) and (vi).

(61) The applicant sampled stream sediments in the upstream side of dry surface impoundments (Section 6.1.4.1.2 ER). Stream sediments normally collect at the downstream side of an impoundment and should also be sampled there.

This basis contains only unsupported assertions. The Petitioners do not provide any factual or other support for their claim that stream sediments “should” also be sampled on the downstream side of an impoundment. Further, even if this were true, the Petitioners do not explain what standards *require* Powertech to include such data in its application. Basis (61) must therefore be rejected. 10 C.F.R. § 2.309(f)(1)(v).

(62) The criteria for selection of groundwater wells for water sampling are listed, but not operationalized. The Applicant says the sites were “representative” (Section 6.1.8 ER), but that cannot be determined without further information.

This basis contains only unsupported assertions. The Petitioners do not provide any factual or other support for their claim that Powertech’s selection criteria for groundwater wells are not “representative.” The Petitioners do not challenge or controvert Section 2.7.3 of the TR, which provides baseline (background) water quality information to demonstrate compliance with Part 40, App. A, Crit. 7. Further, the Petitioners do not explain what standards would require Powertech to collect and analyze such data in its application. Basis (62) must therefore be rejected under 10 C.F.R. § 2.309(f)(1)(v).

(63) The comparison of historic and recent groundwater quality does not include radionuclides (Section 6.1.8.3 ER). This is important, given the fact that these are major criteria of concern. Increased radionuclide contamination in wells could indicate vertical contamination through old drill holes. The Applicant then extends these few samples (that do not include criteria of concern) to say that the water

parameters in the tested wells have been consistent over time. And then it goes farther to say that the area's water chemistry is stable (Page 6-82 ER). There are a lot of assumptions in these leaps of faith. This research should be re-done before a permit is considered further.

The Petitioners cite certain sections of the ER, but they do not controvert other data, analyses and conclusions relevant to the issues they raise. Sections 2.7.3 and 2.9 of the TR provide baseline (background) groundwater water quality and radiological background information to demonstrate compliance with App. A, Crit. 7 and 10 C.F.R. § 51.45. Surface water sampling locations were chosen using the sampling standards set out in NRC Regulatory Guide 4.14 and South Dakota ARSD 74:29, which require background radiological data to be collected for surface waters that could be affected by the proposed operations.

In addition, information about exploratory drill holes is provided in TR Sections 2.6.2, 2.6.4, 2.7.2.2.5 and 2.7.2.2.16, as well as the TR Supplement. Section 2.7 of the TR (including associated plates, exhibits and Appendix 2.7-B) and the entire TR Supplement provide results of production zone pumping tests conducted in the Dewey-Burdock area. The Petitioners do not dispute Powertech's data, analyses or conclusions and they provide no support for their allegations that particular information is missing from the application. The Petitioners fail to provide support for basis (63), as required by 10 C.F.R. § 2.309(f)(1)(v).

(64) Many aspects of the geology of the proposed project area are stated by Applicant to be UNKNOWNs. Their discussion on this topic repeatedly slants the information in the direction of simplicity and safety, while a number of authors point out the complexity of the geology of the Black Hills. As noted above, the presence of over 4,000 old drill holes is often ignored. The discussion of breccia pipes talks about the unlikely development of "caverns" – which are different from "breccia pipes" (Section 2.3.1 Supplement).

The Petitioners fail to address relevant portions of the application and show there is a genuine dispute on a material issue. Basis (64) must therefore be rejected under 10 C.F.R. § 2.309(f)(1)(vi). The Petitioners also claim that the application "slants" information regarding the geology of the Black Hills region, but without offering a single example as proof of this claim. The Petitioners fail to support their assertion that Powertech has somehow confused "breccia

pipes” with “caverns,” and they do not point to the specific language in the application to which they are referring. Basis (64) therefore must also be rejected under 10 C.F.R. § 2.309(f)(1)(v).

(65) Breccia pipes in this region are known to be as much as 1300 feet high and several hundred feet across. If they are associated with the Dewey Fault Zone, as the Applicant states (Section 2.3.1 Supplement), then they are very close to the proposed project area. The maps submitted with the Application do not show any drilling that may have identified (or created) problems in the area between the proposed project and the Dewey Fault Zone.

The Petitioners fail to address relevant portions of the application and show there is a genuine dispute on a material issue. The Petitioners also fail to support their claim. Powertech has identified Breccia pipes in the region surrounding the Dewey-Burdock site, but none in the area in which they plan to conduct ISL operations. The Petitioners provide no information disputing Powertech’s analysis of this issue. Rather, they merely suggest that the analysis may somehow be incomplete. The Petitioners’ unsupported claims must be rejected under 10 C.F.R. §§ 2.309(f)(1)(v) and (vi).

(66) Section 3.2 Supplement raises a new issue that is not analyzed in other parts of the Application. This is the Applicant’s intention to disturb the old open pit uranium mines on its proposed mining site. It first says that it doesn’t plan to operate through the mine wastes, then says that it plans to place well fields in that area. The full implications of mining in the same location as the old uranium mines need to be discussed, including air and water quality, human exposure, waste issues, cumulative impacts, and so forth.

In its Supplement to Application at 3.2, “Planning of Future, Well Fields, 3-4,” Powertech states:

As shown on Supplemental Exhibit 3.1-10, existing mine waste overburden from historical open pit mines remains over portions of the eastern side of the known mineralization. It was stated at the June 2009 meeting between Powertech management and the NRC, Powertech does not plan to conduct operations through the mine waste at this time due to the potential of increased liability associated with future possible reclamation on waste having no relationship to ISL production. However, Powertech recognizes that the good quality of the mineralization will require further review and planning. At this time Powertech plans future well fields to be placed within these areas. It is expected that clarification on future liability will precede development. In any event, the same control and protection standards will be used for in situ mining, should these areas be developed in the future.

The Petitioners fail to show they have a dispute with Powertech. Powertech states that it

will conduct further reviews before deciding whether to place well fields in areas containing mine wastes. It should be noted that Powertech will likely require a license amendment to develop these areas. The Petitioners therefore have not show that Powertech is required to address this potential future development in the present ER. In any event, the Petitioners fail to explain why Powertech's reliance on existing control and protection standards would not be sufficient to protect public health and safety. This basis therefore fails under 10 C.F.R. §§ 2.309(f)(1)(v) and (vi).

(67) In Section 6.2 Supplement, the company begins by saying that vehicular traffic is a "potential source of dust." This reflects ignorance, a failure to analyze and describe the nature of Western South Dakota's unpaved roads or unimproved tracks in the summer. There will be dust.

The application does not deny that there will be dust. Rather, it merely identifies a potential source of dust. The Petitioners therefore fail to show they have a genuine dispute with Powertech. To the extent the Petitioners are claiming that vehicular traffic will *always* cause dust—in all seasons and under all conditions—they provide no support for their claim. Basis (67) fails to satisfy either 10 C.F.R. § 2.309(f)(1)(v) or (vi).

(68) The "potential source[s] of dust" include 107 vehicles during initial construction, 109 during operations, and 41 during decommissioning. Clearly, there will be a lot of dust. A photo of another ISL mine in the area shows barren ground, stripped of vegetation. This suggests that there will be a lot of dust from operating areas. Due to the spacing of wellheads, it is questionable whether "heavy duty watering trucks" will be able to adequately wet down well fields.

The Petitioners' only claim appears to be that "it is questionable whether 'heavy duty watering trucks' will be able to adequately wet down well fields." Under the NRC's contention pleading rules, the Petitioners must do more than simply raise a "question" in order to have their contention admitted—they must identify a genuine dispute with the licensee on a material issue. In any event, the Petitioners do not provide factual or other support suggesting that watering trucks will not be able to effectively control dust. §The Board must therefore reject this basis under 10 C.F.R. § 2.309(f)(1)(v) and (vi).

Bases 69–90

In these bases the Petitioners claim that Powertech’s application violates 10 C.F.R. § 40.9(a) and (b) by “misrepresenting” certain information. Section 40.9 is the *sole* support for these bases. In no basis, however, do the Petitioners claim that Powertech failed to provide information that either (1) is required by other NRC regulations or (2) Powertech itself has identified as having a significant implication for public health and safety or common defense. In other words—and as explained above—even if Powertech were required to provide the information identified by the Petitioners with its application, it would not be section 40.9 that imposes such a requirement. Each of these bases therefore fails because it lacks requisite support. 10 C.F.R. § 2.309(f)(1)(v). Many of these bases also fail under 10 C.F.R. § 2.309(f)(1)(vi) because the Petitioners fail to address relevant sections of Powertech’s application and identify a genuine dispute with the Applicant on a material issue of fact or law.

(69) In Section 1.1 ER, the Applicant provides misleading information by focusing on the greenhouse gases emitted by nuclear power plants, without considering the entire nuclear chain. All stages of that chain other than power plants emit greenhouse gases, including exploration, mining, milling, enrichment, construction, decommissioning, transportation, and waste disposal. The failure to clearly enunciate the full impact of nuclear activities in this context is misleading.

The Petitioners do not cite any requirement that Powertech provide the information they identify. The Petitioners do not explain why such analysis is required by Appendix A in Part 40, nor do they cite NRC or general federal law holding that this type of analysis is required under NEPA.

(70) Table 2.11-1 purports to compare project alternatives. It states that the proposed action would have no surface water impacts and “slight consumption of ore zone groundwater.” Thousands of millions of gallons of ground water would not be considered “slight consumption” by most people. Saying there will be no surface water impacts ignores construction and transportation impacts, as well as the history of above-ground spills and leaks from in situ leach operations.

The Petitioners do not cite any standard in support of their claim that Powertech’s proposed water use cannot be considered “slight consumption.” The Petitioners also fail to address relevant sections of Powertech’s application addressing impacts to surface water. The

Petitioners thus fail to provide support for their basis and fail to identify any dispute with the Applicant, as required by 10 C.F.R. § 2.309(f)(1)(v) and (vi).

(71) Table 2.11-1 says that there will be no historical and cultural impacts. Section 5.8 says that there “may be” archeological sites present. These statements are contradicted by the company’s statement that there are at least 190 archeological sites in the proposed project area, or one site per 8.1 acres – and that Applicant notes that “the sheer volume of sites documented in the area is noteworthy” (Sections 3.8.1 and 4.10 ER). This implies that the Applicant is not adequately prepared to deal with these sites, as it is apparently not fully in a mindset that accepts and expects their presence.

The Petitioners quote section 5.8 of the ER as stating that there “may be” archeological sites present at the facility, and they claim that this language is inconsistent with other sections of the application, which describe archeological sites. The Petitioners misread section 5.8, which merely states the following:

A Memorandum of Agreement (MOA) has been negotiated and executed with the State of South Dakota Archaeologist to ensure the preservation of any historical, cultural, and archaeological sites that may be present within the PAA. Additional MOA mitigation measures have been prepared to ensure that no significant historical, cultural, or archaeological resources will be damaged during all phases of the Proposed Action;

There is no inconsistency between the language in the MOA—which covers both sites previously identified and any sites that may be identified in the future—and the other sections of the Application cited by the Petitioners, which refer to sites presently known. The Petitioners fail to identify any dispute with the Applicant, as required by 10 C.F.R. § 2.309(f)(1)(vi).

(72) Under “Socioeconomic Impacts,” Table 2.11-1 lists only positive impacts – and only economic impacts – for the proposed project. It lists only negative – and only economic impacts for the no-action alternative. There is a similar problem in Section 4.1. Socioeconomic impacts are not just economic. Mining projects have a history of both positive and negative social and economic impacts, known as the boom-and-bust cycle.

The Petitioners fail to explain what types of socioeconomic impacts Powertech should have addressed, and they fail to cite any basis for their argument. The Petitioners also suggest that Powertech should have taken into account a “boom-and-bust cycle,” but it is unclear why the Petitioners are arguing that Powertech should have considered such a cycle. The

Petitioners do not specify whether such a cycle would have economic impacts or other socioeconomic impacts. If the former, the Petitioners fail to specifically dispute Powertech's analysis of economic impacts—impacts that the Petitioners admit are addressed in the Application. If the latter, the Petitioners fail to explain what impacts Powertech should have addressed. In either case, the Petitioners fail to provide necessary support for this basis.

(73) In section 3.1.1.1 ER, the Applicant says, "The human influence on the area is minor." Some would consider the presence of 340 acres of unreclaimed open pit uranium mines (Table 3.3-1) to be more than a "minor" influence. The presence of grazing, wells, roads, and a railroad are also a result of human activity and changed the character of the area.

The cited section of the ER is concerned with human influence at the present time. The Petitioners provide no support for their claim that the present human influence is more than "minor." Thus, they do not identify a dispute with the Applicant, as required by 10 C.F.R. § 2.309(f)(1)(vi). In any event, other sections of the ER—including Table 3.3-1, which the Petitioners cite—provide the information the Petitioners claim Powertech should have discussed here. The Petitioners therefore fail to support their claim that Powertech has "misrepresented" information.

(74) In Section 3.6.4 ER, the Applicant asserts "ISL facilities do not significantly affect air quality." It provides no support for this assertion. In fact, in the Supplement (Section 6.2), it says that 107 vehicles will be involved in initial construction (not counting ongoing construction), 109 will be involved in operations, and 41 will be involved in decommissioning. It does not mention the air quality impacts of blowing dust that may be contaminated with materials generated by the mining.

The Petitioners argue that Powertech "provides no support for its assertion." In fact, it is the Petitioners burden to provide support for their contention and show there they have a genuine dispute with Powertech on a material issue. 10 C.F.R. § 2.309(f)(1)(v). The Petitioners do not do that here. To the extent the Petitioners are claiming that ISL facilities significantly affect air quality, they do not provide factual or expert support for this claim.

(75) The Applicant says that large mammals will be disturbed by in situ leach mining in a manner "similar" to that already existing in the area (Section 4.7.2.1 ER). This minimizes the fact that the proposed operation is a major industrial

operation that would be added to a relatively quiet and open landscape.

The Petitioners suggest that the impacts from Powertech's operations would be dissimilar to those of the other industrial operations identified in Section 4.7.2.1 of the ER. The Petitioners provide no support for their claim. The Petitioners assert that Powertech is proposing a "major industrial operation," but they overlook that Powertech is comparing the impacts of its facilities to those of "existing ISL exploration, ranching, and railroad operations." The Petitioners do not dispute that these operations are also "major" and "industrial." Accordingly, the Petitioners fail to support their claim as required by section 2.309(f)(1)(v) and fail to identify a dispute with Powertech as required by 2.309(f)(1)(vi).

(76) In Section 4.7.5.2 ER, the Applicant suggests that the intrusion of an industrial operation about half a mile from an active bald eagle nest will not disturb the nest. It implies that burying pipelines, which involves heavy equipment operation, will minimize impacts to the birds. It says that center-pivot irrigation -- which disturbs the landscape, involves human activity and noise, and may contaminate eagles' food sources -- can be minimized so as to not disturb nesting birds. These statements are not credible.

After summarizing statements in the ER, the Petitioners merely assert, "These statements are not credible." That is the entirety of the Petitioners' claim, and the Petitioners do not provide any support for their conclusion. The Board must reject this basis under 10 C.F.R. § 2.309(f)(1)(v).

(77) The Applicant also states that the bald eagle nest site is "at least 1.0 mile from the nearest planned facility" (Section 4.7.3.2 ER). This is contradicted by Plate 2.8-3.

In its discussion of raptors in ER Section 4.7.2.5, Powertech describes its understanding of the presence of raptors in the project area, the consequences of construction and operations on raptors, particularly bald eagles, and mitigation strategies to limit potential impacts on bald eagles in the project area: The ER states:

Based on the location of known nest sites relative to future construction sites, no raptor nests will be physically disturbed by the project during either construction or operations. Additionally, Powertech (USA) has incorporated the baseline wildlife information into their planning process and sited all plant facilities

(areas of greatest sustained future disturbance) outside *the recommended buffer zone for all raptor nests* in the PAA, including the bald eagle nest site. Some new infrastructure will be located within the suggested buffer areas. However, pipelines will be buried, and new overhead power lines will be constructed using designs and specifications to reduce injuries and mortalities on overhead power lines. ER Section 4.7.2.5. Emphasis added.

Powertech states in ER Section 4.7.3.2 that the:

ISL within the project is not likely to adversely affect, bald eagles, the only state listed species known to inhabit the PAA. Bald eagles were documented at . . . an active nest within the PAA for this project. However, most roost sites and *the lone nest site are at least 1.0 mile from the nearest planned facility associated with this project.* Emphasis added.

Powertech also states that:

*[t]hree proposed land application sites (center pivot irrigation systems) would currently fall within the one-mile buffer of the bald eagle nest.* However, those systems are typically automated, and the minimal disturbance associated with potential maintenance of those systems should not be significant enough to impact nesting or roosting bald eagles along Beaver Creek. *Id.* Emphasis added.

Plate 2.8-3 shows the identified eagle nest to be within 1.0 mile of the Dewey-Burdock boundary line near the proposed Dewey land application site.

The Petitioners have not identified a contradiction in the Application; Powertech recognizes that the proposed Dewey land application site is within the 1-mile buffer zone for bald eagle nests. The buffer zone is a recommendation, not a requirement. The Applicant in its ER includes “an analysis that considers and balances the environmental effects of the proposed action, the environmental impacts of alternatives to the proposed action, and alternatives for reducing or avoiding adverse environmental effects” pursuant to 10 C.F.R. 50.45(c); they are not required to do more. The Petitioners provide not supporting law or facts that indicate Powertech is required to do more under federal or SD law. The Petitioners therefore fail to identify a genuine dispute with Powertech and, in any event, fail to provide support for their claims. Basis (77) therefore fails under 10 C.F.R. § 2.309(f)(1)(v) and (vi).

(78) In its discussion of the cumulative impacts of other uranium projects, the

Applicant mentions only surface mining (Section 4.16.1 ER). The immediate area of the proposed mine also has a history of underground mining. The discussion mentions Wyoming and Nebraska, which have a history of in situ leach mining. The company's principals are clearly familiar with this due to other mentions of the Crow Butte Mine in Nebraska and due to their employment at ISL mines in Wyoming. The failure to provide this information minimizes the cumulative impacts of uranium activities in the region, which are substantial.

This basis is a duplicate of basis (59). The Petitioners do not raise a genuine dispute with any part of the application. Further, they do not support their claim that Powertech must incorporate other uranium projects in the sections in the application addressing cumulative effects. Basis (78) must be rejected under 10 C.F.R. §§ 2.309(f)(1)(v) and (vi).

(79) In Section 5.1.1 Supplement, the company begins by stating that it will replace existing water wells or secure other water if a well's use is diminished. As proof, it provides a copy of its lease. This lease only protects lessors from problems with water quality and availability, not others who might be impacted.

The basic groundwater protection standards imposed by the EPA in 40 C.F.R. Part 192, subparts D and E are incorporated in NRC regulations at Appendix A, Criterion 5. These are the standards that Powertech will be held to concerning the proposed action. The lease is offered as evidence that Powertech has authorization to use certain wells within or adjacent to the proposed facility. It is not presented by Powertech to establish standards for the protection or reclamation of water quality, to ensure water availability, or to compensate for losses, except as a commercial contract vis-à-vis the lessee and lessor. The Petitioners fail to address relevant portions of the applicable regulations and they fail to show there is a genuine dispute on a material issue. Basis (79) must therefore be rejected under 10 C.F.R. § 2.309(f)(1)(vi). The Petitioners' statements suggesting the lack of protection for the public or other private landholders are unsupported by any facts, studies, or expert opinion, and therefore must be rejected under 10 C.F.R. § 2.309(f)(1)(v).

(80) The failure to fully consider the No Action Alternative is part of a larger pattern. This pattern begins when the Applicant states that this Alternative is simply "a baseline from which to compare the potential impacts of the other action alternatives." (Section 2.1 ER). It is, in other words, given no real consideration. Real consideration is required.

The Petitioners do not provide any support for their claim that using the no-action alternative as a baseline means that this alternative was given “no real consideration.” Nor do the Petitioners cite any NEPA precedent suggesting that Powertech insufficiently considered the no-action alternative. Further, the Petitioners fail to address sections of the ER discussing the no-action alternative and, therefore, fail to dispute the analyses in those sections. See, e.g., ER at 2.11 and Table 2.11-1, ER at 4.1. This basis fails to comply with 10 C.F.R. §§ 2.309(f)(1)(v) and (f)(1)(vi).

(81) Other problems with the Cost-Benefit Analysis include that the Applicant assumes that the project will include “limited surface disturbance, negligible radiological impacts” and “insignificant changes in the overall groundwater quality” before it begins its cost-benefit analysis (Section 7.2.1.2 ER). This is contrary to proper analytical methods, in which one begins without major assumptions that bias the analysis.

The Petitioners cite no authority for their assertion that “proper analytical methods” preclude Powertech from relying on certain “major assumptions” in its Cost-Benefit Analysis. Nor do the Petitioners give any reason to question the specific statements that the project will involve “limited surface disturbance, negligible radiological impacts” and “insignificant changes in the overall groundwater quality.” In brief, the Petitioners provide no support for their claims, which must be rejected under 10 C.F.R. § 2.309(f)(1)(v).

(82) The project is considered as one unit of analysis (Section 7.2.2.1 ER). This is inappropriate. There will be distinct costs and benefits from each aspect of the project. A processing facility has different impacts than a well field. A road has different impacts than a pipeline. Center-pivot irrigation has different costs and benefits than deep well disposal. And so forth.

The Petitioners do not cite any authority for their argument that it is inappropriate to consider the project as a single unit of analysis. Further, although they note that the project will involve different phases, the Petitioners fail to allege any deficiency in Powertech’s analysis of the costs and benefits attributable to the various phases. The Petitioners do not identify any impact that Powertech failed to consider, much less explain why the impact needs to be addressed in a cost-benefit analysis. The Petitioners therefore fail to provide support for their

arguments or identify a genuine dispute with Powertech. Basis (82) must therefore be rejected.

10 C.F.R. §§ 2.309(f)(1)(v), (vi).

(83) In the Cost-Benefit Analysis Section, the Applicant states that the project will last 7 years, rather than the 8 years used elsewhere. And, of course, restoration times have been under-estimated at other ISL mines. So, based on that experience, it is optimistic to expect project completion in either 7 or 8 years. A longer project lifetime would expand both the costs and the benefits of the proposed project.

In Section 7.0 of the ER, Powertech presents its cost-benefit analysis (CBA) for the proposed action. Powertech anticipates a seven-year operating life for the project. *Id.* at 7.2.2.1. For the CBA, Powertech assumed that the two-year construction stage of the project would begin in 2009 continuing through 2010, followed by a seven-year operation stage, and a seven-year reclamation stage. *Id.* at 7.3.1. Table 7.3-1 shows the input data for construction, operation and reclamation expenditures over the life of the project. The Petitioners do not provide a citation to the section of the Application where the duration of the project is identified as eight years. Therefore it is difficult for the Staff to know whether the eight year figure is referring to the operational stage or the duration of another activity. Even if Powertech describes the operational stage as seven years in the CBA and eight years elsewhere in the Application, the Petitioners have not challenged Powertech's CBA. The Petitioners do not provide facts or expert opinion suggesting that the positive economic benefit for the impact area and South Dakota would change significantly, given an eight-year operation stage. The Petitioners fail to address relevant portions of the application and show there is a genuine dispute on a material issue. Therefore, basis (83) must be rejected under 10 C.F.R. § 2.309(f)(1)(vi). Further, the Petitioners' claims are unsupported assertions that must be rejected under 10 C.F.R. § 2.309(f)(1)(v).

(84) In the consideration of potential socioeconomic impacts (Section 4.12 ER), the Applicant says that its project will employ as many as 200 people in one year. In the Cost-Benefit Analysis, this number is 86 (Section 7.3.2 ER). There is a substantial difference in both the costs and benefits of 200 employees and 86 employees. The analysis should provide a realistic number based on solid data, rather than wildly different numbers.

The “200” in Section 4.12 of the ER refers to the “peak annual employment at an ISL facility . . . *including construction*” (emphasis added), while the “86” in Section 7.3.2 refers to the “payroll workers engaged directly in construction activities” in 2009 and 2010. There is no inconsistency between these numbers. The Petitioners fail to identify a genuine dispute with Powertech. 10 C.F.R. § 2.309(f)(1)(vi).

(85) The Applicant excludes federal taxes from its consideration of costs and benefits (Section 7.3.3 ER). It does not explain how it calculates the figures for its tax contributions in Table 7.3-3. Given the fact that the Applicant reports only the economic benefits of the proposed project, it is possible that the tax contribution numbers are inflated.

Although the Petitioners note that Powertech has excluded federal taxes from its consideration of costs and benefits, they do not appear to challenge that exclusion. In any event, the Petitioners fail to dispute Powertech’s explanation in ER Section 7.3.3 that “[i]n order to remain consistent with the scope of impact, Federal taxes are not included in this analysis.” Further, while the Petitioners argue that Powertech “does not explain how it calculates the figures for its tax contributions,” they overlook specific information regarding tax rates that Powertech provides in footnotes 1 and 2 to Table 7.3-3 and in the text on pages 7-7 and 7-8 of the ER. The Petitioners’ claims must be rejected under 10 C.F.R. §§ 2.309(f)(1)(v) and (vi).

(86) The consideration of potential value-added benefits does not tell what those benefits might be – or what the costs of achieving them might be (Section 7.3.4 ER). It is likely that most value-added benefits of operation will accrue to the Applicant in the form of revenue from yellowcake production. This should be clarified.

Contrary to the Petitioners’ statement above, Section 7.3.4 of the ER and Table 7.3-4 state precisely what the value-added benefits are expected to be. Further, Powertech explains how it arrived at the numbers stated in Table 7.3-4, stating that it used the “IMPLAN model,” which “calculates the value added based on four components, employee compensation, proprietor income, other property income and indirect business tax.” ER at 7.3.4 (page 7-8). Although the Petitioners suggest that Powertech should be required to provide more specific information regarding the particular components used in the IMPLAN model, the Petitioners do

not cite any authority in support of their argument. The Petitioners also fail to explain why it matters whether value-added benefits come from one component or another. This basis therefore fails to satisfy both 10 C.F.R. 2.309(f)(1)(v) and (vi).

(87) The section on housing shortages does not discuss housing shortages (Section 7.4.1 ER). Housing shortages have been a critical problem in boom-and-bust economies.

The Petitioners fail to identify a dispute with the Applicant. Section 7.4.1, which the Petitioners cite, provides the data from which Powertech concludes, in Section 7.5, that “[i]mpacts to the regional housing market should be minimal because of the large percentage of local workers[.]” See also Table 7.5-1 (stating, under “Housing Impacts,” that there will be “Little or No Change.” The Petitioners fail to address either Section 7.5 or Table 7.5-1. To the extent they dispute Powertech’s conclusion, the Petitioners do not provide any support for their claim. This basis therefore fails to satisfy both 10 C.F.R. 2.309(f)(1)(v) and (vi).

(88) The information on school impacts shows no understanding of the impacts of an increased number of students on a school district (Section 7.4.1.2 ER). While student-teacher ratios may be low in area schools, that does not mean that classrooms have excess capacity, administrators are under-worked, there is excess water and sewer capacity, gyms are large enough, or there are enough janitors or buses. The Applicant should research and consider all factors related to school growth.

To the extent the Petitioners are arguing that Powertech has “misrepresented” information—the overarching claim made in bases 69–90—the Petitioners fail to describe the information Powertech has allegedly misrepresented. While the Petitioners suggest that Powertech should have addressed other factors related to school growth, they do not identify these factors. The Petitioners thus fail to provide necessary support for this basis. 10 C.F.R. § 2.309(v).

(89) In the groundwater impacts section, the Applicant states that its mining would represent a “temporary commitment of water resources.” This could not be further from the truth. The applicant says that its operations will consume (i.e., use up) as many as 4,654 Million gallons of water (Table 4.6-2 and Section 4.2.1.1 Supplement). The benefits of this water to the Applicant should be monetized. Water for the proposed project should also be monetized not only in terms of current use, but also of opportunity costs.

The full text of the portion of Section 7.4.3 in the ER from which the Petitioners are quoting reads:

The use of groundwater supply for operations will be a temporary commitment of water resources and Powertech (USA) expects that the proposed groundwater restoration techniques will be successful at returning the mining zones at the project site consistent with baseline and NRC criterion 5(b)(5).

Although the Petitioners dispute Powertech's description of groundwater commitment as "temporary," they do not actually claim that any information is missing from the Application. In fact, the Petitioners rely on information provided by Powertech to support their claims regarding water use. Further, the Petitioners do not dispute Powertech's statements that groundwater restoration techniques are expected to be successful. The Petitioners therefore fail to identify a genuine dispute with Powertech on a material issue. 10 C.F.R. § 2.309(f)(1)(vi).

The Petitioners also argue that Powertech should "monetize" the benefits and costs of its water use. The Petitioners do not cite any facts or expert opinion in support of their claim.

Accordingly, this part of basis (89) also fails to satisfy 10 C.F.R. § 2.309(f)(1)(vi).

(90) Table 7.5-1 does not reflect a realistic Cost-Benefit Analysis, all likely variables related to all alternatives must be considered. To the extent possible, they must be monetized to allow direct comparison of costs and benefits.

The Petitioners fail to provide support for any of their claims. Specifically, the Petitioners fail to (1) explain why the information in Table 7.5-1 is "not . . . realistic," (2) identify other "likely" variables Powertech should have considered, and (3) cite any authority for their claim that these unspecified variables must be "monetized." Basis (90) therefore must be rejected under 10 C.F.R. § 2.309(f)(1)(v).

#### Bases 91–100

Petitioners claim that granting Powertech's application will result in "UNACCEPTABLE ENVIRONMENTAL IMPACTS which make issuance of the License inimical under Section 40.32(d)." The Petitioners proceed to list 10 areas in which Powertech allegedly "do[es] not acknowledge many of the known impacts of the in situ leach mining process and present

unacceptable environmental risks.”

The Staff would note, at the outset, that in none of these bases do the Petitioners argue that Powertech has failed to comply with the NRC’s safety or environmental regulations. Nor do the Petitioners cite any other authority in support of their claim that issuing Powertech a license would be inimical to public health and safety or common defense and security. The Board should therefore dismiss each of these bases. To the extent the Petitioners are claiming that Powertech’s application fails to satisfy applicable regulations, they fail to provide support for their argument, as required by 10 C.F.R. § 2.309(f)(1)(v). To the extent they are arguing that licensing the Dewey-Burdock facility in accordance with NRC regulations is unacceptable, they are raising an impermissible challenge to those regulations. 10 C.F.R. 2.335(a). See *Shearon Harris*, CLI-10-09, 71 NRC \_\_ (slip op. at 38).

(91) The Applicant states that placing monitoring wells no more than 400 feet from the production zone and no more than 400 feet apart “will ensure that no leach fluids will pass between the adjacent monitor wells undetected. . . .” (Page 1-19 ER). This makes no sense, as it would be possible for an excursion to pass through an opening at least 300 feet wide without necessarily being detected. Excursions are, of course, common at in situ leach uranium operations. If the Applicant is in denial, rather than in a mindset that expects excursions, it is likely to be less vigilant. Obviously, this increases the risk of major excursions, which is not acceptable.

The Petitioners provide no support for their claim that placing monitoring wells 400 feet apart will be insufficient to detect excursions. They do not provide support for the existence of a 300 foot excursion being undetected. Further, this basis does not even appear to be related to the Petitioners’ claim that licensing Powertech’s facility will result in “unacceptable environmental impacts.” The Petitioners do not identify *any* environmental impact related to excursions, nor do they explain why the excursions they describe are “unacceptable.” This basis therefore fails under 10 C.F.R. § 2.309(f)(1)

(92) Multiple spills and leaks involving liquids that are contaminated with radiation and/or heavy metals occur at in situ leach uranium mines. This lack of control and the resulting contamination are not acceptable.

This is a general claim in no way tied to Powertech’s application. The Petitioners fail to

raise a dispute with the Applicant, as required by 10 C.F.R. § 2.309(f)(1)(vi). To the extent the Petitioners are claiming that the licensing of any uranium recovery facility results in unacceptable environmental impacts, this basis would be an impermissible challenge to the NRC's regulations, which specifically allow for the licensing of such facilities, 10 C.F.R.

2.335(a). See *Shearon Harris*, CLI-10-09, 71 NRC \_\_ (slip op. at 38).

(93) The evidence indicates that the proposed project would have unacceptable impacts on a bald eagle nesting site and on species living on or near land application sites.

Petitioners fail to describe the "evidence" to which they are referring and the impacts on bald eagles, and they fail to explain why those unspecified impacts are "unacceptable." This basis therefore fails to satisfy 10 C.F.R. § 2.309(f)(1)(v). To the extent Petitioners' are relying on information in Powertech's application, they fail to identify a dispute with the Applicant, as required by 10 C.F.R. § 2.309(f)(1)(vi).

(94) This type of project, which would involve large land disturbance in an area with a lot of cultural resources, cannot avoid unacceptable impacts on cultural and historical sites.

The Petitioners fail to identify the cultural resources to which they are referring and fail to explain why "unacceptable impacts" on those resources are "unavoidable." This basis fails to satisfy 10 C.F.R. § 2.309(f)(1)(v) and (vi).

(95) Ownership and treaty rights of the Lakota people are not considered in the Application, and the cumulative impacts of uranium mining on those rights are unacceptable.

The Petitioners do not describe the "[o]wnership and treaty rights" to which they are referring. Further, they do not describe how Powertech's operations will affect those rights or how prior operations in the area affected those rights. This basis fails to meet 10 C.F.R. § 2.309(f)(1)(v). The Staff notes that in *Crow Butte Resources, Inc.*, the Board rejected a contention that alleged granting the application would violate treaties between the Oglala Sioux Tribe and the United States. The Commission upheld the Board's ruling on that issue. *Crow Butte Resources, Inc.*, (*In Situ Leach Facility, Crawford, Nebraska*), LBP-08-24, 68 NRC 691,

(2008), *aff'd*, affirmed\_Crow Butte Resources, Inc., (*In Situ Leach Facility, Crawford, Nebraska*),  
CLI-09-09, 69 NRC 331, (2009).

(96) Use of 2,423 Million gallons of water from the Madison Aquifer and 2,231 Million gallons of water from the Inyan Kara formation is unacceptable, particularly given the semi-arid nature of the region and the reliance on groundwater.

Petitioners do not provide any support for their claim that Powertech's water use will be unacceptable. For example, they do not cite to any studies or expert opinion suggesting that water use at the level proposed by Powertech may cause any impact—much less “unacceptable” impacts—on the environment. This basis therefore fails to satisfy 10 C.F.R. § 2.309(f)(1)(v).

(97) Creation of settling and storage ponds to hold 308,907,127 gallons of toxic liquids is a threat to public health and the environment, given a history of leaks and spills from impoundments at uranium operations.

The Petitioners fail to explain why the storage ponds proposed by Powertech are inadequate. The Petitioners therefore fail to identify a dispute with the applicant, as required by 10 C.F.R. § 2.309(f)(1)(vi). The Petitioners also fail to provide support for their basis, as required by 10 C.F.R. § 2.309(f)(1)(v). The Petitioners rely solely on events at other uranium recovery facilities, but without describing those events or explaining why the effects of those events were “unacceptable.”

(98) Water movement in the aquifers that would be impacted is over 1 mile per year. As excursions are common and not always quickly controlled, this presents risks to wells and surface water users within a short time frame.

The Petitioners fail to support their claim that water movement is “over 1 mile per year.” Further, they fail to describe the “wells and surface water” that may be affected by any excursions from the Dewey-Burdock facility. Petitioners fail to provide support for this basis, as required by 10 C.F.R. § 2.309(f)(1)(v).

(99) Existing negative impacts from historical uranium operations, including existing pits and tunnels, air quality, water quality, and stream sediments, argue against further disturbance of the area.

The Petitioners do not describe the historical uranium operations to which they are referring, do not describe the “negative impacts” from these operations, and do not explain what they mean by saying these operations “argue against further disturbance of the area.” The Petitioners do not even allege that the negative impacts to which they refer are “unacceptable,” and thus fail to show basis 99 supports their overarching claim in bases 91–100. Accordingly, the Petitioners fail to provide the support required by 10 C.F.R. § 2.309(f)(1)(v).

(100) As the Applicant states, “no operations can occur where mine solutions could contaminate [existing] wells” (Section 5.1 Supplement). The reality is that water in the impacted aquifers moves over a mile a year, excursions are predictable, the area is geologically complex, and the nearest wells could become contaminated within the life of the project. Since these factors clearly create a situation in which “mine solutions could contaminate” wells, I am pleased that the Applicant agrees that the Dewey-Burdock project should not occur. I am firmly in favor of the No Action Alternative.

In this basis, the Petitioners merely reiterate claims made in other bases and assume that those bases have support. The Petitioners provide no independent support for this basis. Accordingly, this basis is both duplicative and lacking the support required by 10 C.F.R. § 2.309(f)(1)(v).

#### Contention J

The Petitioners argues that the application “fails to describe the extent to which the affected area contains faults and fractures horizontally and vertically between aquifers, through which the groundwater can spread thorium, radium 226 & 288, arsenic and other heavy metals disturbed through the ISL mining process.” Petition at 56. In fact, Powertech addresses these issues in several sections of its TR and ER. See, e.g., TR 2.6.6 and ER 3.3.6 (both titled “Seismology”); TR 2.7.2.1.8 and ER 3.4.3.1.8 (“Regional Potentiometric Surfaces”); TR 2.6.2.1 and ER 3.3.2.1 (“Site Structure”). Because the Petitioners do not address these sections of the TR and ER, Contention J must be rejected under 2.309(f)(1)(vi). Because the Petitioners do not

provide any support for their blanket assertions that radioactive material at the Dewey-Burdock site could be transported through faults to surrounding aquifers, their contention must also be rejected under 2.309(f)(1)(v).<sup>50</sup>

### CONCLUSION

Because the Petitioners have neither established standing to intervene in this proceeding nor submitted an admissible contention, the Board should deny the Petitioners' hearing request.

Respectfully submitted,

*/Signed (electronically) by/*

*Patricia A. Jehle*  
Patricia A. Jehle  
Counsel for the NRC Staff

*/Signed (electronically) by/*

*Michael J. Clark*  
Michael J. Clark  
Counsel for the NRC Staff

Dated at Rockville, Maryland  
this 12<sup>th</sup> day of April, 2010

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<sup>50</sup> Although in his Opinion Dr. LaGarry briefly discusses faults, the Petitioners do not cite his Opinion in Contention J or argue that Dr. LaGarry's statements demonstrate a genuine dispute with Powertech on a material issue. In any event, although Dr. LaGarry refers to certain sections of Powertech's ER, he does not dispute the information presented in those sections. Dr. LaGarry at first glance appears to question the statement in Section 3.3.2.1 of the ER that there are no known faults in the Dewey-Burdock project area, calling this a "false perception." Opinion at 3. Dr. LaGarry does not identify any known faults in the project area, however, and it appears he is simply stating that it is a false perception that there are no faults in the area. That is not a perception advanced in the ER, which refers only to "known" faults. Dr. LaGarry's statement therefore does not present a dispute with the ER.