

January 9, 2015

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 POST-HEARING ORDER

I. Introduction

The NRC Staff responds to the Board's September 8, 2014 post-hearing order. In its order, the Board presented 18 questions for the parties to address in their post-hearing briefs. The questions relate to the seven contentions remaining before the Board. As the Staff explains below, the answers to these questions demonstrate that during its review of the Dewey-Burdock application the Staff complied with both the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321 *et seq.*, and the National Historic Preservation Act (NHPA), 16 U.S.C. § 470. Accordingly, the Board should dismiss each of the remaining contentions.

II. Discussion

A. Contentions 1A and 1B

i. What Constitutes a Reasonable and Good Faith Effort to Seek Information from Consulting Parties, Other Members of the Public, and Native American Tribes to Identify Historic Properties in the Area of Potential Effect?

The Advisory Council on Historic Preservation (ACHP) is the agency charged with implementing the NHPA. Under the ACHP's regulations, before entering into an "undertaking" a federal agency must make a reasonable and good faith effort to identify historic properties that may

be affected by the undertaking. 36 C.F.R. § 800.4(b)(1).¹ The agency’s “identification efforts may . . . include background research, consultation, oral history interviews, sample field investigation, and field survey.” *Id.*

The ACHP has published guidance further defining the “reasonable and good faith” standard. *Meeting the “Reasonable and Good Faith” Identification Standard in Section 106 Review (ACHP)* (Ex. NRC-047). Under this guidance, “a reasonable and good faith effort to identify historic properties [must] include some level of effort—at a minimum, a review of existing information on historic properties that are located or may be located within the [area of potential effects] (36 C.F.R. § 800.4(a)(2)).” *Id.* at 2. The ACHP explains that a reasonable and good faith effort “may consist of one or more methodologies and should be designed so that the federal agency can ensure that it produces enough information, in enough detail, to determine what the undertaking’s effects will likely be on historic properties.” *Id.*

In its guidance, the ACHP also explains that a good faith and reasonable identification effort does *not* require:

- The “approval” of a SHPO/THPO or other consulting party. The ACHP, SHPO/THPO and other consulting parties advise and assist the federal agency official in developing its identification efforts, but do not dictate its scope or intensity.
- Identification of every historic property within the APE. One of the reasons the ACHP’s regulations contain a post-review discovery provision (36 C.F.R. § 800.13) is that a reasonable and good faith effort to identify historic properties may well not be exhaustive and, therefore, some properties might be identified as the project is implemented.
- Investigations outside of, or below, a properly documented APE. The Section 106 process does not require that the agency search for all historic properties in a given area. Because the APE defines the geographic limits of federal agency responsibility for purposes of Section 106 review, identification efforts are carried out within its boundaries.

¹ The ACHP’s regulations state:

Undertaking means a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; those requiring a Federal permit, license or approval; and those subject to State or local regulation administered pursuant to a delegation or approval by a Federal agency.

- Ground verification of the entire APE. In many cases, areas can be considered to have a certain probability of containing historic properties based on current knowledge. This or similar characterizations can be used to justify where within the APE most identification efforts will or should be targeted. Predictive models that have been tested and found to be reasonably efficient can also assist federal agencies to meet the “reasonable and good faith” identification standard.

Id. at 3. Finally, the ACHP explains that its “professional staff is also available to assist agencies, SHPOs/THPOs, consultants, and contractors in interpreting the reasonable and good faith standard when questions or disputes arise.” *Id.*

For the Dewey-Burdock Project, the NRC Staff made a good faith and reasonable effort to identify properties that may be affected by the Dewey-Burdock Project. Whereas the ACHP’s guidance states that a reasonable and good faith effort may consist of “one or more methodologies” of identifying historic properties, the Staff used *four* of the five methodologies specified in ACHP regulations: background research, consultation, field investigations, and field surveys. NRC Staff’s Initial Testimony (Ex. NRC-001) at A1.3, A1.5; NRC Staff’s Rebuttal Testimony (Ex. NRC-151) at A1.5, A1.6. The only methodology that the Staff did not use was oral history interviews, which the Staff was unable to obtain. Ex. NRC-001 at A1.5.

The best evidence that the Staff complied with the NHPA is the ACHP’s decision to sign the Programmatic Agreement for the Dewey-Burdock Project on April 7, 2014. Ex. NRC-018-E. In signing the Programmatic Agreement, the ACHP stated that “based on the background documentation, the issues addressed during consultation, and the processes established in the [Programmatic Agreement], the ACHP has concluded that the content and spirit of the Section 106 process has been met by the NRC.” Letter from ACHP to Standing Rock Sioux Tribe (Ex. NRC-031) at 3. The South Dakota State Historic Preservation Office (SHPO), another agency with significant expertise addressing issues under the NHPA, likewise signed the Programmatic Agreement, signifying that it too found the Staff’s efforts complied with Section 106. Ex. NRC-018-G. There is ample other evidence that the Staff consulted extensively under the NHPA, including a 17-page Tribal Outreach Summary that captures many of the Staff’s consultation efforts. Ex. NRC-

015. In sum, the Staff made a reasonable and good faith effort to seek information from tribes and other interested parties concerning historic properties in the Dewey-Burdock area.

- ii. **What constitutes “a reasonable opportunity to identify [a tribe’s] concerns about historic properties, advise on the identification and evaluation of historic properties, including those of traditional religious and cultural importance, articulate its views on the undertaking’s effects on such properties, and participate in the resolution of adverse effects?” 36 C.F.R. § 800.2(c)(2)(ii)(A).**

The ACHP’s regulations make clear that an agency provides tribes with a reasonable opportunity to identify their concerns when it takes the following steps. First, as stated in the same ACHP provision cited by the Board, the agency must make a good-faith attempt to identify tribes that may potentially be affected by an undertaking:

It is the responsibility of the agency official to make a reasonable and good faith effort to identify Indian tribes and Native Hawaiian organizations that shall be consulted in the section 106 process. Consultation should commence early in the planning process, in order to identify and discuss relevant preservation issues and resolve concerns about the confidentiality of information on historic properties.

36 C.F.R. § 800.2(c)(2)(ii)(A). Second, the agency must provide tribes the opportunity to participate in each step of the NHPA’s consultation process: initiation of the process, identification of properties, assessment of adverse effects, and resolution of adverse effects.

36 C.F.R. §§ 800.3–800.6.

The Staff met all these requirements when consulting with tribes for the Dewey-Burdock Project. As Staff witness Haimanot Yilma explained during the oral hearing, the Staff initially contacted the South Dakota SHPO to obtain information on tribes with a historical presence in the Dewey-Burdock area. Tr. at 769–770. The Staff then contacted tribes in March 2010, early in its review of the Dewey-Burdock application, to invite them to become consulting parties in the Staff’s Section 106 review. Exs. NRC-015 at 2, NRC-021. The Staff thereafter invited tribes to participate in every step of its Section 106 review, including identifying properties, assessing adverse effects, and developing treatment plans to resolve such effects. Ex. NRC-001 at A1.5–A1.13, A1.15, A1.16, A1.19; Ex. NRC-015. In particular, over the last four years the Staff has offered each consulting tribe the opportunity to help identify and evaluate sites potentially affected by the

Dewey-Burdock Project. *Id.* at A1.16–A1.18. The Staff has also asked each consulting tribe to help develop the Programmatic Agreement for the Dewey-Burdock Project. *Id.* Since the Programmatic Agreement was finalized in April 2014, the Staff has continued to involve the consulting tribes in decisions to be made under the Agreement.²

In conclusion, the Staff provided each potentially affected tribe an opportunity to become involved at every step of the Section 106 process. The Staff therefore complied fully with 36 C.F.R. § 800.2(c)(2)(ii)(A).

iii. **Did the Staff “recognize the government-to-government relationship between the Federal Government and Indian tribes” in the preparation of the FSEIS and the Programmatic Agreement (PA)?**

The Staff fully recognized the government-to-government relationship between the Federal Government and Indian tribes when preparing the FSEIS and Programmatic Agreement for the Dewey-Burdock Project. Although the phrase “government-to-government relationship” is not defined in the ACHP’s regulations, the ACHP’s regulations show that an agency maintains such a relationship by respecting tribal sovereignty. 36 C.F.R. § 800.2(c)(2)(ii)(B), (C). For example, immediately after stating that a federal agency must recognize the government-to-government relationship with tribes, the ACHP states that “[t]he agency official shall consult with representatives designated or identified by the tribal government[.]” 36 C.F.R. § 800.2(c)(2)(ii)(C). The ACHP also states that “[c]onsultation with Indian tribes . . . should be conducted in a manner sensitive to the concerns and needs of the Indian tribe[.]” *Id.*

The ACHP does *not* define the “government-to-government relationship” as requiring that all NHPA-related consultations be between tribal leaders and senior agency managers, a claim made by the Intervenors in this case.³ As stated above, a federal agency recognizes the government-to-government relationship with tribes when it consults with designated tribal

² The Staff’s recent hearing file updates include communications with consulting tribes regarding the Dewey-Burdock Programmatic Agreement.

³ Tr. at 780–782. Nor does the ACHP require that the leaders of the Executive Branch consult with tribes regarding the undertakings of individual Executive Branch agencies, a possibility that was also suggested at the hearing. *Id.*

representatives in a manner that is sensitive to tribal concerns and needs. 36 C.F.R.

§ 800.2(c)(2)(ii)(C). In many cases, the agency employees most familiar with the details of an undertaking will be the agency's technical staff, and these employees will be best able to respond to tribal concerns. Similarly, a tribe consulting under the NHPA will often designate its Tribal Historic Preservation Officer (THPO), or another staff-level official, as its point of contact with federal agencies.⁴

For the Dewey-Burdock Project, the Staff consulted in a manner that fully recognized the government-to-government relationship between the Federal Government and tribes. The Staff consulted only with representatives, such as THPOs, who had been designated by their tribes. For the more significant NHPA-related correspondence, such as meeting invitations, the Staff mailed letters to each tribal leader, with electronic copies to THPOs and other tribal representatives. Ex. NRC-001 at A1.9, A1.14, 1.15, A1.19. The Staff also arranged for a meeting in Rapid City, South Dakota with the specific expectation that Staff management would meet with tribal leaders. Exs. NRC-001 at A1.15; NRC-143 . During its consultations the Staff was sensitive to the concerns and needs of the tribes, arranging for both site visits and tribal field surveys of the Dewey-Burdock site. Ex. NRC-001 at A1.3, A1.5, A1.7–A1.11, A1.19; Ex. NRC-151 at A1.16; Tr. at 838. The Staff also fully involved the tribes in preparing the Programmatic Agreement for the Dewey-Burdock Project, seeking the tribes' input on multiple draft versions of the Agreement. Ex. NRC-001 at A1.12; Ex. NRC-151 at A1.10, A1.12.

In conclusion, when preparing the FSEIS and Programmatic Agreement, the Staff fully recognized the government-to-government relationship between the federal government and each of the consulting Indian tribes.

⁴ In this case, each consulting tribe designated its THPO or another staff-level person as the point of contact for NRC consultations. No tribe requested that the NRC directly contact tribal leaders regarding the day-to-day communications involved in the NHPA consultations.

iv. Have the federal courts held that a Level III cultural survey satisfies NEPA requirements as to places of religious or cultural significance (as opposed to NHPA § 106 requirements)?

The Staff has not found any federal court decision holding that a Level III cultural survey necessarily satisfies an agency's obligation to consider how the proposed action may affect places of religious or cultural significance. The federal courts have, however, assigned Level III surveys considerable weight in determining whether an agency adequately considered how the proposed action may affect such places. As the courts have explained, a Level III survey (also referred to as a "Class III survey") is a much more intensive alternative to Level I and Level II surveys:

The BLM Manual sets out three types of surveys that may be used to identify historic and cultural resources. BLM Manual § 8110. A Class I survey relies on existing information and is "a professionally prepared study that includes a compilation and analysis of all reasonably available cultural resource data and literature, and a management-focused, interpretative, narrative overview, and synthesis of the data." *Id.* § 8110.2.21.A.1. A Class II survey involves on-the-ground surveying and is a "probabilistic field survey" or "statistically based sample survey" that "aids in characterizing the probable density, diversity, and distribution of cultural properties in an area." *Id.* § 8110.2.21.B.1. A Class III survey is an on-the-ground intensive survey of the entire subject area "intended to locate and record all historic properties" and "provides managers and cultural resource specialists with a complete record of cultural properties." The Class III survey is the most frequently employed method of inventory. *Id.* § 8110.2.21.

Southern Utah Wilderness Alliance v. Burke, 981 F. Supp. 2d 1099, 1108 (D. Utah 2013).⁵ See also *Mont. Wilderness Ass'n v. Connell*, 725 F.3d 988, 1005–1006 (9th Cir. 2013) (summarizing differences between Class I, II, and III surveys).

Although an agency may use a Level III survey to obtain information relevant to its review under the NHPA, a Level III survey also provides information relevant to assessing impacts as required by NEPA. The joint guidance of the Council on Environmental Quality (CEQ), the agency charged with implementing NEPA, and the ACHP makes clear that a Level III survey can provide information relevant to satisfying an agency's responsibilities under both statutes. See Ex. NRC-

⁵ The court is referring to BLM Manual 8110 (Release 8-73, Dec. 3, 2004), available at [http://www.blm.gov/style/medialib/blm/wo/Information Resources Management/policy/blm_manual.Par.2310.1.File.dat/8110.pdf](http://www.blm.gov/style/medialib/blm/wo/Information%20Resources%20Management/policy/blm_manual.Par.2310.1.File.dat/8110.pdf) (last visited January 8, 2015).

048 at 13, 27 (referring to historic property surveys as a means of obtaining information to support both NEPA and NHPA reviews).

For the Dewey-Burdock Project, the Staff used Powertech's Level III survey as a starting point for its NEPA review of how the Project may affect historic resources, including places of religious or cultural significance. The Staff's review did not, however, end there. The Staff used several other methods to assess impacts to places of religious or cultural significance. The Staff used these additional methods to obtain information not only to support its NHPA review, but to support its NEPA review as well. These methods included face-to-face meetings, telephone conferences, and email correspondence with tribal representatives; tribal field surveys of the Dewey-Burdock site; visual and auditory impact assessments; a review of relevant anthropological and archeological literature; and an ethnographic summary. Ex. NRC-001 at A1.2, A1.3, A1.5.

In conclusion, the federal courts recognize that a Level III survey provides important information on places of religious or cultural significance. The Staff used Powertech's Level III survey as a starting point for determining, under NEPA, how the Dewey-Burdock Project may affect such places. The Staff then considered information from numerous other sources to supplement its review under NEPA. As mentioned above, both the ACHP and the South Dakota SHPO found that the Staff complied with the NHPA, the statute more specifically governing the protection of historic resources. Exs. NRC-018-D, NRC -018-G, NRC-031. The Board should accept these agencies' findings as strong evidence that the Staff likewise complied with the more general requirements of NEPA.

B. Contention 2

- 1. Have the federal courts addressed the 10 C.F.R. Part 40, Appendix A, Criterion 7 "baseline groundwater quality" and Criterion 5 "Commission-approved background" water quality distinction and ruled whether this staggered water quality review satisfies NEPA?**

Under Criterion 7 in Appendix A of 10 C.F.R. Part 40, an applicant for an in-situ uranium recovery (ISR) license must provide the NRC with baseline data on the ISR site and surrounding area. Under Criterion 5, the applicant must provide data that are sufficient to establish

groundwater quality standards and upper control limits (UCLs) that will be used to detect potential groundwater contamination. Consistent with NRC guidance, the Staff expects an ISR applicant to submit the data required by Criterion 7, including data on groundwater quality, as part of its application. NUREG–1569, *Standard Review Plan for In-Situ Leach Uranium Extraction License Applications* (Ex. NRC-013) at 62 (stating that an applicant adequately characterizes site hydrology if, in addition to meeting other criteria, “[r]easonably comprehensive chemical and radiochemical analyses of water samples, obtained within and at locations away from the mineralized zone(s), have been made to determine pre-operational baseline conditions.”). If the Staff finds that the applicant qualifies for a license, the Staff includes conditions in the license describing the steps the applicant must take under Criterion 5 and other criteria before it can begin ISR operations. See, e.g., Ex. NRC-012 at 6–8 (identifying standard ISR license conditions), 8–9 (identifying facility specific conditions).⁶

The Staff is unaware of any case in which a federal court has ruled on a NEPA-based challenge to the Staff’s use of license conditions to obtain the data required under Criterion 5. The Commission has, however, addressed such a challenge, finding that the Staff’s use of license conditions is consistent with NEPA. *Hydro Resources, Inc.* (P.O. Box 777, Crownpoint, NM 87313), CLI-06-01, 63 NRC 1, 5–6 (2006). As the Commission explained:

Given the prescriptive nature of the license conditions and their applicable procedures or methodologies, and the hearing opportunity accorded to the intervenors to challenge the adequacy of those procedures, we find reasonable the Presiding Officer’s conclusion that the intervenors’ hearing rights are not violated by these license conditions. Further, as the Presiding Officer stated, “verification by the NRC Staff that a licensee complies with preapproved design or testing criteria ‘is a highly technical inquiry not particularly suitable for hearing.’”

.....

Waiting until after licensing (although before mining operations begin) to establish definitively the groundwater quality baselines and upper control limits is, as the Presiding Officer stated, “consistent with industry practice and NRC methodology,” given the sequential development of in situ leach well fields. The site-specific data to confirm proper baseline quality values, and confirm whether existing rock units

⁶The Staff also describes Powertech’s license conditions in the SER (Ex. NRC-134) at 16–20 (listing facility-specific license conditions) and 239–49 (listing general ISR license conditions).

provide adequate confinement cannot be collected until an *in situ* leach well field has been installed, a point described by the NRC staff's expert.

Id. (footnotes omitted). As the Commission further explained, this approach satisfies NEPA because during the hearing an intervenor can challenge the license conditions governing the licensee's future submission of water-quality data. See *id.* at 5 (“ . . . in this proceeding the intervenors also have had the opportunity to litigate—and did litigate—whether the performance-based licensing complies with the Atomic Energy Act and [NEPA], and whether it accords undue discretion to the licensee”) (footnote omitted).

As in *Hydro Resources*, the Intervenors in this hearing could have challenged the license conditions governing Powertech's post-license submission of water-quality data. For example, License Condition 10.10, “Hydrologic Test Packages,” requires Powertech to submit 11 specific types of information to the NRC at least 60 days before injecting lixiviant in any wellfield. Ex. NRC-012 at 8–9. The Intervenors did not challenge this license condition, however, nor did they challenge any other relevant license condition. Instead, they claimed generally that the Staff's use of license conditions to confirm baseline groundwater quality violates NEPA. See, e.g., Ex. OST-018 at 4 (arguing that Powertech needs to provide complete water-quality information at the pre-license stage). This argument is, however, foreclosed by *Hydro Resources*.

The Staff would further emphasize that, although it will obtain additional water-quality data from Powertech in the future, the Staff will not conduct a “staggered” NEPA review of baseline groundwater quality. Rather, the Staff reviewed the water-quality information Powertech submitted with its application and developed license conditions specifying the confirmatory data Powertech must submit before beginning operations in wellfields. The Staff then used the existing water-quality data and these license conditions to evaluate how the Dewey-Burdock Project will affect various environmental resources. Although the Staff may conduct an additional NEPA review if Powertech seeks a license amendment, or if it submits water-quality data that amounts to “new and significant information” as described in 10 C.F.R. § 51.92, the Staff has at this time fully satisfied its responsibilities under NEPA.

2. **Further, in response to a question from Judge Barnett, counsel for the Licensee and Staff stated that satisfying all the requirements of NUREG-1569 (e.g., staggered water quality review) will automatically satisfy all the relevant requirements of NEPA and 10 C.F.R. Part 40. Please provide legal support for this assertion, especially if the Commission or a federal court has so held.**

NUREG-1569 is the NRC's Standard Review Plan for In Situ Leach Uranium Extraction License Applications. Ex. NRC-013. The Staff uses NUREG-1569 "to determine whether the proposed activities will be protective of public health and safety and the environment and to fulfill NRC responsibilities under the National Environmental Policy Act (NEPA)." *Id.* at 3. The Staff developed NUREG-1569 as an alternative to issuing safety regulations specifically addressing uranium recovery facilities. *Id.* at 5–6. Although NUREG-1569 is a Staff guidance document, rather than an NRC rule, it is guidance that the Commission unanimously approved for publication in May 2003. VR-SECY-02-0204, *Update of Uranium Recovery Guidance Documents* (ADAMS Accession No. ML031270594) (May 7, 2003).

There is not yet any legal decision in which the Commission or a federal court has held that satisfying the requirements of NUREG-1569 will automatically satisfy the relevant requirements of NEPA and 10 C.F.R. Part 40. Nor is there any decision holding that satisfying the requirements of NUREG-1569 is insufficient in this regard. The last uranium recovery hearing to reach a final decision, *Hydro Resources*, predated NUREG-1569, and it thus does not provide precedent on the issue raised by the Board.

Although there is no legal decision addressing the precise issue raised by the Board, the Commission's vote to approve publication of NUREG-1569 is relevant to this issue. When the Commission voted to approve publication of NUREG-1569, it understood that the Staff intended to use NUREG-1569 to determine whether an applicant has met the safety requirements for receiving a license and whether the Staff has fulfilled its responsibilities under NEPA. VR-SECY-02-0204 (ADAMS Accession No. ML031270594) (May 7, 2003) at 14. While the Commissioners provided comments on NUREG-1569, which the Staff incorporated into the final version of the document, no

Commissioner objected to publication of the NUREG for the purposes identified by the Staff. To the contrary, one Commissioner stated:

These documents [in the NUREG] incorporate the elements of the Commission's policy decisions put forward in SRMs to SECY-99-012, SECY-99-013, SECY-99-277, and SECY-02-026. The publication and utilization of these documents are an acceptable means of implementing the Commission's policy decision for uranium recovery facilities, *in lieu* of rulemaking.

Id. at 22. Another Commissioner stated that the documents in NUREG-1569 “both implemented specific Commission guidance and provided needed clarification in other important areas as well.” *Id.* at 32.

Even where Staff guidance is not specifically approved by the Commission, it is entitled to special weight in a hearing. See *Yankee Atomic Elec. Co.* (Yankee Nuclear Power Station), CLI-05-15, 61 NRC 365, 375 n.26 (2005) (“We recognize, of course, that guidance documents do not have the force and effect of law. Nonetheless, guidance is at least implicitly endorsed by the Commission and therefore is entitled to correspondingly special weight.”). See also *Nextera Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-05, 75 NRC 301, 314 n.78 (2012) (explaining that a Staff-issued NUREG is entitled to special weight); *Private Fuel Storage LLC* (Independent Spent Fuel Storage Installation), CLI-01-22, 54 NRC 255, 264 (2001) (same). The difference here is that NUREG-1569 was not “implicitly endorsed” by the Commission—it was *explicitly* endorsed by the Commission's vote in SECY-02-0204. Accordingly, although NUREG-1569 is not binding on the Board, as counsel acknowledged during the oral hearing,⁷ the Board should give the NUREG not just “special weight,” but weight commensurate with its status as Commission-approved guidance.

⁷ Tr. at 985-86.

C. Contention 3

1. To what extent do the various studies in the record either support or undermine the proposition that the Fuson Shale will adequately contain fluid migration?

The Staff thoroughly reviewed the Fuson Shale's ability to contain fluid migration, presenting its findings in both the Safety Evaluation Report (SER) for the Dewey-Burdock Project and the FSEIS. Below, the Staff summarizes its key findings regarding the Fuson Shale's ability to contain fluid migration. As the Staff explains, the evidence shows that the Fuson Shale will adequately prevent fluids from migrating outside the production zones at the Dewey-Burdock Project.

a. Hydrogeologic Characteristics of the Fuson Shale

In Section 3.4.1.2 of the FSEIS, the Staff describes the hydrogeologic characteristics of the Fuson Shale. Ex. NRC-008-A-1 at 190. As the Staff explains, the Fuson Shale is a shale-siltstone unit that ranges in thickness from 6 to 24 m (20 to 80 ft) within the Dewey-Burdock area. The Staff drew its conclusions regarding the thickness and continuity of the Fuson Shale based on isopach maps that Powertech constructed from borehole and geophysical logs of more than 3,000 exploratory holes. Ex. APP-015-B at 186.⁸

As the Staff further explains in FSEIS Section 4.5.2.1.1.2.2, it used exploratory drilling data Powertech provided to independently construct Fuson Shale isopach maps. Through these maps, the Staff confirmed the thickness and continuity of the Fuson Shale within the Dewey-Burdock area. Ex. NRC-008-A-2 at 370.

In Section 3.4.1.2 of the FSEIS, the Staff explains that the Fuson Shale has a low vertical permeability that ranges from 7.9×10^{-14} to 2.3×10^{-12} cm² (0.008 to 0.228 millidarcies). This information on the vertical permeability of the Fuson Shale is drawn from analyses of core samples. Ex. APP-040-A at 3-13, Ex. APP-015-B at 185.

⁸ Powertech's Revised Technical Report presents an isopach map of the Fuson Shale. Ex. APP-015-D at 18 (Plate 2.6-8).

As the Staff documents in both the FSEIS and SER, the information regarding the thickness (Ex. NRC-008-A-1 at 190, Ex. NRC-134 at 24), continuity (Ex. NRC-008-A-2 at 370, Ex. NRC-134 at page 24), and low permeability (Ex. NRC-008-A-1 at 190, Ex. NRC-134 at 62) of the Fuson Shale demonstrates that it has hydrogeologic characteristics that are adequate to contain fluid migration. The Staff's finding is well supported, because it is based on site-specific geologic data, including drill hole logs and core analyses.

b. Historic Exploration Drill Holes

In FSEIS Section 3.4.1.2, the Staff explains that there are over 4,000 drill holes from historic exploration activities within the Dewey-Burdock site. Ex. NRC-008-A-1 at 192. The Staff also explains that Powertech cannot confirm all historic borings were properly plugged and abandoned. *Id.* For that reason, the Staff requested additional information from Powertech on the potential for groundwater to discharge from unplugged exploratory drill holes. Ex. NRC-001 at A3.16.

In response to the Staff's request, Powertech provided the information found in Exhibit APP-016-C, TR RAI 2.7-9 (pages 201–210). The Staff summarizes Powertech's response in the "Artificial Penetrations" section of the FSEIS. Ex. NRC-008-A-1 at 192. In this section, the Staff discusses the results of color-infrared (CIR) imagery studies that Powertech conducted to identify where groundwater may be discharging to the surface from unplugged boreholes. Except for a portion of the southeastern part of the Dewey-Burdock area called the "alkali pond area," the Staff found no evidence that groundwater is discharging to the surface from improperly plugged or abandoned boreholes. *Id.*

c. Aquifer Pumping Tests

In FSEIS Section 3.5.3.2, the Staff describes pumping tests conducted at the Dewey-Burdock site. Ex. NRC-008-A-1 at 206. Based on pumping tests conducted in the Burdock area, the Fuson Shale has estimated vertical hydraulic conductivities ranging from 1×10^{-7} to 4.6×10^{-8}

cm/s. This low vertical hydraulic conductivity demonstrates that the Fuson Shale will adequately contain fluid migration.

In FSEIS Section 3.5.3.2, the Staff also explains that pumping tests conducted in 1979 (Ex. OST-006) and 2008 (Ex. APP-050) identified hydraulic communication (*i.e.*, leakage) between the Fall River and Chilson aquifers through the intervening Fuson Shale. Ex. NRC-008-A-1 at 206. The Staff further explains that the results of numerical modeling using site-specific geologic and hydrologic information (Ex. APP-025) showed that vertical leakage through the Fuson Shale was caused by improperly installed wells or improperly abandoned boreholes. Ex. NRC-008-A-1 at 208.

The potential for vertical leakage through improperly installed wells or improperly abandoned boreholes raises a concern about the Fuson Shale's ability to contain fluid migration. The Staff has, however, addressed this concern in two ways. First, as the Staff explains in FSEIS Section 4.5.2.1.1.2.2, Powertech has committed to using its delineation drilling and pumping test program to locate improperly sealed or abandoned boreholes. Ex. NRC-008-A-2 at 369–371. Powertech has also committed to properly plugging any such boreholes before beginning operations in a wellfield. *Id.*

Second, as the Staff explained in its initial written testimony, Powertech's license includes a condition requiring it to submit hydrogeologic data packages before beginning operations in any wellfield. Ex. NRC-001 at A3.4. In Powertech's case, License Condition 10.10 stipulates the information Powertech must provide to the NRC before operating in a wellfield. Ex. NRC-012 at 8–9. To provide the required information, Powertech must conduct delineation drilling and aquifer pumping tests. These tests will reveal whether overlying and underlying aquifers are isolated from the production zone aquifer, thereby identifying whether there is any communication through boreholes that Powertech must address before beginning operations.

In conclusion, Powertech has committed to locating and plugging any improperly sealed and abandoned boreholes before beginning operations in a wellfield. Powertech is also bound by

License Condition 10.10, which requires that it conduct aquifer pumping tests to confirm that overlying and underlying aquifers are isolated from the production zone. These commitments address the possibility that fluid may migrate through the Fuson Shale by way of improperly plugged or abandoned boreholes, and they support the finding that the Fuson Shale will contain fluid migration.

d. Faults and Breccia Pipes

In FSEIS Sections 3.4.1.2 and 3.4.3, the Staff explains that no breccia pipes or faults have been identified in the Dewey-Burdock area. Ex. NRC-008-A-1 at 191–192. In reaching this conclusion the Staff reviewed a wide range of information. For example, the Staff reviewed structure maps that Powertech constructed from borehole and geophysical logs of more than 3,000 exploratory holes. Ex. APP-015-D, Plates 2.6-1 to 2.6-5 (pages 6–14). The structure maps did not show evidence of collapse features or bed displacements that would suggest the development of breccia pipes or faulting. In addition, the Staff reviewed stratigraphic cross-sections depicting the geologic strata, potentiometric surfaces, and ore locations in both the Dewey and Burdock areas. Ex. APP-015-E, Plates 2.6-12a to 2.6-12j (pages 8–16). None of the cross-sections show evidence of bed displacements that would indicate the presence of faults or fractures. The Staff also consulted the United States Geological Survey (USGS) Quaternary Fault and Fold Database (Ex. NRC-139) in order to identify any active faults with surface expression in the vicinity of the Dewey-Burdock site. The Staff found no evidence of such features. The Staff then reviewed other available reports on the structure and stratigraphy of the Dewey-Burdock region, again finding no evidence of faults or breccia pipes. Ex. NRC-001 at A3.19.

Finally, the Staff analyzed the historic drillhole data for the Dewey-Burdock area generated by the Tennessee Valley Authority (TVA). As the Staff explains in its post-hearing testimony (Exs. NRC-158, NRC--175), it reviewed the TVA data in part to determine whether the data supports the Intervenor's claim that there may be faults, fractures, breccia pipes, and sinkholes in the Dewey-Burdock area. The Staff found no such evidence. To the contrary, the Staff's review confirmed the

validity of the Fuson Shale structure map and cross-sections that Powertech presented in its revised Technical Report.

To summarize, the various studies in the record support the Staff's finding that the Fuson Shale will adequately contain fluid migration.

2. What is the appropriate legal standard to be applied in assessing the evidence regarding the suitability of the Fuson Shale to contain fluid migration?

Under NEPA, the appropriate legal standard is whether the Staff took a hard look at the evidence regarding the Fuson Shale's ability to contain fluid migration. See *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989) (explaining that an agency must take a hard look at the environmental impacts of its proposed action). The hard look standard does not, however, require the Staff to address every environmental effect that could potentially result from the proposed action. *Ground Zero Ctr. for Non-Violent Action v. U.S. Dept. of Navy*, 383 F.3d 1082, 1089-90 (9th Cir. 2004) (citing *NoGWEN Alliance of Lane County, Inc. v. Aldridge*, 855 F.2d 1380, 1385 (9th Cir. 1988)). Rather, the Staff need only provide "[a] reasonably thorough discussion of the significant aspects of the probable environmental consequences[.]" *Trout Unlimited v. Morton*, 509 F.2d 1276, 1283 (9th Cir. 1974); *Warm Springs Dam Task Force v. Gribble*, 621 F.2d 1017, 1026-27 (9th Cir. 1980). See also *Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-05-20, 62 NRC 523, 536 (2005) ("NEPA does not call for certainty or precision, but an *estimate* of anticipated (not unduly speculative) impacts.") (emphasis in original).

Commission precedent further defines the limits of the hard look standard. As the Commission has emphasized, "[a]n environmental impact statement is not intended to be 'a research document.'" *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-22, 72 NRC 202, 208 (2010) (citation omitted). NEPA does not require the Staff to analyze every conceivable aspect of proposed project. *Private Fuel Storage, LLC* (Independent Spent Fuel Storage Installation), CLI-02-25, 56 NRC 340, 349 (2002). NEPA also does not require that the Staff commit virtually infinite study and resources to a proposed project. *Entergy Nuclear*

Generation Co. (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 315 (2010) (footnote omitted). Although the Staff can always gather more data in a particular area, it “must have some discretion to draw the line and move forward with decisionmaking.” *Id.* at 315.

As reflected in its answer to the last question, the Staff took a hard look at the Fuson Shale’s ability to contain fluid migration. The Staff carefully reviewed the information regarding the Fuson Shale that Powertech submitted in its Technical Report and Environmental Report, requesting additional information on a number of issues. The Staff obtained a commitment from Powertech to address any improperly plugged or abandoned boreholes that might allow fluids to migrate through the Fuson Shale, and it imposed license conditions to further address the possibility of fluid migration. Ex. NRC-001 at A3.5; Ex. NRC-151 at A3.13–A3.14; Ex. NRC-012 at 8, 10, 13 (License Conditions 10.7, 11.4, 11.5, 12.10). When Powertech disclosed additional well log data to the parties in September 2014, the Staff reviewed the data in order to assess its prior conclusions about the Fuson Shale and the Intervenors’ claims about faults, fractures, and sinkholes. In brief, over the past four years the Staff has closely reviewed the Fuson Shale’s ability to contain fluid migration, and the Staff’s finding that the Fuson Shale will serve as an adequate confining unit is well supported.

D. Contention 4

1. To What Extent, if Any, Can the NRC Rely on Analyses Conducted by EPA or the State of South Dakota to Fulfill its NEPA Responsibilities?

The Council on Environmental Quality (CEQ) is the agency charged with issuing regulations under NEPA and providing guidance for applying its regulations. Although the NRC is not bound by the CEQ’s substantive regulations, the NRC takes into account the CEQ’s regulations and guidance as appropriate.⁹ In its guidance, the CEQ encourages an agency preparing an EIS to incorporate by reference any information or analyses that are relevant to the agency’s proposed action. *Final Guidance on Improving the Process for Preparing Efficient and Timely Environmental*

⁹ 10 C.F.R. § 51.10(a); *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-876, 26 NRC 277, 284 n.5 (1987).

Reviews under the National Environmental Policy Act, 77 Fed. Reg. 14,473, 14,479 (March 12, 2012).

NRC case law likewise states that, when preparing an EIS, the Staff should consider the relevant analyses of other federal or state agencies. Furthermore, under NRC case law, the Staff may give substantial weight to the findings of agencies acting within their authority. See *Public Serv. Co. of New Hampshire, et al.* (Seabrook Station, Units 1 and 2), CLI-77-8, 5 NRC 503, 527 (1977) (“The fact that a competent and responsible state authority has approved the environmental acceptability of a site or a project after extensive and thorough environmentally sensitive hearings is properly entitled to ‘substantial weight’ in the conduct of our own NEPA analysis. . . . Such limited reliance is clearly acceptable under NEPA.”) (citations omitted). See also *Western Farmers Elec. Coop., Inc.* (Black Fox Station, Units 1 and 2), LBP-78-28, 8 NRC 281, 282 (1978) (“In the conduct of our NEPA analysis, we give substantial weight to [a permitting] action taken by a competent and responsible State authority.”).

The Staff acted consistently with the CEQ’s guidance and NRC precedent when it evaluated the amount of water to be used during the Dewey-Burdock Project. For example, the Staff considered the State of South Dakota’s analysis of Powertech’s water rights applications pertaining to the Madison and Inyan Kara Aquifers. Ex. NRC-001 at A4.5, A4.17. As Staff witnesses James Prikryl and Thomas Lancaster explain in their testimony, the State of South Dakota’s Department of Environmental and Natural Resources (SDDENR) found that Powertech’s estimated annual withdrawals from the Inyan Kara and Madison Aquifers will not exceed the recharge rates of those aquifers. *Id.* (referring to Exs. APP-028 and APP-048).

Although the Staff considered SDDENR’s analyses of Powertech’s water rights applications, the Staff did not rely on these analyses when evaluating the amount of water Powertech will use during the Dewey-Burdock Project. As Mr. Prikryl and Mr. Lancaster explain in their testimony, the Staff independently reviewed extensive information in this area. Exs. NRC-001 at A4.1–A4.18, NRC-151 at A4.2–A4.3. The Staff reviewed the information on water consumption

provided in Powertech's application, requesting additional information in several areas. As a result, Powertech submitted a water balance for the Dewey-Burdock Project. Ex. APP-016-B at 68–73. The Staff reviewed the water balance and incorporated key information in the FSEIS. Ex. NRC-008-A-1 at 128–129. The Staff also prepared a three-level model simulating groundwater drawdown in the Madison Aquifer. Ex. NRC-134 at 87–88. In addition, the Staff reviewed not only the SDDENR's analysis of Powertech's water rights applications, but the applications themselves. See Exs. NRC-001 at A4.16–A4.18, NRC-151 at A4.2–A4.3 (referring to Exs. APP-027-A, APP-028, APP-048, APP-049). The Staff, in other words, did not merely rely on the SDDENR's findings that the Dewey-Burdock Project's water consumption would not exceed the annual recharge rates of the Madison and Inyan Kara Aquifers—the Staff independently considered the same information as the SDDENR and, based on its review, arrived at the same conclusions.

Regarding the EPA, the Staff was unable to incorporate its analysis of Powertech's applications for Class III and Class V permits into the FSEIS because to date the EPA has not finished its analysis. Nonetheless, as Haimanot Yilma and Kellee Jamerson explain in their testimony, the Staff took into account the EPA's regulations when evaluating measures that can be used to mitigate certain impacts of the Dewey-Burdock Project. Exs. NRC-001 at A9.1–A9.11, NRC-151 at A2.8. For example, the Staff considered mitigation measures that can be used to avoid surface water contamination from stormwater runoff. *Id.* at A9.7.

In sum, the Staff may properly incorporate the findings of other agencies in its NEPA analysis and give weight to those findings. The Staff did so here in the case of the SDDENR's analyses of Powertech's water rights applications. The Staff went further, however, independently considering how much water Powertech will use during the Dewey-Burdock Project. Accordingly, the Staff complied fully with NEPA.

2. Are the permitting processes of other agencies adequate to assess ground water quantity impacts?

As stated above, the CEQ encourages an agency to incorporate the analyses of other agencies into its EIS. The NRC's Commission and Board have also found that it is appropriate for

the Staff to incorporate the analyses of other agencies into a Staff-issued EIS. *Seabrook*, CLI-77-8, 5 NRC at 515, 527; *Black Fox Station*, LBP-78-28, 8 NRC at 282.

In this case, the Staff considered the SDDENR's analyses of Powertech's water rights applications pertaining to the Madison and Inyan Kara Aquifers. The Staff did not rely on the SDDENR's analyses, however, and in fact the Staff independently analyzed the same information considered by the SDDENR. Accordingly, rather than relying on the SDDENR's analyses of Powertech's water rights applications, in its testimony the Staff cites these analyses as evidence that corroborates its own analysis of groundwater consumption. Exs. NRC-001 at A4.16–A4.18, NRC-151 at A4.2–A4.3.

The Staff would not, in any event, have relied on the SDDENR's analyses of groundwater consumption because the issues raised in Contention 4 are somewhat broader than those considered by that agency. While the SDDENR considered drawdown in the Madison and Inyan Kara Aquifers, in Contention 4 the Tribe argues that the FSEIS inadequately considers Powertech's water usage during various phases of the Dewey-Burdock Project. For this reason, the Staff sought additional information from Powertech, which resulted in Powertech submitting a water balance for the Dewey-Burdock Project. Powertech's water balance provides estimated water inputs and outputs for all phases of the Dewey-Burdock Project. In other words, the water balance provides information beyond that needed to support Powertech's applications to draw water from the Madison and Inyan Kara Aquifers.

Another source of information for the Staff was public comments on the Draft SEIS. Many of the comments related to groundwater consumption, and not all of the comments concerning groundwater consumption pertained to drawdown in the Madison and Inyan Kara Aquifers. The Staff evaluated these comments and responded to them in the FSEIS. See Ex. NRC-008-B-2 at Section E5.21.1 (pages 499–502) (responding to comments on groundwater consumptive use) and Section E5.21.3 (pages 507–510) (responding to comments on aquifer drawdown). Again, this

shows that the Staff did not simply rely on the SDDENR's analysis of issues related to water consumption; the Staff reviewed these issues independently and drew its own conclusions.

In conclusion, consistent with CEQ guidance and NRC precedent, the Staff could have relied on the SDDENR's analyses of drawdown involving the Madison and Inyan Kara Aquifers for part of the analysis in the FSEIS. The Staff did not do so, however, instead reviewing these issues independently, while nonetheless considering the SDDENR's findings. The Staff also independently reviewed other issues related to water consumption, considering, among other information, Powertech's water balance for the Dewey-Burdock Project.

E. Contention 6

1. Does NEPA require an analysis of mitigation measures?

NEPA itself does not mention mitigation measures.¹⁰ The Supreme Court has, however, stated that “a reasonably complete discussion of possible mitigation measures is an important ingredient of an EIS, and its omission therefrom would undermine NEPA's ‘action-forcing’ function.” *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989). Accordingly, even though it does not say so explicitly, NEPA requires an agency to analyze mitigation measures when preparing an EIS.¹¹

In the Dewey-Burdock FSEIS, the Staff addresses mitigation measures in several chapters. In Chapter 6, the Staff summarizes mitigation measures that have been proposed by Powertech or identified by the Staff itself.¹² In Chapter 4 the Staff explains how these measures will reduce adverse environmental impacts in various resource areas.¹³ In Chapter 4 the Staff discusses mitigation measures repeatedly, referring to such measures well over a hundred times. The Staff

¹⁰ 42 U.S.C. § 4321 *et seq.*

¹¹ The CEQ's regulations also direct an agency to consider mitigation measures in an EIS. 40 C.F.R. § 1502.14(f).

¹² In its testimony, Staff witnesses Haimanot Yilma, Kellee Jamerson, and James Prikryl explain where the Staff discusses mitigation measures in the FSEIS. Ex. NRC-001 at A6.2, A6.3.

¹³ Ex. NRC-001 at A6.3.

also refers to mitigation measures in other FSEIS chapters, including Chapter 2, “In-Situ Uranium Recovery and Alternatives,” and Chapter 7, “Environmental Measures and Monitoring Programs.”¹⁴

The Staff also analyzed mitigation measures in the Generic EIS (GEIS) for in-situ uranium recovery facilities, which is part of the Staff’s analysis for the Dewey-Burdock Project. Exs. NRC-010-A-1 through NRC-010-B-2. The Staff summarizes mitigation measures that could be used at ISR facilities in Chapter 7, “Potential Best Management Practices, Mitigation Measures, and Management Actions to Mitigate Adverse Environmental Impacts.” As with Chapter 6 of the Dewey-Burdock FSEIS, Chapter 7 of the GEIS is intended to provide only a summary of mitigation measures. The Staff explains how these mitigation measures will reduce environmental impacts in Chapter 4 of the GEIS, “Environmental Impacts of Construction, Operation, Aquifer Restoration, and Decommissioning Activities.” See, e.g., Ex. NRC-010-A-3 at 516 (“Additionally, licensees implement postconstruction actions, such as recontouring and restoring surface cover, well sites, staging areas, trenches and parts of dirt access roads to minimize the temporary loss of pasture land, grazing rights, or timber resources.”).

In conclusion, the Staff discusses mitigation measures at length in both the Dewey-Burdock FSEIS and in the GEIS for in-situ uranium recovery facilities.

2. Does NEPA require a showing of the effectiveness of proposed mitigation measures?

NEPA does not require an agency to prove that the mitigation measures it identifies will be effective in reducing environmental impacts. See *Biodiversity Conservation Alliance v. Bureau of Land Management*, No. 09-CV-08-J, 2010 U.S. Dist LEXIS 62431 (D. Wyo. 2010) (“Neither NEPA nor FLMPA impose a procedural requirement for the BLM to verify the efficacy of mitigation measures in order for the BLM to utilize those measures to protect public lands from [undue and

¹⁴ NEPA does not require that the Staff restrict its discussion of mitigation measures to a single FSEIS chapter, rather than discussing such measures throughout the FSEIS. This is how the Staff typically prepares an EIS, and it is consistent with how other agencies prepare such documents. See, e.g., *Wilderness Soc’y v. United States BLM*, 822 F. Supp. 2d 933, 942–943 (D. Ariz. 2011) (“The Court also concludes that the RMPs, notwithstanding their programmatic nature and use of monitoring and adaptive strategies, contain a sufficient discussion of mitigation measures. These are set forth in Chapter 2 (“Alternatives”) and Chapter 4 (“Environmental Impacts”) of the FEIS[.]”).

unnecessary degradation].”). In fact, an agency need not even have a fully developed and enforceable mitigation plan in place before it finalizes its EIS. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 353 (1989). The agency must simply have a reasonable basis for identifying a measure as a possible means of reducing environmental impacts. *Id.* The agency must also explain how the measures it identifies will help reduce such impacts, although no explanation is needed where it is obvious how the measures will reduce impacts. See *Oregon Natural Desert Ass’n v. Jewell*, No. 3:12-CV-00596-MO, 2013 U.S. Dist. LEXIS 130466 (D. Or. 2013) (“The FEIS discusses the effectiveness of some mitigation measures and the effectiveness of other measures is obvious.”). As one court recently stated, “[t]he discussion of effectiveness of mitigation measures does not need to be highly detailed.” *Moapa Band of Paiutes v. United States BLM*, No. 10-CV-02021-KJB-(LRL), 2011 U.S. Dist. LEXIS 116046 (D. Nev. 2011).

The Staff met these requirements when discussing mitigation measures in the Dewey-Burdock FSEIS. As Staff witnesses Haimanot Yilma and James Prikryl explained during the oral hearing, the Staff identified mitigation measures by reviewing applicable laws and regulations, the conditions in Powertech’s NRC license, and other legally binding requirements. Tr. at 1213–1215, 1225–1232, 1239, 1263–64, 1267–72.¹⁵ The Staff also considered other measures that could be used to reduce environmental impacts, such as best management practices. *Id.* For each of the mitigation measures it identified, the Staff had a reasonable basis for concluding that the measure is a possible means of reducing impacts from the Dewey-Burdock Project. For example, although the Staff did not refer to the GEIS when discussing best management practices during the oral hearing, the GEIS in fact provides the sources for the best management practices that the Staff lists in the Dewey-Burdock FSEIS. Ex. NRC-010-B-1 at 110–114.

¹⁵ The CEQ’s regulations encourage agencies to consider an applicant’s compliance with environmental quality standards imposed by other federal, state, and local agencies with responsibility for environmental protection. 40 C.F.R. § 1502.16(h) and § 1505.2(c). Consistent with these regulations, the Staff took into account land-use regulations, wildlife protections, and water-pollution limitations that fall outside the NRC’s jurisdiction and reported them in the FSEIS. Ex. NRC-001 at A6.6, A6.17.

When discussing mitigation measures in the FSEIS, the Staff also explained how these measures will help reduce environmental impacts in various areas. The following examples, and many additional examples, can be found in Chapter 4 of the FSEIS (Ex. NRC-008-A-2):

- [Page 314] “Mitigation measures, such as performing concurrent reclamation and revegetation of disturbed surface areas, limiting construction of new access and secondary roads, and restricting vehicular traffic in wellfields and land application areas, will reduce the impacts of surface disturbance associated with construction activities for the land application disposal option.”
- [Page 316] “Impacts of surface land disturbance will be minimized by mitigation measures, including concurrently reclaiming and revegetating surface disturbed areas, limiting construction of new access roads, and restricting vehicular traffic in wellfields and land application areas.”
- [Page 352] “The applicant will implement the mitigation measures described in SEIS Section 4.5.1.1.1.1 to control erosion, stormwater runoff, and sedimentation during decommissioning activities.”
- [Page 382] “The applicant will implement mitigation measures to control erosion and stormwater runoff. The NPDES permit will ensure that stormwater runoff will not contaminate groundwater.”
- [Page 407] “However, NRC staff considers such chronic direct wildlife exposure to undiluted wastewater unlikely because the applicant’s proposed wastewater controls (e.g., pond design, leak detection and mitigation, pressure monitoring) and SDDENR permitting requirements will limit direct contact that aquatic life and terrestrial wildlife have with wastewater solutions.”
- [Page 454] “These mitigation measures will ensure that noise levels remain below guidelines for offsite receptors [e.g., 55-decibel daytime guideline to protect against activity interference and annoyance (EPA, 1974)] and below OSHA regulatory limits for workers in 29 CFR 1910.95.”
- [Page 499] “Because construction of aboveground structures will consider topography to conceal plant facilities and infrastructure and mitigation measures (e.g., water application to control fugitive dust) will be implemented to reduce impacts to visual and scenic resources, NRC staff conclude that the visual and scenic impacts from operations for the Class V injection well disposal option will be SMALL.”
- [Page 522] “In SEIS Section 4.7.1.1, NRC staff concluded that implementation of mitigation measures will result in fugitive dust emission levels that will not destabilize the air quality of the local area nor change the current attainment status of the air quality surrounding the proposed site areas. However, despite the use of controls, short-term and intermediate fugitive dust emissions are possible when vehicles travel on unpaved roads.”

The Staff's discussion of the effectiveness of mitigation measures is comparable to the discussions in other EISs that courts have found to comply with NEPA. See, e.g., *Wilderness Society v. United States BLM*, 822 F. Supp. 2d 933, 943–944 (D. Ariz. 2011), *aff'd*, *Wilderness Society v. BLM*, 526 Fed. Appx. 790, 2013 U.S. App. LEXIS 10708 (9th Cir. 2013) (listing examples of how the BLM analyzed the effectiveness of mitigation measures in its EIS).¹⁶ Accordingly, the Staff analyzed the effectiveness of mitigation measures to the extent required for an EIS.

The EISs involved in the cases cited by the Tribe differ markedly from the Dewey-Burdock FSEIS. Tribe's FSEIS Contentions (Ex. OST-012) at 22. For example, in one case cited by the Tribe the court stated:

[C]lose inspection reveals that the EIS does not in fact assess the effectiveness of the mitigation measures relating to groundwater. It states only, "Feasibility and success of mitigation would depend on site-specific conditions and details of the mitigation plan." *Nothing whatsoever is said about whether the anticipated harms could be avoided by any of the listed mitigation measures.* This discussion is inadequate.

South Fork Band Council of Western Shoshone of Nevada v. U.S. Dept. of Interior, 588 F.3d 718, 727 (9th Cir. 2009) (emphasis added). In another case cited by the Tribe, the agency's own expert admitted that the measures identified by the agency were not actually mitigation measures.

Neighbors of Cuddy Mountain v. U.S. Forest Service, 137 F.3d 1372, 1381 (9th Cir. 1998). In sum, in none of the Tribe's cited cases was the agency's discussion of mitigation measures comparable to the discussion in the Dewey-Burdock FSEIS.

The Tribe also cites one case in which the court found that the agency complied with NEPA by assigning an "effectiveness rating" ("low," "moderate," or "high") to mitigation measures.

Okanogan Highlands Alliance v. Williams, 236 F.3d 468, 477 (9th Cir. 2000). But the court did not find that such a rating was necessary in all cases. To the contrary, the court found that, in the EIS before it, the effectiveness rating compensated for a lack of qualitative description as to how mitigation measures would reduce environmental impacts. *Id.* at 476–77. In other words, the EIS

¹⁶ The Staff provides a full comparison of the BLM's text and the Staff's text at pages 44–45 of its Initial Statement of Position.

lacked the types of descriptions the Staff included in the Dewey-Burdock FSEIS. Other courts have confirmed that an agency need not assign an effectiveness rating to mitigation measures. See *North Alaska Env'tl. Ctr. v. Norton*, 361 F. Supp. 2d 1069, 1080 (2005) (“While it is true that the BLM did not rank the effectiveness of the mitigation measures as the Forest Service did in *Okanogan Highlands*, 236 F.3d at 474, this Court is nonetheless convinced that the BLM did ‘ensure that the environmental consequences [were] fairly evaluated.’”).

Finally, the Tribe cites cases providing general statements of NEPA law, such as the statement that mitigation measures must be discussed in “sufficient detail to ensure that environmental consequences have been fairly evaluated.” Tribe’s FSEIS Contentions (Ex. OST-012) at 22 (citing *Rock Creek Alliance v. U.S. Forest Service*, 703 F. Supp. 2d 1152, 1179–80 (2010) and *Natural Resources Defense Council, Inc. v. U.S. Forest Service*, 634 F. Supp. 2d 1045, 1065–66 (2007)). These cases say nothing about whether the Staff complied with NEPA when preparing the Dewey-Burdock FSEIS. Rather, they merely restate general principles of NEPA law. In other words, these cases fail to support the Tribe’s claim that the Staff discussed mitigation measures inadequately in the Dewey-Burdock FSEIS.

In sum, the Staff fully considered whether mitigation measures would be effective in reducing impacts from the Dewey-Burdock Project.

3. How detailed an analysis of proposed mitigation measures is required?

To comply with NEPA, an agency preparing an EIS must provide a “reasonably complete discussion of mitigation measures” and “discuss the extent to which adverse effects [of the proposed action] can be avoided.” *Methow Valley*, 490 U.S. at 352. The agency’s discussion of mitigation measures is sufficient as long as it supports an informed agency decision. See *id.* (holding that without a reasonably complete discussion of mitigation measures, “neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects”). A reviewing court must keep in mind, however, that “an environmental impact statement [is not] intended to be a ‘research document,’ reflecting the frontiers of scientific methodology,

studies, and data,” but a tool for reasonable analysis that allows an agency “to draw the line and move forward with decisionmaking.” *Pilgrim*, CLI-10-11, 71 NRC at 315.

In the Dewey-Burdock FSEIS, the Staff discusses mitigation measures in an appropriate level of detail. The Staff provides a summary of mitigation measures in Chapter 6 of the FSEIS. This summary supplements the list of potential mitigation measures that the Staff provides in Chapter 7 of the GEIS. The Staff then explains, in Chapter 4 of the FSEIS, how these mitigation measures can be used to reduce specific environmental impacts. The Staff discusses mitigation measures throughout Chapter 4 and, as stated previously, refers to such measures well over a hundred times. The Staff takes a similar approach in Chapter 4 of the GEIS, where it explains how various mitigation measures might be used to reduce environmental impacts associated with ISR facilities generally. In brief, the Staff discusses mitigation measures throughout the FSEIS and GEIS. The Staff also discusses the extent to which such measures can help avoid adverse environmental impacts. The Staff’s discussion therefore complies with NEPA. *Methow Valley*, 490 U.S. at 352.

4. Are draft mitigation plans needed or to-be-drafted mitigation plans acceptable in the FSEIS?

In *Methow Valley*, 490 U.S. 332, the Court considered an EIS prepared by the U.S. Forest Service that discussed measures to mitigate environmental impacts to air quality and wildlife. In that case, as for the Dewey-Burdock Project, certain mitigation measures discussed in the EIS could not be implemented absent separate action by other government agencies. *Id.* at 352. The Court concluded that while NEPA requires mitigation to be discussed in “sufficient detail to ensure that environmental consequences have been fairly evaluated,” it does *not* include a “substantive requirement that a complete mitigation plan be actually formulated and adopted.” *Id.* The Court stated:

[s]ince it is those state and local governmental bodies that have jurisdiction over the area in which the adverse effects need be addressed and since they have the authority to mitigate them, it would be incongruous to conclude that the Forest Service has no power to act until the local agencies have reached a final conclusion on what mitigation measures they consider necessary.

Id. Accordingly, under *Methow Valley* and related cases, EISs do not need to present mitigation plans that are legally enforceable, fully developed, or funded.¹⁷ Rather, the agency must simply disclose and fairly evaluate mitigation measures and explain their relevance to the agency's impact determinations.

As discussed in the answers to previous questions, the Staff took these steps when preparing the Dewey-Burdock FSEIS. The Staff discloses mitigation measures in Chapter 6 of the Dewey-Burdock FSEIS and in Chapter 7 of the GEIS for in-situ uranium recovery facilities. The Staff then evaluates, in Chapters 2 and 4 of the FSEIS and Chapter 4 of the GEIS, how these measures might reduce environmental impacts in various areas. The Staff's approach is supported by *Methow Valley*, and it is consistent with NEPA.

F. Contention 9

1. To what extent, if any, can the NRC rely upon analyses conducted by EPA or the State of South Dakota to fulfill its NEPA responsibilities?

As stated above in response to the questions for Contention 4, the CEQ's guidance encourages agencies to incorporate by reference in an EIS any information or analyses that are relevant to the agency's proposed action. 77 Fed. Reg. at 14,479. Furthermore, under NRC case law the Staff may properly give substantial weight to the findings of agencies acting within their authority. *Seabrook*, CLI-77-8, 5 NRC at 527; *Black Fox Station*, LBP-78-28, 8 NRC at 282.

As the Staff explains above, however, for the Dewey-Burdock FSEIS the Staff did not rely upon analyses conducted by either the EPA or the State of South Dakota to fulfill its NEPA responsibilities. The Staff did not rely on the EPA's analyses of Powertech's underground injection control permits because, when the Staff issued the FSEIS in January 2014, the EPA had not completed its analyses. The Staff did not rely on the SDDENR's analyses of Powertech's water rights applications because the issues the Staff considered in the FSEIS were broader than those

¹⁷ Recent Circuit Court decisions applying these principles include *Theodore Roosevelt Conservation Partnership v. Salazar*, 616 F.3d 497, 503 (D.C. Cir. 2010); *North Slope Borough v. Minerals Management Serv.*, 343 Fed. Appx. 272, 275 (9th Cir. 2009); and *Nat'l Parks & Conservation Ass'n v. U.S. Dep't of Trans.*, 222 F.3d 677, 681 n. 4 (9th Cir. 2000).

before the SDDENR. Nonetheless, the Staff incorporated the SDDENR's relevant findings by reference in the FSEIS, thereby informing readers of those findings. Ex. NRC-001 at A4.16–A4.18.

2. Are the permitting processes of other agencies adequate to assess baseline, potential impacts, or proposed mitigation issues required to be addressed in a FSEIS?

In some cases they may be. As stated above, under NRC case law the Staff may give substantial weight to the findings of agencies acting within their authority. *Seabrook*, CLI-77-8, 5 NRC at 527; *Black Fox Station*, LBP-78-28, 8 NRC at 282. The CEQ's guidance also encourages agencies to incorporate by reference the analyses of other agencies when preparing an EIS. 77 Fed. Reg. at 14,479. In addition, the CEQ permits agencies to adopt another agency's NEPA document, or a portion thereof, in certain cases. *Id.*

In the present case, none of these questions is directly relevant, because the Staff did not rely on the analyses of other agencies to provide a baseline description of the environment that could be affected by the Dewey-Burdock Project. Nor did the Staff rely on other agencies to assess the Project's potential impacts or measures that might mitigate those impacts. While the Staff took into account the available information from other agencies, the Staff prepared the FSEIS without relying on the findings reached by other agencies' permitting processes.

For example, regarding mitigation, in the FSEIS the Staff refers to legal standards that the EPA will apply when deciding whether to grant Powertech's applications for Class III and Class V underground injection control permits. Ex. NRC-001 at A9.2, A9.3, A9.6, A9.7. The Staff was not, however, relying on the EPA's permitting process to evaluate groundwater impacts or measures that might mitigate those impacts. Instead, the Staff referred to the EPA's permitting process and legal standards simply to explain how the Staff itself, in the Dewey-Burdock FSEIS, reached its conclusions regarding environmental impacts and mitigation measures. *Id.* As Haimanot Yilma and Kellee Jamerson explain throughout their testimony on Contention 9, the Staff's conclusions in these areas can be found in Chapters 2 and 4 of the FSEIS. Ex. NRC-001 at A9.1–A9.11.

3. Does NEPA require that the agency independently:

(a) identify and understand what the monitoring and mitigation measures will be?

As stated above, the Supreme Court has found that “a reasonably complete discussion of possible mitigation measures is an important ingredient of an EIS, and its omission therefrom would undermine NEPA's ‘action-forcing’ function.” *Methow Valley*, 490 U.S. at 352. Accordingly, the agency preparing an EIS must make an effort to identify measures that could mitigate adverse environmental impacts of the proposed action. Agencies also “may provide for monitoring to assure that their decisions are carried out and should do so in important cases.” 40 C.F.R. § 1505.3. When identifying mitigation and monitoring measures, the agency may consider an applicant’s compliance with environmental quality standards imposed by other federal, state, and local agencies with responsibility for environmental protection—in fact, the CEQ expressly encourages agencies to take into account such standards. 40 C.F.R. §§ 1502.16(h), 1505.2(c).

In the Dewey-Burdock FSEIS, the Staff thoroughly considers monitoring and mitigation measures. The Staff discusses monitoring measures in Chapter 7, “Environmental Measures and Monitoring Programs.” In this chapter the Staff summarizes the measures that will be taken in the following areas: radiological monitoring, physiochemical monitoring, ecological monitoring, land application monitoring, and Class V deep injection well monitoring. Ex. NRC-008-B-1 at 79–104. Regarding mitigation measures, the Staff discusses these measures in Chapters 2 and 4, with a table summarizing mitigation measures included in Chapter 6.

The Staff also identified monitoring and mitigation measures when preparing the GEIS for in-situ uranium recovery facilities. The Dewey-Burdock FSEIS is a supplement to the GEIS, and the GEIS is therefore part of the Staff’s analysis for the Dewey-Burdock Project. In the GEIS the Staff discusses monitoring measures in Chapter 8, “Environmental Monitoring Activities.” The Staff summarizes potential mitigation measures in Chapter 7, “Potential Best Management Practices, Mitigation Measures, and Management Actions to Mitigate Adverse Environmental Impacts.” The Staff then explains how these mitigation measures could be used to reduce adverse environmental

impacts in Chapter 4, “Environmental Impacts of Construction, Operation, Aquifer Restoration, and Decommissioning Activities.”

During the oral hearing, Judge Barnett questioned the Staff about the source of best management practices that the Staff identified as potential mitigation measures in the Dewey-Burdock FSEIS. Tr. at 1284. The best management practices that the Staff lists in the FSEIS are drawn from practices the Staff previously identified in Chapter 7 of the GEIS. Ex. NRC-010-B-1 at 110–114. In the GEIS, the Staff explains that it drew on a variety of sources to develop best management practices. See *Id.* at 110 (“The list [of best management practices] is based on historical best management practices and mitigation measures used for existing and planned ISL uranium recovery facilities (NRC, 1997, 1998, 2006a, 2006b; Energy Metals Corporation, U.S., 2007; WDEQ, 2007).”). Accordingly, although the Staff did not restate these references in the Dewey-Burdock FSEIS, the GEIS discloses the source of the best management practices to which the Staff refers.

In conclusion, the Staff thoroughly identified monitoring and mitigation measures that could be applied at the Dewey-Burdock Project. The Staff lists these measures in both the Dewey-Burdock FSEIS and the GEIS, and it explains how the measures can be used to reduce the environmental impacts of the Dewey-Burdock Project.

(b) assess and confirm that the mitigations will actually be implemented?

The applicable legal standard is whether the EIS reasonably describes possible mitigation measures and “discusses the extent to which adverse effects can be avoided.” *Methow Valley*, 490 U.S. at 352. While NEPA requires that an EIS discuss environmental impacts and consider the degree to which those impacts can be avoided, it does not require that mitigation measures be imposed or guaranteed. *Id.*

The situation is potentially different where an agency prepares an Environmental Assessment (EA) and reaches a finding of no significant impact (FONSI) that relies on mitigation measures. In this situation, at least one NRC Board has found that “there must be some

assurance that the mitigation measures constitute an adequate buffer against the negative impacts from the authorized activity to render such impacts so minor as to not warrant an EIS.” *Detroit Edison Co.* (Fermi Nuclear Power Plant, Unit 3), LBP-12-23, 76 NRC 445, 467 (2012) (internal citations omitted). This principle would not, however, apply in cases where the agency has prepared an EIS.

Recent guidance from the CEQ reiterates this point. *Final Guidance for Federal Departments and Agencies on the Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate Use of Mitigated Findings of No Significant Impact*, 76 Fed. Reg. 3,843 (January 21, 2011). The CEQ explains that detailed mitigation plans “should be developed and implemented when mitigation described in an EA serves as the basis for the FONSI (that is, the effects might be significant but for the proposed mitigation).” *Id.* at 3844. The CEQ further explains, however, that this rule applies only “where an agency chooses to base the use of less extensive NEPA analysis on mitigation[.]” *Id.*

In conclusion, because the Staff prepared an EIS for the Dewey-Burdock Project, the question is whether the Staff reasonably described possible mitigation measures and discussed the extent to which adverse effects can be avoided. *Methow Valley*, 490 U.S. at 352. The Staff did so in the Dewey-Burdock FSEIS, discussing mitigation measures at length throughout the document. Because the Dewey-Burdock FSEIS is a supplemental EIS, the Staff also incorporated by reference the numerous mitigation measures described in the GEIS for in-situ uranium recovery facilities. By thoroughly analyzing mitigation measures in both the FSEIS and GEIS, the Staff complied with NEPA.

(c) assess and confirm that [the mitigation measures] will be effective?

In its 2011 guidance, the CEQ also addresses when an agency must confirm that mitigation measures will be effective. The CEQ first notes that, under its regulations, agencies may “provide for monitoring to assure that their decisions are carried out and should do so in important cases.” 76 Fed. Reg. at 3,849 (citing 40 C.F.R. § 1505.3). The CEQ next states:

Accordingly, an agency should also commit to mitigation monitoring in important cases *when relying upon an EA and mitigated FONSI*. Monitoring is essential in those important cases where the mitigation is necessary to support a FONSI and thus is part of the justification for the agency's determination not to prepare an EIS.

Id. (emphasis added). The requirement that the agency confirm whether mitigation measures are effective therefore applies only where the agency relies on a mitigated FONSI. This requirement does not apply where, as for the Dewey-Burdock Project, the agency prepares an EIS for its proposed action.

Although neither the CEQ's rule at 40 C.F.R. § 1505.3 nor its 2011 guidance requires the Staff to do so, the Staff will nonetheless monitor the effectiveness of numerous mitigation measures identified in the Dewey-Burdock FSEIS. In Chapter 7 of the FSEIS, "Environmental Measures and Monitoring Programs," the Staff describes how it will "verify compliance with standards for the protection of worker health and safety in operational areas and for protection of the public and environment beyond the facility boundary." Ex. NRC-010-B-1 at 79. As the Staff explains, it has included conditions in Powertech's license capturing the mitigation measures described in the FSEIS that are within the NRC's regulatory authority. These license conditions require Powertech to conduct radiological monitoring, physiochemical monitoring, ecological monitoring, land application monitoring, and Class V deep injection well monitoring. *Id.* See also Ex. NRC-134 at 16–20 (listing facility-specific license conditions), 239–49 (listing general ISR license conditions).

Powertech must report the results of its monitoring to the Staff, and the Staff will review Powertech's reports to assess whether the mitigation measures captured in Powertech's license are effective. As Thomas Lancaster explained during the oral hearing, the Staff will also conduct periodic inspections to review whether Powertech is complying with its license conditions. Tr. at 1216–1217. In addition, the Staff will, as appropriate, take enforcement action to ensure that Powertech complies with these license conditions. Tr. at 1218–1220.

In conclusion, NEPA does not require the Staff to assess and confirm that the mitigation measures identified in the Dewey-Burdock FSEIS will be effective. The Staff will

nonetheless assess and confirm the effectiveness of the mitigation measures identified in the FSEIS that have been captured as conditions in Powertech's NRC license.

4. **In *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352–53 (1989) the Court recognized that some of the environmental effects discussed in the FEIS “cannot be mitigated unless nonfederal government agencies take appropriate actions,” but stated that “it would be incongruous to conclude that the [U.S.] Forest Service has no power to act until the local agencies have reached a final conclusion on what mitigating measures they consider necessary.” How does this decision and principle apply to this case?**

Methow Valley and the principle stated in this case support the Staff's position on Contention 9. In Contention 9, the Tribe argues that the Staff improperly deferred to the EPA and to South Dakota state agencies by not fully analyzing other actions related to Powertech's application for an NRC license. These actions include the issuance of various permits Powertech needs to operate injection wells at the Dewey-Burdock Project and dispose of waste generated during operations. In particular, the Tribe argues that the Staff failed to independently analyze measures that could be used to mitigate impacts from these other actions, relying instead on the EPA or South Dakota state agencies to identify such measures.

As the Staff has stated throughout the hearing, when preparing the FSEIS it did not defer to other agencies to assess impacts related to injection wells, waste disposal, or any other action. Ex. NRC-001 at A9.2, A9.3, A9.6, A9.7. Rather, the Staff simply *referred* to the permitting processes of other agencies to explain how the Staff itself determined what the likely impacts would be in a particular resource area. *Id.* The Staff also identified mitigation measures that agencies such as the EPA might foreseeably impose on Powertech's related permits, referring to the agencies' regulations and past practices for information in this area.

The only information the Staff did not provide in the FSEIS was the *actual* mitigation measures that agencies such as the EPA might impose in connection with Powertech's other permits. The Staff could only have provided such information, however, if it deferred issuing the FSEIS until every other agency with permitting authority over the Dewey-Burdock Project

completed its review. Nothing in NEPA required the Staff to defer issuing the FSEIS until then. As the Court in *Methow Valley* explained:

There is a fundamental distinction, however, between a requirement that mitigation be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated, on the one hand, and a substantive requirement that a complete mitigation plan be actually formulated and adopted, on the other.

490 U.S. at 352.

In conclusion, the Staff discussed mitigation measures in sufficient detail to explain how the Dewey-Burdock Project might affect the environment. As part of its discussion, the Staff considered mitigation measures, such as license conditions and land-use restrictions, that other agencies might foreseeably impose when granting Powertech a permit. Consistent with *Methow Valley*, the Staff did not need to defer issuing the FSEIS until other agencies adopted final mitigation plans for the Dewey-Burdock Project. Accordingly, the Staff's discussion of mitigation measures complies with NEPA.

Respectfully submitted,

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Dated at Rockville, Maryland
this 9th day of January 2015

January 9, 2015

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))	

CERTIFICATE OF SERVICE

Pursuant to 10 C.F.R. § 2.305, I certify that counsel for the NRC Staff served copies of the “NRC Staff’s Response to Post-Hearing Order” and “NRC Staff’s Proposed Findings of Fact and Conclusions of Law” via the NRC’s Electronic Information Exchange (EIE) on January 9, 2015. Counsel for the Staff served those representatives exempted from filing through the EIE with copies of its motion by electronic mail, also on January 9, 2015.

***/Signed (electronically) by/
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