

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	
)	
POWERTECH (USA) INC.,)	Docket No. 40-9091-MLA
)	ASLBP No. 10-898-02-MLA-BD01
(Dewey-Burdock In Situ Uranium Recovery)	
Family))	

NRC STAFF'S PROPOSED FINDINGS OF FACT
AND CONCLUSIONS OF LAW

Michael J. Clark
Patricia A. Jehle
Counsel for NRC Staff

January 9, 2015

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION.....	1
II. BACKGROUND.....	1
A. Powertech’s Proposed Action	3
B. Powertech’s Application.....	4
C. The Staff’s Safety Review	4
D. The Staff’s NEPA Review	4
E. The Staff’s NHPA Review.....	6
F. The Staff’s Record of Decision	8
III. PROCEDURAL HISTORY OF CONTENTIONS	9
IV. APPLICABLE LEGAL STANDARD	11
A. NEPA Standards.....	11
B. NHPA Standards.....	12
V. THE BOARDS RULINGS ON CONTENTIONS.....	14
A. Contention 1A: The Staff Complied With Laws Relating To the Protection of Cultural Resources	14
1. The Staff Took Appropriate Steps to Identify Cultural Resources that May Be Affected by the Dewey-Burdock Project	15
2. The Staff Permissibly Separated its NHPA Review from its NEPA Review.....	18
3. The Staff Complied with NEPA by Finalizing the Programmatic Agreement Before Issuing its Record of Decision.....	18
4. Conclusion	20
B. Contention 1B: The Staff Complied with the NHPA When Consulting with American Indian Tribes	20
C. Contention 2: The Staff Adequately Analyzed Baseline Groundwater Quality.....	22
1. The Intervenors Fail to Establish that the Needed to Include Background Groundwater Data in the FSEIS	23

2.	The Intervenor Fail to Show that the Staff Needed to Distinguish Between Naturally Occurring Contamination and Contamination From Past Mining Operations.....	25
3.	We Reject the Intervenor's Claim of Missing information Pertaining to Baseline Groundwater Quality	26
4.	The Intervenor Fail to Show the Staff Needed to Obtain Additional Information in Order to Assess Baseline Water Quality	28
5.	The EPA Documents Admitted as Exhibit OST-025 as Exhibit OST-026 Do Not Show Any Deficiency in the FSEIS	31
D.	Contention 3: The Staff Adequately Reviewed the Hydrogeology Of the Aquifers in which Powertech Plans to Operate	32
1.	Powertech's Future Submittal of Confirmatory Hydrogeologic Data Addressing Specific Wellfields Does Not Establish Any Deficiency In the FSEIS.....	33
2.	The Staff Adequately Considered Geologic or Hydraulic Features that May Allow Solutions to Migrate between Aquifers	34
3.	The Staff Sufficiently Evaluated Powertech's Ability to Contain the Migration of Contaminants from the Area of ISR Operations	40
4.	The Staff Adequately Characterized the Environment by Distinguishing Between Groundwater, Surface Water, Wetlands, and Other Water Sources	42
5.	The Staff Consulted and Adequate Range of Technical Sources When Assessing Impacts to Groundwater.....	43
E.	Contention 4: The Staff Complied with NEPA when Assessing the Quantity of Groundwater to be Used during the Dewey-Burdock Project.....	44
F.	Contention 6: The Staff Addressed Mitigation Measures as Required Under NEPA.....	46
1.	The FSEIS Adequately Addresses the Effectiveness of Mitigation Measures	47
2.	The Staff Did Not Need to Withhold Issuing the FSEIS until it Finalized the Programmatic Agreement	48
3.	The Staff Provided a Sufficient Opportunity for Tribes and Other Interested Persons to Comment on Mitigation Measures For Cultural Resources	50

4. The Staff Appropriately Considered Mitigation Measures that will be Developed by Other Agencies	50
5. The Staff Adequately Discussed Best Management Practices that Can be used as Mitigation Measures	52
6. The Staff Sufficiently Considered Mitigation Measures that Might be Applied to Alternative Actions.....	53
G. Contention 9: The Staff Analyzed Related Licensing Actions Consistent With the Requirements of NEPA	54
IV. CONCLUSIONS	56

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 PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

I. Introduction

1.1. The Atomic Safety and Licensing Board Panel issues its Initial Decision on Contentions 1A, 1B, 2, 3, 4, 6, and 9. In these contentions the Consolidated Intervenors and the Oglala Sioux Tribe (collectively, the Intervenors) challenge the Final Supplemental Environmental Impact Statement (FSEIS) the Staff prepared for Powertech (USA) Inc.'s proposed Dewey-Burdock Project.

1.2. Based on the evidentiary record in this hearing, including the testimony and exhibits the parties have submitted, the Board dismisses the contentions and affirms that the Staff's review of the Dewey-Burdock application complied with applicable law.

II. Background

A. Powertech's Proposed Action

2.1. In 2009, Powertech applied for an NRC license to be used in connection with the proposed Dewey-Burdock in-situ uranium recovery (ISR) facility in Fall River and Custer Counties, South Dakota.¹

2.2. Powertech's proposed uranium recovery method involves injecting lixiviant into an underground ore zone containing uranium deposits. The lixiviant will consist of groundwater charged with oxygen and carbon dioxide. As lixiviant is pumped through the ore zone, the uranium

¹ On April 8, 2014, the NRC Staff issued Powertech Source Material License No. SUA-1600. Ex. NRC-012.

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 recharged with oxygen and carbon dioxide and re-injected into the ore zone to repeat the cycle.

2.3. In order to conduct its ISR operations, Powertech plans to build a number of wellfields at both the Dewey and Burdock sites. ISR wellfields 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. Figures 2.1-7 and 2.1-8 in the Staff's Final Supplemental Environmental Impact Statement (FSEIS) for the Dewey-Burdock Project show typical well placement and wellfield patterns at ISR facilities.²

2.4. As is typical of ISR operations, Powertech will inject 0.5 to 3 percent less groundwater through its injection wells than it extracts through its production wells. This 0.5–3% difference, referred to as “bleed,” creates 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 groundwater into the wellfield and prevent lixiviant from flowing toward the monitor wells surrounding the ore zone. This procedure is also designed to prevent “excursions,” *i.e.*, the migration of lixiviant toward the surrounding aquifer.

2.5. The ore zone from which Powertech proposes to extract uranium is within the Inyan Kara Aquifer. The Inyan Kara is the shallowest of four major water resource aquifers in southwestern South Dakota. It is separated by confining layers from the underlying aquifer, the Minnelusa. Below the Minnelusa is the Madison and, below that, the Deadwood Aquifer.

2.6. The directional flow in these aquifers is generally southwestward and away from the central part of the Black Hills region. Figures 3.5-4 and 3.5-5 in the FSEIS, along with Section

² Exs. NRC-008-A-1 through NRC-008-B-2, NUREG-1910, Supplement 4, *Environmental Impact Statement for the Dewey-Burdock Project in Custer and Fall River Counties, South Dakota: Supplement to the Generic Environmental Impact Statement for In-Situ Leach Uranium Milling Facilities* (Vol. 1) (ADAMS Accession No. ML14024A477) (FSEIS) at 107–108.

3.5.3.2, provide overviews of the hydrogeology and stratigraphy underlying the Dewey-Burdock Project.³

B. Powertech's Application

2.7. As part of its application, Powertech submitted a Technical Report to show that it meets NRC safety requirements for granting a license.⁴

2.8. In Powertech's case, the applicable safety requirements are in 10 C.F.R. Part 20 and Part 40. These safety requirements include certain criteria in Appendix A to Part 40, which provides specific standards for operating uranium mills and disposing of waste material. Because an ISR facility like the Dewey-Burdock Project is not a conventional uranium mill, however, Powertech need not satisfy all the criteria in Appendix A in order to receive an NRC license.⁵

2.9. After Powertech submitted its Technical Report, it supplemented the report with responses to the Staff's requests for additional information (RAIs).⁶ This supplemental information included a four-volume submittal in June 2011. This information also included a Groundwater Model for the Dewey-Burdock Project that Powertech submitted in February 2012. 2.10.

Along with its license application, Powertech also submitted an Environmental Report addressing its proposed facility's impact on the environment.⁷

2.11. The Environmental Report, which is required by NRC regulations in 10 C.F.R. Part 51, helps inform the Staff's independent review of a license application and thereby helps the Staff meet the requirements of the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C.

§§ 4321 *et seq.*

³ Ex. NRC-008-A-1 at 203–204, 206–208.

⁴ Exs. APP-015-A through APP-015-V.

⁵ See *Hydro Resources, Inc.* (2929 Coors Road Suite 101 Albuquerque, New Mexico 87120), CLI-99-22, 50 NRC 3, 9 (1999) (“We agree that those requirements in Part 40, such as many of the provisions in Appendix A, that, by their own terms, apply only to conventional uranium milling activities, cannot sensibly govern ISL mining.”)

⁶ Exs. APP-016-A through APP-016-BB.

⁷ Exs. APP-040-A through APP-040-EE.

2.12. Since Powertech submitted its Environmental Report, it has provided additional information relevant to the Staff's NEPA review, including responses to the Staff's RAIs.⁸

C. The Staff's Safety Review

2.13. As with other applications for a new ISR license, the Staff conducted a safety review of Powertech's application. The Staff conducted its review to determine whether Powertech met the relevant criteria in 10 C.F.R. Parts 20 and 40.

2.14. After evaluating Powertech's application, as supplemented by its responses to the Staff's RAIs, the Staff found that Powertech met the safety criteria for granting a license.

2.15. The Staff documented its safety findings in a Safety Evaluation Report (SER) for the Dewey-Burdock Project. The Staff issued its SER in March 2013.⁹

D. The Staff's NEPA Review

2.16. The Staff also prepared a supplemental environmental impact statement (SEIS) in connection with Powertech's application.

2.17. The SEIS supplements NUREG-1910, "Generic Environmental Impact Statement for In-Situ Leach Uranium Milling Facilities."¹⁰ NUREG-1910 assesses the environmental impacts of ISR operations both generally and on a regional basis, with specific sections focusing on the Western South Dakota-Northeastern Wyoming Region, where Powertech's facility would be located.

2.18. On November 26, 2012, the Staff issued a draft version of the SEIS for public comment.¹¹ In the Draft SEIS (DSEIS), the Staff considered the impacts that might result from

⁸ Ex. APP-050. See also Powertech (USA) Inc.'s Response to the Request for Additional Information to Support the Environmental Review of its Application (August 26, 2010) (ADAMS Accession No. ML102380530); Powertech (USA), Inc.'s Responses to the U.S. Nuclear Regulatory Commission (NRC) Staff's Verbal and Email Requests for Clarification of Selected Issues Related to the Dewey-Burdock Uranium Project Environmental Review (November 4, 2010) (ADAMS Accession No. ML103140318).

⁹ Ex. NRC-135. In April 2014, the Staff issued a revised version of the SER, which corrected certain technical references. Ex. NRC-134.

¹⁰ Exs. NRC-010-A-1 through NRC-010-B-2.

¹¹ Exs. NRC-009-A-1 through NRC-009-B-2.

construction of the Dewey-Burdock facility and wellfields, ISR operations at the site, restoration of the aquifers associated with ISR operations, and decommissioning of the site.

2.19. The Staff prepared the DSEIS in cooperation with the U.S. Bureau of Land Management (BLM), which manages 240 acres of land within the Dewey-Burdock site.

2.20. When preparing the DSEIS the Staff also consulted with other federal and state agencies, including the U.S. Environmental Protection Agency (EPA), the South Dakota Department of Environment and Natural Resources (SDDENR), and the U.S. Fish and Wildlife Service.

2.21. In addition, the Staff consulted with numerous American Indian tribes in order to obtain information on culturally significant properties that may qualify for protection under the National Historic Preservation Act, 16 U.S.C. §§ 470 *et seq.* (NHPA).

2.22. When the Staff issued the DSEIS, it stated that there would be a 45-day period for the public to submit comments on the document. The Staff also explained, however, that it would attempt to consider any comments received after the formal comment period ended.

2.23. The Staff received 820 comments from 349 individuals and 31 agencies or organizations. In the end, the Staff was able to accept all comments received on or before March 5, 2013. The Staff therefore effectively provided a 99-day comment period on the DSEIS.¹²

2.24. On January 31, 2014, the Staff issued the FSEIS for the Dewey-Burdock Project.¹³

2.25. The FSEIS updated the information in the DSEIS and the Staff's analysis of environmental impacts. The FSEIS also added an Appendix E, which presents public comments on the DSEIS and the Staff's responses to the comments.

¹² Ex. NRC-008-B-2 at 376.

¹³ Exs. NRC-008-A-1 through NRC-008-B-2.

E. The Staff's NHPA Review

2.26. As required under the NHPA, the Staff evaluated how properties eligible for inclusion on the National Register of Historic Places (NRHP) may be affected by the Dewey-Burdock Project.

2.27. In early 2010, the Staff began consulting with numerous American Indian tribes regarding properties that could potentially be eligible for inclusion on the NRHP.¹⁴

2.28. Appendix A of the FSEIS includes correspondence of the Staff's consultation under the NHPA through November 2013.¹⁵ Table A-1 in Appendix A provides a chronology of the documents associated with the Staff's consultation. In addition, Exhibit NRC-015 provides an updated chronology that includes NHPA-related documents postdating the Staff's issuance of the FSEIS.¹⁶

2.29. As part of its consultation under the NHPA, the Staff arranged for a field survey of the Dewey-Burdock site.¹⁷ The Staff arranged for the survey so that each of the tribes with whom it was consulting could survey the Dewey-Burdock site for properties of religious or cultural significance to the tribe.

2.30. After consulting with the tribes regarding an appropriate methodology for a field survey, the Staff decided on an approach under which each tribe could send its own representatives to the Dewey-Burdock site. The tribal representatives could then survey the site using the methodology best suited to identifying properties significant to their tribes.

¹⁴ Ex. NRC-021, Initial Section 106 Letters to 17 Tribes Requesting Their Input on the Proposed Action (March 19, 2010).

¹⁵ Appendix A includes correspondence related to the Staff's consultation under other acts, such as the Endangered Species Act. The vast majority of the correspondence, however, relates to the Staff's NHPA consultation efforts.

¹⁶ Ex. NRC-015, Dewey-Burdock ISR Project Summary of Tribal Outreach.

¹⁷ Ex. NRC-068, Letter Transmitting a Follow-Up Email Pertaining to an Upcoming Field Survey for the Dewey-Burdock Project (ADAMS Accession No. ML13039A366) (February 8, 2013).

2.31. The Staff invited all consulting tribes to participate in the field survey of the Dewey-Burdock site. In April and May 2013, representatives from seven tribes conducted surveys at the site.

2.32. Several tribes later provided the Staff with information on significant properties at the site, along with their NRHP eligibility recommendations.¹⁸ The Staff used this information to assess how the Dewey-Burdock Project might affect cultural resources.

2.33. In November 2013, the Staff provided its impact assessments to all consulting tribes for comment.¹⁹

2.34. Because Powertech has proposed a phased approach to developing wellfields at the Dewey-Burdock site, an approach that is standard in the ISR industry, the Staff worked with the consulting parties to prepare a Programmatic Agreement for the site. Using a Programmatic Agreement in these circumstances is permitted by NHPA regulations.²⁰

2.35. The purpose of the Programmatic Agreement is to protect not only those historic and cultural properties that may be affected during the initial phase of the Dewey-Burdock Project, but to set forth an approach that will protect properties potentially affected by future phases of the project.

2.36. From August 2013 through April 2014, the Staff worked to prepare a Programmatic Agreement in consultation with the tribes, Powertech, the BLM, the ACHP, and the South Dakota Historic Preservation Office (SHPO).²¹ The Staff used the information provided by the consulting parties, including the field survey results, to develop the Programmatic Agreement.

¹⁸ Ex. NRC-018-B, Final Appendix for Dewey-Burdock Project PA (ADAMS Accession No. ML14066A350) at 8–49.

¹⁹ Ex. NRC-015 at 15.

²⁰ 36 C.F.R. § 800.4(b)(2).

²¹ Ex. NRC-015 at 13–17.

2.37. When preparing the Programmatic Agreement, the Staff also sent the consulting parties multiple draft versions of the Agreement in order to obtain their input at all stages of the Agreement's development.

2.38. On April 7, 2014, the Staff finalized the Programmatic Agreement for the Dewey-Burdock Project.²²

2.39. The signatories to the Programmatic Agreement include the NRC, Powertech, the BLM, the South Dakota SHPO, and the Advisory Council on Historic Preservation (ACHP).

2.40. Among other issues, the Programmatic Agreement discusses measures that will be used to mitigate impacts to historic or cultural resources that may be affected by the Dewey-Burdock Project. These measures are discussed throughout the Programmatic Agreement, as well as in Appendix B of the Agreement.²³

F. The Staff's Record of Decision

2.41. On April 8, 2014, the Staff issued its Record of Decision for the Dewey-Burdock application.²⁴

2.42. The Record of Decision is the final step for agencies in the EIS process.²⁵ The Record of Decision describes the agency's decision, identifies the alternatives it considered, and discusses mitigation plans.²⁶

2.43. Where the agency develops a Programmatic Agreement to resolve adverse effects to historic properties, the Agreement should be referenced in *either* the final EIS *or* the Record of Decision.²⁷

²² Exs. NRC-018-A through NRC-018-H.

²³ Exs. NRC-018-A, NRC-018-B.

²⁴ Ex. NRC-011, Dewey-Burdock Record of Decision.

²⁵ See Ex. NRC-048, *NEPA and NHPA, A Handbook for Integrating NEPA and Section 106* (CEQ and ACHP) at 35 ("The NEPA review may conclude with a CE, a FONSI, or a ROD. Under CEQ regulations, CEs, EAs, FONSI, and EISs are not decision documents.").

²⁶ 40 C.F.R. § 1505.2.

2.44. There is, however, no barrier to the agency using the Record of Decision, rather than the final EIS, to incorporate the Programmatic Agreement in its decisionmaking.²⁸

III. Procedural History of Contentions

3.1. In their hearing requests, the Intervenors submitted a total of 21 contentions raising a variety of safety and environmental challenges to Powertech's application.

3.2. We admitted seven of the Intervenors' original contentions.²⁹ These contentions related to cultural resources (Consolidated Intervenors' Contention A and Oglala Sioux Tribe's Contention 1), baseline groundwater quality (Contentions B and 2), hydrogeology (Contentions C and 3), and groundwater consumption (Contention 4).

3.3. After the Staff issued the DSEIS in November 2012, the Intervenors submitted 18 new or amended contentions.

3.4. We found that each of the Intervenors' previously admitted contentions challenged information in the DSEIS that was similar to information in Powertech's Environmental Report. Thus, we found that the contentions "migrated" from the Environmental Report to the DSEIS.³⁰ We also admitted three new contentions of the Oglala Sioux Tribe. We rejected the Intervenors' remaining contentions.

3.5. After we combined the Intervenors' related contentions and split two contentions into subparts, the admitted contentions were as follows:³¹

Contention 1A:	Failure to Meet Applicable Legal Requirements Regarding Protection of Historical and Cultural Resources.
----------------	--

²⁷ Ex. NRC-048 at 27.

²⁸ See Ex. NRC-048 at 35 ("Agencies should avoid issuing NEPA documents *that present a final agency decision* before they have completed their Section 106 process because the Section 106 process may result in a finding that requires the NEPA document to be revised or supplemented.") (emphasis added).

²⁹ *Powertech (USA), Inc.* (Dewey-Burdock In-Situ Uranium Recovery Facility), LPB-10-16, 72 NRC 361, 443–44 (2010).

³⁰ LBP-13-9, 78 NRC 37, 50–60 (2013).

³¹ The following list appears in Appendix A of our decision on the DSEIS-related contentions. LBP-13-9, 78 NRC at 116.

Contention 1B:	Failure to Involve or Consult All Interested Tribes as Required by Federal Law.
Contention 2:	The DSEIS Fails to Include Necessary Information for Adequate Determination of Baseline Ground Water Quality.
Contention 3:	The DSEIS Fails to Include Adequate Hydrogeological Information to Demonstrate Ability to Contain Fluid Migration and Assess Potential Impacts to Groundwater.
Contention 4:	The DSEIS Fails to Adequately Analyze Ground Water Quantity Impacts.
Contention 6:	The DSEIS Fails to Adequately Describe or Analyze Proposed Mitigation Measures.
Contention 9:	The DSEIS Fails to Consider Connected Actions.
Contention 14A:	Whether an appropriate consultation was conducted pursuant to the Endangered Species Act and implementing regulations.
Contention 14B:	Whether the DSEIS's impact analyses relevant to the greater sage grouse, the whooping crane, and the black-footed ferret are sufficient.

3.6. After the Staff issued the FSEIS, the Intervenor filed each of their previously admitted contentions. The Oglala Sioux Tribe also filed three new contentions.

3.7. We found that the Intervenor previously admitted contentions migrated from the DSEIS to the FSEIS and that these contentions remained in the hearing.³² We rejected, however, the Tribe's new contentions challenging the FSEIS.³³

3.8. On June 20, 2014, the Tribe voluntarily withdrew Contentions 14A and 14B, contentions for which they were the sponsoring party.³⁴

3.9. Based on the Tribe's withdrawal of Contentions 14A and 14B, on July 15, 2014 we dismissed these contentions from the hearing.³⁵

³² LBP-14-05, 79 NRC __ (2014) (slip op. at 28–30).

³³ *Id.* (slip op. at 30).

³⁴ Oglala Sioux Tribe's Statement of Position on Contentions (June 20, 2014) at 42.

³⁵ Order (Granting Request to Withdraw and Motion to Dismiss Contentions 14A and 14B) (July 17, 2014) at 2.

3.10. As a result of our rulings, the scope of this Initial Decision is limited to those issues that have been pled with particularity in Contentions 1A, 1B, 2, 3, 4, 6, and 9.³⁶

IV. Applicable Legal Standards

4.1. The following general standards apply to our review of the merits of the Intervenors' NEPA- and NHPA-related claims.

A. NEPA Standards

4.2. When preparing an EIS, the Staff must take a hard look at the environmental impacts of the proposed action.³⁷

4.3. The hard look standard is, however, subject to a “rule of reason.” Under NEPA’s rule of reason, the Staff need not address every environmental effect that could potentially result from the proposed action.³⁸ Rather, the Staff need only provide “[a] reasonably thorough discussion of the significant aspects of the probable environmental consequences[.]”³⁹

4.4. NRC precedent follows Circuit Court precedent in limiting the scope of the Staff’s NEPA review. “NEPA does not call for certainty or precision, but an *estimate* of anticipated (not unduly speculative) impacts.”⁴⁰ The proper inquiry is not whether an effect is “theoretically

³⁶ See *Southern Nuclear Operating Co.* (Early Site Permit for Vogtle ESP Site), CLI-10-05, 71 NRC 90, 100–01 (2010):

The scope of a contention is limited to issues of law and fact pled with particularity in the intervention petition, including its stated bases, unless the contention is satisfactorily amended in accordance with our rules. . . . Parties and licensing boards must be on notice of the issues being litigated, so that parties and boards may prepare for summary disposition or for hearing. Our procedural rules are designed to ensure focused and fair proceedings.

³⁷ *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989).

³⁸ *Ground Zero Ctr. for Non-Violent Action v. U.S. Dept. of the 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)).

³⁹ *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).

⁴⁰ *Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-05-20, 62 NRC 523, 536 (2005) (emphasis in original).

possible,” but whether it is “reasonably probable that the situation will obtain.”⁴¹ The Staff “need not address every impact that could possibly result, but rather only those that are reasonably foreseeable or have some likelihood of occurring.”⁴²

4.5. Furthermore, “[a]n environmental impact statement is not intended to be ‘a research document.’”⁴³ NEPA does not require the Staff to analyze every conceivable aspect of the proposed project.⁴⁴ NEPA also does not require the Staff to commit virtually infinite study and resources to a proposed project.⁴⁵ 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.”⁴⁶

B. NHPA Standards

4.6. Under Section 106 of the NHPA, an agency must consider the effects that granting a license will have on any property that is listed in, or eligible to be listed in, the National Register of Historic Places.

4.7. To help implement this mandate, the NHPA established the ACHP. The ACHP is charged with enforcing Section 106 and issuing implementing regulations.⁴⁷

4.8. Under the ACHP’s implementing regulations, an agency must make a “reasonable and good faith effort” to identify properties eligible for inclusion on the NRHP.⁴⁸

⁴¹ *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-455, 7 NRC 41, 49 (1978).

⁴² *Southern Nuclear Operating Co.* (Early Site Permit for Vogtle ESP Site), LBP-09-07, 69 NRC 613, 631 (2009).

⁴³ *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-22, 72 NRC 202, 208 (2010) (citing *Town of Winthrop v. FAA*, 533 F.3d 1, 13 (1st Cir. 2008)).

⁴⁴ *Private Fuel Storage L.L.C.*, (Independent Spent Fuel Storage Installation), CLI-02-25, 56 NRC 340, 349 (2002).

⁴⁵ *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 315 (2010) (footnote omitted).

⁴⁶ *Id.*

⁴⁷ The NHPA’s implementing regulations are at 36 C.F.R. Part 800.

⁴⁸ Ex. NRC-047, *Meeting the “Reasonable and Good Faith” Identification Standard in Section 106 Review* (ACHP).

4.9. A “reasonable and good faith effort” at identifying properties may involve approaches such as background research, sample field investigations, or field surveys.⁴⁹

4.10. The agency need not, however, identify every historic property within a project’s area of potential effects.⁵⁰ Nor does the agency need to conduct on-the-ground surveys of this entire area.⁵¹ In addition, the agency does not need to conduct investigations outside the area of potential effects.⁵²

4.11. Once the agency has identified properties potentially eligible for the NRHP, it assesses whether there will be adverse effects to these properties and attempts to resolve any adverse effects.⁵³

4.12. An agency may conclude its NHPA review through several means, one of which is a programmatic agreement.⁵⁴

4.13. A programmatic agreement is a document that spells out the terms of a formal, legally binding agreement between a federal agency and other interested agencies or persons.

4.14. A programmatic agreement may be used to implement the Section 106 process in situations where the effects to historic properties cannot be fully determined prior to the approval of an undertaking, such as where an applicant proposes a phased approach to developing its project.⁵⁵ In such cases, the programmatic agreement establishes a process for consultation, review, and compliance with the NHPA.

⁴⁹ *Id.* at 1 (referring to 36 C.F.R. § 800.4(b)(1)).

⁵⁰ Ex. NRC-047 at 2 (“While it may be appropriate in some circumstances to identify all historic properties in the [area of potential effects], it is important to note that the regulations *do not require* identification of all properties.”) (emphasis in original).

⁵¹ *Id.* at 3.

⁵² *Id.*

⁵³ 36 C.F.R. §§ 800.4, 800.5.

⁵⁴ 36 C.F.R. § 800.4(b)(2).

⁵⁵ See *Hydro Resources, Inc.*, LBP-05-26, 62 NRC 442, 449 (2005) (“To this end, the regulations permit “phased compliance” with section 106 that is “consistent with the . . . schedule for the undertaking” (citing 36

4.15. An agency may choose to coordinate its NHPA review with any NEPA review the agency is conducting. This approach allows an agency to use its draft EIS, for example, to obtain public input on its preliminary findings under both NEPA and the NHPA.

4.16. An agency need not coordinate these two processes, however, and the agency may decide to issue separate NEPA and NHPA documents.⁵⁶

4.17. Under guidance published jointly by the ACHP and the Council on Environmental Quality (CEQ),⁵⁷ this approach is permissible as long as the agency finalizes its NHPA review before issuing its Record of Decision for the proposed action.⁵⁸

V. The Board's Rulings on Contentions

5.1. We find that the Staff prepared the Dewey-Burdock FSEIS and Programmatic Agreement consistent with the requirements of NEPA and the NHPA. For the reasons stated below, we dismiss Contentions 1A, 1B, 2, 3, 4, 6, and 9.

A. Contention 1A: The Staff Complied with Laws Relating to the Protection of Cultural Resources

5.2. In Contention 1A, the Intervenors argue that the Staff failed to comply with laws designed to protect cultural resources, namely NEPA and the NHPA.

5.3. After weighing the evidence and arguments submitted by the parties, we find that the Staff complied with all requirements of NEPA and the NHPA that could be considered protective of cultural resources.⁵⁹

C.F.R. § 800.3(c)).

⁵⁶ Ex. NRC-048 at 29 (“[W]here a high level of public controversy or complex procedural issues have emerged over the potential impacts to historic properties, an agency might recognize the benefit of keeping the review processes separate so that attention can be focused on managing and resolving discrete controversies.”).

⁵⁷ The CEQ is the agency charged with issuing regulations and guidance implementing NEPA.

⁵⁸ See Ex. NRC-048 at 28 (“When there is a need to resolve adverse effects to historic properties, the agency develops mitigation measures that are typically memorialized in the signed MOA or PA. These documents should be included in the final EIS or ROD.”).

⁵⁹ Neither NEPA nor the NHPA requires an agency to protect all cultural resources. NEPA requires that an agency consider how its proposed action may affect the environment, but it does not impose substantive

1. The Staff Took Appropriate Steps to Identify Cultural Resources that May Be Affected by the Dewey-Burdock Project

5.4. The Intervenors' primary claim is that the Staff failed to conduct a competent survey of cultural resources that may be affected by the Dewey-Burdock Project. We reject this argument. There have been several surveys of the site, and the Intervenors fail to call into question the competency of any survey.

5.5. As part of its application, Powertech submitted a Class III archeological survey of the Dewey-Burdock site.⁶⁰ A Class III archeological survey involves a new, professionally conducted, thorough pedestrian survey of an entire target area to identify properties that may be eligible for inclusion on the National Register of Historic Places.⁶¹ This intensive, on-the-ground survey describes the distribution of properties in an area; determines the number, location and condition of properties; determines the types of properties actually present within the area; permits classification of individual properties; and records the physical extent of specific properties.⁶²

5.6. During its NEPA and NHPA reviews, the Staff also considered other assessments that are relevant to cultural resources.⁶³ For example, in 2011 Powertech conducted evaluative testing of 20 sites within the Dewey-Burdock boundary.⁶⁴

5.7. In 2013 the Staff, in consultation with the South Dakota SHPO and other consulting parties, assessed potential visual impacts to historic properties within a reasonable distance of the Dewey-Burdock site.⁶⁵ The Staff also assessed auditory impacts to such sites.⁶⁶

requirements on the agency. The NHPA, on the other hand, requires that the agency follow a process that is designed to protect properties eligible for inclusion on the National Register of Historic Places.

⁶⁰ Ex. APP-009, Level III Cultural Resources Evaluation of Powertech (USA) Inc.'s Proposed Dewey-Burdock Uranium Project (Public Version), Vol. 3 Part 6; ML100670366.

⁶¹ *Montana Wilderness Assn. v. United States Department of Interior*, 725 F.3d 988, 1005–06 (2013) (citing *BLM Manual 8110* (Release 8–73, Dec. 3, 2004)).

⁶² *Id.*

⁶³ Ex. NRC-001 at A1.3–A1.5, A1.7–A1.8.

⁶⁴ Exs. NRC-136-A through NRC-136-C, Palmer, L. and J.M. Kruse, *Evaluative Testing of 20 Sites in the Powertech (USA) Inc. Dewey-Burdock Uranium Project Impact Areas*.

5.8. In response to input from consulting tribes, the Staff also facilitated field surveys of the Dewey-Burdock site so that tribes could identify traditional cultural properties of significance to them.⁶⁷ The Staff invited each of the consulting tribes to participate in the field surveys. In April and May 2013, representatives from seven American Indian tribes conducted field surveys of the Dewey-Burdock site.⁶⁸

5.9. The Intervenors argue that the results of the tribal field surveys from 2013 should be disregarded because the participating tribal representatives allegedly did not conduct the surveys using any scientifically valid methodology. This claim lacks support. In its testimony, Staff witnesses Haimanot Yilma and Kellee Jamerson explain that the tribal representatives conducted the field surveys using conventional transect survey methods.⁶⁹ The tribal representatives used global positioning system equipment to record sites of significance to their tribes, photographed the sites, and took descriptive field notes. The Intervenors do not cite any standard under which these surveys would be found inadequate to identify cultural resources of significance to the tribes who participated in the surveys.⁷⁰

⁶⁵ Ex. NRC-008-A-1 at 263–265; Ex. NRC-008-A-2 at 483–487; Ex. NRC-018-B at 4, 6, 12–13; Ex. NRC-026. During the oral hearing, Powertech witness Dr. Lynne Sebastian also discussed the areas involved in the visual impacts analysis. Tr. at 872–873.

⁶⁶ Ex. NRC-008-A-1 at 4, Ex. NRC-008-A-2 at 487.

⁶⁷ Ex. NRC-018-B at 16–21.

⁶⁸ Ex. NRC-019, *Summary Report Regarding the Tribal Cultural Surveys Completed for the Dewey-Burdock Uranium In Situ Recovery Project*.

⁶⁹ Ex. NRC-001 at A.1.3, A1.7, A1.8. Ms. Yilma also discussed the tribal survey methodology during the oral hearing. Tr. at 811, 820–821, 874.

⁷⁰ The Intervenors' suggestion that the tribal field surveys lacked a suitable methodology is undermined by the positions the Oglala Sioux Tribe and other consulting tribes have taken on NHPA-related issues. See, e.g., Ex. NRC-064, Letter from John Yellow Bird Steele, President of the Oglala Sioux Tribe, Re: Refusal to Accept Dewey-Burdock In Situ Project Proposal (November 5, 2012) at 2 ("It is self-evident that each tribe will have expertise in recognizing its own sacred sites. *The Oglala Sioux Tribe strongly objects to the use of persons without any expertise in Sioux TCP to identify Sioux TCP.*") (emphasis in original). The Staff received similar input from a number of other tribes. E.g., Ex. NRC-065 (November 6, 2012) at 1, ¶ 1; Ex. NRC-066 (October 31, 2012) at 2, ¶ 2.

5.10. Moreover, the ACHP's guidance on identifying historic sites does not direct any particular methodology for a field survey. Nor does the ACHP's guidance even require an agency to arrange for the type of field survey that the Staff facilitated in this case.⁷¹

5.11. Neither NEPA nor the NHPA required the Staff to obtain all possible information on historic resources before reaching a decision on Powertech's application. Under NEPA, the Staff had to take a "hard look" at how the Dewey-Burdock Project may affect cultural resources. Under the NHPA, the Staff had to make a "good faith and reasonable effort" at identifying sites eligible or potentially eligible for the NRHP.

5.12. The Staff complied with NEPA by making repeated attempts to obtain information on cultural resources and by including mitigation measures in the Programmatic Agreement that will help avoid or limit impacts to any unidentified resources.⁷²

5.13. The Staff also complied with the NHPA. During its approximately four years of consultation with tribes and other parties, the Staff repeatedly sought to obtain information on cultural resources that may be affected by the Dewey-Burdock Project. The Staff made a reasonable and good faith attempt to obtain such information, as reflected by both the ACHP's and the South Dakota SHPO's decisions to sign the Programmatic Agreement for the Dewey-Burdock Project.⁷³

5.14. Accordingly, we find that the Staff's assessment of cultural resources complied with both NEPA and the NHPA.

⁷¹ Ex. NRC-047.

⁷² Ex. NRC-018-B at 13–24. See also Ex. NRC-015 (listing Staff's efforts to obtain information for use in the Programmatic Agreement).

⁷³ Exs. NRC-018-E, NRC-018-G.

2. The Staff Permissibly Separated Its NHPA Review from Its NEPA Review

5.15. The Intervenor argues that the Staff violated NEPA and the NHPA when, in November 2013, it separated its NEPA and NHPA reviews. The Intervenor does not, however, establish a violation of either statute.

5.16. When the Staff issued the DSEIS in November 2012, it was using its NEPA process to satisfy the public participation requirements of the NHPA. This approach, referred to as “substitution,” is permitted under NHPA regulations.⁷⁴

5.17. In November 2013, the Staff separated its NEPA and NHPA processes.⁷⁵ This approach is also permitted under NHPA regulations.⁷⁶ The Staff notified the consulting parties in advance that it would be separating the two processes, complying with ACHP and CEQ guidance in this area.⁷⁷

5.18. The Intervenor thus fails to show any NEPA or NHPA violation resulting from the Staff’s decision to separate the two processes.

3. The Staff Complied with NEPA by Finalizing the Programmatic Agreement before Issuing Its Record of Decision

5.19. The Intervenor argues that the Staff violated NEPA because, when the Staff issued the FSEIS, it was still consulting on a Programmatic Agreement for the Dewey-Burdock Project. The Intervenor claims that the Staff violated NEPA because the mitigation measures specified in the Programmatic Agreement were not included within a NEPA document.

5.20. We reject the Intervenor’s argument. The Staff’s Record of Decision, not the FSEIS, is the document with which the Staff concluded its NEPA review.⁷⁸ The Staff did not issue its

⁷⁴ 36 C.F.R. § 800.8. See also Ex. NRC-048 at 29–33 (describing the substitution process).

⁷⁵ Ex. NRC-070.

⁷⁶ See Ex. NRC-048 at 32 (“Terminating the Substitution Process”).

⁷⁷ Ex. NRC-048 at 32, Ex. NRC-069.

⁷⁸ See Ex. NRC-048 at 35 (stating that “an agency must complete the NEPA and Section 106 reviews before signing a decision document” but explaining that “[u]nder CEQ regulations, CEs, EAs, FONSI, and EISs are

Record of Decision until April 8, 2014, after it finalized the Programmatic Agreement for the Dewey-Burdock Project. Accordingly, the Staff did not violate either NEPA or the NHPA, because it finalized the Programmatic Agreement while its NEPA process remained open.

5.21. The Intervenors cite federal court decisions holding that an agency cannot defer its consideration of mitigation measures until after the NEPA process is complete. These cases are inapposite, because in this case the Staff finalized the Programmatic Agreement *before* issuing the Record of Decision, its NEPA decision document.

5.22. The Intervenors also cite the Commission's decision in *Hydro Resources*, CLI-99-22, as support for their arguments. The Intervenors incorrectly claim that in *Hydro Resources* the Commission "eventually excused the NRC Staff's NEPA violations where a post-EIS analysis and [NHPA] review was completed before licensing."⁷⁹ In fact, the Commission found no fault with the Staff continuing its NHPA review after it finalized the EIS, because the Staff had not yet issued a license to the applicant.⁸⁰ The same situation is presented here, where the Staff issued Powertech a license only after finalizing the Programmatic Agreement for the Dewey-Burdock Project.

5.23. The Intervenors further argue that, even if the Programmatic Agreement is incorporated in the Record of Decision, this does not satisfy NEPA, because a Record of Decision is not a NEPA document.

5.24. We disagree. Guidance from the Council on Environmental Quality (CEQ), the agency charged with implementing NEPA, confirms that a Record of Decision is a NEPA document.⁸¹ Furthermore, under the CEQ's guidance an agency may incorporate mitigation measures from a Programmatic Agreement in either its final EIS *or* its Record of Decision.⁸²

not decision documents."). See *also Id.* at 17 ("Only the ROD is a decision document under the CEQ regulations.").

⁷⁹ Tribe's Initial Statement of Position at 36 (citing *Hydro Resources, Inc.* (2929 Coors Road, Suite 101, Albuquerque, NM 87120), CLI-99-22, 50 NRC 3, 14 (1999)).

⁸⁰ *Id.* at 13–14.

⁸¹ Ex. NRC-048 at 17, 35.

5.25. In sum, we reject the Intervenor's claim that the Staff violated NEPA by issuing the FSEIS before finalizing the Programmatic Agreement.

4. Conclusion

5.26. We find that the Staff complied with all provisions of NEPA and the NHPA that are relevant to protecting cultural resources. Accordingly, we dismiss Contention 1A.

B. Contention 1B: The Staff Complied with the NHPA When Consulting with American Indian Tribes

5.27. The Intervenor's argue that the Staff failed to consult with all interested tribes as required by the NHPA. In particular, the Intervenor's argue that the Staff failed to make a good faith effort to seek information from consulting tribes.

5.28. The Intervenor's acknowledge, however, that "[t]he Advisory Council on Historic Preservation ("ACHP"), the independent federal agency created by Congress to implement and enforce the NHPA, has exclusive authority to determine the methods for compliance with the NHPA's requirements."⁸³

5.29. In this case the ACHP found that the Staff met the NHPA's consultation requirements, as did the South Dakota SHPO. We find that the concurrence of the ACHP and South Dakota SHPO on the Programmatic Agreement is strong evidence that the Staff consulted as required under the NHPA.⁸⁴

5.30. In any event, there is ample other evidence that the Staff consulted extensively under the NHPA, including Exhibit NRC-015, which is a 17-page summary that captures many of the Staff's consultation efforts.

⁸² See *Id.* at 28 ("When there is a need to resolve adverse effects to historic properties, the agency develops mitigation measures that are typically memorialized in the signed MOA or PA. These documents should be included in the final EIS or ROD.").

⁸³ Tribe's FSEIS Contentions (Ex. OST-012) at 11; Tr. at 860–861.

⁸⁴ Exs. NRC-018-E, NRC-018-G.

5.31. The Intervenors further argue that the Staff began consulting with tribes too late, citing an ACHP regulation stating that the federal agency “shall ensure that the section 106 [consultation] process is initiated early in the undertaking’s planning.”⁸⁵

5.32. The Staff began formally consulting with tribes in March 2010, however, and thereafter consulted with tribes for approximately four years before finalizing its NHPA review. In addition, before the Staff began formal consultations with tribes, the Staff offered to meet with the leadership of the Oglala Sioux Tribe during a December 2009 meeting in Rapid City, South Dakota.⁸⁶

5.33. The Intervenors do not cite to any court decision, regulation, or guidance document showing that for the Dewey-Burdock Project the Staff began consulting with tribes too late. The ACHP guidance document cited by the Intervenors contains only general statements to the effect that agencies should consult with tribes “early and often.”⁸⁷

5.34. For the Dewey-Burdock application, the Staff began NHPA consultations approximately three months after it announced its intent to prepare a SEIS for the application, and four years before it finalized the Programmatic Agreement.⁸⁸ The Staff therefore began consultations early in its review of the Dewey-Burdock application and complied with the NHPA.

5.35. Finally, the Intervenors argue that the Staff failed to consult with the tribes on a government-to-government basis and failed to fulfill the NRC’s trust responsibility to the tribes.

5.36. The Intervenors do not, however, cite any standards to support their claim that the Staff failed to consult on a government-to-government basis. The Intervenors do not, for example,

⁸⁵ 36 C.F.R. § 800.8(a)(1).

⁸⁶ Ex. NRC-015 at 1, Ex. NRC-018-B at 14, Tr. at 770–771.

⁸⁷ Tribe’s FSEIS Contentions (Ex. OST-012) at 12.

⁸⁸ The Staff submitted its Notice of Intent to prepare an SEIS to the Federal Register on January 12, 2010. Ex. NRC-015 at 2.

allege that the Staff consulted with unauthorized tribal representatives, nor do they allege that the Staff failed to correspond with tribal leaders on significant issues within the scope of the NHPA.⁸⁹

5.37. The Intervenor likewise fail to cite any law, court decision, or guidance document stating that the federal government's trust responsibility to tribes required the Staff to take particular action when consulting on the Dewey-Burdock Project. In fact, the case law clarifies that the Staff had no specific responsibilities when reviewing the Dewey-Burdock application, other than to comply with applicable law.⁹⁰

5.38. In conclusion, we find that the Staff consulted with American Indian tribes as required under the NHPA. We therefore dismiss Contention 1B.

C. Contention 2: The Staff Adequately Analyzed Baseline Groundwater Quality

5.39. The Intervenor challenge the FSEIS's analysis of baseline groundwater quality in the Dewey-Burdock area. The Intervenor rely on three declarations from Dr. Robert Moran, along with Dr. Moran's rebuttal testimony.⁹¹ The Intervenor also rely on a declaration from Dr. Richard Abitz that the Tribe submitted with its hearing request.⁹²

5.40. For the reasons stated below, we find that the Staff analyzed baseline groundwater quality to the extent required under NEPA. The Staff did so by reviewing the information in Powertech's Environmental Report and Technical Report, requesting additional information in

⁸⁹ As reflected in Exhibit NRC-015, the Staff sent numerous letters to the president of each consulting tribe regarding NHPA-related issues. See also Ex. NRC-018-B at 13–14, 22. The Staff also held an NHPA consultation meeting in South Dakota specifically for tribal leaders. Ex. NRC-143.

⁹⁰ See *Gros Ventre Tribe v. United States*, 469 F.3d 801 (9th Cir. 2006) ("We recognize that there is a 'distinctive obligation of trust incumbent upon the Government in its dealings with [Indian tribes].' That alone, however, does not impose a duty on the government to take action beyond complying with generally applicable statutes and regulations.") See also *Shoshone-Bannock Tribes v. Reno*, 56 F.3d 1476, 1482 (D.C. Cir. 1995) ("[A]n Indian tribe cannot force the government to take a specific action unless a treaty, statute or agreement imposes, expressly or by implication, that duty."); *Morongo Band of Mission Indians v. FAA*, 161 F.3d 569, 574 (9th Cir. 1998) (holding that "unless there is a specific duty that has been placed on the government with respect to Indians, [the government's general trust obligation] is discharged by [the government's] compliance with general regulations and statutes not specifically aimed at protecting Indian tribes.").

⁹¹ Dr. Moran's Declarations are included within Exhibits OST-001, OST-011 (at 378–410), and OST-012 (at 44–131). Exhibit OST-018 is Dr. Moran's rebuttal testimony.

⁹² Dr. Abitz's Declaration is part of Ex. OST-011.

numerous areas, and evaluating Powertech's RAI responses. Based on this information, the Staff characterized the environment potentially affected by the Dewey-Burdock Project and evaluated how the Project might affect baseline groundwater quality.

1. The Intervenors Fail to Establish that the Staff Needed to Include Background Groundwater Data in the FSEIS

5.41. The Intervenors argue that the Staff violated NEPA because the FSEIS does not consider background groundwater data from monitoring wells at the Dewey-Burdock site. The Intervenors argue that although under its license Powertech must obtain such data before beginning ISR operations in specific wellfields, these data should have been included in the Staff's NEPA analysis.

5.42. As Staff witnesses James Prikryl and Thomas Lancaster explain in their testimony, "baseline" water quality data differ from "background" data.⁹³ Baseline water quality describes existing groundwater conditions at an ISR site. Baseline data must be submitted to the NRC under 10 C.F.R. § 51.45(b), which requires that the applicant submit an Environmental Report describing the affected environment. Baseline data must also be submitted under Criterion 7 in Appendix A of 10 C.F.R. Part 40, which states that an ISR applicant must conduct preoperational monitoring for at least one year prior to major site construction.

5.43. Background groundwater data, on the other hand, are used to characterize the quality of groundwater collected from designated wells at an ISR site. These wells are used by an ISR licensee to generate background data before operations in a wellfield begin, as required under Criterion 5B(5) in Appendix A. The background data are not used to characterize the ISR environment generally, but to establish standards for aquifer restoration and upper control limits (UCLs) for excursion monitoring once activities in the wellfield have ceased.⁹⁴

⁹³ Ex. NRC-001 at A2.13.

⁹⁴ *Id.* at A2.17.

5.44. Although the NRC does not require the applicant to submit background data with its application, this does not mean the NRC lacks sufficient information to consider an ISR project's impacts under NEPA.⁹⁵ The baseline data an applicant must submit under § 51.45(b) and Criterion 7 of Appendix A, combined with the applicant's responses to the Staff's RAIs on groundwater quality, allow the Staff to evaluate the quality of groundwater that may be affected by ISR activities and determine how those activities might reasonably affect water quality.

5.45. Our finding is supported by Commission precedent on this very issue. As the Commission explained in *Hydro Resources*, the Staff's use of license conditions to obtain additional water-quality data for an ISR facility is consistent with NEPA.⁹⁶ 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.⁹⁷

5.46. 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.⁹⁸ 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.⁹⁹ This argument is, however, foreclosed by *Hydro Resources*.

⁹⁵ Ex. NRC-001 at A2.3.

⁹⁶ *Hydro Resources, Inc.* (P.O. Box 777, Crownpoint, NM 87313), CLI-06-01, 63 NRC 1, 5–6 (2006).

⁹⁷ 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).

⁹⁸ Ex. NRC-012 at 8–9.

⁹⁹ See, e.g., Ex. OST-018 at 4 (arguing that Powertech needs to provide complete water-quality data at the pre-license stage).

5.47. In conclusion, the Staff did not need to consider background data of the type required under Criterion 5B(5) when preparing the FSEIS. Although the Intervenor argue that the Staff is allowing Powertech to defer collecting necessary data until after the FSEIS has been issued, the Staff does not need the data in question in order to comply with NEPA.

2. The Intervenor Fail to Show that the Staff Needed to Distinguish between Naturally Occurring Contamination and Contamination from Past Mining Operations

5.48. The Intervenor argue that when evaluating baseline groundwater quality at the Dewey-Burdock site the Staff needed to describe the extent to which past uranium mining activities affected water quality. Specifically, in paragraphs 57 and 60 of his Supplemental Declaration, Dr. Moran argues that the Staff needed to distinguish between naturally occurring contamination and residual contamination from past mining. Dr. Moran also argues, in paragraph 61, that Table 3.5-4 of the FSEIS, which presents baseline groundwater samples exceeding maximum contaminant levels, is misleading because it does not identify which sites are contaminated as a result of past mining.

5.49. The Intervenor do not show any violation of NEPA. As Staff witnesses James Prikryl and Thomas Lancaster explain in their testimony, the baseline data in the FSEIS provide a general description of the *existing* environmental conditions in the Dewey-Burdock Project area.¹⁰⁰ The Intervenor are essentially arguing that the Staff needed to include *pre-baseline* data in the FSEIS's discussion of baseline groundwater quality. Such data are not, however, necessary to determine how the Dewey-Burdock Project itself may affect groundwater quality.

5.50. This does not mean, however, that the Staff failed to consider the impacts of past mining activities in the Dewey-Burdock area. In Chapter 5 of the FSEIS, the Staff discusses cumulative effects,¹⁰¹ including effects potentially related to past mining activities in the Dewey-

¹⁰⁰ Ex. NRC-001 at A2.4 through A2.6.

¹⁰¹ "Cumulative effect" is the impact on the environment which results from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions. 40 C.F.R. § 1508.7.

Burdock region.¹⁰² Cumulative effects are not, however, within the scope of Contention 2. To the extent the Intervenor objected to the Staff's analysis of cumulative impacts from past mining, they were required to raise this issue in their contentions on the DSEIS or FSEIS.¹⁰³

5.51. In conclusion, the Staff complied with NEPA by evaluating baseline groundwater quality at the Dewey-Burdock site. The Staff also evaluated cumulative impacts from past mining in the Dewey-Burdock area. When evaluating baseline groundwater quality, however, the Staff did not need to distinguish between naturally occurring contamination and contamination linked to past mining activities.

3. We Reject the Intervenor's Claim of Missing Information Pertaining to Baseline Groundwater Quality

5.52. The Intervenor argues that the FSEIS omits relevant information in several areas. Specifically, in paragraph 61 of his Supplemental Declaration, Dr. Moran argues that Table 3.5-4 of the FSEIS omits important groundwater constituents, as well as groundwater samples with values below the maximum contaminant levels (MCLs). In paragraph 62, Dr. Moran argues that the Staff's discussion of baseline data fails to include all the constituents listed in Table 2.7.3.1 of NUREG-1569 and Table 7.3-1 of the FSEIS.

5.53. We find that the Staff considered all these items in its review, thus taking the "hard look" at environmental information required by NEPA. As James Prikryl and Thomas Lancaster explain in their testimony, Table 3.5-4 includes baseline data on the groundwater constituents that are most important for assessing environmental impacts: arsenic, lead, uranium, radium-226, and gross alpha.¹⁰⁴ Although the table does not refer to constituents such as selenium, sulfate, and sodium, the Staff discusses these constituents in Section 3.5.3.5 of the FSEIS, "Groundwater

¹⁰² Ex. NRC-001 at A2.4.

¹⁰³ We previously rejected the Tribe's DSEIS Contention 7, which challenged the Staff's analysis of cumulative effects. LBP-13-9, 78 NRC 37, 71–72 (2013).

¹⁰⁴ Ex. NRC-001 at A2.6, A2.7.

Quality.”¹⁰⁵ Although Table 3.5-4 also does not address sample values below the MCLs, the table’s title explains that it is not intended to address such values (The table is titled “. . . Samples with Values Exceeding the [MCL] . . .”).¹⁰⁶ As Mr. Prikryl and Mr. Lancaster explain in their testimony, the Staff prepared Table 3.5-4 “so that the reader can easily understand which wells have or do not have constituents exceeding primary drinking water standards as provided by EPA regulations at 40 C.F.R. Part 141.”¹⁰⁷ In any event, Powertech’s application provides information on sample values below the MCLs, and the Staff considered this information in preparing the FSEIS.¹⁰⁸

5.54. In their testimony, Mr. Prikryl and Mr. Lancaster also address Dr. Moran’s claim that the Staff failed to consider all chemical constituents listed in NUREG-1569 and FSEIS Table 7.3-1.¹⁰⁹ The Staff did not refer to these constituents in FSEIS Section 3.5.3.5 for the same reason it did not refer to these constituents in Table 3.5-4; that is, because in Section 3.5.3.5 the Staff intended to provide a summary of baseline water quality and a review of constituents that are most relevant to assessing environmental impacts. This does not mean, however, that the Staff failed to consider the other chemical constituents in its environmental review. In fact, Powertech’s application contained analyses of these very constituents, and Powertech’s submitted certain analyses in response to the Staff’s RAIs on groundwater quality.¹¹⁰

¹⁰⁵ Ex. NRC-008-A-1 at 212.

¹⁰⁶ *Id.* at 211.

¹⁰⁷ Ex. NRC-001 at A2.6.

¹⁰⁸ Ex. APP-015-V at Appendix 3.4-C “Groundwater Quality Data”; and Ex. APP-015-L at Appendix 2.7-G, “Groundwater Quality Summary Tables.”

¹⁰⁹ *Id.* at A2.7.

¹¹⁰ Ex. APP-015-V at Appendix 3.4-C; Ex. APP-015-L at Appendix 2.7-G.

5.55. While NEPA requires that the Staff consider relevant environmental information, it does not require the Staff to repeat all this information in the FSEIS.¹¹¹ In the FSEIS sections relevant to baseline groundwater quality, the Staff refers extensively to the Powertech documents containing the information cited by Dr. Moran, thus satisfying its obligation to disclose relevant information. The Intervenor therefore fail to establish any NEPA violation.

4. The Intervenor Fail to Show the Staff Needed to Obtain Additional Information in Order to Assess Baseline Water Quality

5.56. The Intervenor argue that the FSEIS should have included additional information in several areas relevant to assessing baseline groundwater quality. In paragraph 62 of his Supplemental Declaration, Dr. Moran argues that the listing of baseline constituents should include analyses of pregnant solutions resulting from leach testing of ores and lixivants. In paragraphs 66–68, Dr. Moran recommends additional or alternative methods for collecting and analyzing groundwater samples that, in his view, would improve data quality. In paragraph 74, Dr. Moran argues that although the FSEIS includes baseline data from all known wells within at least two kilometers of the Dewey-Burdock boundary, this distance should have been extended to two miles.

5.57. NEPA requires the Staff to obtain baseline information not as a research exercise, but so that the NRC can evaluate the reasonably foreseeable environmental impacts of the Dewey-Burdock Project.¹¹² Although Dr. Moran calls for additional information in several areas, he fails to explain why this information is necessary from a NEPA standpoint. Regarding the first alleged deficiency, the Staff did not need for Powertech to conduct leach testing in order to assess how baseline conditions might be affected by ISR operations. Instead, the Staff took into account Table 2.2-1 of the GEIS, which provides a list of constituents and water-quality parameters that are expected to increase as the result of ISR activities and which may cause environmental

¹¹¹ See *Pilgrim*, CLI-10-22, 72 NRC at 208 (“An environmental impact statement is not intended to be ‘a research document’”) (citation omitted).

¹¹² *Pilgrim*, CLI-10-22, 72 NRC at 208.

concerns.¹¹³ Because the Staff had previously considered the issue raised by Dr. Moran on a generic basis, it did not need to obtain the results of leach rate testing in order to evaluate the environmental impacts of the Dewey-Burdock Project.

5.58. The Intervenors likewise fail to show that the Staff should have required Powertech to collect and analyze groundwater samples using different methods, or that the Staff should have insisted on baseline data for all wells within two miles, as opposed to two kilometers, of the Dewey-Burdock area. In both cases, Powertech collected data consistent with Staff guidance.¹¹⁴

Powertech's sampling and analytical methods follow the procedures described in Section 2.7.3 of the Standard Review Plan for ISR applications, NUREG-1569.¹¹⁵ Powertech's collection of data from wells within two kilometers, as opposed to two miles, of the Dewey-Burdock boundary is consistent with guidance in Regulatory Guide 4.14.¹¹⁶ In fact, because the NRC developed the two-kilometer guideline to address possible contamination from tailings areas at conventional uranium mills, the two-kilometer guideline provides a conservative testing protocol for ISR sites.¹¹⁷ This is because the wellfield bleed at an ISR site, with the associated inward hydraulic gradient,

¹¹³ Ex. NRC-001 at A2.7, A2.15.

¹¹⁴ Ex. NRC-001 at A2.8, A2.12.

¹¹⁵ Ex. NRC-013 at Section 2.7.3 (pages 60–65). This section provides guidance that is relevant to an ISR applicant's submittal of both its Technical Report and Environmental Report. In other words, Section 2.7.3 explains how an applicant can comply with 10 C.F.R. § 51.45(b), which requires that the applicant submit an Environmental Report that provides, among other information, "a description of the environment affected." See Ex. NRC-013 at Section 2.7.4 (page 65) (explaining that if the applicant submits the listed information, the Staff may conclude that the applicant has complied with 10 C.F.R. § 51.45).

¹¹⁶ Ex. NRC-074. At page 3, the NRC refers to the two-kilometer guideline. Like NUREG-1569, the NRC developed Regulatory Guide 4.14 with a view toward obtaining information that is relevant to assessing both the safety and environmental impacts of a proposed project. On page 2, the NRC states, "Information on radiation doses and the radionuclides in a mill's effluents and environment both prior to and during operations is needed by the NRC staff: . . . 4. To evaluate the environmental impact of milling operations, both during operations and after decommissioning." In other words, the NRC found the 2-kilometer guideline relevant for obtaining information to support both the Staff's safety *and* environmental reviews.

¹¹⁷ Ex. NRC-001 at A2.16.

presents less risk of contaminating neighboring groundwater than the continuing sources of contamination at a mill tailings disposal area.¹¹⁸

5.59. Although the Intervenor refers to Regulatory Guide 4.14 as “outdated,” that appears to be solely because it was issued in 1980. The Intervenor does not cite any later studies calling into question the Regulatory Guide’s recommendation that applicants gather groundwater data from wells and other sources of drinking water within two kilometers of a proposed site. In fact, as the Staff explains in its testimony,¹¹⁹ the two-kilometer guideline was validated by NUREG/CR-6705, “Historical Case Analysis of Uranium Plume Attenuation” (2001).¹²⁰ In this NUREG the Staff found that the average radiological plume dispersion at a mill tailings site was less than two kilometers for the 10–20 ppb contour (including both upgradient and downgradient dispersion). The dispersion of nonradiological contaminants was even more limited. In addition to NUREG/CR-6705, the Staff examined the dispersion of contaminants in a 2009 memorandum, “Staff Assessment of Ground Water Impacts from Previously Licensed In-Situ Uranium Recovery Facilities.”¹²¹ The Staff found no reported instance of contamination of any private well either within or beyond two kilometers of any ISR wellfield operating, either historically or currently, under an NRC license.¹²²

5.60. In conclusion, the Staff obtained sufficient information to describe the affected environment and evaluate how the Dewey-Burdock Project might affect groundwater quality. The Staff therefore complied with NEPA.

¹¹⁸ *Id.*

¹¹⁹ Ex. NRC-001 at A2.12.

¹²⁰ Ex. NRC-076.

¹²¹ Ex. NRC-091.

¹²² Ex. NRC-001 at A2.3, A2.12, A2.15.

5. The EPA Documents Admitted as Exhibit OST-025 and Exhibit OST-026 Do Not Show Any Deficiency in the FSEIS

5.61. We have also considered whether Exhibits OST-025 and OST-026 call into question the Staff's analysis in the FSEIS. Exhibit OST-025 is a two-page announcement stating that the EPA has completed a Preliminary Assessment of the Darrow/Freezeout/Triangle abandoned uranium mines, which are partially within the Dewey-Burdock site. Exhibit OST-026 is the Preliminary Assessment itself. Both documents are from September 2014. The Tribe argues that these documents "support [their] contentions that additional sampling and additional data is necessary to competently characterize the existing environment."¹²³

5.62. As Staff witnesses James Prikryl and Thomas Lancaster explain in their testimony (Ex. NRC-174), the EPA arranged for the Preliminary Assessment to determine whether it might be responsible for cleanup of the Darrow/Freezeout/Triangle area under the Comprehensive Environmental Response, Compensation, and Liability Act, (CERCLA), 42 U.S.C. §§ 9601–9628. The EPA was not determining whether the NRC or any other agency needed additional information to comply with NEPA.¹²⁴ In fact, the EPA makes clear that the Preliminary Assessment "is separate from decisions about the [Dewey-Burdock] ISR Project or its underground injection control permits."¹²⁵

5.63. The Preliminary Assessment does not present new information concerning the Darrow/Freezeout/Triangle area. As Mr. Prikryl and Mr. Lancaster explain, the analytical data used in the Preliminary Assessment were taken from Powertech's Technical Report, and these data are consistent with the data in the FSEIS.¹²⁶

¹²³ Oglala Sioux Tribe's Motion to Admit Additional Exhibits (October 14, 2014) at 3. Although the Tribe claims the EPA's analysis "supports a common component of Contentions 2, 3, 4, and 6," *id.*, we find that the Tribe's arguments relate most closely to Contention 2. We are therefore addressing the Tribe's arguments in the context of this contention.

¹²⁴ Ex. NRC-174 at A6, A7, A9.

¹²⁵ Ex. OST-025 at 2.

¹²⁶ Ex. 174 at A10, A11, A13, A14, A15.

5.64. We find nothing in Exhibit OST-025 or OST-026 suggesting that the Staff failed to comply with NEPA. Furthermore, none of the EPA's comments on the Draft SEIS for the Dewey-Burdock Project raised concerns about potential contamination associated with the Darrow/Freezeout/Triangle area.¹²⁷ Accordingly, we find that Exhibits OST-025 and OST-026 fail to support the Tribe's position in the hearing.

5.65. In conclusion, we find that the Staff adequately considered the baseline quality of groundwater in the Dewey-Burdock area. The Staff complied with NEPA, and we therefore dismiss Contention 2.

D. Contention 3: The Staff Adequately Reviewed the Hydrogeology of the Aquifers in which Powertech Plans to Operate

5.66. The Intervenor's argue that the FSEIS does not sufficiently describe the hydrologic and geologic setting of the Dewey-Burdock area. They argue that more information is needed in order to assess how the Dewey-Burdock Project may affect surface water and groundwater. The Intervenor's rely on the declarations and testimony of Dr. Moran and Dr. LaGarry.

5.67. Contrary to the Intervenor's' claims, the evidence shows that the Staff adequately considered the hydrogeologic setting of the Dewey-Burdock Project. The Staff specifically considered geologic features such as faults, fractures, breccia pipes, abandoned wells, and historic exploration boreholes that could potentially provide hydrogeologic connections between aquifers.¹²⁸ In the FSEIS the Staff also describes the processes by which Powertech, once it begins ISR operations in specific wellfields, will obtain additional data that is relevant to assessing connections between aquifers.¹²⁹ With this information, the Staff evaluated the reasonably foreseeable effects of the Dewey-Burdock Project on groundwater resources, thus complying with NEPA.

¹²⁷ Ex. NRC-174 at A12 (citing Ex. NRC-008-B-2, Appendix E, Comment Document No. 049).

¹²⁸ Ex. NRC-001 at A3.1, A.3.8.

¹²⁹ Ex. NRC-001 at A3.4.

5.68. Below, we provide our findings on specific arguments the Intervenor has offered in support of Contention 3.

1. Powertech's Future Submittal of Confirmatory Hydrogeologic Data Addressing Specific Wellfields Does Not Establish Any Deficiency in the FSEIS

5.69. As in Contention 2, the Intervenor argues that the FSEIS is incomplete because it does not include certain information that, by license condition, Powertech will be required to submit in the future. In this case, the Intervenor argues that the aquifer pumping tests and delineation drilling that Powertech must conduct under License Condition 10.10 should be performed now, so that the results may be considered in the FSEIS.

5.70. As the Staff explained through its testimony, and as the Commission acknowledged in *Hydro Resources*, CLI-06-01, 63 NRC at 5–6, it is standard practice for ISR licensees to submit wellfield hydrogeologic data packages after license issuance but before operating in a specific wellfield.¹³⁰ In order to begin principal activities in a new wellfield, these data packages must confirm that production and injection wells are hydraulically connected to perimeter zone monitoring wells. These packages must also confirm that production and injection wells are hydraulically isolated from nonproduction zone monitoring wells. In Powertech's case, License Condition 10.10 specifically describes the information Powertech must include in its wellfield data packages.

5.71. The requirement that an ISR licensee submit additional data before operating in specific wellfields does not mean, however, that when preparing the FSEIS the Staff lacked information required to comply with NEPA. Under NRC regulations, an ISR applicant must submit detailed baseline information on the hydrogeologic setting of its proposed site.¹³¹ In this case, Powertech submitted extensive information describing the hydrogeology of the Dewey-Burdock area. The Staff considered this information when preparing the FSEIS, and it also reviewed

¹³⁰ Ex. NRC-001 at A3.9.

¹³¹ 10 C.F.R. § 51.45.

relevant information from numerous other sources.¹³² In addition, the Staff included a condition in Powertech's license, License Condition 10.10, which specifically describes the information Powertech must submit for Staff review before beginning principal activities in a new wellfield.¹³³

5.72. Based on the information Powertech submitted as part of its application, the information the Staff considered while independently reviewing Powertech's application, and the limitations imposed by License Condition 10.10, we find that the Staff complied with NEPA by evaluating the reasonably foreseeable impacts of the Dewey-Burdock Project. We find that the Staff's approach here is consistent with Commission precedent and with NEPA generally.¹³⁴

2. The Staff Adequately Considered Geologic or Hydraulic Features that May Allow Solutions to Migrate between Aquifers

5.73. The Intervenors argue that the Staff did not sufficiently consider geologic or hydraulic features at the Dewey-Burdock site that may allow solutions to migrate between aquifers. These features include faults, fractures, historic exploration borings, abandoned wells, breccia pipes, and the directional flow of groundwater. We find, however, that the Staff adequately considered each of these features.

5.74. As Mr. Prikryl and Mr. Lancaster explain in their testimony, there are numerous FSEIS sections in which the Staff addresses features that may provide hydraulic connections between aquifers.¹³⁵ For example, the Staff addresses these issues in FSEIS Section 3.4.1.2, "Dewey-Burdock Geology." This section includes subsections on "Artificial Penetrations" and "Breccia Pipes," as well as subsections addressing other relevant features of the Dewey-Burdock stratigraphy. In Section 3.4.3, "Seismology," the Staff addresses faults in the Dewey-Burdock

¹³² Ex. NRC-001 at A3.19.

¹³³ The Staff discusses License Condition 10.10 in FSEIS Section 2.1.1.1.2.3.4 (Ex. NRC-008-A-1 at 112). For proposed Burdock wellfields 6, 7, and 8, Powertech must not only submit hydrogeologic test packages but obtain NRC approval before beginning extraction in the wellfields. In addition to including the information required for other wellfields, Powertech's test packages must address the partially unsaturated conditions of the Chilson Aquifer in Burdock wellfields 6, 7, and 8.

¹³⁴ *Hydro Resources*, CLI-06-01, 63 NRC at 5–6.

¹³⁵ Ex. NRC-001 at A3.9, A3.15, A3.24.

area. As the Staff explains, “according to the USGS Quaternary Fault and Fold Database, no capable faults (active faults) with surface expression occur within a 100-km [62-mi] radius from the center of the proposed site[.]”¹³⁶

5.75. The Staff also addresses the possibility that oil and gas wells in the Dewey-Burdock area may provide communication between aquifers.¹³⁷ The Staff addresses this issue in Section 3.2.3, “Minerals and Energy.” In addition, the Staff considers the interbedded and inter-fingering nature of sediments within the Fall River and Lakota Formations, which host the Dewey-Burdock ore zone.¹³⁸ The Staff addresses this issue in Section 2.1.1.1.2.3.2, “Monitoring Wells.” The Staff explains that, in some areas of the Dewey-Burdock site, “multiple orebodies are vertically stacked within the Fall River Formation or the Chilson Member of the Lakota Formation with no substantial confining layers between the orebodies.”

5.76. In Section 3.5.3.2 of the FSEIS, “Aquifer Systems in the Vicinity of the Proposed Dewey-Burdock Project,” the Staff addresses the directional flow of groundwater in relevant aquifers.¹³⁹ As the Staff explains, Figures 2.7-14 and 2.7-15 in Powertech’s Technical Report show that groundwater in the Fall River and Chilson Aquifers flows from northeast to southwest in the Dewey-Burdock area. The Staff concludes that the directional groundwater flow at the Dewey-Burdock site “is consistent with regional groundwater flow; regional flow moves outward radially from the Black Hills, which results in northeast-to-southwest regional flow in the general vicinity of the proposed project site.”

5.77. In addition to addressing these geologic or hydraulic features in various chapters of the FSEIS, in Appendix E the Staff responds to related public comments.¹⁴⁰ In Section E5.21.2,

¹³⁶ Ex. NRC-008-A-1 at A3.19, A3.25.

¹³⁷ Ex. NRC-001 at A3.8, A3.11.

¹³⁸ Ex. NRC-001 at A3.9.

¹³⁹ Ex. NRC-001 at A3.3, A3.5.

¹⁴⁰ Ex. NRC-001 at A3.1, A3.5.

“Concerns About In-Situ Recovery and Groundwater Contamination,” the Staff discusses the possibility of cross-contamination between aquifers at the Dewey-Burdock site.¹⁴¹ The Staff discusses breccia pipes, faults, fractures, and other relevant features.

5.78. We have also considered the evidence the parties submitted concerning historic Tennessee Valley Authority (TVA) well log data pertaining to the Dewey-Burdock site. Powertech acquired certain TVA data before it submitted its license application, and it used those data to support its application. Powertech acquired additional TVA data in 2014, and it disclosed the data to the other parties on September 13, 2014.

5.79. We provided each party the opportunity to submit additional evidence concerning the TVA data Powertech disclosed on September 13, 2014. The Staff submitted testimony and exhibits on October 13, 2014 (Exs. NRC-158 through NRC-173) and additional testimony on December 9, 2014 (Ex. NRC-175). The Oglala Sioux Tribe submitted testimony and exhibits on November 21, 2014 (Exs. OST-029 through OST-041). Powertech submitted testimony on October 24, 2014 (Exs. APP-072 and APP-073) and testimony and exhibits on December 4, 2014 (Exs. APP-074 through APP-088).

5.80. Four Staff witnesses had a role in reviewing the additional well log data that Powertech disclosed to the parties on September 13, 2014: James Prikryl, Thomas Lancaster, Paul Bertetti, and Ronald McGinnis. Ex. NRC-158 at A3, A5. The Staff first compared the digitized borehole logs on the DVD that Powertech provided to all parties with the locations listed in Appendix 2.6-A of Powertech’s Technical Report.¹⁴² The Staff then conducted an onsite review of well logs at Powertech’s headquarters in Edgemont in order to evaluate the validity of the structure and isopach maps presented in its revised Technical Report.¹⁴³

¹⁴¹ Ex. NRC-008-B-2 at 499–507.

¹⁴² Ex. NRC-158 at A5, A6; Ex. NRC-175 at A24.

¹⁴³ Ex. NRC-158 at A5, A6; Ex. NRC-175 at A24.

5.81. During its review, the Staff focused on specific statements Powertech made in support of its application, as well as specific claims the Intervenors' experts made in support of Contention 3.¹⁴⁴ For example, the Staff considered whether there is evidence of significant displacement or thickness variations that could confirm the presence of faulting or fracturing of the Fuson Shale. The Staff also reviewed logs to help evaluate claims that Dr. LaGarry and Dr. Moran had made concerning secondary porosity, breccia pipes, and sinkholes.¹⁴⁵

5.82. The Staff and Dr. LaGarry took different approaches to reviewing the well log data that Powertech disclosed on September 13, 2014. The Staff focused its review on the borehole geophysical logs—the gamma and resistivity logs—that were relevant to evaluating the claims made by the Intervenors in Contention 3.¹⁴⁶ These geophysical logs provide quantitative information about subsurface geology that can be used by geologists and hydrologists to map geologic units.¹⁴⁷ These logs are generated using calibrated instruments that provide reliable information on subsurface stratigraphy, such as the location of formation contacts and formation thicknesses.¹⁴⁸

5.83. Dr. LaGarry and his assistants, on the other hand, focused their review not on the geophysical logs, but on the drillers' notes accompanying the logs.¹⁴⁹ As the Staff explains, however, drillers' notes cannot be relied upon to evaluate structural features such as faults and fractures.¹⁵⁰ This is in part because drillers' notes are typically recorded by the driller himself,

¹⁴⁴ Ex. NRC-158 at A7; Ex. NRC-175 at A24, A27.

¹⁴⁵ Ex. NRC-158 at A9, A10; Ex. NRC-175 at A24.

¹⁴⁶ Ex. NRC-175 at A24, A27.

¹⁴⁷ *Id.* at A8.

¹⁴⁸ *Id.*

¹⁴⁹ Ex. OST-029 at 2.

¹⁵⁰ Ex. NRC-175 at A7.

rather than by a trained geologist.¹⁵¹ *Id.* In addition, the quality of drillers' notes varies depending on the drillers' knowledge of the local subsurface geology, the quality of the cuttings, and the driller's experience in interpretation.¹⁵²

5.84. During the August 19–21, 2014 oral hearing, the Intervenor's experts stressed the importance of reviewing Powertech's recently acquired geophysical logs.¹⁵³ Furthermore, in his declaration accompanying the Tribe's October 9, 2014 motion for an extension of time to submit testimony on the well logs, Dr. LaGarry again emphasized the importance of geophysical logs.¹⁵⁴ Accordingly, the statements of the Intervenor's own experts support the Staff's decision to focus its review on the geophysical logs Powertech made available on September 13, 2014.

5.85. Even if drillers' notes were a reliable guide to structural features such as faults and fractures, the particular notes submitted by the Tribe as exhibits provide minimal support for their position. Dr. LaGarry cites drillers' notes referring to open boreholes and artesian flow in the Dewey-Burdock area.¹⁵⁵ The Staff was fully aware of these issues when it prepared the FSEIS, however, and it considered them when assessing the environmental impacts of the Dewey-Burdock Project. Ex. NRC-175 at A10 through A15. The Staff also considered issues such as open boreholes and artesian flow when developing Powertech's license conditions and other mitigation measures. *Id.*

5.86. Dr. LaGarry also points to certain drillers' notes as evidence of faulting or fractures in the Dewey-Burdock area. As the Staff explains, however, these notes are not

¹⁵¹ *Id.*

¹⁵² *Id.*

¹⁵³ Tr. at 940–942, 1069, 1075.

¹⁵⁴ See Declaration at 2 ¶ 9 (stating that a review of the geophysical logs “may provide a sufficient number of data points for me to create stratigraphic cross-sections and geologic maps that support the Oglala Sioux Tribe and Consolidated Intervenor's position that there is a lack of adequate confinement”).

¹⁵⁵ Ex. OST-029 at 3.

strong evidence that such features exist.¹⁵⁶ In some of the drillers' notes cited by Dr. LaGarry, there is a question mark after the word "fault" or "fault-fracture"; in another note, the word "probable" precedes the word "fault."¹⁵⁷ Although Dr. LaGarry interprets the statement "very broken up and caving" in another drillers' note as evidence of faulting, the note more likely refers to disruption of sandstone units during drilling.¹⁵⁸ Furthermore, while Dr. LaGarry interprets references to "offsets" or "displacements" in three drillers' notes as evidence of faulting, the notes provide no other information concerning the possible offsets or displacements, nor do they mention the geologic formations affected by these features.¹⁵⁹

5.87. Accordingly, even if the drillers' notes were a reliable guide to structural features in the Dewey-Burdock area, they would provide minimal support for the Tribe's arguments in Contention 3.

5.88. In addition to reviewing the well log data that Powertech disclosed on September 13, 2014, the Staff reviewed the well log data and related conclusions that Powertech presented in its application. As Mr. Prikryl and Mr. Lancaster explain in their testimony, Powertech constructed the structure and isopach maps in its revised Technical Report using information from over 1,800 well logs.¹⁶⁰

5.89. When preparing the FSEIS, the Staff closely evaluated the structure and isopach maps Powertech presented in its revised Technical Report.¹⁶¹ The Staff focused on these maps in order to assess the environmental impacts that site-specific geologic and hydrologic features could

¹⁵⁶ Ex. NRC-175 at A16, A17.

¹⁵⁷ *Id.* at A16.

¹⁵⁸ *Id.*

¹⁵⁹ *Id.*

¹⁶⁰ Ex. NRC-175 at A23.

¹⁶¹ *Id.*

have on groundwater resources.¹⁶² Accordingly, when preparing the FSEIS the Staff carefully considered what the well log data available at that time showed regarding the potential environmental impacts of the Dewey-Burdock Project.

5.90. In conclusion, we find that the Staff adequately considered Powertech's well log data. The Staff reviewed Powertech's Technical Report, which incorporated data from over 1,800 well logs, when preparing the FSEIS. When new well log data became available in September 2014, the Staff reviewed the data to test the conclusions in the FSEIS and the claims made by the Intervenor's experts.

5.91. We also find that the Staff considered each of the other geologic features that, according to the Intervenor's, the Staff allegedly overlooked. The Staff considered these features when assessing the environmental impacts of the Dewey-Burdock Project, and it also considered these features when developing the conditions in Powertech's license.¹⁶³ Accordingly, we find that the Staff complied with NEPA.

3. The Staff Sufficiently Evaluated Powertech's Ability to Contain the Migration of Contaminants from the Area of ISR Operations

5.92. The Intervenor's argue that the Staff did not adequately consider whether Powertech will be able to prevent contaminants from migrating outside the ore zone. The Intervenor's rely on the opinion of Dr. Moran, who makes this claim in paragraph 34 of his Supplemental Declaration and in his testimony.

5.93. Contrary to Dr. Moran's claim, the Staff considers this issue at length in the FSEIS.¹⁶⁴ The Staff recognizes that for the Dewey-Burdock Project, as for any ISR project, there is the potential for contaminants to migrate outside the ore zone. The Staff discusses the historical

¹⁶² *Id.* See also Tr. at 942–947 (testimony of Mr. Prikryl discussing the Staff's review of well log data incorporated in Powertech's application).

¹⁶³ For example, License Condition 10.10(B) requires that before Powertech begin extraction in Burdock wellfields 6, 7, or 8 it submit for Staff review and approval "aquifer test results that address the partially unsaturated conditions of the Chilson Aquifer in these wellfields." Ex. NRC-012 at 9.

¹⁶⁴ Ex. NRC-001 at A3.5, A3.11.

data on these types of excursions in GEIS Section 2.11.4 and summarizes these data in Section E5.13.3 of the Dewey-Burdock FSEIS, “Historic Operational Experience: Excursions, Spills, and Leaks.”¹⁶⁵ The Staff also discusses specific features in the Dewey-Burdock area that are relevant to Powertech’s ability to limit excursions. The six-page discussion of “Excursions and Groundwater Quality” in FSEIS Section 4.5.2.1.1.2.2 directly addresses these issues.¹⁶⁶

5.94. Furthermore, in FSEIS Section 4.5.2.1.1.2.2 the Staff discusses commitments Powertech has made to identify additional features, such as improperly plugged boreholes, that may provide pathways for excursions.¹⁶⁷ As the Staff explains, Powertech “will use available information and best professional practices—including historical records, color infrared imagery, field investigations, and potentiometric surface evaluation—to locate or detect improperly plugged boreholes or wells in the vicinity of potential wellfield areas.”¹⁶⁸ Powertech will also use the results of pumping tests it conducts when developing wellfield hydrogeologic packages to identify improperly plugged wells and exploration boreholes.¹⁶⁹

5.95. Finally, in several FSEIS sections the Staff discusses the monitoring programs Powertech will employ to detect—and once detected, remediate—any excursions. For example, the Staff discusses these programs in Section 2.1.1.1.2.3.2, “Monitoring Wells”; Section 2.1.1.1.3.1.3, “Excursion Monitoring”; and Section 7.3.1.2, “Excursion Monitoring.”¹⁷⁰

5.96. In conclusion, we find that the Staff complied with NEPA by adequately considering Powertech’s ability to limit the flow of contaminants from the zone of ISR operations.

¹⁶⁵ Ex. NRC-010-A-1 at 140–142; Ex. NRC-008-B-2 at 468–469.

¹⁶⁶ Ex. NRC-008-A-2 at 365–371.

¹⁶⁷ Ex. NRC-008-A-2 at 370.

¹⁶⁸ *Id.*

¹⁶⁹ *Id.*

¹⁷⁰ Ex. NRC-008-A-1 at 110–111, 125–126; Ex. NRC-008-B-1 at 88–90.

4. The Staff Adequately Characterized the Environment by Distinguishing between Groundwater, Surface Water, Wetlands, and Other Water Sources

5.97. The Intervenor's argue that the FSEIS does not adequately describe groundwater or surface water resources in the Dewey-Burdock area. The Intervenor's further argue that the FSEIS's discussion of these issues is at times unclear or inconsistent. The Intervenor's rely on Dr. Moran's opinion, in particular paragraphs 54 through 56 of his Supplemental Declaration.

5.98. We do not agree with Dr. Moran's claim that the FSEIS is unclear or inconsistent in describing water resources. For example, although Dr. Moran argues that the Staff discusses waters in abandoned mine pits as if they were surface waters, the relevant FSEIS sections prove otherwise. In particular, the Staff explains that the bottom of the Triangle Pit, and possibly the bottom of Darrow Pit #2, are below the potentiometric surface of the Fall River Formation.¹⁷¹ As a result, the bottom of the Triangle Pit is, and the bottom of Darrow Pit #2 may be, hydraulically connected to the Fall River Formation. In other words, the water in the bottom of these mine pits is not surface water, and the Staff did not describe this water as surface water in the FSEIS.

5.99. Dr. Moran also argues that, although the Staff describes several water-filled mine pits on the Dewey-Burdock site, these mine pits do not appear on a map of the Dewey-Burdock site obtained through color infrared (CIR) imagery. According to Dr. Moran, this means the CIR studies are incomplete. As the Staff explains, however, the water-filled mine pits are, in fact, visible on the CIR imagery maps.¹⁷² Specifically, these mine pits can be seen in Figure TR RAI 2.7-9-1, which Powertech submitted in response to the Staff's RAIs.

5.100. In conclusion, we find no support for the Intervenor's claim of alleged omissions in the FSEIS. Instead, we find that the Staff complied with NEPA by adequately describing water resources in the FSEIS.

¹⁷¹ Ex. NRC-001 at A3.15.

¹⁷² Ex. NRC-001 at A3.16.

5. The Staff Consulted an Adequate Range of Technical Sources when Assessing Impacts to Groundwater

5.101. The Intervenor argues that the Staff's analysis of hydrogeology in the FSEIS consists almost entirely of a review of Powertech's application materials. Through the opinion of Dr. Moran, the Intervenor argues that the Staff failed to consider other sources of information relevant to assessing features such as faults, fractures, and breccia pipes. Dr. Moran cites a number of reference sources that he believes the Staff should have considered when preparing the FSEIS.

5.102. The record shows that the Staff reviewed numerous reference sources when preparing the FSEIS, including almost all the sources cited by Dr. Moran.¹⁷³ For example, the Staff reviewed numerous reference sources when preparing its discussion in Section 3.4.1.2, "Dewey-Burdock Geology," and Section 3.4.3, "Seismology."¹⁷⁴ The Staff also consulted a number of sources to obtain information on breccia pipes and collapse features.¹⁷⁵ When discussing geologic faults in the Dewey-Burdock area, the Staff consulted, among other sources, the USGS's Quaternary Fault and Fold Database.¹⁷⁶

5.103. Although Dr. Moran identifies additional reference sources that he believes are relevant to assessing the impacts of the Dewey-Burdock Project, these sources do not differ materially from those considered by the Staff. For example, the information on breccia pipes and collapse structures in a 1980 publication cited by Dr. Moran draws primarily from a 1974 publication that the Staff used as a source of information for the FSEIS.¹⁷⁷

5.104. In addition to arguing that the Staff overlooked certain reference works, Dr. Moran argues that the Staff's conclusions in the FSEIS are inconsistent with the opinions of the experts

¹⁷³ Ex. NRC-001 at A3.19, A3.25.

¹⁷⁴ *Id.*

¹⁷⁵ *Id.* at A3.19, A3.24, A3.25.

¹⁷⁶ *Id.* at A3.25.

¹⁷⁷ *Id.* at A3.19, A3.25.

who authored those works. As the Staff explains in its testimony, however, this is incorrect.¹⁷⁸ The authors of the cited reference works were addressing regional geology or stratigraphy, not the Dewey-Burdock area specifically. None of their works suggests those alluvial aquifers within or surrounding the Dewey-Burdock site are in hydraulic communication with the Inyan Kara Group aquifers (*i.e.*, the Fall River or Chilson Aquifers). Furthermore, Dr. Moran does not cite any CIR imagery maps or other sources to support his claims.

5.105. In conclusion, we find that the Staff independently reviewed the environmental impacts of the Dewey-Burdock Project. The record shows that the Staff reviewed Powertech's application materials, requested additional information from Powertech, and consulted a range of reference works. We find that the Staff complied with NEPA by taking a hard look at the available information on hydrogeology and, based on that information, assessing the reasonably foreseeable impacts of the Dewey-Burdock Project.

E. Contention 4: The Staff Complied with NEPA when Assessing the Quantity of Groundwater To Be Used during the Dewey-Burdock Project

5.106. The Tribe argues that the FSEIS does not adequately assess the quantity of groundwater to be used during the Dewey-Burdock Project. In particular, the Tribe argues that the Staff failed to include a water balance for the Dewey-Burdock Project. The Tribe also argues that the FSEIS lacks other necessary information on groundwater consumption.

5.107. The Staff addresses groundwater consumption in FSEIS Section 4.5.2, "Groundwater Impacts."¹⁷⁹ Contrary to the Tribe's claim, the FSEIS includes a water balance for the Dewey-Burdock Project. As the Staff explains in its testimony, a "water balance" describes and quantifies the flow of water in and out of a system.¹⁸⁰

¹⁷⁸ *Id.* at A3.25, A3.26.

¹⁷⁹ Ex. NRC-001 at A4.1.

¹⁸⁰ *Id.* at A44.

5.108. The Staff presents a water balance for the Dewey-Burdock Project in Section 2.1.1.1.3.3 of the FSEIS, with Figure 2.1-14 providing a graphic illustration of the water balance.¹⁸¹ The water balance presented in the FSEIS includes detailed information on production rates, aquifer bleed rates, reinjection rates, makeup water rates, and liquid waste disposal rates for the operations and aquifer restoration phases of the Dewey-Burdock Project.¹⁸²

5.109. In their testimony Mr. Prikryl and Mr. Lancaster further explain that, although Dr. Moran argues that the FSEIS should include “measured data for all water inputs and outputs related the ISR mining process,” this information cannot be obtained until the Dewey-Burdock facility and wellfields are operating.¹⁸³ In other words, the Staff did not include this information in the FSEIS because it is unable to obtain the information at the time of publication.

5.110. In their testimony Mr. Prikryl and Mr. Lancaster respond to each of Dr. Moran’s other claims of deficiencies in the FSEIS. As they explain, for each alleged deficiency Dr. Moran overlooks FSEIS sections relevant to his claim.¹⁸⁴

5.111. For example, Dr. Moran argues that the FSEIS lacks long-term water use data for all phases of the Dewey-Burdock Project. The Staff provides this information, however, in FSEIS sections addressing the various phases of the Dewey-Burdock Project.¹⁸⁵

5.112. As another example, although Dr. Moran previously alleged that the DSEIS was unclear as to which aquifer will be the source of long-term, operational phase water, the Staff addresses this issue in FSEIS Section 4.5.2.1.1.2.2 and in its comment response at Section E5.21.1.¹⁸⁶ As the Staff explains, the Inyan Kara Aquifer will be the primary source for operational

¹⁸¹ *Id.* at 128–130.

¹⁸² *Id.* at A4.5.

¹⁸³ *Id.* at A4.16.

¹⁸⁴ *Id.* at A4.7.

¹⁸⁵ *Id.* at A4.9.

¹⁸⁶ *Id.* at A4.7; Ex. NRC-008-B-2 at 502.

phase water, while the Madison Aquifer is the anticipated source during the groundwater restoration phase.

5.113. In conclusion, the Staff complied with NEPA by evaluating the reasonably foreseeable impacts of the Dewey-Burdock Project in the area of groundwater consumption.¹⁸⁷ Because the Staff complied with NEPA, we dismiss Contention 4.

F. Contention 6: The Staff Addressed Mitigation Measures as Required under NEPA

5.114. In Contention 6 the Tribe argues that the FSEIS does not adequately discuss mitigation measures.¹⁸⁸

5.115. At the outset, we address the Tribe's claim that the Staff's "mitigation measure discussion consists of a multi-page chart which simply lists a series of proposed mitigation measure[s]."¹⁸⁹ This is incorrect. Chapter 6 of the FSEIS provides a *summary* of proposed measures. The Staff provides more information on mitigation measures in other FSEIS chapters. For example, in Chapter 4 the Staff explains how these measures will reduce environmental impacts in various resource areas. In Chapter 4 the Staff discusses mitigation measures repeatedly, referring to such measures well over a hundred times. The Staff 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."

5.116. For the following reasons, we reject each of the Tribe's other challenges to the Staff's discussion of mitigation measures.

¹⁸⁷ See *Louisiana Energy Services*, CLI-05-20, 62 NRC at 536 ("NEPA does not call for certainty or precision, but an *estimate* of anticipated (not unduly speculative) impacts") (emphasis in original); *Vogtle*, LBP-09-07, 69 NRC at 631 (holding that NEPA does not require the Staff to analyze every conceivable aspect of a proposed project).

¹⁸⁸ The CEQ's regulation at 40 C.F.R. § 1508.20 states that "Mitigation" includes:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- (e) Compensating for the impact by replacing or providing substitute resources or environments.

¹⁸⁹ FSEIS Contentions (Ex. OST-12) at 25.

1. The FSEIS Adequately Addresses the Effectiveness of Mitigation Measures

5.117. The Tribe argues that the Staff discussed mitigation measures inadequately in the FSEIS because it did not consider whether the measures it identified would be effective. The Tribe cites several decisions from the Ninth Circuit to support its argument.¹⁹⁰

5.118. The cases cited by the Tribe, and subsequent cases addressing similar issues, show that an agency considers the effectiveness of mitigation measures by describing how those measures will reduce environmental impacts in a resource area.

5.119. We find that in the Dewey-Burdock FSEIS the Staff discusses the effectiveness of mitigation measures as required under NEPA. “The discussion of effectiveness of mitigation measures does not need to be highly detailed.”¹⁹¹ In the FSEIS, the Staff explains how each mitigation measure it identifies can reduce impacts in various resource areas.¹⁹² The Staff discusses the effectiveness of mitigation measures in a level of detail that is consistent with recent court decisions addressing this issue.¹⁹³

5.120. 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.¹⁹⁴ The court did not find, however, that such a rating is 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.¹⁹⁵ In

¹⁹⁰ *Id.* at 22.

¹⁹¹ *Moapa Band of Paiutes v. United States BLM*, No. 10-CV-02021-KJB-(LRL), 2011 U.S. Dist. LEXIS 116046 (D. Nev. Oct. 6, 2011).

¹⁹² See Ex. NRC-001 at A6.5 (providing examples of how the Staff discussed the effectiveness of mitigation measures).

¹⁹³ *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).

¹⁹⁴ *Okanogan Highlands Alliance v. Williams*, 236 F.3d 468, 477 (9th Cir. 2000).

¹⁹⁵ *Id.* at 476–77.

other words, the EIS 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.¹⁹⁶

2. The Staff Did Not Need to Withhold Issuing the FSEIS until It Finalized the Programmatic Agreement

5.121. The Tribe argues that the Staff violated NEPA because, when the Staff issued the FSEIS, it was still consulting on the Programmatic Agreement for the Dewey-Burdock Project. The Tribe argues that because the Programmatic Agreement contains mitigation measures related to cultural resources, and because the Agreement was not finalized until after the Staff issued the FSEIS, the Staff omitted key information from its NEPA analysis. The Tribe cites several federal court decisions holding that an agency cannot defer its consideration of mitigation measures until after the NEPA process is complete.¹⁹⁷

5.122. As we explain above in the context of Contention 1A, the Tribe overlooks that the Staff's Record of Decision, not the FSEIS, is the document with which the Staff concluded its NEPA review.¹⁹⁸ The Staff did not issue its Record of Decision until April 8, 2014, after it finalized the Programmatic Agreement for the Dewey-Burdock Project.¹⁹⁹ Accordingly, the Staff took into account the mitigation measures in the Programmatic Agreement while its NEPA review remained open, thus complying with NEPA. The cases the Tribe cites are inapposite, because the Staff finalized the Programmatic Agreement *before* issuing the Record of Decision, not after its NEPA review was complete.

¹⁹⁶ See *North Alaska Envtl. 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.’”).

¹⁹⁷ Tribe's Initial Statement of Position at 28.

¹⁹⁸ See Ex. NRC-048 at 17, 35 (stating that “an agency must complete the NEPA and Section 106 reviews before signing a decision document” but explaining that “[u]nder CEQ regulations, CEs, EAs, FONSI, and EISs are not decision documents.”).

¹⁹⁹ Ex. NRC-011.

5.123. The Tribe also argues that the Commission's decision in *Hydro Resources*, CLI-99-22, supports its arguments. In *Hydro Resources*, however, the Commission found no fault with the Staff continuing its NHPA review after it issued the EIS, because the Staff had not yet issued a license to the applicant.²⁰⁰ *Hydro Resources* in fact supports the Staff's actions in this case, because the Staff completed its NHPA review before issuing a license to Powertech.

5.124. During the oral portion of the evidentiary hearing, counsel for the Consolidated Intervenor argued that *Hydro Resources* does not support the Staff's position. Counsel argued that, whereas in *Hydro Resources* the Staff received new information after it finalized the EIS, the Staff had additional information that it withheld from the FSEIS, choosing instead to present the information in the Programmatic Agreement.²⁰¹

5.125. We disagree. Before releasing the FSEIS, the Staff provided all consulting tribes with summaries of the information on traditional cultural properties that it received from the tribes that participated in the April–May 2013 field surveys of the Dewey-Burdock site.²⁰² While the Staff did not provide a complete mitigation plan for cultural resources in the FSEIS, that is because it was still consulting with tribes and other parties on the Programmatic Agreement for the Dewey-Burdock Project. In other words, the mitigation plan described in the Programmatic Agreement was, in fact, unavailable when the Staff issued the FSEIS. There is no support for the Tribe's claim that the Staff withheld information from the FSEIS.

5.126. In conclusion, we do not find any NEPA violation related to the Staff finalizing the Programmatic Agreement after it issued the FSEIS. The Staff finalized the Programmatic Agreement before issuing its Record of Decision for the Dewey-Burdock Project, which is all NEPA required.

²⁰⁰ See *Hydro Resources, Inc.* (2929 Coors Road, Suite 101, Albuquerque, NM 87120), CLI-99-22, 50 NRC 3, 14 (1999) ("The new information [related to cultural resources] did not present a 'seriously different' view of the environmental impacts. We do not find any legal flaw with its later release and consideration and, therefore, decline to alter the Presiding Officer's decision.").

²⁰¹ Tr. at 748–749.

²⁰² Exs. NRC-015 at 15, NRC-019, NRC-061.

3. The Staff Provided a Sufficient Opportunity for Tribes and Other Interested Persons to Comment on Mitigation Measures for Cultural Resources

5.127. The Tribe argues that the Staff did not provide an opportunity for comments on mitigation measures related to cultural resources.

5.128. The Tribe fails to acknowledge, however, that the Staff actively sought to involve the Tribe in developing these very measures. The Staff sent multiple draft versions of the Programmatic Agreement to the Oglala Sioux Tribe and other consulting parties for comment.²⁰³ The Staff also held several teleconferences or webinars to discuss mitigation measures and other issues related to the Programmatic Agreement.²⁰⁴

5.129. In addition, in December 2013 the Staff posted information related to the Programmatic Agreement on the NRC's public website, inviting comments from the general public on any issues related to the Agreement.²⁰⁵

5.130. Furthermore, in the DSEIS the Staff discussed mitigation measures that might limit impacts to cultural resources, providing the Tribe and other interested persons an early opportunity to identify measures that might be incorporated in a Programmatic Agreement.²⁰⁶

5.131. Accordingly, we find that the Staff provided a sufficient opportunity for comments on mitigation measures related to cultural resources.

4. The Staff Appropriately Considered Mitigation Measures that Will Be Developed by Other Agencies

5.132. The Tribe argues that the Staff improperly relied on certain mitigation measures that have not been fully developed, and which will be imposed by other agencies. The Tribe lists

²⁰³ Ex. NRC-015 at 13-17. See *also*, Ex. OST-012 at 135-151 (identifying the comments on the Programmatic Agreement provided by the Standing Rock Sioux).

²⁰⁴ Ex. NRC-015 at 15-16. After the Staff received the Tribe's comments included in OST-012, it scheduled an additional webinar, for Feb. 27, 2014, in order to address the comments and revise the draft Programmatic Agreement. Ex. NRC-015 at 17.

²⁰⁵ Ex. NRC-151 at A1.9; Ex. NRC-001 at A1.15, A1.16; Ex. NRC-015 at 13.

²⁰⁶ Ex. NRC-009-A-2 at 416-430.

examples of measures upon which, in its view, the Staff improperly relied.²⁰⁷ These include National Pollution Discharge Elimination System (NPDES) standards, U.S. Fish and Wildlife Service monitoring plans, and conditions that may be included in EPA permits.

5.133. The Tribe fails to explain, however, why the Staff violated NEPA by referring to these mitigation measures. Even where mitigation measures fall within the jurisdiction of the agency issuing an EIS, NEPA does not require the agency to include a fully developed mitigation plan in the EIS.²⁰⁸ In the examples the Tribe cites, the mitigation measures fall outside the NRC's jurisdiction. We find no fault with the Staff incorporating the available information concerning these measures into its NEPA review.²⁰⁹

5.134. Nor does the Tribe show that the Staff inadequately discusses any of the mitigation measures to which it refers. For each of the measures the Tribe identifies, the Staff provides adequate information in the FSEIS. The Staff discusses NPDES standards throughout the FSEIS. The Staff likewise discusses the statutes and regulations applying to Fish and Wildlife Service monitoring plans, EPA permits, and actions within the jurisdiction of other agencies.²¹⁰

²⁰⁷ FSEIS Contentions (Ex. OST-012) at 24–28.

²⁰⁸ *Bering Strait Citizens for Responsible Res. Dev. v. United States Army Corps of Eng'rs*, 524 F.3d 938, 955 (9th Cir. 2008). See also *Hydro Resources, Inc.* (P.O. Box 777, Crownpoint, NM 87313), CLI-06-29, 64 NRC 417, 427 (2006) (explaining that an EIS need not contain “a complete mitigation plan” or even “a detailed explanation of specific [mitigation] measures which will be employed” and stating that mitigation measures “need not be legally enforceable, funded or even in final form to comply with NEPA’s procedural requirements”); *Nuclear Innovation North America LLC* (South Texas Project Units 3 and 4), LBP-11-07, 73 NRC 254, 265 (2011) (explaining that NEPA does not “demand the presence of a fully developed [mitigation] plan” or a “detailed explanation of specific measures which will be employed to mitigate the adverse impacts of a proposed action”).

²⁰⁹ 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.”).

²¹⁰ Ex. NRC-001 at A4.10, A6.6, A6.17, A6.18, A9.1, A9.5, A9.7–A9.10.

5.135. The Tribe also claims that the Staff failed to address groundwater mitigation measures in the FSEIS.²¹¹ In fact, the Staff discusses such measures in numerous FSEIS sections.²¹² The Tribe also overlooks Powertech's license, which includes conditions requiring that Powertech restore groundwater to NRC standards.²¹³

5.136. In conclusion, we find no flaw in the Staff's evaluation of mitigation measures that will be developed by other agencies.

5. The Staff Adequately Discussed Best Management Practices that Can Be Used as Mitigation Measures

5.137. In the FSEIS the Staff lists numerous best management practices that can be used as mitigation measures. For example, the Staff lists best management practices as measures that could mitigate impacts to wildlife, noise impacts, and impacts from fugitive dust.²¹⁴

5.138. The best management practices that the Staff lists in the FSEIS are drawn from best management practices the Staff previously identified in Chapter 7 of the GEIS.²¹⁵ The GEIS provides a chart listing best management practices by environmental resource area.²¹⁶

5.139. In the GEIS, the Staff explains that it drew on a variety of sources to develop best management practices. "The list is based on historical best management practices and mitigation measures used for existing and planned ISL uranium recovery facilities (NRC, 1997, 1998, 2006a,b; Energy Metals Corporation, U.S., 2007; WDEQ, 2007)."²¹⁷ Accordingly, although the

²¹¹ Ex. OST-012 at 23–24.

²¹² Ex. NRC-001 at A6.8.

²¹³ See, e.g., Ex. NRC-012 at License Condition 10.6 (requiring Powertech to conduct groundwater restoration activities in accordance with the commitments in Section 6.1 of its license application).

²¹⁴ Ex. NRC-008-A-2 at 386, 408, 420, 496.

²¹⁵ Ex. NRC-010-B-1 at 110–114.

²¹⁶ *Id.* at 111–114.

²¹⁷ *Id.* at 110.

Staff does not restate these references in the Dewey-Burdock FSEIS, the GEIS discloses the source of the best management practices to which the Staff refers.

5.140. The Staff circulated the GEIS for public comment, and it received comments on best management practices and other mitigation measures. The public comments and the Staff's responses are in Appendix G of the GEIS.²¹⁸

5.141. Accordingly, taking into account both the FSEIS and the GEIS, we find that the Staff discussed best management practices adequately and took sufficient steps to obtain public input on best management practices.

6. The Staff Sufficiently Considered Mitigation Measures that Might Be Applied to Alternative Actions

5.142. The Tribe argues that the Staff did not sufficiently consider mitigation measures in Chapter 2 of the FSEIS, the chapter discussing alternatives to the proposed action.²¹⁹

5.143. This argument is not a basis for Contention 6, because the Tribe did not make this argument in its DSEIS- or FSEIS-related contentions.²²⁰

5.144. In any event, the Tribe overlooks sections of Chapter 2 in which the Staff addresses mitigation measures. For example, pages 2-63 through 2-66 of the FSEIS each provide examples of mitigation measures that might be applied to alternative actions.²²¹

5.145. In conclusion, even if the Tribe's argument were a basis for Contention 6, we would find that the Staff adequately considered mitigation measures in its alternatives analysis.

²¹⁸ Ex. NRC-010-B-2 at 387, 404, 455–456, 491–493, 532–534, 536–537, 540, 542, 552, 557, 600–603.

²¹⁹ Tribe's Motion for Summary Disposition (April 11, 2014) at 11–16.

²²⁰ See *Vogle*, CLI-10-05, 71 NRC at 100–01 (holding that “the scope of a contention is limited to issues of law and fact pled with particularity in the intervention petition, including its stated bases, unless the contention is satisfactorily amended in accordance with [NRC] rules”). Although we found that Contention 6 migrated from the DSEIS to the FSEIS, in doing so we did not expand the scope of Contention 6. Accordingly, the Tribe's challenge to the Staff's discussion of mitigation measures in Chapter 2 of the FSEIS falls outside the scope of the admitted contention.

²²¹ Ex. NRC-008-A-1 at 157–160.

G. Contention 9: The Staff Analyzed Related Licensing Actions Consistent with the Requirements of NEPA

5.146. The Tribe argues that the Staff violated NEPA by not fully analyzing the impacts of licensing actions related to the Dewey-Burdock Project.²²² 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.

5.147. The Tribe argues that “the FSEIS fails to conduct any NEPA analysis of [Powertech’s] proposal for [Class III and Class V] injection wells,” proposals which must be evaluated by the EPA.²²³ This argument ignores almost the entirety of the FSEIS, however, which the Staff prepared precisely because Powertech seeks to inject lixiviant into underground aquifers (thus requiring a Class III injection permit) and will need to dispose of resulting waste (with one method of disposal requiring a Class V injection permit).²²⁴

5.148. The Tribe also cites several other FSEIS sections where the Staff allegedly defers its NEPA analysis and relies on future analyses that will be conducted by other agencies.²²⁵ We find, however, that in none of the cited sections does the Staff fail to assess the environmental impacts of the Dewey-Burdock Project. The Staff cites the permitting processes of other agencies simply to explain what it considered when assessing the Project’s impacts in various resource areas.²²⁶ For example, on page 4-69 of the FSEIS the Staff states:

²²² We refer to these other licensing actions as “related actions” rather than “connected actions” because none of the actions the Tribe cites is truly “connected” to the federal action involved here—the NRC’s decision on whether to issue Powertech a license. The “connected action” rule at 40 C.F.R. § 1508.25(a)(1) exists to ensure that “proposals for . . . actions that will have cumulative or synergistic environmental impact upon a region . . . pending concurrently before an agency . . . be considered together.” *Kleppe v. Sierra Club*, 427 U.S. 390, 410 (1976) (emphasis added). Here, there is no other application of this type pending before the NRC.

²²³ FSEIS Contentions (Ex. OST-012) at 26–28.

²²⁴ Ex. NRC-001 at A9.1.

²²⁵ FSEIS Contentions (Ex. OST-012) at 27–28 (claiming the NRC Staff improperly relies on EPA’s and South Dakota’s permitting processes to require appropriate mitigation measures to lessen environmental impacts).

²²⁶ Ex. NRC-001 at A9.6, A9.7.

EPA will evaluate the suitability of the proposed deep well injection wells and will only allow deep well injection if the waste fluids can be suitably isolated in a deep aquifer. Consequently, NRC staff determine that the potential environmental impact from the Class V injection well disposal option on targeted deep aquifers below the production zone aquifers will be SMALL.²²⁷

This does not show that the Staff is deferring its assessment of impacts from Class V disposal until some future EPA action, as the Tribe alleges. Rather, it shows that the Staff assessed the impacts of Class V wells on its own, taking into account EPA regulations.

5.149. The Tribe further argues that the FSEIS mistakenly assumes Powertech will dispose of liquid chemical waste through a Class V underground injection permit.²²⁸ The Tribe argues that Powertech will not be able to obtain a Class V permit. The Tribe overlooks, however, that the Staff also analyzes the environmental impacts if Powertech's Class V permit application is denied.²²⁹ In other words, the Staff evaluates the environmental impacts of Powertech disposing of waste through a Class V permit, *and* it evaluates the impacts of Powertech disposing of waste through alternative methods.²³⁰

5.150. In conclusion, we find that the Staff independently analyzed the environmental impacts related to Powertech obtaining other licenses for the Dewey-Burdock Project. Because the Staff's analysis of such impacts complied with NEPA, we dismiss Contention 9.

²²⁷ Ex. NRC-008-A-2 at 375.

²²⁸ FSEIS Contentions (Ex. OST-012) at 28–29.

²²⁹ Ex. NRC-001 at A9.8–A9.10.

²³⁰ As Ms. Yilma and Ms. Jamerson explain in their testimony, in each section of Chapter 4—Sections 4.2.1.2, 4.3.1.2, 4.4.1.2, *etc.*—the Staff discusses the impacts of Powertech disposing of waste through land application, rather than through Class V injection wells. Ex. NRC-001 at A9.10.

VI. Conclusions

6.1. We find that the Staff's review of the Dewey-Burdock application complied with NEPA, the NHPA, and other applicable laws.

6.2. Accordingly, we dismiss Contentions 1A, 1B, 2, 3, 4, 6, and 9.

Respectfully submitted,

*/Signed (electronically) by/
Michael J. Clark
Michael J. Clark
Counsel for the NRC Staff*

*/Signed (electronically) by/
Patricia A. Jehle
Patricia A. Jehle
Counsel for the NRC Staff*

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