POWERTECH (USA) INC.

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January 8, 2013

Ms. Cindy Bladey, Chief
Rules, Announcements, and Directives Branch (RADB)
Office of Administration
Mail Stop: TWB-05-B01M
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

11/26/2012
77FR 70486

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Re: Comments from Powertech (USA) Inc. on the Dewey-Burdock Project Draft Supplemental Environmental Impact Statement
Docket ID NRC-2012-0277

Dear Ms. Bladey:

By this letter, Powertech (USA) Inc. (Powertech) respectfully submits the enclosed comments on the Draft Supplemental Environmental Impact Statement for the Proposed Dewey-Burdock *In-Situ* Uranium Recovery (ISR) Project in Custer and Fall River Counties, South Dakota (DSEIS).

Powertech appreciates the opportunity to submit these comments. If you have any questions, please do not hesitate to contact us at your convenience. Thank you for your time and consideration in this matter.

Respectfully submitted,

Richard Blubaugh
Vice President - Environmental Health & Safety Resources

cc: Haimanot Yilma, NRC SEIS Project Manager (via email)
John Mays and Mark Hollenbeck, Powertech (USA) Inc.

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GENERAL COMMENTS

1. Initially, Powertech would like to commend NRC staff for preparing a strong, defensible DSEIS and for using the GEIS (NUREG-1910) in a manner consistent with the purposes for which it was prepared. Powertech believes that NRC staff have successfully tiered the DSEIS off the GEIS and have demonstrated that the proposed Dewey-Burdock Project fits squarely within the programmatic analyses offered in the GEIS. Consistent with the conclusions in the GEIS, Powertech agrees with NRC staff's conclusion that Powertech's requested license should be granted.

2. The entire DSEIS needs to use the word "potential" when discussing impacts or effects in its assessment of the proposed Dewey-Burdock Project. Given that the DSEIS assesses impacts or effects that may or may not result from the construction, operation, restoration, and decommissioning phases of the project, the use of the term "potential" is appropriate.

   Additionally, in accord with the use of the term "potential," care should be taken to ensure that the focus of its analyses and assessments should be on potentially "significant" risks and not trivial or miniscule risks. Per the Supreme Court's decision in the Benzene case, the agency is to focus on "significant" risks of potential harm to public health and safety or the environment: "But 'safe' is not the equivalent of 'risk-free.' There are many activities that we engage in every day - such as driving a car or even breathing city air - that entail some risk of accident or material health impairment; nevertheless, few people would consider these activities 'unsafe.' Similarly, a workplace can hardly be considered 'unsafe' unless it threatens the workers with a significant risk of harm" (Industrial Union Department, AFL-CIO v. American Petroleum Institute et al., 448 U.S. 607, 641-642, 1980). As such, the agency should not concern itself with insignificant risks, which is consistent with the Commission-endorsed policy of risk-informed regulation.

   The tense of the language used in the DSEIS should be checked to ensure that the analysis reads correctly. For example, on p. 4-190, lines 24-25, the statement is made that the "applicant's calculations also demonstrated" (past tense). Powertech suggests changing this and similar statements to the present tense Also, the DSEIS is inconsistent in its use of "would" versus "will," the latter of which is the correct term in the vast majority of cases.

   In addition to adding additional terms to some of the DSEIS statements, the term "solid [or liquid] byproduct material" should not be used; but rather the correct term should be "solid [or liquid] 11e.(2) byproduct material." The AEA provides NRC with exclusive, federal preemptive jurisdiction over various classes of "byproduct material." Three of the classes of "byproduct material," 11e.(1), 11e.(3), and 11e.(4) byproduct materials, are not relevant to the Proposed Action. The second, 11e.(2) byproduct material, is the waste generated from uranium milling per 10 CFR 40.4. Thus, Powertech suggests that the proper term for uranium milling wastes or 11e.(2) byproduct material should be used throughout the DSEIS.

3. Powertech believes that NRC staff have adequately identified and characterized potential alternatives to the proposed Dewey-Burdock Project, including wastewater management and uranium recovery processes. Powertech is aware that the former item raised concerns on the part of interested stakeholders, most notably the U.S. Environmental Protection Agency (EPA), on previous DSEISs for three previously licensed ISR projects (NUREG-1910, Appendices 1-3). Based on the analysis offered in the DSEIS, Powertech believes that this issue should no longer be a point of contention.

4. Powertech has reviewed the chronology and record provided by NRC staff in DSEIS Appendix A regarding the NHPA Section 106 Tribal Consultation process. Despite the fact that the process has been de-coupled from the 10 CFR Part 51 process for the DSEIS, NRC staff should continue to emphasize the substantial amount of consultation and effort that already has been engaged in by both NRC staff and the license applicant. Given that Tribal consultation is a critical component of this process, NRC staff should continue to engage in and complete the process in a timely manner.

5. NRC Staff also should emphasize the additional benefits added to the analyses in the DSEIS from the participation of BLM as a cooperating agency. It should always be a goal of NRC to create the most robust and defensible analyses possible for a proposed project and BLM's contribution should be explained throughout the document where relevant, including specifically its expertise on land use and historic and cultural resources. The Executive Summary and Section 1.3.1 (line 26) are good places to start.

6. In describing NRC's requirements for groundwater restoration in 10 CFR Part 40, Appendix A, Criterion 5(B)(5), industry has consistently used the phrase "consistent with background/baseline" to accurately characterize how water quality data are analyzed when determining whether groundwater restoration is complete. For example, it is typical in ISR groundwater restoration efforts to identify an "average" value for baseline for a full suite of groundwater constituents, which means it is likely that 50% of such measurements will be above baseline values and 50% below such values. Powertech suggests pointing to past restoration efforts to make it clear that restoration efforts typically reduce many or even most constituents to or below baseline/background but just not every constituent. It should be clear and consistent in the DSEIS that the primary goal is to be constituent with baseline/background, because it frequently is the source of a great deal of misinformation and inaccuracies.

7. Table 1 provides a comparison between the potential impacts in the DSEIS with those evaluated for a typical ISR facility in the GEIS for each resource area. The table indicates instances where the potential DSEIS impacts are different from those in the GEIS. In some instances, Powertech has included comments requesting that the magnitude of the potential DSEIS impacts be reevaluated. These cases are indicated as footnotes to Table 1. Powertech suggests including a table similar to Table 1 in the final SEIS in order to provide a single location comparing the SEIS with the GEIS.

Table 1. Comparison between GEIS[1] and DSEIS[2] Range of Potential Impacts

Resource Area	Construction	Operations	Aquifer Restoration	Decommissioning
Land Use	S	S	S	S to M
Transportation	S to M (M)[3]	S to M (M)[3]	S to M (S)	S
Geology and Soils	S	S	S	S
Surface Water	S to M (S)	S to M (S)	S to M (S)	S to M (S)
Groundwater	S	S to L (S)	S to M	S
Terrestrial Ecology	S to M	S (S to M)[4]	S (S to M)[4]	S (S to M)[4]
Aquatic Ecology	S	S	S	S
Threatened and Endangered Species	S to L (S)	S	S	S
Air Quality	S (S to M)[5]	S (S to M)[5]	S (S to M)[5]	S (S to M)[5]
Noise	S to M (S)	S to M (S)	S to M (S)	S
Historic and Cultural Resources	S to L	S	S	S
Visual and Scenic Resources	S	S	S	S
Socioeconomics	S to M (S)	S to M (S)[6]	S	S to M (S)
Public Health and Safety	S	S to M (S)	S	S
Waste Management	S	S	S	S (S to M)

Notes:

1 The GEIS range of potential impacts was obtained from Table 1.4-1 in the DSEIS (p. 1-4).

2 The DSEIS range of potential impacts is provided in parenthesis only where the range is different from that in the GEIS; where no values are provided in parenthesis, the range in the DSEIS is the same as that in the GEIS.

3 Please refer to the comments on p. 4-15, line 19 and 4-19, line 20, which describe how Powertech suggests that the potential impacts to Dewey Road traffic during construction and operations be changed from MODERATE to SMALL due to higher baseline traffic counts and reduced project-related traffic due to implementation of a carpooling policy.

4 The range of potential impacts in DSEIS Table 4.6-5 depends on the wastewater disposal option. For Class V injection wells, the potential impacts are SMALL for all phases except decommissioning, during which the range is SMALL to MODERATE. For land application and combined Class V injection wells and land application, the range is SMALL to MODERATE for all project phases.

5 Please refer to the comment on p. 4-113, lines 1-2, in which Powertech suggests changing the range of potential air quality impacts to SMALL from the current range of SMALL to MODERATE.

6 Please refer to the comment on p. 4-166, lines 41-51, which provides justification for a SMALL to MODERATE or MODERATE positive impact on local finance during ISR operations.

SPECIFIC COMMENTS

EXECUTIVE SUMMARY

p. xxvii, lines 1-24	Powertech suggests adding an explanation of NRC staff's view that ISR processes are considered by the Commission to be "milling underground" per the Commission's decision in SRM-SECY-09-277, which is in contrast to BLM and South Dakota's view that ISR processes constitute "mining" to avoid any potential misunderstanding by the general public and even regulators other than NRC staff.
p. xxix, lines 7-36	There is no mention here of the Safe Drinking Water Act (SDWA)/Underground Injection Control (UIC) requirements for exempted aquifers and UIC permits. NRC staff should consider this to be an important point of emphasis to demonstrate to interested stakeholders that ISR processes are stringently regulated. It is important that this be included up front in the executive summary, even though it is discussed later, because there are many interested stakeholders that will only read that portion of the DSEIS.
p. xxxi, lines 30-31	The DSEIS states that Dewey Road "will experience a sixteenfold increase in daily vehicle traffic during the ISR construction phase." Please refer to the comments on p. 3-12, Table 3.3-1 and p. 4-14, line 42 for updated information on current Dewey Road traffic and projected traffic levels during construction. Powertech suggests revising this statement to "will experience a SMALL increase of approximately 42 percent in daily vehicle traffic during the ISR construction phase."
p. xxxi, lines 37-38	The DSEIS states that Dewey Road "will experience a fivefold increase in daily vehicle traffic during the ISR operations phase." Please refer to the comments on p. 4-16, Table 4.3-2 and p. 4-17, lines 6-7 for updated information on current Dewey Road traffic and projected traffic levels during operations. Powertech suggests revising this statement to "will experience a SMALL increase of approximately 26 percent in daily vehicle traffic during the ISR operations phase."
p. xxxi, lines 40-42	There should be a mention of the new regulatory issue summary (RIS) on receipt and processing of uranium-loaded IX resins at uranium recovery facilities without the need for a license amendment (RIS 2012-06). This RIS, in and of itself, demonstrates the negligible potential impacts associated with loaded resin transport.
p. xxxii, line 29-30	Please change "a underground injection control" to "an underground ..."
p. xxxii, line 36	Please change "Environmental" to "Environment" in the expanded form of SDDENR.

p. xxxiii, line 7 — The DSEIS states that "surface water flow in channels is intermittent." This contradicts Section 3.5.1, which correctly states that Beaver Creek is "a perennial ... stream with ephemeral tributaries" (p. 3-20, line 37). Powertech considers Pass Creek to be an ephemeral stream within the proposed project area, since in accordance with the definition of ephemeral stream in the Administrative Rules of South Dakota (ARSD) 74:29:01:01(28), it is "a stream or reach of a stream that flows only in direct response to precipitation in the immediate watershed or to the melting of a cover of snow or ice." This is consistent with Section 4.6.1.1.1.1.3 of the DSEIS (p. 4-91, lines 7-8), which states, "Pass Creek is an ephemeral stream that supports some intermittent habitat." Powertech suggests changing the statement to read, "... surface water flow in channels is ephemeral except for perennial Beaver Creek."

p. xxxiii, lines 23-24 — The DSEIS states that "Radium settling and storage ponds will be constructed with liners, underdrains, and leak detection systems." This is inconsistent with p. 4-9 of the Dewey-Burdock Project Supplement to Application for NRC Uranium Recovery License (Powertech, 2009c in the Chapter 2 references), which indicates that storage ponds that contain treated water will include a single, geosynthetic liner underlain by a clay liner and will not include underdrains or leak detection systems. Powertech suggests changing the statement to read, "Radium settling ponds will be constructed with liners, underdrains, and leak detection systems, and storage ponds that contain treated water will be constructed with geosynthetic and clay liners."

p. xxxiii, lines 34-35 — Please refer to the comment on lines 23-24 on this page. Powertech suggests changing the statement to read, "Radium settling ponds will be constructed with liners, underdrains, and leak detection systems, and storage ponds that contain treated water will be constructed with geosynthetic and clay liners."

p. xxxiv, lines 25-26 — The DSEIS states that "the applicant will monitor all domestic wells within 2 km [1.2 mi] of the project boundary during operations ..." According to license condition 12.10 in the January 2013 draft license, the requirement will be within 2 km of the perimeter monitoring well rings. Powertech suggests revising this statement to read, "... the applicant will monitor all domestic wells within 2 km [1.2 mi] of the wellfields during operations ..."

p. xxxv, line 1 — Please refer to the comment on p. xxxiv, lines 25-26. Powertech suggests revising this statement to read, "...domestic wells within 2 km [1.2 mi] of the wellfields during aquifer restoration ..."

p. xxxv, lines 17-19 — The statement is made that, "If contaminants are drawn into production zones within the Chilson aquifer from abandoned open pit mines through the hydraulically connected Fall River aquifer during aquifer restoration,

the impacts will be MODERATE." Please refer to the comment on p. 4-65, lines 38-49, which describes how Powertech suggests changing the magnitude of the potential impact to SMALL due to the mitigation measures that will be in place to protect against drawdown-induced migration of potential contamination. In addition, Powertech suggests qualifying this statement with the following statements: "However, perimeter monitoring wells and additional monitoring wells in the Fall River and Chilson between the open mine pits and nearby wellfields (refer to DSEIS Section 7.3.4) would provide detection of potential contaminant migration from the open mine pits. Further, numerical modeling shows that drawdown in the Fall River aquifer is not expected to be significant during operations or aquifer restoration in the underlying Chilson aquifer. In addition, the Fuson Shale was not compromised during the historical mining activities and is still present as a confining unit above the Chilson."

p. xxxvii, lines 9-11 Powertech questions the finding that, "Meanwhile, based on the modeling results from a similar project, the Dewey-Burdock ISR Project will contribute to visibility impacts at Wind Cave National Park but the impact magnitude will be minimal." As described in Section C4.2, the similar project is the Atlantic Rim Natural Gas Development Project in Carbon County, Wyoming. In its Best Available Retrofit Technology (BART) guidelines, EPA indicates that "for regional haze, a source whose 98^{th} percentile value of the haze index is greater than 0.5 deciview (dv) (approximately a 5% change in light extinction) is considered to contribute to regional haze visibility impairment" (NPS, 2010). Therefore, the assertion of visibility impacts from the Dewey-Burdock ISR Project hinges on a modeling demonstration that visibility impacts will exceed 0.5 dv.

Although the visibility modeling has not yet been completed, there is ample reason to believe the modeled impacts will be less than 0.5 dv. In NPS (2010), EPA stated that it would be reasonable to conclude that sources located more than 50 km from any Class I area that emit less than 500 tons per year of NO_x or SO_2 (or combined NO_x and SO_2) "would not be considered to cause or contribute to visibility impairment." In the document cited by the DSEIS, the Atlantic Rim Natural Gas Development Project shows 1,278 tons of annual NO_x emissions, nearly 14 times more than the estimated Dewey-Burdock Project emissions. It also shows 58 tons of SO_2 emissions, or 4 times more than the estimated Dewey-Burdock Project emissions. The DSEIS also confirms that sulfate, organic carbon, and nitrate [not particulates] are "the major contributors to visibility impairment at Wind Cave National Park." The Dewey-Burdock Project is located approximately 50 km from Wind Cave National Park, and in the worst-case year is projected to emit approximately 107 tons of combined NO_x and SO_2, or approximately 21% of the threshold cited by

EPA. For these reasons, Powertech believes that the statement "will contribute to visibility impacts" is unjustified. Powertech further believes that modeling will ultimately demonstrate no significant impact on visibility at Wind Cave.

p. xxxvii, lines 27-29 Please refer to the comment on this page, lines 9-11. Powertech questions the assertion that the Dewey-Burdock Project will contribute to visibility impacts at Wind Cave National Park.

p. xxxvii, lines 41-43 Please refer to the comment on this page, lines 9-11. Powertech questions the assertion that the Dewey-Burdock Project will contribute to visibility impacts at Wind Cave National Park.

p. xxxviii, lines 15 Please change "Daniels residence" to "Daniel residence." Powertech previously misspelled the landowner's name.

p. xxxviii, lines 22-24 Please refer to the comment on p. 4-92, lines 27-30. Powertech suggests revising the statement to read, "Noise impacts to raptors will be mitigated by adhering to timing and spatial restrictions within specified distances of active raptor nests as determined by appropriate regulatory agencies (e.g., FWS, SDGFP, and BLM)."

p. xxxviii, line 28 Please change "Daniels residence" to "Daniel residence."

p. xxxviii, line 44 Please change "Daniels residence" to "Daniel residence."

p. xl, lines 15-16 The statement is made that center pivot irrigation systems will be visible to travelers on Dewey Road. Powertech notes that use of such irrigation systems is common in western South Dakota. Powertech suggests noting this; since the DSEIS is written as a potential impact analysis, the common use of these systems effectively mitigates potential impacts.

p. xli, lines 10-12 Please refer to the comment on p. 4-166, lines 41-51, which provides justification for a SMALL to MODERATE or MODERATE positive impact on local finance.

p. xliv, lines 1-8 The DSEIS does not mention the benefits of the uranium production from the proposed project for domestic energy independence, which has been stated by the President's Administration and the Congress as a national-scale benefit versus a local/regional one.

p. xlv, lines 14-16 The statement that construction could have a MODERATE or LARGE impact on 18 historic properties listed or eligible for listing on the NRHP is inconsistent with the statement on p. xxxix, lines 18-20 that avoidance of 12 of these sites is possible during construction and, therefore, no impacts are anticipated. Powertech suggests revising this statement to read, "Construction could have a MODERATE to LARGE impact on

	6 historic properties--those sites currently listed or eligible for listing on the NRHP and for which mitigation may be necessary--and other ..."
p. xlvii	Powertech suggests adding acronyms for the Clean Air Act (CAA) and Clean Water Act (CWA), which are relevant to discussions on State of South Dakota, EPA, and USACE permits.
p. xlviii	Please change "National Resource Conservation Service" to "Natural Resource Conservation Service" in the expanded form of NRCS.
p. xlix	Please change "regional management plan" to "resource management plan" in the expanded form of RMP.
p. xlix	Please change "secondary maximum concentration limit" to "secondary maximum concentration level" in the expanded form of SMCL.

CHAPTER 1 - INTRODUCTION

p. 1-1, line 39	This section correctly describes how a source and [11e.(2)] byproduct material license is required for the proposed project. This nomenclature is not used consistently in the document. Other descriptors include "source material license" (e.g., p. xliv, line 21), "source materials license" (e.g., p. 1-13, Table 1.6-1), and "source and byproduct materials license" (e.g., p. 3-70, line 36). NRC staff should be consistent with usage of this term throughout the document or develop an acronym for the requested license in the alternative.
p. 1-2, Fig. 1.1-1	Powertech suggests modifying the figure legend to indicate that the depicted uranium ISR facilities are potential future sites and not existing facilities.
p. 1-3, line 16	Powertech suggests removing the word "slurry" in the statement that the purpose of the DSEIS is "to provide an option that allows the applicant to recover uranium and produce yellowcake slurry at the proposed project site." In the context of uranium ISR facilities, "slurry" typically represents an intermediate product that results from the precipitation process. As described on p. 4-184 (lines 43-44), the dryers will be used to produce yellowcake powder from yellowcake slurry. Since the proposed action includes dryers, the resulting product is typically referred to as "yellowcake" rather than "yellowcake slurry."
p. 1-5, lines 26-28	It should be emphasized here that "tiering" is acceptable under CEQ regulations as well as NRC regulations. This has been a source of controversy with interested stakeholders in the past and typically from opposition groups that do not support the use of the GEIS. NRC staff should maintain its position on "tiering" as embodied in these regulations.

p. 1-5, line 39	It should be mentioned that a significant part of public participation activities for the development of this DSEIS includes the several public scoping meetings and extensive written public comments accepted during development of the GEIS.
p. 1-7, lines 10-12	It needs to be clear that the DSEIS is prepared pursuant to 10 CFR Part 51 regulations and not NEPA.
p. 1-9, lines 25-26	The statement is made that, "The SER will soon be available for public review." This may imply that a draft SER will be issued for public input. Powertech understands from conversations with NRC staff that only a final SER will be issued. Powertech suggests revising this statement to read, "The SER will soon be available to the public."
p. 1-12, Table 1.6-1	Please change the status of the Large Scale Mine Permit application to "Application submitted September 2012 and under review." Please change the submittal date of the Groundwater Discharge Permit application from June 2012 to March 2012 (reference ML12089A360).
p. 1-13, Table 1.6-1	Please change the revision date under the source to "Revised December 2012."
p. 1-13, lines 3-4	NRC needs to note that it is exempt under Executive Order 13175 (November 2000) from the Section 106 Tribal Consultation requirements (refer to p. 3-83 of the DSEIS).
p. 1-14, lines 26-49	Powertech suggests describing BLM's involvement in the Section 106 Tribal Consultation process.
p. 1-16, lines 31-38	Powertech suggests adding additional discussion in Section 1.7.3.4 regarding USGS research involving the proposed Dewey-Burdock Project. As described in a presentation by Raymond Johnson, a USGS hydrologist, at the May 2-3, 2012 NMA/NRC Uranium Recovery Workshop in Denver, Colorado, research completed to date includes publication of a USGS open-file report containing geochemical data (Johnson, 2012), and reactive transport modeling to simulate the geochemistry of: 1) uranium roll-front deposition, 2) current groundwater conditions, 3) ISR processes, 4) aquifer restoration, and 5) long-term groundwater quality after aquifer restoration (Johnson, 2011). Initial results from the reactive transport modeling presented at the NMA/NRC Uranium Recovery Workshop indicate the presence of strongly reducing conditions downgradient of the uranium deposits that will restrict the migration of mobilized uranium (and other dissolved constituents) away from the wellfields.
p. 1-19, line 1	When discussing the identification of "any" historic properties at the proposed project site, it must be clearly stated that such properties must be "identified" and not imply that there are unidentified properties.

CHAPTER 2 - *IN-SITU* URANIUM RECOVERY AND ALTERNATIVES

p. 2-3, line 27 — Please refer to the comment on p. xxxiii, line 7, which describes how Pass Creek is ephemeral within the proposed project area. Please change "Pass Creek (intermittent)" to "Pass Creek (ephemeral)."

p. 2-4, Fig. 2.1-2 — Powertech suggests modifying the legend to reflect that many of the depicted uranium milling sites are proposed or potential future sites. Powertech also suggests adding the Strata Energy, Inc. proposed Ross ISR Project (refer to the comment on p. 5-5, Table 5.1-1).

p. 2-5, Fig. 2.1-3 — Please change "BSNF Railroad" to "BNSF Railroad."

p. 2-6, lines 44-45 — The statement is made that "the applicant estimates that 5.3 ha [13 ac] of topsoil would be stripped, stockpiled, and replaced." Powertech revised the estimate of disturbed acreage that will require topsoil stripping as part of the revised 2012 emissions inventory. In the deep disposal well option, the area requiring topsoil stripping is up to 243 acres, representing the anticipated disturbance area. In the land application option, the maximum topsoil stripping area does not include the entire center pivot areas, but only the areas of the catchment berms and areas of minor grading within center pivot areas. The estimated area requiring topsoil stripping in the land application option is up to 433 acres. Powertech suggests revising this statement to read, "Over the life of the project, the applicant estimates that the area of topsoil to be stripped, stockpiled, and replaced would be up to 98 ha [243 ac] for the deep disposal option and up to 175 ha [433 ac] for the land application option."

p. 2-7, line 47 — The statement is made that the administrative building is shown on Figure 2.1-5. The office/administration building is shown on Figure 2.1-4, as indicated on line 17 of this page. Powertech suggests removing the text "and administrative building."

p. 2-11, lines 13-15 — The resource estimate has been updated in the April 17, 2012 Dewey-Burdock Project NI 43-101 Technical Report (SRK Consulting, 2012). The current estimate is 11.2 million pounds contained in 2.8 million tons of ore, averaging 0.198% U_3O_8. At an estimated recovery rate of 75%, the estimate of recoverable uranium is 8.4 million pounds U_3O_8. Powertech suggests revising this statement to read, "The estimated resource suitable for ISR within the proposed project area is 5.08 million kg [11.2 million lb] of U_3O_8 with an average grade of 0.198%. At an estimated recovery rate of 75%, the estimated recoverable uranium is 3.8 million kg [8.4 million lb] U_3O_8 (SRK Consulting, 2012)."

p. 2-16, lines 13-15 — Powertech suggests modifying the description of an excursion to state that an excursion happens "at a monitoring well."

p. 2-16, lines 30-32 Powertech suggests modifying the discussion on perimeter monitoring well spacing for consistency with Section 7.3.1.2 (p. 7-10), which describes how the minimum spacing will be either 400 ft or the spacing that will ensure that no greater than a 70-degree angle will occur between adjacent perimeter monitoring wells and the nearest injection well.

p. 2-17, lines 24-28 The statements are made that monitoring well locations will be determined after pump testing is complete and that monitoring well programs must be presented to EPA for administrative approval before installing proposed wells. The first statement is inconsistent with DSEIS Section 2.1.1.2.3.3, which describes how pumping tests will demonstrate hydraulic connection between the production zone and perimeter wells, and hydraulic isolation between the production zone and overlying and underlying monitoring wells. The second statement does not reflect Powertech's current understanding of the EPA injection authorization process. In the revised Class III UIC permit application submitted in July 2012 (ML12244A520), Powertech commits to providing injection authorization data packages to EPA following monitoring well installation and pump testing. These will contain much of the same information as the wellfield hydrogeologic data packages that will be submitted to NRC for review and written verification (all wellfields except B-WF6 through B-WF8) or review and approval (B-WF6 through B-WF8). Powertech suggests modifying this paragraph as follows:

"The production zone monitor ring and overlying and underlying monitor wells will be designed for each wellfield based on production and injection well locations and site-specific lithologic and hydrologic characteristics of production zones and overlying and underlying hydrogeologic units gathered during delineation drilling."

p. 2-17, lines 39-40 Powertech suggests revising the second type of monitor well in the list to make it clear that these would be used as production wells after baseline characterization. The suggested revised description is, "(ii) monitor wells within the production zone (used for baseline characterization and later converted to production wells) at a minimum density of one per 1.6 ha [4 ac]."

p. 2-18, lines 23-26 The DSEIS fails to mention that by license condition all wellfield hydrogeologic data packages will be submitted to NRC for review and written verification. Powertech suggests revising this sentence as follows, "By license condition, all wellfield hydrogeologic data packages must be submitted to NRC for review and written verification prior to operating each wellfield. In addition, wellfields in the partially saturated ..."

p. 2-20, lines 27-28 Powertech has updated the well plugging procedures in the revised EPA Class III UIC application (ML122440623), the SDDENR Inyan Kara water appropriation permit application (ML121920020), and the SDDENR

	large scale mine permit application (Powertech, 2012). The updated commitment is to plug all wells in accordance with ARSD 74:02:04:67 with bentonite or cement grout, with the weight and composition of grout sufficient to control artesian conditions and meet the well abandonment standards of South Dakota. Powertech suggests changing this statement to, "The applicant plans to plug wells in accordance with SDDENR regulations under ARSD 74:02:04:67."
p. 2-21, lines 13-14	Powertech suggests using kPa rather than kg/cm^2 as the standard SI pressure unit.
p. 2-21, line 24	Powertech suggests using kPa rather than kg/cm^2 as the standard SI pressure unit.
p. 2-24, lines 1-11	While NRC staff have stayed out of the dispute between EPA and industry regarding the applicability of 40 CFR Part 61, Subpart W (unlike with Subparts I and T), the statements here appear to indicate that NRC staff conclude that an ISR operator will require a CAA permit under these regulations in order to operate. This statement should be deleted from the DSEIS, because it is inaccurate legally. The National Mining Association (NMA) already has provided EPA with a detailed legal memorandum showing that the current EPA interpretation of these regulations is incorrect legally. In any event, if NRC chooses not to engage with EPA regarding its unnecessary, duplicative requirements, at least the DSEIS should refrain from using statements that lend undue credence to EPA's current position that such regulations apply to ponds at ISR facilities.
p. 2-24, line 3	Powertech has designed the ponds to maintain 3.0 ft, not 3.3 ft, of freeboard. Please change this statement to "...while maintaining 0.9 m [3 ft] of freeboard ..."
p. 2-25, line 26	Please change the Powertech (2012) reference to Powertech (2012a).
p. 2-25, lines 35-40	The standby land application areas and number of each size of pivot in the Dewey area do not represent the latest designs in Powertech (2012a) [Chapter 2 reference designation]. Suggested revisions follow: "The total irrigated area at any given time in the Dewey area would be 127.5 ha [315 ac], consisting of five 20.23-ha [50-ac] pivots, two 10.12-ha [25-ac] pivots, and one 6.1-ha [15-ac] pivot (Powertech 2012a). In addition, two 12.12-ha [25-ac] pivots and one 6.1-ha [15-ac] pivot would be on standby. The total irrigated area ..."
p. 2-25, line 45	Please change "wellfields areas" to "wellfield area."
p. 2-25, line 46	Please change "land applications areas" to "land application areas."

p. 2-26, Fig. 2.1-12 The right side of the legend is cut off.

p. 2-28, line 9 Please change "1 m [3.3 ft]" to "0.9 m [3 ft]" (refer to comment on p. 2-24, line 3)

p. 2-30, lines 25-26 The excursion definition in lines 25-26 does not match that in lines 46-47. Powertech suggests revising this statement to read, "This program would be designed to detect and correct any condition that could lead to the unintended spread of lixiviant either horizontally or vertically outside of the production zone, which could lead to an excursion (Powertech, 2009a)."

p. 2-33, lines 41-42 The anticipated dryer temperature is 250 °F. This was correctly described on p. 4-4 of the Technical Report, but incorrectly described as 450 °F in the Environmental Report. Powertech suggests changing the temperature and reference as follows: "The dryer operates at a temperature of approximately 121 °C [250 °F] ... (Powertech, 2009b)."

p. 2-34, lines 32-36 Powertech requests removal of "well development water" and "pumping test water" from the liquid waste streams that are handled in the same manner as the production bleed. Pumping test water generated prior to ISR operations in a given well field and well development water from monitoring wells and from production and injection wells prior using the wells for ISR operations is considered TENORM.

p. 2-36, lines 3-6 The statement that restoration will begin "immediately" following cessation of production operations is inconsistent with the flexibility outlined in 10 CFR Part 40, Appendix A which uses the terms "as soon as reasonably achievable or practicable." There is always a possibility that production in adjacent wellfields might be ongoing even if groundwater restoration in a wellfield is delayed. In many instances, delays in restoration while production moves in an adjacent wellfield further from the adjoining wellfield boundary promotes more efficient restoration. Powertech requests modifying this statement to read, "The applicant proposes to begin restoring the initial wellfields in the Burdock and Dewey areas as soon as reasonably achievable or practicable after production activities are terminated." In addition, the statement that one wellfield will be in production and one in restoration in both areas during the life of the project does not reflect the anticipated wellfield operation and decommissioning schedule in Figure 6.1-1 in the June 2011 TR RAI responses (Powertech, 2011 reference in Chapter 2). This figure shows that multiple wellfields may be in production at one time and that restoration will follow production in each wellfield. Powertech suggests revising this statement to read, "As new fields are opened, the applicant plans to restore each wellfield as soon as reasonably achievable or practicable following production (Powertech, 2011)."

p. 2-36, line 15	Powertech suggests changing "that was mined" to "in the production zone."
p. 2-37, lines 15-18	In the groundwater sweep option, the restoration bleed would be approximately 42 gpm in each of the Dewey and Burdock areas. Powertech suggests revising this statement as follows: "... which would result in an average restoration bleed of approximately 17 percent, or approximately 159 Lpm [42 gpm] of water being removed from the production aquifer in each of the Dewey and Burdock areas under both disposal options (Powertech, 2011)."
p. 2-37, line 29	Powertech suggests changing "... background water quality conditions have been restored in the wells" to "... water quality has been restored consistent with 10 CFR Part 40, Appendix A, Criterion 5(B)(5)."
p. 2-37, line 42	Powertech suggests removing the phrase "water quality equivalent to or."
p. 2-38, line 17	The DSEIS does not define what "significant increasing trends" are for purposes of groundwater restoration. This is a critical element for a licensee to understand what is expected in restoration.
p. 2-38, lines 28-29	Powertech suggests revising the statement as follows: "... the applicant will restore each wellfield as soon as reasonably achievable or practicable following production (Powertech, 2011)" (refer to comment on p. 2-36, lines 3-6).
p. 2-38, line 32	Please switch 13 and 28 to read, "... which are 21 to 80 km [13 to 50 mi] ..."
p. 2-39, lines 44-45	Powertech requests clarification on the statement that "agencies" are to sign off on restoration. Does this indicate that NRC staff will require concurrence from other agencies such as SDDENR or BLM prior to approving groundwater restoration? If the case is that Powertech will need other approvals under different regulatory regimes, then NRC staff should clarify this statement.
p. 2-40, lines 1-2	The ARSD 74:11:08 regulations apply to drill holes, but injection, production, and monitoring wells will be abandoned in accordance with ARSD 74:02:04:67 (please refer to comment on p. 2-20, lines 27-28). Powertech suggests revising this statement to read, "... according to SDDENR regulations established in ARSD 74:02:04:67 and 74:11:08 ..."
p. 2-41, line 26	Please switch 13 and 28 to read, "... which is 21 to 80 km [13 to 50 mi] ..."
p. 2-42, lines 8-10	The list of mitigation measures for fugitive dust control does not include the important mitigation measure of watering roads and disturbed areas,

	the commitment for which was made in the ER RAI responses. Powertech suggests revising this statement to read, "The applicant proposes imposing speed limits on unpaved roads, using water spray on unpaved roads and disturbed areas, encouraging carpooling ... (Powertech, 2009a, 2010a)."
p. 2-42, lines 15-16	The DSEIS incorrectly states that the prevailing wind direction is from the southeast. The prevailing wind direction shown in Figure 3.7-1 is from the northwest. Also, the reference to Section 3.7.2.1 appears to apply to Section 3.7.1.2. Powertech suggests changing this statement to read, "SEIS Section 3.7.1.2 identifies the prevailing wind direction as from the northwest, which would result in dust being moved in a southeast direction."
p. 2-42, line 31	Please move the partial sentence beginning with "remaining life ..." up to the previous paragraph.
p. 2-43, Table 2.1-2	Please change the source Powertech (2012) to Powertech (2012b).
p. 2-44, Table 2.1-3	Please change the source Powertech (2012) to Powertech (2012b).
p. 2-45, Table 2.1-4	The annual greenhouse gas emission estimates overstate the mobile source greenhouse gas emissions by a factor of more than 2. The values in this table are from the original emissions inventory (Powertech, 2010a in the Chapter 2 references) and do not reflect the recently updated inventory (Powertech, 2012b in the Chapter 2 references). Since combustion and fugitive emissions in Tables 2.1-3 and 2.1-5 are based on the revised emissions inventory, Powertech requests that the greenhouse gas emissions estimates also should be updated.
p. 2-45, Table 2.1-5	Please change the source Powertech (2012) to Powertech (2012b).
p. 2-45, lines 7-8	Powertech suggests clarifying that the assumption that all four project phases will occur simultaneously results in conservatively high emissions estimates. Notably, full-scale decommissioning typically will not occur at the same time as wellfield construction.
p. 2-46, Table 2.1-6	Please change the source Powertech (2012) to Powertech (2012b). Also, no reference source is listed in the Chapter 2 references for Inter-Mountain Labs (2012).
p. 2-46, line 29	Please change "... of any air permit ..." to "... of any criteria air pollutant ..."
p. 2-47, lines 15-16	The 921 curies/year estimate of Rn-222 release is the current value, but this is from the updated MILDOS-AREA input parameters submitted as Appendix 7.3-C in the June 2011 TR RAI responses. Powertech suggests changing the reference from (Powertech, 2009b) to (Powertech, 2011).

p. 2-48, text box — Please change the definition of solid byproduct material to not include all solid wastes but only solid waste that does not meet the NRC criteria for unrestricted release and which must be disposed at a licensed disposal site. For example, the solid drill cuttings resulting from well field construction are not 11e.(2) byproduct material, but rather they are considered to be TENORM as described in the Commission's decision on the Hydro Resources, Inc. Crownpoint Uranium Project (CLI-06-14, 63 NRC 510, 518-520, May 16, 2000). Powertech requests that this language be revised to exclude such solid wastes from the definition of "solid byproduct material."

p. 2-48, lines 47-49 — The reference to RCRA regulations should be removed because it is not relevant for liquid waste generated during operations or restoration, as 11e.(2) byproduct material is specifically exempt from RCRA.

p. 2-49, lines 39-41 — The potential land application crop list and growing season do not match the updated information in the GDP permit application (Powertech, 2012a in the Chapter 2 references). Powertech suggests revising this statement as follows: "Treated wastewater would be pumped through center pivot sprinklers during the growing season, which is approximately April through October (Powertech, 2011). The applicant anticipates that irrigated crops may include native vegetation, alfalfa, or salt-tolerant wheatgrass (Powertech, 2012a). During winter months (i.e., November through March), when land application would not be used, treated liquid waste would be temporarily stored in ponds located near the Burdock central plant and Dewey satellite facility (Powertech, 2011, 2012a)."

p. 2-52, lines 17-18 — The previous estimate of 205 commuting workers during construction and the assumption that there would not be carpooling are out of date. Please refer to the comment on p. 2-53, Table 2.1-7. Powertech suggests changing this to read, "The applicant estimated that 22 passenger vehicles per day would commute during the facilities construction period and 16 vehicles per day during wellfield construction. These estimates are based on the applicant's commitment to implement an employee carpooling policy, potentially including providing buses from Edgemont."

p. 2-53, Table 2.1-7 — Powertech has updated traffic estimates based on the implementation of a carpooling policy, which will potentially include providing buses from Edgemont during construction and operations. Following are the revised passenger vehicle traffic estimates during the various project phases. The peak number of passenger vehicles is based on the conservatively high estimate that four project phases will occur simultaneously (wellfield construction, operations, aquifer restoration, and decommissioning); the peak estimate is 55 passenger vehicle round trips per day or 110 one-way trips. Powertech requests that Table 2.1-7 be updated accordingly.

Phase	Estimated Daily Passenger Vehicles (round trips)
Construction — Facilities	22
Construction — Wellfields	16
Operations	27
Aquifer Restoration	5
Decommissioning	7

In addition, it appears that Table 2.1-7 is mislabeled and should be "Estimated Daily Vehicle Trips (Round Trips)" instead of "Estimated Daily One-Way Vehicle Trips". Powertech reiterates that the values provided above are round trip estimates and should be doubled for one-way trips (e.g., for Table 4.3-1).

p. 2-53, line 2 — Powertech suggests revising this section to be called "Financial Assurance," since this term encompasses all forms of financial assurance such as surety bonds and letters of credit. In addition, Powertech suggests mentioning that Powertech has committed to preparing a restoration action plan (RAP), which will be provided as an appendix to the final Technical Report. The RAP will compile the financial assurance estimate and information on aquifer restoration, decontamination and decommissioning into one stand-alone document that will be easier to review and update.

p. 2-54, lines 4-5 — Powertech requests clarification on how NRC staff plan to deal with the possession of the financial assurance instrument itself, including whether NRC, the State of South Dakota, or another entity (e.g., standby trust) will hold the financial assurance instrument.

p. 2-57, Table 2.1-8 — Please define the asterisk that is used under Climatic Influences for the Class V Injection Well Option: "... typical production well)*."

p. 2-58, lines 43-49 — These statements should be revised because they are internally inconsistent. The statements initially state that EPA does not permit surface discharge of ISR liquid waste per 40 CFR Part 440; but then it states that such liquid waste must be pretreated before it is discharged. These statements should be changed correct this inconsistency.

p. 2-59, lines 13-24 — Powertech suggests adding a discussion of the potential benefits that would not occur under the No-Action alternative. These include job creation; contribution to local, regional, and state revenues; and contribution toward domestic energy independence.

p. 2-59, lines 28-32 — The requirement to consider alternatives is described as part of NEPA regulations. As on many occasions, NRC staff is incorrect in this characterization as the agency's requirements for environmental reviews, including the consideration of alternatives, are found at 10 CFR Part 51,

which is the Commission's interpretation of CEQ regulations. This statement should be revised accordingly.

p. 2-67, Table 2.3-1 Please refer to the comment on p. 4-166, lines 41-51, which provides justification for a SMALL to MODERATE or MODERATE positive impact on local finance during ISR operations.

p. 2-68, line 24 Powertech requests that the potential impact to Dewey Road during construction and operations be changed to "SMALL" (please refer to the comments on p. 4-15, line 19 and p. 4-19, line 20).

p. 2-68, lines 28-32 Please refer to the comment on p. xxxv, lines 17-19, which requests that qualifying statements be added concerning potential contaminant migration from open mine pits during aquifer restoration.

p. 2-69, lines 1-3 Please refer to the comment on p. xlv, lines 14-16. Powertech suggests modifying this statement to acknowledge that avoidance of 12 eligible or potentially eligible sites is possible during construction and, therefore, no impacts are anticipated. Powertech suggests revising this statement to read, "Construction could have a MODERATE or LARGE impact on 6 historic properties--those sites currently listed or eligible for listing on the NRHP and for which mitigation may be necessary--and other ..."

p. 2-69, lines 24-25 Powertech suggests modifying this statement to reflect that tax revenues will accrue to the State of South Dakota as well as the region around the proposed site. The suggested revised statement would read, "The benefits of building and operating the proposed project will be increased employment, economic activity, and contribution to local, regional, and state tax revenues."

CHAPTER 3 - DESCRIPTION OF THE AFFECTED ENVIRONMENT

p. 3-1, line 38 Please add Section 30 to the list of whole sections included in the Dewey area.

p. 3-3, lines 12, 15 Please change "Putnum" to "Putnam." Powertech previously misspelled the landowner's name.

p. 3-3, line 18 Please add space in "[0.8mi]."

p. 3-3, Table 3.2-1 Please change "Daniels" to "Daniel," "Anderson" to "Andersen" and "Putnum" to "Putnam." Powertech previously misspelled the landowners' names.

p. 3-3, Table 3.2-1 Please change the location of the Spencer residence from Section 4 to Section 3. This was incorrectly identified as being in Section 4 in the ER RAI responses.

p. 3-5, Fig. 3.2-2 — Powertech suggests revising the legend to indicate that the depicted uranium ISR facilities are proposed or potential future facilities.

p. 3-6, line 22 — Powertech requests that "reserves" be changed to "resources" when describing the potential Dewey Terrace and Aladdin projects.

p. 3-6, line 36 — Please change "...another nine plugged and abandoned test wells ..." to "... another ten plugged and abandoned test wells ..." This is consistent with Figure 3.2-4, which shows ten test wells outside of the project boundary but within 2 km of the project boundary.

p. 3-11, Fig. 3.3-1 — Powertech requests that this figure use Powertech (USA) Inc. rather than the parent company, Powertech Uranium Corp. In addition, Powertech suggests modifying this figure to show that many of the depicted uranium milling sites are proposed or potential future sites. Finally, Powertech suggests adding the Strata Energy, Inc. proposed Ross ISR Project to this figure.

p. 3-12, Table 3.3-1 — This table estimates that the baseline traffic on Dewey Road is 25 vehicles per day and notes in the sources that "the Dewey count is from 2009 (BLM, 2009a)." Based on Powertech's local knowledge, this seems to be an unreasonably low estimate of the current traffic levels on Dewey Road, since this road is routinely used by several dozen residents, school buses, and railroad maintenance and crew transport vehicles. Powertech reviewed the BLM (2009a) source and found that the estimate was not based on a 2009 count but the low end of an estimate made in 2008 by a Custer County Highway Department employee: "No records were available for traffic counts. However, the Custer County Highway Department believes that traffic on Dewey Road may be as small as 25 cars per day or less ..." To obtain a current estimate of Dewey Road traffic, Fall River County conducted a 48-hour traffic count on Dewey Road between Edgemont and the project area on December 19-21, 2012. The results of that traffic count are provided in Attachment A. The daily, 24-hour traffic counts ranged from 189 to 261 vehicles, averaging 225 vehicles per day. Although the duration of this traffic count is relatively brief, it provides a quantitative estimate of current traffic during a time of year when traffic may be lower than at other times of the year (i.e., cattle shipments were not occurring and the railroad was not performing any major maintenance activities). Based on the 2012 traffic count, Powertech requests that the Table 3.3-1 traffic estimate on Dewey Road be changed from 25 to 225 vehicles per day.

p. 3-12, lines 31-32 — Powertech questions the statement that ore-bearing stratigraphic units in the Black Hills represent the Jurassic and Triassic periods, since the previous paragraph notes that economically significant discoveries are limited to the Lower Cretaceous Inyan Kara Group.

p. 3-15, line 7 — Powertech suggests changing the lower limit of the typical uranium deposit depth to 800 ft for consistency with p. 3-18, line 32. Powertech suggests that this statement be revised to read, "... ranging from 30 to 244 m [100 to 800 ft]."

p. 3-17, lines 7-10 — Powertech requests revising the discussion to indicate that the Graneros Group contains the Belle Fourche Shale in addition to the Skull Creek and Mowry Shales. This is consistent with the statement on p. 3-15 (line 45) and Figure 3.4-4. Powertech suggests that the statements be revised as follows: "The Morrison Formation and Graneros Group (Skull Creek, Mowry and Belle Fourche Shales) form the lower and upper confining units ... The combined Skull Creek-Mowry-Belle Fourche Shale is often referred to as the Graneros Group."

p. 3-17, lines 14-17 — The statement that aquifer pumping tests indicate a hydraulic connection between the Lakota and Fall River formations through the intervening Fuson Shale resulting from unidentified structural features or old unplugged exploration holes does not reflect the more current interpretation of the historical pumping tests and recent numerical modeling. Please refer to p. 4-62 of the DSEIS, which describes how Powertech concluded based on numerical modeling that vertical leakage through the Fuson Shale, where it has been observed in only limited instances, is caused by improperly installed wells or improperly abandoned boreholes. Please also refer to the comment on p. 4-62, lines 4-15, which states that leakage through the Fuson Shale has been observed only in very limited areas and is primarily attributed to an historical well completed in both the Fall River and Chilson aquifers. Powertech requests that this statement be revised to read, "As described in SEIS Section 3.5.3.2, aquifer pumping tests have provided data indicating a hydraulic connection between the Chilson Member of the Lakota Formation and the Fall River Formation through the intervening Fuson Shale in the Burdock area. The applicant concluded based on numerical modeling that vertical leakage through the Fuson Shale, in the limited instances where it has been observed, is caused by improperly installed wells or improperly abandoned exploration holes and is primarily attributed to an historical well completed in both the Fall River and Chilson aquifers."

p. 3-18, lines 19-21 — The statement that the Fuson Member ranges in thickness from 20 to 80 ft does not reflect the updated information in the June 2011 TR RAI responses (Powertech, 2011 in the Chapter 3 references) or information contained in Gott, et al., 1974 (also in the Chapter 3 references). As described in the RAI response document, the Fuson Shale is a subunit of the thicker Fuson Member. The Fuson Shale has been mapped by Powertech and consists of 20 to 80 feet of low-permeability shales and clays. Gott, et al. (1974) estimate that the Fuson Member, "where it is present ... is as much as 180 feet thick and averages about 100 feet thick." Powertech suggests revising this statement as follows: "The Fuson

Member is estimated to have an average thickness of 30 m [100 ft] in the southern Black Hills (Gott, et al., 1974). The Fuson Shale, which is the shale-siltstone portion of the Fuson Member, has been mapped by the applicant and ranges in thickness from 6 to 24 m [20 to 80 ft] within the proposed project area (Powertech, 2011)."

p. 3-18, lines 35-36 Powertech revised the calculated average ore zone thickness in the June 2011 TR RAI responses (Powertech, 2011 in the Chapter 3 references). Please update this statement to read, "The calculated average thickness of individual ore zones is 1.4 m [4.6 ft] with an average ore grade of 0.198 percent U_3O_8 (Powertech, 2011, 2009a)."

p. 3-18, lines 43-44 Powertech suggests revising the statement as follows: "The Skull Creek Shale is the basal unit of the Graneros Group, which forms the upper confinement for the uranium mineralization. The Skull Creek Shale has a thickness of ..."

p. 3-19, lines 3-4 Powertech suggests revising the statement as follows: "The Mowry Shale, together with the Skull Creek Shale and Belle Fourche Shale, also is considered to be part of the Graneros Group, which is the upper confining unit ..."

p. 3-19, lines 6-8 Powertech suggests moving the last two sentences in this paragraph to a new paragraph as follows:

Belle Fourche Shale

The uppermost unit of the Graneros Group is the Belle Fourche Shale. This 91-m [300-ft]-thick unit consists of thin-bedded gray to black soft shale, containing black to reddish-brown ironstone concretions, which are particularly abundant in the basal 6 to 9 m [20 to 30 ft]. There is bentonite production from the lower part of the Belle Fourche Shale, but not within the proposed project area. The combined thickness of the Graneros Group, including the Skull Creek, Mowry and Belle Fourche Shales, is over 168 m [550 ft] in the southwestern portion of the proposed project area (i.e., the Dewey Area) (Powertech, 2011). In the eastern part of the Burdock area the Graneros Group shale units have been eroded and are absent (Figure 3.4-3).

p. 3-19, line 11 Powertech suggests adding a discussion at the end of Section 3.4.1.2 that addresses breccia pipes. Breccia pipes are mentioned in Section 3.5, but are not currently introduced in the geology discussion. An example discussion follows:

Breccia Pipes

Breccia pipes have been studied and mapped in the southern Black Hills and are known to originate in anhydrite and gypsum sequences within the upper portion of the Minnelusa Formation. Dissolution of these evaporite sequences by underlying Minnelusa and/or Madison artesian water created solution cavities into which overlying Permian sediments collapsed. The areal extent of dissolution is limited to within a few miles downgradient from the Minnelusa outcrop. The probable maximum downgradient limit of dissolution, or dissolution front, has been mapped by the USGS and is more than 6 miles northeast of the proposed project area. There is no evidence of dissolution of the Minnelusa in the proposed project area based on evaluation of an electric log from an abandoned oil and gas test well within the proposed project area. In areas where there has been no dissolution, there is no geologic foundation for the creation of breccia pipes in overlying sediments.

The applicant presented further evidence against the presence of breccia pipes in the proposed project area, including exploration drilling, field investigations for breccia pipes, an evaluation of Inyan Kara water temperatures, regional pumping tests, evaluation of color infra-red imagery, and numerical groundwater modeling (Powertech, 2011; Petrotek, 2012).

p. 3-19, line 17 — As described in the SDDENR large scale mine permit application (Powertech, 2012), the soil survey encompassed 10,557 acres. This is the same area as shown on Plate 2.6-15 (Soil Map) in the Technical Report. In addition, the 3,065.74 acres of disturbance identified in the soil survey were based on an initial estimate of the wellfield and monitoring ring extents and do not reflect the actual area anticipated to be disturbed. Powertech suggests revising this statement to read, "The survey included a total of 4,272 ha [10,557 ac]."

p. 3-20, lines 7-20 — Powertech questions why the discussion on artificial penetrations is included in the seismology section and suggests moving this discussion to the geology section.

p. 3-20, lines 11-14 — Powertech suggests adding a statement to the discussion on artificial penetrations to indicate that there were South Dakota regulations in place governing exploration hole plugging at the time TVA drilled the exploration holes. The suggested revision includes: "While the applicant cannot confirm … (Powertech, 2009b, 2011). Furthermore, there were state regulations in place governing exploration hole plugging at the time the historical exploration occurred, and the applicant has stated that documentation from the State of South Dakota indicates that these procedures were followed."

p. 3-20, line 40	Powertech suggests revising this statement to read, "Pass Creek, which within the proposed project area is an ephemeral stream that supports some intermittent habitat, is dry for most ..." (Please refer to the comment on p. xxxiii, line 7).
p. 3-21, Fig. 3.5-1	The depicted locations for the Dewey-Burdock Project and potential Dewey Terrace and Aladdin projects are incorrect and do not match Figure 2.1-2 (e.g., the Dewey-Burdock Project is shown south of the Beaver Creek watershed rather than predominantly within the Beaver Creek watershed. Also, Powertech suggests revising the legend for uranium milling sites to indicate that most are proposed or potential sites. Finally, Powertech questions why other potential or proposed uranium milling sites such as the potential Crow Butte expansion projects or the proposed Strata Energy, Inc. Ross ISR Project are not depicted on this figure.
p. 3-22, Fig. 3.5-2	Powertech suggests revising the legend to make it clear that alluvial samples were collected from wells and are not surface water samples.
p. 3-23, line 26	Please change this statement to read, "With the exception of the Darrow Pit #2, the Darrow pits ..." (omit the word "other").
p. 3-24, lines 2, 5	The statement that Beaver Creek is classified for cold water fish propagation is no longer accurate. According to ARSD 74:51:03:08, Cheyenne River and Certain Tributaries' Uses, Beaver Creek and the Cheyenne River near the proposed project area are both currently classified for warm water semipermanent fish life propagation and limited-contact recreation.
p. 3-25, line 16	Please move text up from the following page to avoid the hanging sentence.
p. 3-26, line 5	Please change the statement to "... the 6.5 standard for warm water semipermanent fish life propagation waters." According to ARSD 74:51:01:48, the lower pH criterion is 6.5 standard units for warm water semipermanent fish life propagation.
p. 3-28, Table 3.5-3	Please change Powertech (2009)a to Powertech (2009a).
p. 3-29, line 28	Please change "consisting on" to "consisting of."
p. 3-32, lines 8-11	The statement is made that confining layers between the Minnelusa and Madison may be absent or provide ineffective confinement. While regionally there are collapse features, faults, and other features that may provide communication between the Minnelusa and Madison, there is no evidence for such features within the project area. As DENR pointed out in the Report to the Chief Engineer on the Madison water appropriation

permit application (DENR, 2012), "The water levels of DENR-Water Rights' observation wells in the area indicate very distinct potentiometric surfaces in the Minnelusa and Madison, and suggest the aquifers are hydraulically separated." Further, combining the statement that there are locations with communication between the Minnelusa and Madison with the statement that the Madison is used as municipal water supply in Rapid City and Edgemont may imply that Class V injection into the Minnelusa could jeopardize the water quality at these municipalities. In fact, Powertech will be required to demonstrate that there is adequate confinement between these formations prior to receiving authorization to inject into the Class V wells from EPA (refer to DSEIS p. 4-53). Therefore, Powertech suggests omitting the statement concerning municipal use of the Madison in this section, since that is already included in Section 3.5.3.4 (p. 3-37). Powertech suggests revising this statement as follows:

"In some locations, these confining layers may be absent or provide ineffective confinement; this could enhance the hydraulic connection between the Minnelusa aquifer and the underlying Madison aquifer (Naus et al., 2001). However, SDDENR concluded based on water levels in Minnelusa and Madison observation wells in the area that there is a significant difference in the potentiometric surfaces of the Minnelusa and Madison, suggesting that the aquifers are hydraulically separated in the vicinity of the proposed project area (SDDENR, 2012a). Further, the UIC permit will not allow injection into the Class V deep disposal wells unless the permittee demonstrates the wells are properly sited, such that confinement zones and proper well construction minimize the potential for migration of fluids outside of the approved injection zone."

p. 3-32, lines 11-13 Powertech disagrees with the statement that the Minnelusa Formation is considered to be in hydraulic connection with the Inyan Kara aquifer through breccia pipes on a regional scale. In the TR RAI responses, Powertech provided USGS mapping that shows that the Minnelusa dissolution front (and probable limit of collapse breccias) does not extend into the Inyan Kara Group either regionally or within the proposed project area. Also, in line 13 please change "collapsed structures" to "collapse structures."

p. 3-32, lines 19-20 The statement that no indication for the presence of breccia pipes within the proposed project area agrees with Gott, et al. (1974) is not entirely accurate. Gott, et al. (1974) theorized that breccia pipes acted as conduits or pipelines through which large volumes of ascending solutions entered the Inyan Kara Group sediments. As described in the previous comment, USGS mapping shows that Minnelusa dissolution does not extend into the Inyan Kara Group. Therefore, although both Gott, et al. (1974) and the license application found no indication of breccia pipes, collapse structures, or areas containing structures of possible solution origin, the

application demonstrates that these are not anticipated to be found anywhere within the Inyan Kara Group, not just within the proposed project area.

p. 3-32, lines 41-42 Powertech suggests the sentence be revised as follows to improve clarity: "Previous studies have included the Englewood Formation as part of the Madison Aquifer (Strobel, et al., 1999; Driscoll, et al., 2002)."

p. 3-32, line 50 Powertech suggests revising this sentence as follows to improve clarity: "... streamflow recharge to groundwater is limited to aquifer outcrops or subcrops beneath stream valleys. Regionally ..."

p. 3-33, lines 35-47 The discussion on leakage through the Fuson Shale does not reflect the more current interpretation of the historical pumping tests and recent numerical modeling. Powertech suggests revising this section to read, "Based on the 1979 aquifer tests, Boggs and Jenkins (1980) suggested there may be a direct communication between the Fall River and Chilson aquifers through the Fuson resulting from unidentified structural features or old unplugged exploration holes. However, the applicant concluded based on numerical modeling that vertical leakage through the Fuson Shale, in the limited instances where it has been observed, is caused by improperly installed wells or improperly abandoned exploration holes and is primarily attributed to an historical well completed in both the Fall River and Chilson aquifers. Refer to SEIS Section 4.5.2.1.1.2.2, which describes how NRC staff reviewed the applicant's numerical groundwater model and calibration, and it determined that the model was appropriately developed and sufficiently calibrated. Based on logs from thousands of exploration holes within the proposed project area, the Fuson Shale is intact and ranges in thickness from 6 to 24 m [20 to 80 ft] throughout the proposed project area. The confining capacity of the Fuson Shale is evidenced by differences between the Fall River and Chilson potentiometric surfaces throughout most of the proposed project area." (Please refer to the comment on p. 4-62, lines 4-15.)

p. 3-35, line 5 Please change "of18.3" to "of 18.3."

p. 3-35, lines 20-22 Powertech suggests revising this statement to indicate clearly that the site's groundwater flow direction and the regional groundwater flow direction in the vicinity of the site are both northeast to southwest, away from the Black Hills. Powertech suggests revising the statement to read, "... regional flow moves outward radially from the Black Hills, which results in a northeast to southwest regional flow direction in the general vicinity of the proposed Dewey-Burdock ISR Project."

p. 3-35, line 42 Please change "there are no plans" to "it has no plans at present."

p. 3-35, line 45 Please change "in confined" to "to confined."

p. 3-35, line 47	Please change "The applicant is planning ..." to "The applicant is considering ..." Powertech anticipates that the portions of the Chilson targeted for ISR in the eastern part of the project area will be saturated (e.g., the Lower Chilson), although the entire Chilson may not be saturated at these locations.
p. 3-37, lines 29-30	Please change "with an upgradient and downgradient" to "within areas upgradient and downgradient."
p. 3-37, lines 41-43	Powertech suggests modifying the statement that groundwater from the production zone would not be used for public water systems to make it clear that it also is unsuitable for private domestic use without treatment. Powertech suggests further explanation to interested stakeholders what exceeding an EPA MCL means so that it will be understood that prior to the initiation of ISR operations, the groundwater in the ore zone at the proposed project site is not suitable for drinking water purposes.
p. 3-37, line 42	Please change "would not be used as public water systems" to "would not be used in public water systems."
p. 3-38, lines 4-5	Please change "selenium {0.05 mg/L [0.03 ppm]}" to "selenium {0.05 mg/L [0.05 ppm]}."
p. 3-39, lines 21-29	A good reference is provided on the previously proposed EPA MCL for radon. This statement should be strengthened to demonstrate to interested stakeholders that ISR ore zone drinking water is not a "pristine drinking water source."
p. 3-39, line 29	Please change "stock water" to "stock uses."
p. 3-40, Fig. 3.6-1	Powertech requests that this figure use Powertech (USA) Inc. rather than the parent company, Powertech Uranium Corp.
p. 3-41, line 19	Please change "Environmental" to "Environment" in the expanded form of SDDENR.
p. 3-41, line 35	Please change "Pass Creek, an intermittent stream" to "Pass Creek, an ephemeral stream that supports some intermittent habitat" (refer to the comment on p. xxxiii, line 7).
p. 3-45, Fig. 3.6-2	Powertech requests that this figure use Powertech (USA) Inc. rather than the parent company, Powertech Uranium Corp.
p. 3-52, line 1	The stated size of the prairie dog colony on p. 3-52 (794 ac) differs slightly from that on p. 3-60 (795 ac).
p. 3-56, line 17	Please move text up from the following page to avoid the hanging sentence.

p. 3-57, Table 3.6-8	In the note under S3, please change "in the range of 21 of 100" to "in the range of 21 to 100."
p. 3-58, line 24	Please change "Nation" to "National" in Buffalo Gap National Grassland.
p. 3-60, line 1	Please make the stated size of the prairie dog colony consistent with that on p. 3-52, line 1.
p. 3-61, line 19	Please change "the onsite data compare favorably and falls" to "the onsite data compare favorably and fall."
p. 3-62, line 7	Please change "southeast" to "northwest" (refer to the comment on p. 2-42, lines 15-16).
p. 3-62, lines 23-24	The statement that "most snowfall occurs in March" is misleading. While March has the highest average monthly snowfall, it still only accounts for 22% of the annual total on average. Powertech suggests revising this statement to read, "March averages 22 cm [8.5 in] of snowfall and has the highest average monthly snowfall."
p. 3-68, line 20	Please change "Putnum" to "Putnam" (refer to comment on p. 3-3, lines 12, 15).
p. 3-71, line 19	Please change "historic properties listed on or recommended eligible for listing" to "historic properties listed on the NRHP or eligible for listing on the NRHP."
p. 3-71, line 34	It appears that A.D. 950 should be B.C. 10,000 in "12,000 B.P. (before present; A.D. 950)".
p. 3-71, line 46	Please change "Pass Creek (intermittent)" to "Pass Creek (ephemeral)" (see comment on p. xxxiii, line 7).
p. 3-76, line 5	Please change "include additional 54 hearth features" to "include 54 additional hearth features."
p. 3-83, lines 33-34	As will be shown in comments to be submitted by NMA in the near future, NRC staff's case-by-case approach to Tribal Consultation requires serious reconsideration. Regardless of whether the Commission is committed to the spirit of the Executive Order, NRC staff must act decisively as a "lead agency" and designate and achieve timeframes consistently no matter what project is being evaluated. Given that NRC is a fee recovery agency, the indecisiveness and unnecessarily cumbersome consultation processes penalize a license applicant because the applicant must pay for such actions. Powertech encourages the Commission to examine the instant project as a good case study of how this results in inefficient regulation. Further, Powertech strongly encourages NRC staff for its future Powertech project sites that early consultation, whether through mutually agreed upon

	programmatic agreement or other government-to-government agreement, is necessary for such future projects so that meaningful and productive consultation may occur.
p. 3-84, line 49	Please change "Pass Creek (an intermittent stream)" to "Pass Creek (an ephemeral stream that supports some intermittent habitat)."
p. 3-86, line 32	Please change "northwest" to "northeast" to describe that Custer City is northeast of the proposed project area.
p. 3-87, line 32	Please remove the comma in "families, live."
p. 3-88, Table 3.11-3	Please change "Fall County" to "Fall River County" and "Western County" to "Weston County."
p. 3-89, Table 3.11-4	Please change the title from "Housing in Custer and Fall Counties County" to "Housing in Custer and Fall River Counties."
p. 3-89, line 17	Please change "which matched the 5.3 statewide rate" to "which approximately matched the statewide rate."
p. 3-89, line 23	Please remove the comma in "work force, falls."
p. 3-91, Table 3.11-5	Please omit the header row midway down the table that says "School Districts in Custer and Fall River Counties, South Dakota (continued)."
p. 3-95, line 12	Please change this bullet to, "Livestock sampling, consisting of samples from two locally grazing cows and one pig (Powertech, 2011)" (please refer to p. 3-101, lines 45-48, which describes the additional food sampling).
p. 3-95, line 40	Please change "prevailing wind direction is from the southeast" to "prevailing wind direction is from the northwest" (refer to the comment on p. 2-42, lines 15-16). Also, please change the Section 3.7.2.1 reference to Section 3.7.1.2.
p. 3-97, lines 2-3	This statement does not appear to be supported by the prevailing wind direction from the northwest.
p. 3-97, line 9	As described in the August 30, 2012 public meeting between NRC staff and Powertech to discuss the draft license conditions, the five surface mine samples were not outliers, but were biased sampled used to determine the range of Ra-226 concentrations in soil. Powertech suggests changing this statement to read, "Five of the surface mine soil samples were biased samples used to determine the range of Ra-226 concentrations in soil; the concentration in the biased samples exceeded 0.22 Bq/g [5.9 pCi/g] (Powertech, 2011)."

p. 3-102, line 28	Please change "{0.02 μCi ± 0.02 μCi}" to "{0.02 μCi/kg ± 0.02 μCi/kg}."
p. 3-104, line 32	Please change "Section2.1.1.1.6.3" to "Section 2.1.1.1.6.3."

CHAPTER 4 - ENVIRONMENTAL IMPACTS

p. 4-1, line 40	Please change "Environmental" to "Environment" in the expanded form of SDDENR.
p. 4-5, line 11	Please change "Deweysatellite" to "Dewey satellite."
p. 4-5, line 46	Please change "no coal mines ... is located" to "no coal mines ... are located."
p. 4-6, line 41	Please change "Games Fish and Parks" to "Game, Fish and Parks" in the expanded form of SDGFP.
p. 4-7, line 13	Please change "pump houses" to "header houses."
p. 4-7, lines 23-34	The statement is made that the license applicant will "submit the NRC-approved plan." This should be revised to indicate that the license applicant will submit a decommissioning plan "for NRC approval."
p. 4-7, lines 28-29	Powertech suggests using "pre-extraction" or "preoperational" instead of "preextraction."
p. 4-7, line 43	Please remove "or decontaminated in place" to reflect that Powertech will remove all wellfield pipelines and not leave them in place.
p. 4-8, line 1	Powertech suggests using "pre-extraction" or "preoperational" instead of "preextraction."
p. 4-11, line 1	Powertech suggests using "pre-extraction" or "preoperational" instead of "preextraction."
p. 4-11, line 22	Please change "access restrictions associated with the land application option are greater for" to "access restrictions ... are greater than those for."
p. 4-13, line 37	Powertech suggests changing "livestock kills" to "potential impacts to livestock and wildlife."
p. 4-14, line 27	Please change "205 workers" to "86 workers" to reflect the construction workforce estimate in DSEIS Section 4.11.1.1.
p. 4-14, line 41	Please change "State Highway 18" to "U.S. Highway 18."

p. 4-14, line 42 — Please refer to the comment on p. 4-15, Table 4.3-1, which describes how the projected traffic during construction will be up to 76 one-way passenger vehicle trips per day or 94 total vehicle trips (including 18 one-way truck trips) per day. Compared to a baseline traffic level of 225 vehicles per day on Dewey Road, this represents an approximately 42 percent increase in Dewey Road traffic during construction. Powertech suggests revising this statement to read, "The projected traffic on Dewey Road ... represents an increase of about 42 percent above the existing level of traffic."

p. 4-14, line 43 — Please change "State Highway 89 traffic was projected to increase by 68 percent" to "State Highway 89 traffic was projected to increase by 13 percent" (refer to the comment on p. 4-15, Table 4.3-1).

p. 4-15, Table 4.3-1 — Please refer to the comment on p. 2-53, Table 2.1-7, which describes how Powertech has revised the traffic estimate during all four project phases due to the implementation of a carpooling policy. Following are suggested revisions to Table 4.3-1 (please note that the footnotes to the table would also need to be updated):

Road Segment	Traffic Count			Projected Traffic		Percent Increase	
	All Vehicles	Auto	Truck	Auto	Truck	Auto	Truck
Dewey Road	225	225	---	301	18	34	---
US 18 (Edgemont to US 89)	1,782	1,361	421	1,437	439	7	4
US 18 (Hot Springs to SR 79)	5,075	4,725	350	4,801	368	2	5
SR 89 (US 385 to US 18)	659	604	55	680	73	13	33
SR 79 (at US 18)	3,172	2,569	603	2,645	621	3	3

p. 4-15, lines 4-5 — Please change "ranging from 453 to 5,503 vehicles per day" to "ranging from 319 to 5,169 vehicles per day" (refer to the comment on p. 4-15, Table 4.3-1).

p. 4-15, line 19 — Based on the updated Dewey Road traffic estimate and the revised projected traffic estimate, which shows an increase of about 42 percent above the baseline traffic on Dewey Road, Powertech requests that the potential impact magnitude be revised from "MODERATE" to "SMALL" since the impact magnitudes during aquifer restoration and

decommissioning (110 percent increase in Dewey Road traffic in the DSEIS) were determined to result in SMALL impact.

p. 4-16, line 17 — Please change the number of commuting workers during operations from 60 to 84 to reflect the operations workforce estimate in DSEIS Section 4.11.1.2.

p. 4-16, Table 4.3-2 — Please refer to the comment on p. 2-53, Table 2.1-7, which describes how Powertech has revised the traffic estimate during all four project phases due to the implementation of a carpooling policy. Following are suggested revisions to Table 4.3-2. Please note that there appears to be a discrepancy between the methods of addressing truck traffic in Table 4.3-2 versus 4.3-1. In Table 4.3-1, the number of one-way trips (18) was added to each baseline count. In Table 4.3-2, the number of one-way trips (4) was added to Dewey Road but 2 one-way trips were added to the other road segments. The suggested revisions include adding 4 one-way truck trips to each road segment for consistency with Table 4.3-1. Please note that the footnotes to the table would also need to be updated.

Road Segment	Traffic Count			Projected Traffic		Percent Increase	
	All Vehicles	Auto	Truck	Auto	Truck	Auto	Truck
Dewey Road	225	225	---	279	4	24	---
US 18 (Edgemont to US 89)	1,782	1,361	421	1,415	425	4	1
US 18 (Hot Springs to SR 79)	5,075	4,725	350	4,779	354	1	1
SR 89 (US 385 to US 18)	659	604	55	658	59	9	7
SR 79 (at US 18)	3,172	2,569	603	2,623	607	2	<1

p. 4-17, line 5 — Please change "State Highway 18" to "U.S. Highway 18."

p. 4-17, lines 6-7 — Please change "an increase of about five times the existing low level of traffic" to "an increase of about 26 percent above the existing traffic level" (refer to the comment on p. 4-16, Table 4.3-2).

p. 4-17, line 7 — Please change "increase by 20 percent" to "increase by 9 percent" (refer to the comment on p. 4-16, Table 4.3-2).

p. 4-17, lines 13-14 — Please change "ranging from approximately 150 to 5,200 vehicles per day" to "ranging from approximately 280 to 5,130 vehicles per day."

p. 4-17, line 21 — Please consider changing the magnitude of the potential impact from "MODERATE" to "SMALL" (please refer to the comment on p. 4-15, line 19).

p. 4-17, line 5 — Please change "State Highway 18" to "U.S. Highway 18."

p. 4-19, line 40 — Please consider changing the magnitude of the potential impact to Dewey Road from MODERATE to SMALL.

p. 4-20, line 1 — Please change the estimated aquifer restoration workforce from 15 to 9 for consistency with DSEIS Section 4.11.1.3.

p. 4-20, lines 14-15 — Please change "is approximately double the existing low level of traffic" to "is about 4 percent above the existing traffic level."

p. 4-20, Table 4.3-3 — Please refer to the comment on p. 2-53, Table 2.1-7, which describes how Powertech has revised the traffic estimate during all four project phases due to the implementation of a carpooling policy. Following are suggested revisions to Table 4.3-3. Please note that the projected truck traffic was revised below, similar to what is proposed for Table 4.3-2. Please also note that the footnotes to the table would also need to be updated.

Road Segment	Traffic Count			Projected Traffic		Percent Increase	
	All Vehicles	Auto	Truck	Auto	Truck	Auto	Truck
Dewey Road	225	225	---	235	4	4	---
US 18 (Edgemont to US 89)	1,782	1,361	421	1,371	425	<1	1
US 18 (Hot Springs to SR 79)	5,075	4,725	350	4,735	354	<1	1
SR 89 (US 385 to US 18)	659	604	55	614	59	2	7
SR 79 (at US 18)	3,172	2,569	603	2,579	607	<1	<1

p. 4-21, lines 9-11 — Please refer to the comment on p. 4-21, Table 4.3-4 for proposed revisions to the projected traffic during decommissioning. Based on the proposed revisions to Tables 4.3-1 through 4.3-4, Powertech proposes revising this statement to read, "The projected auto and truck traffic for the decommissioning phase for all road segments evaluated is lower than the projected traffic from the construction and operations phases, and approximately equal to the projected traffic from the aquifer restoration phase."

p. 4-21, lines 15-16 Please change the statement to read, "The projected daily traffic on Dewey Road, the nearest road to proposed site, is approximately 6 percent above the existing traffic level" (refer to the comment on p. 4-21, Table 4.3-4).

p. 4-21, Table 4.3-4 Please refer to the comment on p. 2-53, Table 2.1-7, which describes how Powertech has revised the traffic estimate during all four project phases due to the implementation of a carpooling policy. Following are suggested revisions to Table 4.3-4. Please note that the footnotes to the table would also need to be updated.

Road Segment	Traffic Count			Projected Traffic		Percent Increase	
	All Vehicles	Auto	Truck	Auto	Truck	Auto	Truck
Dewey Road	225	225	---	239	2	6	---
US 18 (Edgemont to US 89)	1,782	1,361	421	1,375	423	1	<1
US 18 (Hot Springs to SR 79)	5,075	4,725	350	4,739	352	<1	1
SR 89 (US 385 to US 18)	659	604	55	618	57	2	4
SR 79 (at US 18)	3,172	2,569	603	2,583	605	<1	<1

p. 4-23, line 3 Please change "State Highway 18" to "U.S. Highway 18."

p. 4-23, line 5 Please change "ranging from 453 to 5,503 vehicles per day" to "ranging from 319 to 5,169 vehicles per day" (refer to the comment on p. 4-15, Table 4.3-1).

p. 4-23, lines 10-14 Powertech suggests changing these statements as follows: "the relatively small increase in traffic volumes to the local and unpaved Dewey Road will result in SMALL impacts under the land application disposal option. The projected daily traffic on Dewey Road represents an increase of about 42 percent above the existing traffic level ..."

p. 4-23, line 39 Please change "State Highway 18" to "U.S. Highway 18."

p. 4-23, lines 40-41 Please change "ranging from approximately 150 to 5,200 vehicles per day" to "ranging from approximately 280 to 5,130 vehicles per day."

p. 4-23, lines 46-50 Powertech suggests changing these statements as follows: "the relatively small increase in traffic volumes on the local and unpaved Dewey Road will result in SMALL impacts under the land application disposal option.

	The projected daily traffic on Dewey Road represents an increase of about 26 percent above the existing traffic level ..."
p. 4-25, lines 27-28	Powertech suggests changing this statement as follows: "the relatively small increase in traffic volumes on the local and unpaved Dewey Road will result in SMALL impacts ..."
p. 4-25, lines 47-48	Please change "is approximately double the existing low level of traffic" to "is approximately 4 percent above the existing traffic level."
p. 4-26, lines 14-16	Please refer to the comment on p. 4-21, Table 4.3-4 for proposed revisions to the projected traffic during decommissioning. Based on the proposed revisions to Tables 4.3-1 through 4.3-4, Powertech proposes revising this statement to read, "The projected auto and truck traffic for the decommissioning phase for all road segments evaluated is lower than the projected traffic from the construction and operations phases, and approximately equal to the projected traffic from the aquifer restoration phase."
p. 4-26, lines 20-21	Please change the statement to read, "The projected daily traffic on Dewey Road, the road nearest the proposed site, is approximately 6 percent above the existing traffic level" (refer to the comment on p. 4-21, Table 4.3-4).
p. 4-28, Table 4.3-5	Powertech suggests changing the magnitude of potential impacts during the construction and operations phases from MODERATE to SMALL for all phases based on the previous comments and proposed revisions to Tables 4.3-1 through 4.3-4.
p. 4-30, lines 40-45	Please refer to the comment on p. 2-6, lines 44-45, which describes how Powertech has revised the estimated topsoil stripping area. Powertech suggests revising these statements as follows: "Over the life of the project, the applicant estimates that the area of topsoil to be stripped, stockpiled, and replaced would be up to 98 ha [243 ac] for the deep disposal option and up to 175 ha [433 ac] for the land application option. The area of topsoil disturbance will be approximately the same as the total disturbance area in the Class V deep well injection option but smaller than the 566 ha [1,398] of estimated disturbance in the land application option, since topsoil generally would not be stripped from center pivot areas."
p. 4-33, lines 8-10	Powertech requests clarification on the statement made here and throughout the DSEIS that "The NRC will require liquid wastes injected into potential Class V injection wells at the proposed project to be treated to concentrations below hazardous levels and radioactive waste thresholds at 10 CFR Part 20, Subparts D and K, as wells [sic] as Appendix B, Table 2, Column 2." In the June 2011 TR RAI responses (Powertech, 2011 source in the Chapter 4 references), Powertech committed to treating the liquid waste injected into the Class V wells to meet the 10 CFR Part 20,

	Appendix B, Table 2, Column 2 release limits; however, Powertech has not committed to treating to Subparts D and K standards. This commitment also is not in the EPA Class V UIC permit application, nor has compliance with Subparts D and K been discussed with NRC or EPA in various meetings during the licensing/permitting process. Further, it is not clear how Subparts D and K apply to any potential Class V injection activities. Subpart D applies to dose limits for members of the public, who would not be exposed to the Class V injectate. Subpart K applies to sanitary sewers and incineration, which again does not appear to apply to Class V injection wells.
p. 4-33, lines 16-17	The statement is made that if the proposed injection zones have TDS concentrations below 10,000 mg/L, the UIC permit will require liquid wastes to be treated to meet drinking water standards. This does not allow for the injectate to meet background concentrations for constituents that already exceed drinking water standards, nor does it consider that Powertech may apply for an aquifer exemption if the TDS is below 10,000 mg/L. Powertech anticipates that the disposal zones will contain water with TDS greater than 10,000 mg/L. In the event that the potential disposal zones contain water with TDS less than 10,000 mg/L, Powertech plans to request that EPA Region 8 grant an aquifer exemption for the injection zone within the requested area. Powertech suggests revising this statement to match the language on p. 7-23 (with proposed revisions) as follows: "If the proposed injection zones are underground sources of drinking water (have total dissolved solids concentrations below 10,000 mg/L [10,000 ppm]), the applicant will be required to obtain an aquifer exemption from EPA, or the EPA UIC permit will require liquid wastes to be treated to meet drinking water standards, or contaminant-specific background concentrations for constituents regulated under the Safe Drinking Water Act, whichever is greater."
p. 4-33, line 20	Powertech suggests changing the SI pressure units from kg/cm^2 (non-standard units) to kPa. The suggested range is 2,100 to 5,520 kPa.
p. 4-33, lines 28	Powertech suggests changing the statement to "or drinking water standards or contaminant-specific background concentrations for constituents regulated under the Safe Drinking Water Act, whichever is greater, if the injection zones are underground sources of drinking water, unless the applicant applies for and is granted an aquifer exemption." (Refer to the comment on p. 4-33, lines 16-17.)
p. 4-35, lines 30-32	Please refer to the comment on p. 2-40, lines 1-2. Powertech suggests revising this statement to read, "... according to SDDENR regulations established in Administrative Rules of South Dakota (ARSD) 74:02:04:67 and 74:11:08 ..."

p. 4-37, line 44	As described elsewhere in the DSEIS, natural resource extraction occurs within the broad vicinity of the project area, but not in or immediately near the project area. Therefore, Powertech suggests removing "natural resource extraction" from list of current land uses.
p. 4-39, line 4	Powertech suggests omitting the phrase "surficial aquifer" in "and the volume of surficial aquifer discharge to the surface waters."
p. 4-39, line 37	Powertech suggests changing "have intermittent flow" to "have ephemeral flow" (refer to the comment on p. xxxiii, line 7).
p. 4-40, line 29	Powertech suggests changing "are intermittent and often dry" to "are ephemeral and often dry" (refer to the comment on p. xxxiii, line 7).
p. 4-41, Fig. 4.5-1	Powertech notes that the potential wellfield areas in the Lower Fall River, Upper Chilson, and Middle/Lower Chilson are indistinguishable on this black and white figure.
p. 4-43, line 25	Powertech suggests changing "have intermittent surface water flows" to "have ephemeral surface water flows" (refer to the comment on p. xxxiii, line 7).
p. 4-43, lines 45-46	The statement is made that the discharge from the "alkali flats" area is near surface impoundments used for stock watering that could be impacted by the discharging water. In fact, the nearest impoundment was constructed to capture the groundwater discharge for beneficial use.
p. 4-44, line 1	Powertech has committed to plugging or mitigating any boreholes that will potentially affect surface waters during ISR operations. Please change this statement to read, "... the applicant will plug or otherwise mitigate the potential effect of any boreholes ..."
p. 4-44, line 4	Please delete the second "injection" or change it to "disposal" in "The Class V injection well injection option."
p. 4-45, lines 12-14	This is an example of how the primary goal of groundwater restoration consistently has been mischaracterized. Please refer to general comment #6. The primary goal of aquifer restoration, based on all technical aspects of groundwater and how its quality is measured, should be "consistent with baseline/background." Powertech suggests changing this statement to read, "The goal of aquifer restoration is to return groundwater quality in the wellfields consistent with background/baseline water quality conditions or to standards ..."
p. 4-46, lines 21-23	Please refer to the comment on p. 2-49, lines 39-41, which describes how the land application crop list has been updated and includes native vegetation, alfalfa, or salt-tolerant wheatgrass (Powertech, 2012c source in

	Chapter 4 references). Powertech requests revising the statement to read, "The applicant will apply treated liquid effluents to native vegetation or to existing soil after it has been prepared to grow crops such as alfalfa or salt-tolerant wheatgrass (Powertech, 2012c)."
p. 4-49, line 9	Please change "Plan of Operation" to "Plan of Operations."
p. 4-50, line 32	Powertech suggests removing "pumping" from "pumping header houses."
p. 4-51, line 38	Please change "restorations" to "restoration."
p. 4-53, lines 4-6	The statement is made that the Fall River aquifer is unconfined where land application of treated wastewater may take place. As described in the SDDENR GDP application (Powertech, 2012a in the Chapter 4 references), the Graneros Group is present beneath all proposed land application areas. The minimum estimated thickness is 25 feet in the Burdock area and 500 feet in the Dewey area. Therefore, the Fall River formation is always overlain by the Graneros Group in the proposed land application areas. Powertech suggests revising this statement to read, "Near-surface aquifers include the Fall River aquifer in the northeastern part of the Burdock area where land application of treated wastewater may take place. The applicant estimates that the thickness of the Graneros Group above the Fall River aquifer in the proposed Burdock land application areas ranges from 7.6 to 76 m [25 to 250 ft], while the estimated thickness in the proposed Dewey land application areas ranges from 152 to 168 m [500 to 550 ft] (Powertech, 2012a)."
p. 4-55, lines 17-24	The statement that MODERATE impacts will occur during construction if the Madison water appropriation permit is denied does not appear to consider two important issues. First, Powertech will remove all domestic wells from private use prior to ISR operations. This process will begin during construction, and therefore the current usage rate from the Inyan Kara aquifer within the proposed project area will decline (notwithstanding Powertech's usage). Second, as described in the comment on p. 4-59, lines 23-33, the estimate of the sustainable Inyan Kara aquifer pumping rate has been superseded by the 2012 numerical modeling results. Results of the simulations indicate that the Inyan Kara aquifer can sustain net extraction rates of up to at least 147 gpm for a period of 2 years.
p. 4-56, lines 6-9	Please refer to the comment on p. 3-17, lines 7-10, which describes how the Graneros Group consists of the Skull Creek, Mowry and Belle Fourche Shales. Please also refer to the comment on p. 3-19, lines 6-8, which describes how the thickness of the Graneros group is up to 550 ft in the proposed project area. This is demonstrated on Plate 3.6-3 (Isopach of the Graneros Group) in the GDP application (Powertech, 2012c source in the Chapter 4 references). Powertech suggests revising these statements as

follows: "... Graneros Group, which consists of the combined Skull Creek, Mowry and Belle Fourche Shales. Within the project area, the Graneros Group ranges in thickness from 61 to 168 m [200 to 550 ft], except ..."

p. 4-56, lines 31-33 Please refer to the comment on p. 4-56, lines 6-9. Powertech suggests revising this statement to read, "... the Fall River Formation is overlain by a 61- to 168-m [200- to 550-ft]-thick confining layer composed of the Skull Creek, Mowry and Belle Fourche Shales (Graneros Group)."

p. 4-56, lines 43-45 The statement that ISR operations in the Fall River Formation will be limited to the Dewey portion of the project area does not acknowledge that one Burdock wellfield (B-WF10) is planned for a portion of the Fall River Formation that is geologically confined and hydraulically saturated. This is described in the numerical modeling report for the Dewey-Burdock Project completed by Petrotek Engineering Corporation and submitted to NRC in February 2012 (Petrotek, 2012). This report describes how B-WF10 is located approximately 3,300 feet west of the Triangle Pit in a fully saturated and confined portion of the Fall River Formation. Powertech suggests revising this statement to read, "The applicant stated that ISR operations in the Fall River Formation will be limited to uranium orebodies in confined aquifers in the Dewey portion of the project area, except for one proposed Burdock wellfield (B-WF10), which is proposed in a confined and fully saturated portion of the Fall River Formation in the western Burdock area (Powertech, 2010a; Petrotek, 2012)."

p. 4-57, lines 44,48 Please change "producing wells" to "water wells" or "domestic, stock and monitoring wells" to reflect that monitoring wells are not typically water producing.

p. 4-58, lines 9-18 The drawdown estimates were updated in the 2012 numerical groundwater model (Petrotek, 2012). Powertech suggests revising this statement as follows: "Based on numerical modeling developed from site-specific parameters and calibrated to historical pumping test data, the applicant estimated that the maximum drawdown outside of the project area resulting from projected ISR operations would be approximately 12 feet in the Fall River aquifer and 10 feet in the Chilson aquifer. These simulations were for net extraction rates resulting from a gross production pumping rate of 8,000 gpm (or twice the maximum proposed pumping rate), a 1 percent production bleed rate, and the use of groundwater sweep during aquifer restoration. Since the applicant has committed to removing domestic wells within the project area from private using (refer to SEIS Section 4.5.2.1.1.2.2), these represent the maximum anticipated drawdown amounts for nearby domestic wells."

p. 4-58, lines 38-41 Please refer to the previous comment. Powertech suggests changing these statements to read, "If the applicant uses a bleed rate of 3 percent during

the operations phase, drawdowns in the nearest domestic wells in the Fall River and Chilson aquifers may be greater than those estimated for a 1 percent bleed rate; however, as noted above, the maximum simulated drawdown was performed for a gross production pumping rate of twice that proposed by the applicant and for the optional groundwater sweep during aquifer restoration. Therefore, it represents a conservatively high estimate of the potential drawdown resulting from operations and restoration. Drawdowns resulting from ..."

p. 4-58, line 45 — The statement is made that after production and restoration are complete, groundwater levels will tend to recover with time. Powertech requests the addition of a quantitative statement after this statement that would read, "Based on numerical modeling, the applicant estimates that water levels will recover to near pre-operational levels within 1 year after groundwater withdrawals cease (Petrotek, 2012)."

p. 4-59, line 12 — Please refer to the comment on p. xxxiv, lines 25-26. Powertech requests changing this statement to read, "During operations, the applicant will monitor all domestic wells within 2 km [1.2 mi] of the wellfields and all stock wells within the proposed project area."

p. 4-59, lines 23-33 — The 2010 estimate of the sustainable Inyan Kara aquifer pumping rate has been superseded by the 2012 numerical modeling results (Petrotek, 2012). The numerical modeling, which was calibrated to site-specific parameters and conditions, was used to simulate ISR operations and aquifer restoration under multiple scenarios of production bleed rates and aquifer restoration alternatives (with and without groundwater sweep). Maximum net extraction rates (water consumption) ranged from 40 to 147 gpm in the simulations. Results of the simulations indicate that the Inyan Kara aquifer can sustain net extraction rates of up to at least 147 gpm for a period of 2 years, and an average rate of at least 96 gpm for a period of 8 years. In the Inyan Kara water appropriation permit application (ML121920020), Powertech requested a net Inyan Kara appropriation rate of 170 gpm for up to 20 years. In its evaluation of the permit application, SDDENR concluded that, "Approval of the application will not result in average annual withdrawals from the Inyan Kara aquifer that exceed the average annual recharge to the aquifer" and that "there is a reasonable probability that the diversion proposed by this appropriation can be made without unlawful impairment of existing appropriative rights or domestic wells" (SDDENR, 2012b).

Further, the typical CPP water usage rate is currently estimated at 12 gpm (refer to Powertech, 2011). For operations, Powertech does not believe that CPP usage coupled with production bleed would exceed the sustainable Inyan Kara pumping rate. Powertech suggests that the statement on reducing the pumping rate during aquifer restoration should

be moved to Section 4.5.2.1.2.2.3. Powertech suggests revising this paragraph as follows:

"In June 2012, the applicant submitted a water appropriation permit to SDDENR for groundwater use from the Madison aquifer. If this permit is granted, the applicant will rely largely on Madison aquifer water for water supply to the CPP during operations ... Otherwise, the applicant will pump water from the Inyan Kara Group aquifers for the life of the project (Powertech, 2010a). Based on numerical modeling simulations (Petrotek, 2012), the applicant estimates that the Inyan Kara aquifer can sustain a net extraction rate of at least 556.5 Lpm [147 gpm] for a period of 2 years, and an average rate of at least 363.4 Lpm [96 gpm] for a period of 8 years, which was the simulated duration of operations and aquifer restoration. The applicant's Inyan Kara aquifer water appropriation permit application requests a net usage from the Inyan Kara aquifer up to 643.5 Lpm [170 gpm]. In its review of the permit application, SDDENR concluded that approval of the water appropriation permit for a net withdrawal of up to 643.5 Lpm [170 gpm] for up to 20 years will not result in net withdrawals from the Inyan Kara aquifer that exceed the average annual aquifer recharge, and that the appropriation can be made without unlawful impairment of existing water rights or domestic wells (SDDENR, 2012b)."

p. 4-59, line 38 — Based on the updated estimate of the sustainable Inyan Kara usage rate described in the previous comment, Powertech requests that the magnitude of potential impacts during operations be changed from MODERATE to SMALL even if the Madison water appropriation permit were denied.

p. 4-60, line 51 — Please refer to the comment on p. 3-17, lines 7-10, which describes how the Graneros Group consists of the Skull Creek, Mowry and Belle Fourche Shales. Powertech suggests revising this statement to read, "The upper confining layer (Skull Creek, Mowry and Belle Fourche Shales, which are collectively referred to as the Graneros Group) ..."

p. 4-61, lines 1,5 — Please change "approximately 61 m [200 ft]" to "approximately 61 to 168 m [200 to 550 ft]" (refer to the comment on p. 4-56, lines 6-9).

p. 4-61, line 5 — Please change "approximately 61 m [200 ft]" to "approximately 61 to 168 m [200 to 550 ft]" (refer to the comment on p. 4-56, lines 6-9).

p. 4-61, lines 11-15 — The listed mitigation measures to protect against vertical excursions due to improperly sealed boreholes do not include the key mitigation measure of using pumping test results to identify and plug improperly plugged wells and exploration holes (see lines 45-47 on this page and lines 24-26 on p. 4-44). Powertech suggests modifying these statements as follows: "Vertical excursions can also occur due to improperly sealed boreholes ... and production wells. The applicant will use its delineation drilling and

pump testing program to identify and plug improperly sealed boreholes that may result in vertical excursions. The applicant will use its mechanical ..."

p. 4-61, line 39 — Powertech suggests modifying this statement to indicate that very few boreholes penetrated the full thickness of the Morrison. This was described in the response to TR RAI P&R-4 in the June 2011 TR RAI responses (Powertech, 2011 in the Chapter 4 references). This response described how exploration holes drilled to evaluate the economic geology of the Lakota Formation generally were not continued the additional 100 feet required to penetrate the entire Morrison Formation. The suggested revised statement would read, "... and deep aquifers below the Morrison Formation, although few exploration holes penetrated the entire thickness of the Morrison Formation (Powertech, 2011)."

p. 4-62, lines 4-15 — Leakage through the Fuson Shale has been observed only in very limited areas (notably it was not observed in the Dewey area pumping tests) and is primarily attributed to an historical well completed in both the Fall River and Chilson aquifers. When Powertech placed a plug between the Fall River and Chilson completed intervals, a difference in potentiometric head was observed. Throughout most of the proposed project area, there is significant potentiometric difference between the Fall River and Chilson aquifers, indicating hydraulic separation. Powertech suggests revising the statement on line 4 to read, "... into producing wells. Leakage through the Fuson Shale identified during aquifer pumping tests has been observed only in very limited areas and is primarily attributed to an historical well completed in both the Fall River and Chilson aquifers. When the applicant placed a plug between the Fall River and Chilson completed intervals in this well, a difference in potentiometric head was observed. Using exploratory drilling ..." In addition, Powertech suggests revising the statement on line 15 to read, "... vertical leakage through the Fuson Shale, in the limited instances where it has been observed, is caused by ..."

p. 4-62, line 45 — Powertech suggests changing "Skull Creek Shale" to "Graneros Group."

p. 4-63, lines 31-32 — Please refer to the comment on p. 4-33, lines 16-17. Powertech suggests changing this statement to read, "... the EPA UIC permit will require the injectate to be treated to meet drinking water standards, or contaminant-specific background concentrations for constituents regulated under the SDWA, whichever is greater, unless the applicant applies for and is granted an aquifer exemption."

p. 4-63, lines 40-43 — Please refer to the comment on p. 3-32, lines 8-11. Powertech suggests revising this statement as follows: "In some locations, these confining layers may be absent or provide ineffective confinement, which could enhance the hydraulic connection between the Minnelusa and the underlying Madison aquifer (Naus, et al., 2001). However, SDDENR

concluded based on water levels in Minnelusa and Madison observation wells in the area that there is a significant difference in the potentiometric surfaces of the Minnelusa and Madison, suggesting that the aquifers are hydraulically separated in the vicinity of the proposed project area (SDDENR, 2012a)."

p. 4-64, lines 24-25 Please refer to the comment on p. 2-36, lines 3-6. Powertech suggests revising this statement to read, "Subsequently, as additional wellfields are completed, the applicant plans to restore each wellfield as soon as reasonably achievable or practicable following production (Powertech, 2011)."

p. 4-65, lines 5-8 Please refer to the comment on p. 4-59, lines 23-33 for a description of the revised estimate of the sustainable pumping rate of the Inyan Kara aquifers. Powertech suggests revising this statement to read, "... or reduce pumping rates to meet the estimated sustainable net extraction rate from the Inyan Kara group aquifers, which is estimated to be at least 147 gpm for 2 years and 96 gpm for 8 years (see SEIS Section 4.5.2.1.1.2.2). Reducing the pumping rate would extend the aquifer restoration phase (Powertech, 2010a)."

p. 4-65, lines 27-36 Please refer to the comment on p. xxxv, lines 17-19. Powertech suggests modifying this paragraph as follows: "... Because leakage may occur ... into the hydraulically connected Chilson aquifer. However, perimeter monitoring wells and additional monitoring wells in the Fall River Formation between the open mine pits and nearby wellfields (refer to SEIS Section 7.3.4) would provide detection of potential contaminant migration from the open mine pits. Through monitoring of water quality and water levels, as appropriate, the applicant will have the ability to control the potential for migration of contaminants by controlling the rates of withdrawal during production and restoration operations. Further, numerical modeling shows that drawdown in the Fall River is not expected to be significant during operations or aquifer restoration. In addition, the Fuson Shale was not compromised during the historical mining activities and is still present as a confining unit above the Chilson. Although ..."

p. 4-65, lines 38-49 This paragraph describes the mitigation measures that will be in place to ensure that drawdown-induced migration of potential contaminants does not affect aquifer restoration goals. Powertech questions the connection between this paragraph and the preceding paragraph, which describes how potential impacts will be MODERATE. As indicated in this paragraph, the NRC will require Powertech "to conduct hydrogeological characterization and aquifer pumping tests in each wellfield to examine the hydraulic integrity of the Fuson Shale and ensure drawdown-induced migration of potential contaminants will not impact aquifer restoration goals." The paragraph further states that the NRC requires by license condition that

Powertech "provide the results of the hydrogeological characterization and aquifer pumping tests for review and written verification before any proposed wellfields are developed." In the case of the proposed well fields in the vicinity of the historical mine pits (B-WF6 through B-WF8), license condition 10.10(B) in the January 2013 draft license requires review and approval (i.e., license amendment) rather than review and written verification. Additionally, the DSEIS acknowledges Powertech's commitment to locate unknown boreholes and wells in the vicinity of the proposed wellfields, and to plug and abandon any well that fails mechanical integrity testing and to plug and abandon or otherwise mitigate the potential effect of any historical wells and exploration holes or holes drilled by Powertech with potential to impact ISR operations. The DSEIS states very clearly that these "commitments will ensure that contaminants are hydrologically isolated in the exempted portion of the ore-bearing aquifers during restoration." Additionally, Powertech will conduct extensive groundwater monitoring of each wellfield during ISR operations and aquifer restoration as well as one year of stability monitoring. Powertech has also committed to the installation of monitor wells between proposed well fields and historical mine pits to provide early detection if an incursion is imminent. Further, license condition 12.7 in the January 2013 draft license specifically requires Powertech to "propose, for review and written verification, a monitoring well network for the Fall River Aquifer in the Burdock area for those wellfields in which the Chilson Aquifer is the extraction zone." Given all of the preventative measures and safeguards committed to by Powertech, and the NRC required review and verification of those measures, it is not clear how potential impacts to groundwater quality from aquifer restoration can be deemed to be MODERATE. Any drawdown induced migration of contaminants that occurs during operations or restoration would be detected by the groundwater monitoring network. Once detected, the procedures used to address an excursion would be applied to mitigate further migration of the contaminants (such as modifying injection/recovery rates). The groundwater restoration goals would be unchanged. Therefore, the potential impacts to groundwater quality from aquifer restoration should be SMALL.

Further support for the SMALL potential impacts to groundwater restoration is found in the Technical Report and through application of the Darcy equation for groundwater velocity. Additional characterization and estimation of aquifer responses to ISR operations was provided to the NRC in a calibrated numerical groundwater flow model (Petrotek, 2012). The results of the model simulations indicated a maximum of less than 1 foot of drawdown within the Fall River and maximum of less than 10 feet of drawdown within the Chilson in the vicinity of the historical mine pits during production and restoration operations using the base case (a total production rate of 4,000 gpm and a net bleed of 0.875 percent).

The velocity of groundwater moving through the Fuson shale from the Fall River into the Chilson in response to a drawdown-induced gradient can be estimated using the Darcy equation and some of the parameters developed from the calibration of the numerical model. Groundwater velocity is calculated from the Darcy equation as follows:

$$v = ki/n$$

where

v = average interstitial groundwater velocity
k = hydraulic conductivity
i = hydraulic gradient
n = porosity (effective)

The historical mine pits are located near recharge areas of the Fall River and Chilson and generally the potentiometric heads are very similar between those two hydrostratigraphic units in those areas under static, non-pumping conditions. The thickness of the Fuson Shale in the vicinity of the historical mine pits is generally from 40 to 60 feet. If it is assumed that as a result of ISR operations the difference between the Fall River and Chilson potentiometric heads is 10 feet and the distance between them (thickness of the Fuson) is 40 feet, then the vertical hydraulic gradient (i) is 10 feet/40 feet or 0.25 foot/foot.

The calibrated vertical hydraulic conductivity (k) of the Fuson Shale used in the model was between 0.00001 and 0.0005 foot/day. The porosity (n) is assumed to be 30 percent. Conservatively using the upper limit of the calibrated vertical hydraulic conductivity would result in a calculated groundwater velocity (v) of (0.0005 foot/day * 0.25 foot/foot)/0.3 = 0.00042 foot/day, or 0.15 foot/year. The duration of ISR operations and restoration is projected to be less than 10 years which under the calculated scenario would result in migration of groundwater within the Fall River less than 2 feet into the Fuson.

Powertech suggests that with implementation of the listed mitigation measures described in this paragraph and required by license conditions, potential impacts described in the previous paragraph should be changed from MODERATE to SMALL, especially since the Fuson Shale was not compromised during the historical mining activities and is still present as a confining unit above the Chilson.

p. 4-66, lines 41-47 Please refer to the comment on p. 4-65, lines 38-49. Powertech requests that NRC consider changing the magnitude of the potential impacts during aquifer restoration from MODERATE to SMALL due to the mitigation measures that will be in place to prevent contaminant migration from the open mine pits.

p. 4-68, line 30	Please refer to the comment on p. 4-55, lines 17-24. Powertech questions the assertion that construction impacts to the Inyan Kara aquifer will be MODERATE if the Madison water appropriation permit is denied.
p. 4-69, line 22	The proposed primary and standby land application areas are 315 acres and 65 acres, respectively, in each of the Dewey and Burdock areas. The total land application area is therefore760 acres. Powertech suggests revising this statement to read, "... cover approximately 308 ha [760 ac]." Also, please change "land irrigation areas" to "land application areas."
p. 4-69, lines 25-28	Please refer to the comment on p. 4-53, lines 4-6, which describes how the Graneros Group is present beneath all proposed land application areas and the minimum estimated Graneros Group thickness is 25 feet in the easternmost land application areas in the Burdock area. Powertech suggests revising these statements as follows: "However, in the Burdock area, the easternmost irrigation fields are situated over the thinnest portions of the Graneros Group, with a minimum estimated thickness of 7.6 m [25 ft] (refer to SEIS Section 4.5.2.1 and Figures 2.1-12 and 3.5-7). Therefore, treated liquid waste applied to the easternmost land application areas is more likely than in other areas to recharge the Fall River aquifer near its outcrop. For the rest ..."
p. 4-70, lines 12-17	Please refer to the comment on p. 4-59, line 38, which provides justification for a finding of SMALL potential impacts to Inyan Kara water consumptive use during operations, even if the Madison water appropriation permit is denied.
p. 4-70, line 39	Powertech suggests changing "Skull Creek Shale" to "Graneros Group."
p. 4-71, lines 6-8	Please refer to the comment on p. 4-53, lines 4-6, which describes how the Graneros Group is present beneath all proposed land application areas and the minimum estimated Graneros Group thickness is 25 feet in the easternmost land application areas in the Burdock area. Powertech suggests revising this statement as follows: "... (ii) the irrigation fields are underlain by low permeability shale layers (Graneros Group)."
p. 4-72, lines 3-6	Please refer to the comment on p. 4-59, lines 23-33 for a description of the revised estimate of the sustainable pumping rate of the Inyan Kara aquifers. Powertech suggests revising these statements as follows: "... or reduce pumping rates to meet the estimated sustainable net extraction rate from the Inyan Kara aquifers, which the applicant estimates is at least 363 to 556 Lpm [96 to 147 gpm] (see SEIS Section 4.5.2.1.1.2.2). Based on the typical liquid waste flow rates stated in the previous paragraph, reducing the pumping rate to 363 to 556 Lpm [96 to 147 gpm] will extend the aquifer restoration phase."

p. 4-72, line 8	Please refer to the comment on p. 4-58, line 45. Powertech requests the addition of the following statement after the statement that "groundwater levels will recover with time." "Based on numerical modeling, the applicant estimates that water levels will recover to near pre-operational levels within 1 year after groundwater withdrawals cease."
p. 4-73, lines 17-18	Please refer to the comment on p. 4-53, lines 4-6, which describes how the Graneros Group is present beneath all proposed land application areas. Powertech suggests changing this statement to read, "... and to the Fall River aquifer in the easternmost land application fields in the Burdock area near its outcrop."
p. 4-73, line 33	Please change "irrigation fields" to "land application areas."
p. 4-73, line 34	Powertech suggests changing this statement to read, "Fall River aquifer near its outcrop areas."
p. 4-73, line 49	Please change" plans and operations" to "Plan of Operations."
p. 4-76, line 45	Please change "Regional" to "Resource" in the expanded form of RMP.
p. 4-77, line 7	Please change "any of the other waste disposal options" to "any of the other project phases."
p. 4-77, line 9	Please refer to the comment on p. 4-69, line 22. Powertech suggests revising the statement to read, "... up to 308 ha [760 ac]."
p. 4-77, lines 37, 40	Powertech has not committed to using netting on ponds. Powertech anticipates addressing all SDGFP concerns, including the potential impacts to waterfowl from the ponds, in an avian protection plan, which should be incorporated into the large-scale mine permit application in early 2013.
p. 4-77, lines 44-47	Please refer to the comment on p. 4-92, lines 27-30. Powertech suggests revising this statement to read, "The applicant plans to adhere to regulatory timing and spatial restrictions with regard to construction activities near raptor nests."
p. 4-79, Fig. 4.6-1	Please change "Agriculultural Grassland" to "Agricultural Grassland."
p. 4-80, lines 19-21	Powertech questions the relevance of the statement about USGS recommendations for weed control techniques in optimal Greater sage-grouse habitats, since it has been shown that the proposed project area does not contain optimal habitat for Greater sage-grouse. Powertech suggests deleting this statement.
p. 4-80, line 44	Please change "SDDNER" to "SDDENR."

p. 4-82, line 1	Powertech requests the removal of the word "other" in "other surface mining operations."
p. 4-82, line 43	Please add the units of "ha" and "ac" to read, "... 98 ha [243 ac]."
p. 4-82, line 49	Please change "wild horses and domestic cattle" to "horses and cattle" to reflect that there are no wild horses in the proposed project area.
p. 4-83, lines 7-8	The statement that the forage capacity will be reduced for several years after the life of the ISR facility is inconsistent with SDDENR requirements in the large-scale mine permit, which will require demonstration that reclaimed rangeland has equal or greater forage capacity as undisturbed reference areas. Powertech suggests modifying this statement as follows: "... the yearling range-carrying capacity for big game will be reduced temporarily; however, the SDDENR large-scale mine permit will require demonstration that the forage capacity of disturbed rangeland is at least equal to that in undisturbed reference areas prior to approving surface reclamation."
p. 4-83, line 10	Please change "... is estimated to increase sixteenfold" to "... is estimated to increase by approximately 42 percent" (refer to the comment on p. 4-14, line 42).
p. 4-83, line 28	Please change "proposed permit area" to "proposed project area."
p. 4-84, line 15	Please change "Nation" to "National" in Buffalo Gap National Grassland.
p. 4-84, lines 20-32	Powertech questions the relevance of this discussion to the proposed Dewey-Burdock Project, since Greater sage-grouse do not occur within 4 miles of the project boundary and since the habitat is not optimal for Greater sage-grouse. Powertech suggests deleting this paragraph. If not, Powertech suggests addressing the following comments on lines 22-24.
p. 4-84, line 22	Please clarify the statement "and listed the sage-grouse as threatened or endangered."
p. 4-84, line 23	Please change "Regional" to "Resource" in the expanded form of RMP.
p. 4-84, line 24	Powertech suggests changing "analyze how" to "analysis of how."
p. 4-85, line 44	Please change "hunt" to "hunted."
p. 4-86, Table 4.6-3	Please change the title to "BLM-Recommended Seasonal Wildlife Stipulations" to reflect that these are BLM recommendations. As described in the comment on p. 4-92, lines 27-30, Powertech plans to follow an approved avian protection plan that will include timing restrictions on construction activities.

p. 4-90, lines 26-27 Powertech suggests changing this statement to read, "Within the proposed project area, Beaver Creek is a perennial stream and Pass Creek is an ephemeral stream that supports some intermittent habitat. All Beaver Creek and Pass Creek tributaries are ephemeral." (Refer to the comment on p. xxxiii, line 7.)

p. 4-92, lines 27-30 Powertech is actively working with SDGFP, FWS, and SDDENR to develop an avian protection plan for the Dewey-Burdock Project. This plan will include a raptor monitoring and mitigation plan. Following review by FWS, SDGFP, and SDDENR, it is anticipated that the final avian protection plan will be incorporated into the large-scale mine permit application in early 2013. Powertech will consider BLM-recommended stipulations and adhere to these as needed for activities on BLM surface. However, Powertech anticipates that the spatial and timing restrictions will be approved by FWS and not BLM. Powertech requests modifying this statement to read, "As discussed earlier in this chapter, the applicant has proposed to adhere to regulatory timing and spatial restrictions with regard to construction activities near raptor nests. Such restrictions will be described in an avian protection plan that will be reviewed and approved by FWS and/or SDGFP. In addition ..."

p. 4-94, lines 10-12 Please refer to the comment on p. 4-92, lines 27-30. Powertech suggests revising this statement to read, "... and following regulatory timing and spatial restrictions with regard to construction activities near raptor nests. The applicant has also ..."

p. 4-96, lines 3-4 Powertech suggests modifying this statement to read, "As discussed in SEIS Section 3.5.1, with the exception of perennial Beaver Creek, the streams within the proposed project area generally only flow in response to snow melt or precipitation events." (Refer to the comment on p. xxxiii, line 7).

p. 4-97, lines 23-25 Please refer to the comment on p. 4-92, lines 27-30. Powertech suggests revising this statement to read, "... adherence to regulatory timing and spatial restrictions with regard to construction activities near raptor nests. As described in SEIS ..."

p. 4-99, line 15 Powertech suggests changing "applicant plans" to "applicant's plan."

p. 4-100, Fig. 4.6-3 Please change "Agriculultural Grassland" to "Agricultural Grassland."

p. 4-101, lines 6-8 Please refer to the comment on p. 2-49, lines 39-41. Powertech suggests changing this statement to read, "NRC staff expect the center pivot areas to consist of native vegetation or to be converted into agricultural land where alfalfa or salt-tolerant wheatgrass will be planted and grown (Powertech, 2012c)."

p. 4-101, line 16 — Powertech suggests changing this statement to read, "... combined with the land application areas (including operating and standby center pivot areas and catchment areas) of approximately 426 ha ..."

p. 4-102, line 2 — Powertech suggests changing this statement to read, "... of which up to 308 ha [760 ac] may be converted into crops" (please refer to the comment on p. 4-69, line 22).

p. 4-104, lines 19-20 — Powertech suggests changing this statement to read, "Disturbance of land application areas (including operating and standby center pivot areas and catchment areas) totaling approximately 426 ha ..."

p. 4-104, line 39 — Powertech suggests omitting "under the deep Class V injection well disposal option" or changing this to "under the land application disposal option."

p. 4-105, lines 36-41 — The statements on the expected liquid waste flow rates apply to the entire proposed project area and not to each land application system. Powertech suggests revising the statement on line 36 to read, "The expected liquid waste flow rate for the entire project will be ..." In addition, the peak land application rate is not directly comparable to the peak wastewater generation rate, since there are times of the year that land application will not be used. Therefore, Powertech suggests changing the last sentence to read, "The maximum expected liquid waste flow rate of 2,070 Lpm [547 gpm] is less than the expected annual land application disposal capacity, which is estimated to be 1,173 Lpm [310 gpm] for each of the proposed land application areas or 2,347 Lpm [620 gpm] for the combined (Dewey and Burdock) land application areas."

p. 4-106, line 46 — Please remove "and extraction activities" from the list of current land uses.

p. 4-107, Table 4.6-5 — Under the combined Class V injection wells and land application column, the table indicates that the range of potential impacts to aquatic species will be SMALL to MODERATE. Powertech cannot find support in Section 4.6.1 for this finding, since for each project phase and for each wastewater disposal option, the DSEIS concludes that the potential impacts to aquatic species will be SMALL. Powertech suggests clarifying this in Table 4.6-5.

p. 4-110, line 16 — Powertech submitted an application to SDDENR on November 1, 2012 with the purpose of receiving a formal air quality permitting exemption from SDDENR. Since total stationary source emissions of criteria pollutants will be well below the 25 ton/year threshold, emissions of hazardous air pollutants will be similarly low and below threshold values, and SDDENR does not regulate emissions from mobile equipment, Powertech anticipates that an exemption will be granted. Powertech suggests adding a new statement after the reference to Table 1.6-1 that

reads, "The applicant has indicated that an exemption request has been submitted to SDDENR to exempt the proposed Dewey-Burdock ISR Project from air quality permitting requirements, since the estimated emissions will be below state permitting thresholds."

p. 4-110, line 23 — Powertech suggests replacing "vary with" to "differ from."

p. 4-113, line 1 — Please change "Table 4.7.1" to "Table 4.7-2."

p. 4-113, lines 1-2 — The statement is made that potential air quality impacts will range from SMALL to MODERATE. This designation contradicts Section 4.4.6 of the ISR GEIS, which applies to the Nebraska-South Dakota-Wyoming Uranium Milling Region and states, "In general, ISL milling facilities are not major nonradiological air emission sources, and the impacts would be classified as SMALL if the following conditions are met:

- Gaseous emissions are within regulatory limits and requirements
- Air quality in the region of influence is in compliance with NAAQS
- The facility is not classified as a major source under the New Source Review or operating (Title V) permit programs ..."

The proposed Dewey-Burdock ISR Project will meet all of these conditions. The justification in the DSEIS for altering the GEIS-based SMALL designation afforded ISR projects to a designation of SMALL to MODERATE is that emission and activity levels for the Dewey-Burdock Project are projected to be higher than those evaluated for a typical ISR facility in the GEIS. Powertech submits that any difference in impacts would be marginal and certainly not worthy of a reclassification based on the definitions of SMALL, MODERATE, and LARGE provided in the DSEIS.

p. 4-113, lines 6-8 — The statement is made that, "... the impact magnitude could be greater and classified as LARGE. For example, if the revised pollutant concentration exceeded a regulatory NAAQS or PSD standard, the impact magnitude would be changed to LARGE." This appears to overstep the criteria for SMALL effects established in the GEIS. As shown in the previous comment, these criteria include compliance with the NAAQS, but do not mention PSD standards.

p. 4-114, line 32 — Please change "29.0 m" to "29.0 mi."

p. 4-114, lines 32-33 — Please change "and the predominant wind direction is from the southeast" to "and the predominant wind direction is from the northwest."

p. 4-115, lines 33-35 — The statement that "The fugitive road dust estimate exceeds the New Source Review permitting threshold for classification as a major source" is inaccurate. The Title V permitting threshold of 100 tons/year of any

criteria pollutant applies only to stationary sources or groups of stationary sources located within a contiguous area and under common control (40 CFR Part 70). Many surface coal mines emit thousands of tons per year of fugitive dust and NO_x, but are not subject to Title V permitting requirements. SDDENR, the permitting authority in South Dakota, has already indicated to Powertech that the Dewey-Burdock Project is not anticipated to qualify as a major source and is not anticipated to require a construction air permit or an operating permit. Notably, p. 2-46 of the DSEIS states, "Title V permits are required for stationary sources that, during operation, have the potential to emit 90.7 metric tons [100 short tons] of any air permit." Aside from the typographical error ("air permit" should be "criteria air pollutant"), this confirms the stationary source criterion, and shows the DSEIS to be internally inconsistent on this issue.

p. 4-117, lines 33-34 Please refer to the comment on p. 4-114, lines 33-35, which describes how the statement that "The fugitive road dust estimate exceeds the Title V or operating permit threshold for classification as a major source" is inaccurate.

p. 4-118, line 8 Please change "proposed actions" to "proposed action's."

p. 4-118, line 16 Please change "NAQQS" to "NAAQS."

p. 4-119, line 47 Powertech believes the reference to Table 2.1-6 should be 2.1-5.

p. 4-120, lines1-2 Powertech questions the assertion that "At times, the fugitive emission would result in a MODERATE impact on air quality" during aquifer restoration. This discussion, apparently replicated from Section 4.7.1.1.1, which addresses the relatively higher emission levels during the construction phase, apparently ignores the magnitude of the combustion and fugitive sources of particulates during the aquifer restoration phase. At an estimated 0.09 ton/year and 11.8 tons/year, respectively, both values are quite small. The conclusion of MODERATE impact from 11.8 tons/year of fugitive dust is unwarranted.

p. 4-121, line 21 Please change "NAQQS" to "NAAQS."

p. 4-125, line 22 Please refer to the comment on p. 4-120, lines 1-2, which asserts that the fugitive emissions will be relatively small during aquifer restoration and do not warrant a MODERATE potential impact magnitude.

p. 4-128, line 14 Please delete the comma in "facility;,".

p. 4-129, line 16 Please change "at the proposed Dewey-Burdock ISR Project site" to "in the general vicinity of the proposed Dewey-Burdock ISR Project site" to reflect that traffic on U.S. Highway 18 and State Highway 89 cannot be heard from the actual project area.

p. 4-130, lines 20, 25 Please change "Putnum" to "Putnam" (refer to comment on p. 3-3, lines 12, 15).

p. 4-130, l. 22, 29, 30 Please change "Daniels" to "Daniel" (refer to comment on p. xxxviii, line 15).

p. 4-130, line 35 Please change "injectionl" to "injection."

p. 4-131, lines 24-26 Please refer to the comment on p. 4-92, lines 27-30. Powertech suggests changing this statement to read, "The applicant will adhere to regulatory timing and spatial restrictions with regard to construction activities near raptor nests."

p. 4-131, lines 42-43 Please refer to the comment on p. 4-92, lines 27-30. Powertech suggests changing this statement to read, "... seasonal noise guidelines, adhering to regulatory timing and spatial restrictions with regard to construction activities near raptor nests, and following ..."

p. 4-132, l. 17, 19, 22 Please change "Daniels" to "Daniel" (refer to comment on p. xxxviii, line 15).

p. 4-132, lines 47, 51 Please change "Daniels" to "Daniel" (refer to comment on p. xxxviii, line 15).

p. 4-133, l. 1,31,35,36 Please change "Daniels" to "Daniel" (refer to comment on p. xxxviii, line 15).

p. 4-134, l. 9,12,13,49 Please change "Daniels" to "Daniel" (refer to comment on p. xxxviii, line 15).

p. 4-135, l. 4,15,18,47 Please change "Daniels" to "Daniel" (refer to comment on p. xxxviii, line 15).

p. 4-135, lines 28-29 Please refer to the comment on p. 4-92, lines 27-30. Powertech suggests changing this statement to read, "... seasonal noise guidelines, adhering to regulatory timing and spatial restrictions with regard to construction activities near raptor nests, and following ..."

p. 4-136, line 6 Please refer to comment on p. 2-49, lines 39-41. Powertech suggests changing this statement to read, "... during the growing season (approximately April through October)."

p. 4-136, l. 13, 17, 18 Please change "Daniels" to "Daniel" (refer to comment on p. xxxviii, line 15).

p. 4-136, lines 20-21 Please refer to comment on p. 2-49, lines 39-41. Powertech suggests changing this statement to read, "... during the growing season (approximately April through October)."

p. 4-137, line 2 — Please change "Daniels" to "Daniel" (refer to comment on p. xxxviii, line 15). The same comment applies to lines 7 (two occurrences), 32, 35 and 36.

p. 4-141, line 1 — Please change "Historical" to "Historic" in the expanded form of SD SHPO.

p. 4-148, line 31 — Please move text up from the following page to avoid the hanging sentence.

p. 4-152, lines 24-25 — Please remove "CBM extraction" and "oil and gas extraction" from the list of current land uses.

p. 4-157, lines 34-36 — Please refer to the comment on p. 2-25, lines 35-40, which describes the updated number and size of the Dewey area center pivots. Powertech suggests revising this statement to read, "As described ... the Dewey area will contain five 20.23-ha [50-ac] pivots, two 10.12-ha [25-ac] pivots, and one 6.1-ha [15-ac] pivot and the Burdock area will contain six 20.23-ha [50-ac] pivots and one 6.1-ha [15-ac] pivot. In addition, each area will contain 26.3 ha [65 ac] of pivots on standby."

p. 4-166, lines 41-51 — Powertech has two basic issues with the information provided in Section 4.11.1.2.5 Local Finance. First, some of the information provided in this section is incorrect, misleading or in conflict with other sections of the DSEIS. Second, when these issues are correctly addressed there could be support for the conclusion that the positive impacts on local finance will be MODERATE, or at least SMALL to MODERATE, rather than SMALL as stated (without support) at the bottom of page 4-166.

The statement is made that severance taxes, "... will go to the State of South Dakota general fund and not be directly returned to the counties in the ROI." This is misleading and in conflict with the following statement on p. 8-2, lines 40-42: "Fall River and Custer Counties would collect 50 percent of the severance tax." Technically the counties do not collect the severance tax; it is collected by the State, which returns 50 percent of the tax to the county where the mineral was produced.

This section also states that, "A county *ad valorem* tax for production will also contribute to local government revenue." The amount is not estimated, although assumptions are presented in the DSEIS regarding the future price of yellowcake. Without this estimate, particularly in relation to current property tax collections in Fall River and Custer Counties, there is no basis presented in the DSEIS for the conclusion that the positive impacts on local finance will be SMALL. In fact, by making reasonable assumptions regarding the price of yellowcake and considering the counties' share of severance taxes, sales and use taxes, and property taxes on production and facilities, it is likely that beneficial impacts on local

taxes and employment will at least meet the DSEIS definition (page xxx) of MODERATE (i.e., sufficient to alter noticeably, but not destabilize, important attributes of the local economy). Certainly these impacts will be more than SMALL (i.e., effects are not detectable or so minor that they will neither destabilize nor noticeably alter any important attribute of the local economy).

Powertech requests that NRC reconsider the magnitude of the beneficial economic impacts of the proposed project on Custer and Fall River Counties.

p. 4-178, line 31 — The DSEIS misstates the occupational dose limit in 10 CFR Part 20. Please change 5 mrem/yr to 5 rem/yr.

p. 4-209, lines 17-21 — Please refer to the comment on p. 2-24, lines 1-11, which requests the removal of the statement on consideration of EPA criteria in 40 CFR Part 61, Subpart W. NRC has regulations and guidance for evaporation ponds and should not have to take into account Subpart W requirements for such ponds. This statement lends undue credence to EPA's current position that such regulations do indeed apply to such ponds and results in unnecessary, duplicative regulatory oversight.

p. 4-210, lines 42-45 — Please refer to the comment on p. 2-58, lines 43-49, which questions an apparent inconsistency between the statements that EPA does not permit surface discharge of ISR liquid waste per 40 CFR Part 440, yet such liquid waste must be pretreated. Powertech requests clarification on this issue and on the definition of a "zero-release surface water discharge permit from SDDENR."

CHAPTER 5 - CUMULATIVE IMPACTS

General Comment

The chapter should have the term "potential" in front of "cumulative impacts."

Specific Comments

Volume 2, cover — Powertech suggests changing the cover to read "Chapter 5 to Appendices" or "Chapter 5 through Appendices" rather than "Chapter 5 and Appendices."

p. 5-1, lines 17-19 — Powertech suggests adding "transportation projects" to the list of past, present, and reasonably foreseeable future actions in the proposed project area (i.e., potential Dewey conveyor and DM&E expansion projects).

p. 5-2, line 19 — Powertech suggests adding "Existing and potential" before "Uranium milling operations within ..."

p. 5-2, line 26	Powertech suggests modifying this statement to read, "Seven existing and potential ISR facilities and one …"
p. 5-3, Fig. 5.1-1	Powertech suggests modifying the legend to differentiate between current and potential future uranium milling sites.
p. 5-4, Fig. 5.1-2	Powertech suggests modifying the legend to reflect that most sites are potential future uranium milling sites. Also, Powertech requests that this figure use Powertech (USA) Inc. rather than the parent company, Powertech Uranium Corp.
p. 5-5, Table 5.1-1	Powertech suggests adding the Strata Energy, Inc. potential future Ross ISR Project to Table 5.1-1. It is listed in the NRC (2012) source for this table and is in the Nebraska-South Dakota-Wyoming Uranium Milling Region, approximately 138 km (86 mi) NNW of the Dewey-Burdock Project.
p. 5-5, Table 5.1-1	In the 6th row, 3rd column, Powertech suggests hyphenating "Conventional" or widening the column to fit.
p. 5-8, lines 29-30	The statement is made that an oil well "is located in the Madison Formation at a total depth of 588 m [1,928 ft]." Powertech looked up the referenced well record, and found that while this well was drilled to 1,928 ft, it was completed in the Leo Sand in the Minnelusa Formation. The reported completion interval is 1,363 to 1,370 ft. Powertech suggests modifying the statement on lines 29-30 as follows: "The fourth producing well has a reported total depth of 588 m [1,928 ft] but a targeted completion depth of 415 to 418 m [1,363 to 1,370 ft], which also targets the Minnelusa Formation (SDDENR, 2012a)."
p. 5-9, line 5	Powertech suggests changing the reference from Figure 3.2-4 to Figure 3.2-5.
p. 5-14, Table 5.1-4	Powertech suggests changing "Proposes" to "Proposal" in the 3rd, 6th, 10th and 11th rows.
p. 5-15, Table 5.1-4	Powertech suggests changing "Proposes" to "Proposal" in the 3rd and 4th rows.
p. 5-16, line 9	Please insert a blank line before this line (i.e., between MODERATE and LARGE cumulative impact descriptions).
p. 5-16, Table 5.1-5	Please refer to the comment on p. 4-15, line 19. Powertech suggests changing the scope of the potential project-related transportation impacts from "SMALL to MODERATE" to "SMALL."
p. 5-17, Table 5.1-5	In the bottom row, Powertech suggests changing "historical" to "historic."

p. 5-18, Table 5.1-5	Powertech requests clarification on the finding that the potential project-related socioeconomic impacts will be SMALL to MODERATE, when the potential impacts are described in Section 4.11 as SMALL. Please see also the comment on p. 4-166, lines 41-51, which provides justification for a SMALL to MODERATE or MODERATE positive impact on local finance.
p. 5-18, line 16	The statement that the Buffalo Gap National Grassland is 8 km south of the project conflicts with the statement on p. 3-4, line 36 that the Buffalo Gap National Grassland is 4.8 km south of the proposed project.
p. 5-22, lines 2-4	Please refer to the comments on p. 4-14, line 42 and p. 4-17, lines 6-7. Powertech suggests changing this statement to read, "... daily traffic on Dewey Road will increase by approximately 42 percent during the construction phase and approximately 26 percent during the operations phase of the proposed project."
p. 5-22, line 6	Please refer to the comments on p. 4-15, line 19 and p. 4-17, line 21. Powertech suggests changing the magnitude of the potential impacts to Dewey Road during construction and operations from "MODERATE" to "SMALL."
p. 5-23, line 48	Please refer to the comments on p. 4-15, line 19 and p. 4-17, line 21. Powertech suggests changing the magnitude of the potential transportation impacts to Dewey Road from "SMALL to MODERATE" to "SMALL."
p. 5-25, line 1	Please refer to the comments on p. 4-15, line 19 and p. 4-17, line 21. Powertech suggests changing the magnitude of the potential transportation impacts to Dewey Road from "SMALL to MODERATE" to "SMALL."
p. 5-25, lines 4-8	Please refer to the comments on p. 4-14, line 42 and p. 4-17, lines 6-7. Powertech suggests changing this statement to read, "...Dewey Road would experience an approximately 42 percent increase in daily traffic during the construction phase and an approximately 26 percent increase in daily traffic during the operations phase of the proposed project. Therefore, the proposed Dewey-Burdock ISR Project will have a SMALL incremental impact ..."
p. 5-25, lines 33-36	Please refer to the comments on p. 3-17, lines 14-17 and p. 4-62, lines 4-15. Powertech suggests modifying this statement to read, "As described in SEIS Section 3.5.3.2, aquifer pumping tests have provided data indicating a hydraulic connection between the Chilson Member of the Lakota Formation and the Fall River Formation through the intervening Fuson Shale in the Burdock area. The applicant concluded based on numerical modeling that vertical leakage through the Fuson Shale, in the limited instances where it has been observed, is caused by improperly installed wells or improperly abandoned exploration holes and is primarily

	attributed to an historical well completed in both the Fall River and Chilson aquifers."
p. 5-28, lines 38-42	Powertech suggests deleting the discussion on potential cleanup of the historical open mine pits within the project area, since Powertech is not aware of any potential future plans to implement cleanup activities under Superfund and since these pits are not listed in the CERCLIS public access database.
p. 5-29, line 27	Please change "SDDNER" to "SDDENR."
p. 5-31, line 19	Please refer to the comment on p. xxxiv, lines 25-26. Powertech suggests modifying this statement to read, "... domestic wells within 2 km [1.2 mi] of the wellfields and providing ..."
p. 5-32, lines 21-27	Please refer to the comment on p. 3-32, lines 8-11. Powertech suggests revising the last part of this paragraph, beginning with "Locally, these confining layers ..." to read, "In some locations, these confining layers may be absent or provide ineffective confinement; this could enhance the hydraulic connection between the Minnelusa aquifer and the underlying Madison aquifer (Naus, et al., 2001). However, SDDENR concluded based on water levels in Minnelusa and Madison observation wells in the area that there is a significant difference in the potentiometric surfaces of the Minnelusa and Madison, suggesting that the aquifers are hydraulically separated in the vicinity of the proposed project area (SDDENR, 2012a). Further, the UIC permit will not allow injection into the Class V deep disposal wells unless the permittee demonstrates the wells are properly sited, such that confinement zones and proper well construction minimize the potential for migration of fluids outside of the approved injection zone."
p. 5-33, line 6	Please refer to the comment on p. 5-8, lines 29-30, which describes how there is not oil production from the Madison Formation near the proposed project area. Powertech suggests modifying this statement to read, "... are located in the Minnelusa Formation at depths ..."
p. 5-33, line 34	Please change "Dewey Limestone Conveyor project" to "Dewey Conveyor Project" for consistency with Section 5.1.1.5.
p. 5-39, lines 32-33	Please change "Wind Cave Nation Park" to "Wind Cave National Park."
p. 5-39, line 47	Please change "Resource" to "Resources" in the expanded form of SDDENR.
p. 5-40, line 26	Please change "Expansion project" to "Expansion Project" for consistency with the project name used elsewhere.

p. 5-40, lines 26-27 Please change "western Wyoming and Southern South Dakota" to "eastern Wyoming and southwestern South Dakota."

p. 5-41, line 12 Please change "Dewey Limestone Conveyor project" to "Dewey Conveyor Project" for consistency with Section 5.1.1.5.

p. 5-41, line 14 Powertech suggests removing the word "very" in "preventing material and very little dust ..."

p. 5-41, lines 31-33 Powertech disagrees with the assertion that "the proposed Dewey-Burdock ISR Project will have a MODERATE incremental effect on climate and air quality when added to all other past, present, and reasonably foreseeable future actions in the study area" for two reasons. First, to state that the project will have an incremental effect when added to other foreseeable developments is self-contradictory and mixes the concepts of incremental and cumulative impacts. The term "incremental" applies to project effects apart from other actions. Concluding MODERATE effects from cumulative development (as in the previous paragraph), does not justify the same conclusion for the Dewey-Burdock ISR Project by itself. In fact, such potential effects are already designated SMALL to MODERATE in Section 4.7 of the DSEIS. The incremental potential effects of this project will be comparable to those of a typical ISR project as addressed in the GEIS. Such potential effects are designated in that document as SMALL. The statement as written invites confusion by characterizing both potential incremental and cumulative impacts in the same sentence.

Second, while there may be measurable effects on air quality, the document provides no basis for concluding MODERATE effects on climate. In fact, it states that the greenhouse gas emissions from the Dewey-Burdock Project would constitute 0.15% of the South Dakota total (which in turn, makes up a minute fraction – about 0.7% of the national greenhouse gas emissions). Moreover, Section 5.7.2 of the DSEIS concludes that "the proposed Dewey-Burdock ISR Project would have a SMALL incremental impact on air quality in terms of greenhouse gas emissions when added to the MODERATE cumulative impacts anticipated from other greenhouse gas emissions from past, present, and reasonably foreseeable future actions." Here the conflict arises from using the same descriptor to characterize both potential climate and air quality effects.

p. 5-41, lines 44-45 The reference to the Atlantic Rim Natural Gas Development Project visibility modeling is based on its distance to the nearest Class I area and its PM_{10} emissions being similar to the Dewey-Burdock ISR Project. It should be noted, however, that Appendix F (Air Quality Technical Support Document) of the Atlantic Rim FEIS states that in its visibility modeling, "PM_{10} impacts from Project traffic emissions were not included in the total estimated impacts, only the $PM_{2.5}$ impacts were considered.

	This assumption was based on supporting documentation from the Western Regional Air Partnership (WRAP) analyses of mechanically generated fugitive dust emissions that suggest that particles larger than $PM_{2.5}$ tend to deposit out rapidly near the emissions source and do not transport over long distances." Along with the much higher NO_x and SO_2 emissions for the Atlantic Rim Natural Gas Development Project (compared to the Dewey-Burdock Project) and the disproportionate visibility impacts of sulfates and nitrates relative to particulates, this distinction between PM_{10} and $PM_{2.5}$ further weakens the comparison between the two projects.
p. 5-42, line 2	Powertech suggests changing "small" to "SMALL."
p. 5-42, line 32	Powertech suggests changing "to" to "of" in "... 1 percent (0.15 percent) to the overall ..."
p. 5-44, line 6	Please change "east" to "west" in "... Dewey Terrace located 13 km [8 mi] east of the Dewey-Burdock site ..."
p. 5-44, line 36	Please change "PBR" to "PRB."
p. 5-45, line 2	Please change "PBR" to "PRB."
p. 5-46, line 5	Powertech suggests modifying this statement for consistency with the statement on p. 4-149 that the range of potential historic and cultural resources impacts is due in part to the fact that the Section 106 process is ongoing. The suggested revised statement would read, "... has been categorized as SMALL to LARGE, depending on the project phase and to reflect that the efforts to identify and evaluate properties of religious and cultural significance to tribes are incomplete and the Section 106 consultation is ongoing."
p. 5-46, line 40	Please change the reference from Figure 5.1-3 to Figure 5.1-4.
p. 5-48, line 25	Please change "an memorandum" to "a memorandum."
p. 5-48, lines 47-48	Powertech suggests revising the statement to read, "...18 historic sites listed on or recommended as eligible for listing on the NRHP ..."
p. 5-50, line 20	Please change "Dewey Limestone Conveyor project" to "Dewey Conveyor Project" for consistency with Section 5.1.1.5.
p. 5-52, line 6	Please change "3.532" to "3,532" (Newcastle population).
p. 5-53, line 21	Powertech suggests changing "facility" to "Project" in Dewey-Burdock ISR facility employees."
p. 5-53, line 41	Please capitalize "project" in "Dewey-Burdock ISR Project."

p. 5-54, line 33	Please refer to the comment on p. 4-166, lines 41-51, which provides justification for a SMALL to MODERATE or MODERATE positive impact on local finance.
p. 5-54, line 44	Please refer to the comment on p. 4-166, lines 41-51, which provides justification for a SMALL to MODERATE or MODERATE positive impact on local finance.
p. 5-55, line 35	Powertech questions the statement that resource extraction is one of the two primary economic bases of Custer and Fall River Counties. Section 3.11.4 describes how the largest employment sector for these two counties is government, and the largest private sector employment involves leisure/hospitality, trade/transportation/utilities, and education/health services.
p. 5-56, line 34	The statement that the three potential Crow Butte satellite facilities are in the "planning or prelicensing" stages conflicts with the statements in Section 5.1.1.1 (p. 5-2), which indicate that license applications have been submitted for North Trend and Marsland. Powertech suggests revising this phrase to "planning or licensing" to match a similar statement on p. 5-19, lines 19-21.

CHAPTER 6 - MITIGATION

p. 6-1, lines 5-21	NRC staff should include as often as possible the use of "mandatory license conditions" as a mitigation measure for ISR projects, including the proposed Dewey-Burdock Project. If these license conditions did not serve as a mitigation measure, NRC staff simply will have issued Powertech's requested license without any such conditions. Failure to account for these conditions seemingly ignores the AEA's mandate that the Commission can: (1) issue the license as requested; (2) issue the license as requested with conditions; or (3) deny the requested license.
p. 6-2, lines 7-8	Powertech committed to additional air quality mitigation measures in 2012. These are included in Table 6.2-1 (e.g., use of Tier 1 or higher drill rig engines and Tier 3 or higher construction equipment engines) but not listed in the referenced documents. Powertech suggests adding the 2012 reference.
p. 6-2, Table 6.2-1	In some instances, the items listed under "Activity" fall in between two of the "Proposed Mitigation Measures," making it difficult to tell which proposed mitigation measures applies to which activity. Powertech suggests adding additional horizontal lines in this table to distinguish between activities or realigning the activities to make it clear which proposed mitigation measures apply to which activity.

p. 6-2, Table 6.2-1 Powertech has not committed to fencing land application areas. The GDP application (Powertech, 2012c reference in Chapter 4) describes how Powertech will work with landowners to prevent grazing on land application areas during land application and that two potential mitigation measures include fencing and pasture rotation. Powertech suggests changing this proposed mitigation measure to read, "Construct fences and signage around processing facilities, radium settling and storage ponds and, potentially, land application areas."

p. 6-5, Table 6.2-1 Powertech requests changing "Avoid" to "Minimize" in the 7th proposed mitigation measure on this page. The revised mitigation measure would read, "Minimize earthmoving activities at the proposed land application sites ..."

p. 6-5, Table 6.2-1 The "Spills and leaks" activity is missing an important proposed mitigation measure: providing containment curbs around the processing facilities designed to contain the largest liquid-containing vessel (this is listed under "Occupational and Public Health and Safety" on p. 6-11).

p. 6-5, Table 6.2-1 Powertech suggests moving the "Spills and leaks" activity down to line up with the "Develop and implement emergency response ..." proposed mitigation measure. The "Recontour land surface ..." proposed mitigation measures appears to fall under the "Erosion, runoff and sedimentation" activity.

p. 6-5, Table 6.2-1 Powertech suggests modifying the 2nd to last proposed mitigation measure on this page to reflect that pond lining systems will be designed according to the pond usage and contents. The suggested revised proposed mitigation measure reads, "Place liners, underdrains and leak detection systems underneath ponds associated with water treatment or storage of untreated or partially treated water (i.e., radium settling ponds, spare ponds, and central plant pond), and place liners underneath ponds that contain treated water (i.e., storage ponds and spare storage ponds)." (Please refer to the comment on p. xxxiii, lines 23-24).

p. 6-6, Table 6.2-1 Please refer to the comment on p. 4-33, lines 16-17. Powertech suggests revising the second proposed mitigation measure to read, "... and (ii) the drinking water standards, or contaminant-specific background concentrations for constituents regulated under the SDWA, whichever is greater, if proposed injection zones ... below 10,000 mg/L), unless the applicant applies for and is granted an aquifer exemption." Also, please refer to the comment on p. 4-33, lines 8-10, in which Powertech requests clarification on the applicability of Subparts D and K to Class V injection.

p. 6-6, Table 6.2-1 Powertech suggests modifying the 5th proposed mitigation measure on this page to read, "Obtain water appropriation permits to utilize groundwater from the Madison and Inyan Kara aquifers."

p. 6-6, Table 6.2-1 Powertech suggests modifying the 2nd to last proposed mitigation measure on this page to read, "Construct pond lining systems appropriate to the pond usage and contents to prevent potential ..."

p. 6-7, Table 6.2-1 Powertech suggests modifying the 1st proposed mitigation measure on this page to make it clear that mechanical integrity testing is "precise and periodic" for all injection, production, and monitoring wells prior to and during their use. This is another key mitigation measure that should be accounted for throughout the DSEIS.

p. 6-7, Table 6.2-1 Under excursions, Powertech suggests adding the following important mitigation measure: "Plug and abandon or mitigate any of the following should they pose the potential to impact the control and containment of wellfield solutions within the proposed project area: 1) historical wells and exploration holes, 2) holes drilled by the applicant for delineation and exploration, and 3) any well failing mechanical integrity testing."

p. 6-7, Table 6.2-1 Powertech suggests moving "reclamation" to the next line under the "Restoration/reclamation" activity.

p. 6-8, Table 6.2-1 Powertech suggests moving "reclamation" to the next line under the "Restoration/reclamation" activity.

p. 6-8, Table 6.2-1 Powertech suggests changing "Transmission Lines" to "Transmission lines" and "Reduce Human Disturbances" to "Reduce human disturbances" to match the first letter capitalization style in the rest of this table.

p. 6-9, Table 6.2-1 Powertech suggests changing the 5th proposed mitigation measure under Air Quality to: "Implement an employee carpooling policy." (Please refer to the comment on p. 2-53, Table 2.1-7.)

p. 6-9, Table 6.2-1 Powertech suggests changing the 2nd to last proposed mitigation measure on this page to, "Adhere to regulatory timing and spatial restrictions with regard to construction activities near raptor nests." (Please refer to the comment on p. 4-92, lines 27-30.)

p. 6-10, Table 6.2-1 Powertech suggests adding the following important proposed mitigation measure under Cultural and Historic Resources: "Addressing any disturbances in compliance with the applicant's MOA with the South Dakota State Archeologist and any future MOAs developed by the applicant or NRC under the NHPA, including temporarily halting surface disturbance activities if historic or archeological sites are discovered or unanticipated effects are found." (Please refer to the ER RAI responses.) By these commitments, Powertech has proposed complying with an "unanticipated discovery" plan, which also will be required as a mandatory license condition.

p. 6-10, Table 6.2-1 Under the last proposed mitigation measure under Visual and Scenic resources, Powertech suggests emphasizing the fact that all actions are done without jeopardizing site security and/or worker safety.

p. 6-12, Table 6.2-1 Powertech suggests changing the Activity descriptions to first letter capitalization style to match the rest of this table.

p. 6-13, Table 6.3-1 Powertech suggests removing the proposed mitigation measure on managing drilling fluid for the following reasons: (1) the proven and effective procedure is to wait until the mud dries through evaporation and then backfill the mud pits, mounding the backfilled material so subsidence will not create a depression; (2) Powertech is not aware that there has ever been evidence of groundwater contamination from previous ISR operations that did not follow the proposed mitigation measures; (3) the drilling mud itself contains additives to prevent water loss and seal the borehole wall such that the resulting drilling mud will create a low-permeability mud pit lining, especially when mixed with drill cuttings deposited in the mud pit; and (4) all disturbed areas including mud pits will be surveyed for potential contamination during decommissioning.

p. 6-13, Table 6.3-1 The proposed mitigation measure under Surface Water Resources is inconsistent with the supplemental sampling plan (ML12305A056), which commits to collecting monthly preoperational water quality samples from streams for 12 months. Powertech suggests revising this proposed mitigation measure to read, "Collect monthly preoperational water quality samples from streams and quarterly preoperational water quality samples from impoundments."

p. 6-13, Table 6.3-1 Powertech questions the need for the proposed mitigation measure to "Locate all boreholes and wells within 305 m [1,000 ft] of a wellfield, if possible, and properly plug and abandon them" based on the following considerations: (a) there were state regulations in place governing exploration hole plugging at the time the historical exploration occurred, and the applicant has indicated that documentation from the State of South Dakota indicates that these procedures were followed; (b) aside from the alkali area, which is an area of known discharge from the Inyan Kara aquifer to the surface, there is no evidence of groundwater discharge from exploration holes within the project area, despite the fact that the potentiometric surface of the Fall River and Chilson aquifers are above ground surface in much of the project area; (c) Powertech has committed to attempting to locate with best professional practices any presently unknown boreholes or wells in the vicinity of every potential well field using historical records, color infrared imagery, field investigations, potentiometric surface evaluation, and pump testing; (d) Powertech has committed to plugging and abandoning or mitigating wells and delineation/exploration holes should they pose the potential to impact the control and containment of wellfield solutions; and (e) there is a well-

known, natural tendency for drill holes to seal themselves by collapsing, caving and swelling of the formations through which the holes are drilled. Please refer to the response to TR RAI P&R-9 in Powertech (2011) for additional information.

p. 6-14, Table 6.3-1 In the first (partial) proposed mitigation measure, Powertech suggests changing "for NRC review and approval" to "for NRC review and written verification or approval" to reflect that all wellfield packages will be submitted for written verification, while only those for B-WF6 through B-WF8 will require approval through a license amendment.

p. 6-14, Table 6.3-1 Please change "SDDNER" to "SDDENR" in the 1st proposed mitigation measure under Ecology.

p. 6-14, Table 6.3-1 Powertech suggests changing the "Reduce Human Disturbances" Activity to "Reduce human disturbances" to match the first letter capitalization style in the rest of this table.

p. 6-14, Table 6.3-1 Powertech suggests changing the 5th proposed mitigation measure under Ecology to, "Adhere to timing and spatial restrictions within specified distances of active raptor nests as determined by appropriate regulatory agencies (e.g., FWS, SDGFP and BLM)." (Please refer to the comment on p. 4-92, lines 27-30.)

p. 6-14, Table 6.3-1 Powertech suggests omitting the 6th proposed mitigation measure under Ecology, since Powertech is currently working with FWS and SDGFP to develop an avian protection plan that will address timing and spatial restrictions. (Please refer to the comment on p. 4-92, lines 27-30.)

p. 6-16, Table 6.3-1 The statement of developing an agreement between all interested parties for cultural resources is incorrect legally. In this case, NRC is not legally required to secure the concurrence of all interested parties to complete the Section 106 process. This statement directly relates to a contention in the pending administrative litigation and must be clarified before a document of this nature is released in final form to interested stakeholders.

p. 6-19, line 9 Please omit the second period in "Powertech. . 'Subject: ...'".

CHAPTER 7 - ENVIRONMENTAL MEASURES AND MONITORING PROGRAMS

p. 7-1, lines 42-44 It needs to be emphasized that, as is the case with all uranium recovery facilities, the regulatory guide series from the early 1980s applies to ISR facilities "as appropriate." These regulatory guides were not created for ISR facilities, but rather for conventional uranium mills. Thus, this point needs to be made clear in the DSEIS.

p. 7-2, line 13	Please change "five" to "seven" to reflect that Powertech has committed to installing two additional operational air particulate sampling locations. Refer to the October 19, 2012 Supplemental Sampling Plan for the Dewey-Burdock Project (ML12305A056).
p. 7-2, lines 43-49	Powertech suggests modifying Section 7.2.3 to include Powertech's commitment in the TR RAI responses to sample vegetable garden soil.
p. 7-3, Fig. 7.2-1	Please add AMS-08 and AMS-09 from the October 19, 2012 Supplemental Sampling Plan for the Dewey-Burdock Project (ML12305A056).
p. 7-4, line 35	Please change "... within 2 km [1.2 mi] of the project boundary..." to "... within 2 km [1.2 mi] of the wellfields ..." (Refer to comment on p. xxxiv, lines 25-26).
p. 7-5, Fig. 7.2-2	Powertech notes that the potential wellfield areas in the Lower Fall River, Upper Chilson, and Middle/Lower Chilson are indistinguishable on this black and white figure.
p. 7-6, Fig. 7.2-3	Powertech suggests modifying this figure to reflect the revised list of domestic wells to be monitored during operations. These are shown in Figure 5.5-1 of the large-scale mine permit application, which was submitted to SDDENR in September 2012 with a copy provided to NRC. This figure shows that there are only two domestic wells outside of the proposed project area but within 2 km of the proposed wellfield (monitor ring) boundaries. These are wells 2 and 7.
p. 7-8, lines 7-8	Powertech disagrees with the statement that ISR operations affect groundwater near an operating wellfield. The groundwater is affected within an operating wellfield during operations and aquifer restoration, but no groundwater is affected "near" an operating wellfield absent an uncontrolled excursion. Hence, NRC staff's conclusions and report to the Commission that there has never been an impact to an adjacent, non-exempt aquifer from ISR operations.
p. 7-10, line 26	Powertech suggests clarifying that this discussion relates to nonproduction monitoring wells within production areas, as opposed to other monitoring wells such as those listed in Table 7.3-3. Powertech suggests modifying this statement to read, "Nonproduction monitoring wells within the production area may consist of two types: overlying and underlying ..."
p. 7-10, lines 44-50	Powertech suggests revising these statements to better reflect the placement of overlying monitoring wells, including placing wells at a minimum density of one well per 4 acres in the immediately overlying hydrogeologic unit and at a minimum density of one well per 8 acres in subsequent overlying units, including alluvium if present. In addition,

Powertech suggests describing the upper confining unit as the Graneros Group rather than Skull Creek Shale (please refer to the comments on p. 3-17, lines 7-10 and p. 4-56, lines 6-9). Suggested revisions include: "The first layer of overlying nonproduction zone monitoring wells will be evenly distributed through the production area with a minimum of one well for every 1.6 ha [4 ac] of production area (Powertech, 2009a). When additional aquifers exist above the first sand unit or aquifer above the ore-bearing sandstone, additional monitoring wells would be located in these aquifers, with a minimum placement of one well for every 3.2 ha [8 ac] of production area (Powertech, 2011). Overlying monitoring wells will be placed above the upper confining layer (the Graneros Group), where alluvium is present. As described in Section 4.5.2.1.1.2.1, the Graneros Group ranges in thickness from 61 to 168 m [200 to 550 ft], except where it has eroded in the eastern part of the proposed project area. Core samples collected from the lowermost unit in the Graneros Group, the Skull Creek Shale, demonstrate that the Skull Creek clays have extremely low vertical permeabilities. The thickness of the upper confining Graneros Group {typically 61 to 168 m [200 to 550 ft]} and the lower confining Morrison Formation {approximately 30 m [100 ft]} ..."

p. 7-11, lines 6-8 — Please refer to the comment on p. 2-17, lines 24-28, which describes how Powertech will provide injection authorization data packages to EPA following monitoring well installation and pump testing. Powertech suggests modifying this statement to read, "To ensure administrative approval, the applicant would present each wellfield monitoring program and the results of hydrologic testing to NRC and the U.S. Environmental Protection Agency (EPA) before operating each wellfield."

p. 7-11, line 45 — Powertech requests changing "reported to EPA quarterly" to "reported to NRC quarterly" to reflect that excursion monitoring results will be required by NRC license condition (i.e., LC 11.1(A) in the January 2013 draft license) to be submitted to NRC. Powertech plans to submit a quarterly report to EPA that will include the characterization of the injection fluid and injection pressure but will not include the results of excursion monitoring.

p. 7-13, lines 12-14 — Powertech has not committed to sampling surface water sites for the parameter list in Table 7.3-1. In the TR RAI responses, Powertech committed to sampling for dissolved and suspended U-nat, Ra-226, Th-230, Pb-210 and Po-210 and field measurements of pH, conductivity and temperature. Powertech also has committed to SDDENR to analyze surface water samples for the additional laboratory parameters of pH, TDS, TSS, hardness, chloride, sulfate, and dissolved arsenic, cadmium, chromium and selenium. Powertech suggests revising these statements to read, "During ISR operations, water samples collected from the impoundment and stream sampling sites will be analyzed for pH, total and suspended solids, total hardness, chloride, sulfate, dissolved arsenic,

	cadmium, chromium, and selenium, and dissolved and suspended natural uranium, Ra-226, Th-230, Pb-210, and Po-210. In addition, the samples will be analyzed in the field for pH, conductivity, and temperature."
p. 7-14, lines 1-2	Please refer to the comment on p. xxxiv, lines 25-26 and license condition 12.10 in the January 2013 draft license. Powertech suggests changing this statement to read, "... all domestic and stock wells within 2 km [1.2 mi] of the wellfields and all monitoring wells will be sampled quarterly over a 1-year period ..."
p. 7-14, line 11	Please refer to the comment on p. xxxiv, lines 25-26. Powertech suggests revising this statement to read, "During operations, the applicant will monitor all domestic wells within 2 km [1.2 mi] of the wellfields (Figure 7.2-3)."
p. 7-14, lines 32-33	Powertech committed in the large-scale mine permit application to continue meteorological monitoring during ISR operations. As mentioned previously, this application was submitted to SDDENR in September 2012 and copied to NRC. Powertech has been unable to find the application on ADAMS.
p. 7-14, Table 7.3-3	Powertech suggests moving well 731 to the next page and grouping it with the other Fall River monitoring wells.
p. 7-15, line 16	Powertech suggests making "Source Materials License" lower case.
p. 7-15, line 17	Please change "Regular Mine Permit Application" to "large-scale mine permit application."
p. 7-15, line 32	Please change "Powertech, 2009a)" to "(Powertech, 2009a)."
p. 7-17, line 14	Powertech suggests adding a brief description of the perimeter of operational pollution (POP) for the proposed land application areas. An example would be, "... near the propose perimeter of operational pollution (POP) for the proposed land application areas. Each land application area would include a designated POP zone, inside of which groundwater degradation would be permissible under a SDDENR water quality variance permit as long as South Dakota groundwater quality standards are met at the compliance monitoring points at the edges of the POP zones. Proposed POP zones ..."
p. 7-19, Fig. 7.5-2	Powertech has since updated this figure to add one additional compliance well and one interior well in the Burdock area. The revised figure is provided in a June 18, 2012 comment response to SDDENR, a copy of which was provided to NRC and is found under ML122130725.

p. 7-20, Table 7.5-2	Powertech suggests modifying this table to include the additional compliance (BC-3) and interior (BI-4) wells described in the previous comment.
p. 7-21, line 6	Powertech suggests changing "permit area" to "proposed license area."
p. 7-21, lines 16-19	Please refer to the comment on p. 7-13, lines 12-14. Powertech suggests modifying this statement to read, "All stream samples will be analyzed for pH, total and suspended solids, total hardness, chloride, sulfate, dissolved arsenic, cadmium, chromium, and selenium, and dissolved and suspended natural uranium, Ra-226, Th-230, Pb-210, and Po-210 to monitor for potential impacts to surface water from uranium ISR operations."
p. 7-21, lines 26-29	Please refer to the comment on p. 7-13, lines 12-14. Powertech suggests modifying this statement to read, "All impoundments will be sampled on a quarterly basis throughout construction and operations and analyzed for the same constituent list described above for stream sampling sites."
p. 7-22, Table 7.5-4	Powertech suggests adding "Sodium" and "Sodium Adsorption Ratio (SAR)" to the soil sampling parameter list. These parameters were added in an August 10, 2012 GDP comment response letter, a copy of which was provided to NRC and is found under ML12230A063.
p. 7-23, lines 6-8	Please change this statement for consistency with Section 2.1.1.1.2.4.1 to reflect that 300 gpm is the maximum anticipated injection rate, not the per well disposal rate. Powertech suggests modifying this statement to read, "The applicant estimates the need for disposal capacity of 1,135 Lpm [300 gpm] {about 1,635,300 L [432,000 gal] per day assuming 24 hour/7 day injection}."
p. 7-23, line 31	Powertech suggests changing "will" to "would" in "The injectate will not need to be treated for injection into a Class I well."
p. 7-23, lines 34-37	Please refer to the comment on p. 4-33, lines 16-17, which describes how Powertech would apply for an aquifer exemption from EPA if the potential disposal zones have TDS concentrations below 10,000 mg/L. Powertech suggests revising this statement to read, "In that case, the applicant will be required to obtain an aquifer exemption from EPA, or, to be injected ..."
p. 7-23, line 48	Powertech suggests changing "an" to "and" or "or" in "tubing an packer."
p. 7-26, line 2	Please refer to the comment on p. 4-33, lines 16-17. Powertech suggests revising this statement to read, "If the proposed injection zones are underground sources of drinking water, the applicant will be required to obtain an aquifer exemption from EPA, or the permit will require the injectate to meet drinking water standards, or contaminant-specific

background concentrations for constituents regulated under the SDWA, whichever is greater."

p. 7-26, Table 7.6-1 Powertech suggests moving this table above Section 7.7 References.

CHAPTER 8 - COST-BENEFIT ANALYSIS

p. 8-2, line 38 Powertech questions the use of a daily spot price for uranium versus a long-term price. In the April 17, 2012 Dewey-Burdock Project NI 43-101 Technical Report (SRK Consulting, 2012), the estimated uranium sales price is $65 per pound, based on a three-year average of monthly long-term prices from January 2009 through December 2012. This could significantly impact the estimate of severance tax and conservation tax.

p. 8-3, lines 7-17 Please refer to the comment on p. xliv, lines 1-8. Powertech suggests noting that the benefits include the uranium production from the proposed project for domestic energy independence, which has been stated by the President's Administration and the Congress as a national-scale benefit versus a local/regional one.

p. 8-3, line 13 Please refer to the comment on p. 8-2, line 38. Powertech suggests using a long-term price rather than a single spot price to estimate the potential benefits from uranium production.

p. 8-5, Table 8.3-1 Powertech suggests including an estimate for the county *ad valorem* tax for production, which will contribute to a positive impact on local finance. Please refer to the comment on p. 4-166, lines 41-51.

CHAPTER 9 - SUMMARY OF ENVIRONMENTAL IMPACTS

p. 9-4, Table 9-1 Please refer to the comments on p. 4-15, line 19 and p. 4-17, line 21. Powertech suggests changing the magnitude of the potential increase to Dewey Road traffic during construction and operations from MODERATE to SMALL.

p. 9-5, Table 9-1 Powertech suggests changing "Geology and Soil" to "Geology and Soils" to match the section name in DSEIS Section 4.4.

p. 9-5, Table 9-1 In the 3rd row, 4th column, Powertech suggests changing "Approximately 5.3 ha [13 ac] of topsoil" to "Up to 98 ha [243 ac] of topsoil if deep Class V well injection is used to dispose of liquid wastes and up to 175 ha [433 ac] of topsoil if land application is used to dispose of liquid waste" (refer to the comment on p. 2-6, lines 44-45).

p. 9-5, Table 9-1 In the bottom row, 2nd column, Powertech suggests changing "surface water flow in channels is intermittent" to "surface water flow in channels

	is ephemeral except for perennial Beaver Creek." (Refer to the comment on p. xxxiii, line 7).
p. 9-7, Table 9-1	In the bottom row, 2nd column, please remove the comma after "limit."
p. 9-8, Table 9-1	Please refer to the comment on p. xxxvii, lines 9-11. Powertech disagrees with the assertion that the project will result in visibility impacts at Wind Cave National Park.
p. 9-9, Table 9-1	In the 2nd row, 2nd and 4th columns, Powertech suggests changing "Daniels" to "Daniel" (refer to comment on p. xxxviii, line 15).
p. 9-9, Table 9-1	In the bottom row, 1st column, Powertech suggests changing "Historical" to "Historic" for consistency with Section 4.9.
p. 9-10, Table 9-1	In the 2nd row, 2nd column, Powertech suggests removing the word "other" in "If other NRHP-eligible …"

APPENDIX C - NONRADIOLOGICAL AIR EMISSIONS ESTIMATES

General Comments

Section C2 describes a method for attributing ambient air quality impacts, adjusted from the original modeling effort, to the revised emissions inventory at the Dewey-Burdock ISR Project. These adjusted impacts are presented in the DSEIS in pro-rata fashion to account for both the relative magnitudes of the inventoried emissions and the project phases in which they occur. While this approach may provide a rough estimate, it ignores a fundamental principle of dispersion modeling – the spatial relationship between emission sources and model receptors. The final modeling will eliminate the need to make such approximations.

Specific Comments

Table C-1 is titled "Nonradiological Combustion Emission Estimates Mass Flow Rates (Short Tons Per Year) From Stationary Sources for Various Phases of the Proposed Action." The table appears to be a remnant of the original emissions inventory, which has been corrected (for example, it shows two thermal dryers when only one is needed). Also, contrary to the title it only covers the operations phase.

References

Johnson, R.H., 2012, Geochemical Data from Groundwater at the Proposed Dewey Burdock Uranium *In-Situ* Recovery Mine, Edgemont, South Dakota: USGS Open-File Report 2012-1070, 11 p. Available from the Internet on 28 December 2012: http://pubs.usgs.gov/of/2012/1070/.

_____, 2011, Reactive Transport Modeling for the Proposed Dewey Burdock Uranium *In-Situ* Recovery Mine, Edgemont, South Dakota, USA, IMWA 2011. Available under NRC Adams accession number ML12242A191.

NPS (National Park Service), 2010, Federal Land Managers' Air Quality Related Values Work Group (FLAG), Phase I Report—Revised 2010, Natural Resource Report NPS/NRPC/NRR—2010/232. Available on the Internet on 28 December 2012: www.nature.nps.gov/air/pubs/pdf/flag/flagfinal.pdf.

Petrotek Engineering Corporation, 2012, Numerical Modeling of Hydrogeologic Conditions, Dewey-Burdock Project, South Dakota. February 2012. NRC Adams accession number ML120620195.

Powertech (USA) Inc., 2012, Dewey-Burdock Project Large Scale Mine Permit Application, Custer and Fall River Counties, South Dakota, September 2012.

SDDENR, 2012a, Report to the Chief Engineer on Water Permit Application No. 2685-2, Powertech (USA) Inc., November 2, 2012. Available from the Internet on December 21, 2012: http://denr.sd.gov/powertech/wr/2685-2%20Report%20and%20Recommendation.pdf.

SDDENR, 2012b, Report to the Chief Engineer on Water Permit Application No. 2686-2, Powertech (USA) Inc., November 2, 2012. Available from the Internet on December 21, 2012: http://denr.sd.gov/powertech/wr/2686-2%20Report%20and%20Recommendation.pdf.

SRK Consulting (U.S.), Inc., 2012, NI 43-101 Technical Report, Preliminary Economic Assessment, Dewey-Burdock Project, April 17, 2012. Available from the SEDAR filing system as of June 2012: http://www.sedar.com.

ATTACHMENT A

December 2012 Dewey Road Traffic Study Results

Fall River County Highway Department

Phone (605) 745-5137 • P.O. Box 939, Hot Springs, South Dakota 57747

1-2-2013

RE: Road Counts for County Road 6463 aka Dewey Road

Mark,

Per your offices request the Fall River County Highway Department performed two (2) twenty four hour road counts on the Dewey Road just past the State Highway Shop.

The results for those road Counts are:

12-19-2012 from 10:15 a.m. to 12-20-2012 10:13 a.m. the Count Total: 189

12-20-2012 from 10:14 a.m. to 12-21-2012 10:15 a.m. the Count Total: 261

The Total Count being 450 for a 48 hour period.

Randy Seiler

Randy Seiler

Fall River County Highway Superintendent