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December 3, 2012

Eric Holm
Natural Resources Engineer III
Minerals and Mining Program
South Dakota Department of Environment & Natural Resources
523 East Capitol Avenue
Joe Foss Building
Pierre, SD 57501-3182

Re: Response to Procedural Completeness and Technical Review Comments
Dewey-Burdock Project Large Scale Mine Permit Application

Dear Mr. Holm:

On behalf of Powertech (USA) Inc., this letter is provided in response to the October 31, 2012 procedural completeness and preliminary technical review for the above-referenced large scale mine (LSM) permit application. For convenience, the comments are provided below in italics along with the responses. Application replacement pages are enclosed along with an index of changes (three hard copies and one electronic copy on CD). The replacement pages are included as individual PDF files that correspond to the changes shown on the index of changes. For convenience, the enclosed CD also includes a folder with replacement pages incorporated into the application text and appendix files. Only files that were updated as a result of the comment responses are included. In addition, attachments provide information requested in the comments that is not associated with replacement pages. This includes copies of memoranda of mining leases (Attachment A), proof of submittal of the mine plan and reclamation plan to landowners (Attachment B), an affidavit certifying that Powertech is not currently in violation of the provisions of SDCL 45-6B (Attachment C), and groundwater discharge permit (GDP) comment responses and replacement pages (Attachment D).

Paper copies of the comment responses, change index and replacement pages are being submitted along with electronic copies of the attachments to the Custer County and Fall River County Register of Deeds, who received paper copies of the LSM permit application. Paper copies of the comment responses are being submitted along with electronic copies of the change index, replacement pages and attachments to the agencies who received electronic copies of the original application. The distribution list is provided at the end of this letter. All references to sections, figures, plates or appendices in the following comment responses refer to the LSM permit application submitted on September 28, 2012 unless indicated otherwise.

As discussed during a November 28 conference call, this is a partial response to the procedural completeness comments. Additional comment responses will be provided in the near future that include postmining land use and reclamation seed mixture consultation forms for Custer and Fall River counties (procedural completeness comment #7) and a conceptual spill contingency plan (procedural completeness comment #16).

Procedural Completeness Items

1. *Application Form and SDCL 45-6B-6(3, 4, and 8(a)): Please submit a new large scale mine permit application form with the name, address, and phone number of Powertech's resident agent. The South Dakota Secretary of State lists CT Corporation as Powertech's resident agent.*

Response: A replacement page for the permit application form is provided with the name and address of Powertech's registered agent, which is:

CT Corporation System
319 S. Coteau Street
Pierre, SD 57501

Under mineral owners, Powertech lists BLM as a mineral owner. However, Powertech needs to identify in Appendix 2.2-A the unpatented mineral claims holders where BLM mineral ownership is shown. Also, these unpatented claims need to be shown on Plate 2.2-1, similar to how the claims are shown in Figure B-4 in Appendix 3.4-A.

Response: Appendix 2.2-A has been revised to indicate that all unpatented mineral claims within the proposed permit area are held by Powertech. In addition, the unpatented claims are shown on revised Plate 2.2-1.

Also, on the application form, Powertech checked "Lease" at the source of legal right to enter and initiate operations. This would include unpatented claims. Please submit copies of all leases for the proposed affected area. The leases can be marked confidential to protect sensitive information in the leases.

Response: Attachment A includes copies of memoranda of mining leases, purchase agreements, and an affidavit of payment for unpatented mining claims to demonstrate that Powertech has the legal right to enter and initiate operations. It also includes documents demonstrating that Neutron Energy and Denver Uranium leases and claims have been conveyed to Powertech.

In Appendix 2.2-A, BLM is listed as a mineral owner in W1/2SE1/4 Section 29. However, Plate 2.2-1 shows that BLM is not a mineral owner in this section. Please list the correct mineral owner for this section.

Response: Appendix 2.2-A has been corrected to show that BLM is the mineral owner in the E1/2SE1/4 Section 29 and not the W1/2SE1/4 Section 29.

Powertech did not include the Burlington Northern/Santa Fe (BNSF) Railroad as a surface owner within the proposed permit boundary area. BNSF is considered a surface owner since the railroad right of way goes through the permit boundary. Please list the

BNSF as a surface owner in Appendix 2.2-A and Plate 2.2-2. Also, Powertech needs to identify the mineral owner for the railroad right of way area.

Response: Powertech has determined that BNSF Railway Company owns the surface within the railroad right of way, but the mineral rights were reserved when the railroad right of way was established. Appendix 2.2-A has been modified to list BNSF as a surface owner. Plate 2.2-2 has been updated to show the railroad and county road rights of way. No changes have been made to Plate 2.2-1 as a result of this comment.

Also, the county road runs adjacent to the railroad. If Custer County and Fall River County owns the county road right of way, they should also be listed as surface owners in Appendix 2.2-A and Plate 2.2-2.

Response: Powertech has determined that Custer and Fall River counties own the county road right of way along S. Dewey Road. Appendix 2.2-A and Plate 2.2-2 have been updated to reflect the county surface ownership. Note that the Burdock Loop Road shown on Plate 2.2-2 is not a county road but a township road without publicly-owned right of way. Several minor modifications have been made to Appendix 2.2-A in addition to adding the county and railroad ownership information. These include:

- Kathleen Klausen has been updated to Kathleen Stritar in the lists of surface owners and mineral owners within the permit boundary.
- Contacts have been added for TerraTecTonics Corporation, State of South Dakota School and Public Lands and USDA Black Hills National Forest.
- The duplicate list of addresses for minerals owners within the permit boundary has been removed.

Finally, please indicate the direction of mining in the various well fields. Also, Powertech needs to describe how well field BWF-7 in the old Darrow mine area will be developed in the pits and on the old spoil piles, and how these areas will be reclaimed.

Response: Figure 5.3-9 has been updated with potential well field labels. There are four potential well fields in the Dewey portion of the proposed permit area, labeled D-WF1 through D-WF4. There are 10 potential well fields in the Burdock portion of the permit area, labeled B-WF1 through B-WF10. The anticipated direction of mining is indicated by Figure 6.5-1, which presents the anticipated construction, production, restoration, and decommissioning schedule for the individual well fields. Current development plans include beginning production in B-WF1 and D-WF1 at approximately the same time. Burdock well fields B-WF2 through B-WF10 would be operated in approximately sequential order, with one to three well fields typically in operation at one time. Similarly, D-WF2 through D-WF4 would be operated sequentially after D-WF1. Alternately, as described in Section 5.2 of the LSM permit application, Powertech may develop either the Burdock or Dewey well fields first, followed by the well fields in the other area.

As noted in the comment and as shown on Figure 3.2-8, B-WF7 coincides with the historical Darrow Mine surface pits and spoil piles. Following is a conceptual plan of how B-WF7 will be developed, operated and reclaimed. Powertech proposes to provide DENR with a detailed mine plan and reclamation plan for B-WF7 for review and approval prior to development of this potential well field.

Prior to developing B-WF7, Powertech will perform delineation drilling and hydrologic testing as described in Section 5.3.3.3. This information will be used to develop a well field hydrogeologic data package, or well field package, as described in Section 5.3.3.4. In the case of B-WF6, B-WF7 and B-WF8, U.S. Nuclear Regulatory Commission (NRC) license conditions will require Powertech to submit the well field packages to the NRC for review and approval. As stated in the NRC Draft Supplemental Environmental Impact Statement (Draft SEIS) for the Dewey-Burdock Project[1], "Wellfields B-WF6, B-WF7, and B-WF8 ... will be prohibited from operating until NRC staff have reviewed and approved the hydrogeologic data packages for these wellfields" (p. 2-18). This will involve significantly more scrutiny on the part of NRC than the written verification process required for other well fields and ultimately will result in a license amendment when B-WF6, B-WF7 and B-WF8 are approved. The reason for the more extensive NRC review process for these three well fields is that a portion of the Chilson Member of the Lakota Formation, the target of uranium ISR for these well fields, is partially saturated in this area. As described in Section 5.3.3.6, the only instance where hydraulically unconfined (partially saturated) conditions exist within an area proposed for ISR operations is in the eastern portion of the proposed permit area. The uranium mineralization in this area occurs near the base of the Chilson, where there is anticipated to be sufficient confining head for normal ISR operations. This will be confirmed through the delineation drilling and well field pumping test procedures, the results of which will be included in the well field packages.

Section 5.3.3.7 describes how the historical Darrow Mine surface pits and associated underground workings extracted ore from the Upper Fall River Formation. The Fall River Formation is physically and hydraulically separated from the Chilson by the Fuson Shale. The targeted production zone for B-WF7 is the Lower Chilson, which is over 200 feet below the base of the Fall River Formation and is separated by approximately 40 feet of the Fuson Shale as well as two interbedded shale intervals within the Chilson. Therefore, ISR operations in the Lower Chilson in B-WF7 are not anticipated to have any impact on the overlying Fall River Formation. This will be confirmed through well field pumping tests associated with the B-WF7 well field package.

Due to limited access and uneven terrain, Powertech does not anticipate installing injection or production wells within the historical surface pits. At most, construction within the open pits is anticipated to be limited to the installation of perimeter monitor wells. Prior to installing such perimeter monitor wells, hydrologic analysis would be performed to ensure that the wells would not be subject to flooding.

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[1] Environmental Impact Statement for the Dewey-Burdock Project in Custer and Fall River Counties, South Dakota, Supplement to the Generic Environmental Impact Statement for *In-Situ* Leach Uranium Milling Facilities, Draft Report for Comment, NUREG-1910, Supplement 4, November 2012.

Disturbance within the historical spoil piles generally will be avoided, but a limited number of injection wells, production wells, monitor wells and/or pipelines may be installed within the extents of the historical spoil piles. If so, protective measures will be used to ensure that potential spills and leaks are minimized and remediated, disturbed areas are reclaimed to current, baseline conditions and that contamination does not result from the Dewey-Burdock Project. Some of the protective measures include:

1) Powertech has performed a background radiation survey for the proposed permit area as described in Appendix 3.14-A. The survey transect spacing in the vicinity of the historical mine pits and spoil piles was approximately 100 meters, resulting in a much more intensive survey in these areas than the approximately 500-meter transect spacing in the remaining proposed permit area. In addition, surface soil samples were collected from the Darrow Mine area and analyzed for radium-226. These background surveys and sampling data will allow Powertech to distinguish between historical surface contamination and potential impacts from the Dewey-Burdock Project.
2) Potential spills and leaks will be minimized through routine mechanical integrity testing (MIT) of all injection, production and monitor wells; hydrostatic leak testing of all pipelines during construction; implementing an instrumentation and control system to monitor pressure and flow and immediately detect and correct an anomalous condition; and implementing a spill response and cleanup program (see Section 5.6.5.1.1).
3) As an anticipated condition of the NRC license, Powertech will maintain documentation on any leak or spill including the date, spill volume, total activity of each radionuclide released, radiological survey results, soil sample results (if taken), corrective actions, results of post-remediation surveys (if taken), a map showing the spill location and the impacted area, and an evaluation of NRC reporting criteria. This documentation will be required to be maintained and made available for regulatory inspection until NRC license termination.
4) During decommissioning, Powertech will conduct radiological surveys and soil sampling that specifically will focus on any areas where spills or leaks may have occurred. The surveys will identify soil contamination that exceeds cleanup criteria (established as a function of background concentration) and guide the removal of contaminated material. A final radiological survey will be used to verify that potentially affected areas meet the cleanup criteria.

Reclamation of any disturbance in the historical surface pits or spoil piles will be performed as described in the reclamation plan. Following regulatory approval of successful groundwater restoration, all well field equipment will be removed. Surface soils will be surveyed for radiological contamination and affected soils removed and disposed. Disturbed areas will be regraded to approximate premining contours. Topsoil will be replaced and disturbed areas revegetated except as described in the response to procedural completeness comment #13, which describes how in very limited areas Powertech may request that the revegetation performance criteria not apply if a pre-disturbance evaluation demonstrates that the chemical or physical characteristics of the soil would seriously inhibit plant growth and that it is not feasible to remedy this by chemical treatment, overburden replacement, or like measures.

2. *Certification of Applicant Form: The certification of applicant form submitted with the mine permit application was not completed correctly. Please submit a new certification of applicant form by following the example enclosed with this letter.*

Response: A new certification of applicant form is provided as replacement pages to Appendix 1.0-A.

3. *SDCL 45-6B-4, SDCL 45-6B-32(5), and ARSD 74:29:02:02: Please submit a letter from the Custer County Planning Department stating Powertech is in substantial compliance with the procedures to obtain county permits.*

Response: A letter is provided as a replacement page in Appendix 2.1-A from the Custer County Planning and Economic Director and Chairman of the Custer County Board of Commissioners. The letter indicates that Powertech is in substantial compliance with applicable county ordinances and standards and that acquisition of permits is not necessary at this time.

4. *SDCL 45-6B-7(1): In Plate 6.4.1, please show the affected acreage boundary on the map and indicate the number of affected acres that will be reclaimed to rangeland and the number of affected acres that will be reclaimed to agricultural or horticultural cropland.*

Response: Plate 6.4-1 has been revised as requested to show the proposed affected boundary for each wastewater disposal option and the postmining land use of the affected area. Table 1 summarizes the acreage.

Table 1. Postmining Land Use of Proposed Affected Area

Wastewater Disposal Option	Rangeland Area (acres)	Agricultural or Horticultural Cropland Area (acres)	Total Area (acres)
Deep Disposal Wells	2,526	2	2,528
Land Application	3,791	2	3,793

5. *SDCL 45-6B-7(5), SDCL 45-6B-33(3), SDCL 45-6B-92(7), and ARSD 74:29:02:06: Please address whether there are any archaeologic, cultural, or historic sites eligible for inclusion on the National Register of Historic Places and steps Powertech will take to protect these sites.*

Response: The following information is included in updates to Section 5.6.12.2. As stated on p. xxxix of the draft SEIS, "Within the area of potential effect at the proposed Dewey-Burdock site, 18 historic sites are either listed in the National Register of Historic Places (NRHP) or eligible for listing in the NRHP. Based on the proposed location of ISR facilities and infrastructure, avoidance of 12 of these sites is possible during the construction phase and, therefore, no impacts are anticipated. Avoidance and mitigation, such as fencing and data recovery excavations, are recommended for the remaining six NRHP-eligible sites. In addition, avoidance is recommended for two unevaluated historic burial sites located in proximity to proposed construction activities until their NRHP eligibility is determined. Avoidance and mitigation is also recommended for

4 unevaluated site[s] located within 76 m (250 ft) of proposed wellfields or land application areas." The mitigation measures to protect NRHP-eligible or potentially eligible sites will include but will not be limited to the following:

- Prior to construction, establishing an agreement between NRC, South Dakota State Historic Preservation Office (SHPO), BLM, interested Native American tribes, Powertech and other interested parties that outlines the mitigation process for each affected historic resource. As part of this agreement, Powertech will develop an Unexpected Discovery Plan that will outline the steps required if unexpected historic and cultural resources are encountered (Draft SEIS, p. xxxix).
- Avoidance, where possible, of eligible or potentially eligible sites.
- Fencing known historic properties in areas where construction, well field development, and ISR operations will occur so disturbance to these areas can be avoided.
- Making the location of historic properties known to employees in advance of ground disturbing activities.
- Adhering to the conditions of the memorandum of agreement (MOA) with the Archeological Research Center (provided as Appendix 3.11-B), including:
    - Investigating archeological or historic sites threatened or potentially threatened by proposed ground disturbing activity prior to disturbance to determine their significance or research potential.
    - Notifying ARC at least 30 days in advance of surface disturbance that could potentially impact an archeological or historic site.
    - Providing a quarterly report to ARC summarizing Powertech's efforts to carry out the terms of the MOA.
    - Temporarily halting surface disturbance activities if historic or archeological sites are discovered or unanticipated effects on historic or cultural sites are found during any phase of the project. Powertech will not resume activities until clearance to proceed is granted by ARC.
- Implementing mitigation measures if it becomes necessary to disturb an eligible or potentially eligible site, potentially including data recovery excavations coordinated with ARC.

6. *SDCL 45-6B-10(4): Are there any old oil and gas pipelines within 200 feet of the boundaries of the proposed affected land? If so, they need to be shown on a map. Also, please show the affected acreage boundary on Figures 3.1-1 and 3.2-6.*

Response: Powertech is not aware of any oil and gas pipelines within 200 feet of the proposed affected area boundaries. According to South Dakota GIS utility data available from http://arcgis.sd.gov/server/sdGIS/Data.aspx, the nearest oil or gas pipeline in South Dakota is approximately 10 miles south of the proposed permit area near U.S. Highway 18. According to the Wyoming State Geological Survey's 2012 Oil & Gas Map of Wyoming (available from http://www.wsgs.uwyo.edu/Research/Energy/MS-55.aspx), the nearest oil or gas pipeline in Wyoming is approximately 5 miles west of the proposed permit area.

As requested, Figures 3.1-1 and 3.2-6 have been revised to include the proposed affected area boundaries for each wastewater disposal option.

7. *SDCL 45-6B-12,SDCl 45-6B-39, and ARSD 74:29:06:01: Please submit proof, such as certified mail receipts, that a copy of the operating and reclamation plan was mailed to the surface owners within the proposed mine permit boundary. This includes the BNSF Railroad and Custer and Fall River County as mentioned in item number 1 in this letter. Powertech is also required to submit an instrument of consultation and approval of the reclamation seed mix and the postmining land uses from the BNSF Railroad and Custer and Fall River County.*

Response: Attachment B includes proof that the operating (mine) plan and reclamation plan were sent to the surface owners within the proposed permit area. This attachment includes a distribution list, copy of each transmittal letter, and copy of the U.S. Postal Service return receipt or UPS delivery confirmation. A postmining land use and reclamation seed mixture consultation form from the BNSF Railway Company is provided as a new page in Appendix 6.4-A. Consultation forms from Custer County and Fall River County will be provided in the near future.

8. *SDCL 45-6B-32(4, 6, 7, and 8): In Table 1.1-2, the Permit Application References is only noted for these subsections of the statute. However, Powertech needs to address these subsections of the statute in the mine permit application instead of just noting them. Therefore, please address the following comments related to the subsections of this statute identified below:*

Response: Table 1.1-1 has been updated to reflect where each of the SDCL 45-6B-32 subsections is addressed in the revised LSM permit application.

(4) Please identify any buildings, railroads, and other significant, valuable, and permanent man-made structures within 200 feet of the proposed affected area and describe how the stability of these structures will be protected during the mining operation.

Response: Section 5.6.15 has been added to address the protection of buildings, railroads and other significant, valuable and permanent man-made structures within 200 feet of the proposed affected area boundary. Figure 5.6-2 depicts man-made structures within 200 feet of the proposed affected area boundaries. These include dwellings, farm structures (e.g., barns and sheds), a railroad switch house, and concrete culverts. Following is a summary of how these structures will be protected.

Several dwellings and farm structures are within 200 feet of the proposed affected area boundaries. Currently these include one occupied dwelling, two unoccupied but habitable dwellings, and one abandoned dwelling that is not habitable. There are no habitable dwellings within potential well field pattern areas. It is anticipated that construction activities within

200 feet of dwellings or farm structures will be limited to the installation of perimeter monitor wells, pipelines and overhead power lines. Powertech does not anticipate drilling any wells within 50 feet or installing any pipelines within 25 feet of any habitable dwelling or any usable farm structures, except that Powertech may install small-diameter domestic water supply pipelines to replace domestic water supply wells as described in Section 5.6.3.2. Potential impacts will be minimized by avoiding these structures during facility design and construction.

The railroad, railroad switch house, and concrete railroad culverts will be protected by avoiding construction activities near the railroad. The only construction activity anticipated within 200 feet of the railroad is the installation of perimeter monitor wells in or near the railroad right of way in the vicinity of D-WF1 and B-WF2. Any perimeter wells inside the railroad right of way would be offset from the railroad a sufficient distance to allow the work to be performed safely and to protect the stability of the railroad. In addition, Powertech may install one or more plant-to-plant pipelines between the CPP and Satellite Facility. As depicted on Figures 5.3-1 and 5.3-2, such pipelines would cross the railroad right of way near the Satellite Facility. These pipelines, if installed, would be bored underneath the railroad, and the bored length would be encased in a protective material such as steel well casing. Any construction activities within the BNSF right of way would be coordinated with the railroad to avoid impacts.

No significant disturbance will occur to the S. Dewey Road as a result of the Dewey-Burdock Project. Powertech will coordinate the construction of access road approaches with Custer and Fall River counties.

(6) Powertech needs to address whether the proposed mining operation and reclamation can be carried out in conformance with SDCL 45-6B-35.

Response: SDCL 45-6B-32(6) requires conformance with SDCL 45-6B-35, which requires conformance with 45-6B-36 through 45-6B-46. Table 1.1-1 has been updated to reference SDCL 45-6B-36 through 45-6B-46 under SDCL 45-6B-35. Revisions also have been made under SDCL 45-6B-36 through 45-6B-46 in Table 1.1-1. Following is a description of how Powertech will comply with the requirements of SDCL 45-6B-36 through 45-6B-46.

- SDCL 45-6B-36, Annual filing of map and fee: Within 60 days prior to the anniversary date of the permit each year, Powertech will submit a map drawn at a scale of not more than 1:25,000 showing the reclamation accomplished and any deviations from the originally approved mine plan and reclamation plan. In addition, Powertech will submit an annual fee of $50,000 unless the annual fee is reduced by any tax paid in accordance with SDCL 10-39B during the year preceding the date the annual fee is due.
- SDCL 45-6B-37, Grading: Powertech will carry out grading so as to create a final topography appropriate to the final land use selected in accordance with SDCL 45-6B-44. Section 6.4.3.1 describes the grading methods. Section 6.4.1 and Plate 6.4-1 present the postmining land uses.
- SDCL 45-6B-38, Disposal of refuse: Powertech will dispose of all refuse from the mining operation in a manner that minimizes unsightliness and unproductive areas and that does not pollute surface or groundwater. Section 5.4 describes the waste management systems

that will be implemented at the Dewey-Burdock Project. Section 5.4.3 describes how waste will be minimized during all project phases.

- SDCL 45-6B-39, Revegetation: Disturbed areas will be revegetated in such a way as agreed upon by Powertech, the local conservation district and the landowner to establish a diverse, effective, and long-lasting vegetative cover that is capable of self-regeneration and at least equal in extent of cover to the natural vegetation of the surrounding area. Sections 6.4.2 and 6.4.3 describe the revegetation techniques, and Appendix 6.4-D presents the revegetation performance criteria that will be used to verify that revegetated areas have cover at least equal in extent to the natural vegetation of the surrounding area. Appendix 6.4-B contains verification that the conservation district was consulted on the reclamation seed mixture, and Appendix 6.4-A contains verification that the landowners were consulted on the reclamation seed mixture.
- SDCL 45-6B-40, Removal and handling of topsoil. Section 5.3.7 describes how Powertech will adhere to the requirements of this section. This includes removing and segregating topsoil from spoil; seeding topsoil stockpiles and constructing stockpiles to minimize wind and water erosion; protecting topsoil stockpiles from contamination; and ensuring that stockpiled material remains in useable condition for sustaining revegetation when restored during reclamation.
- SDCL 45-6B-41, Disturbance to hydrologic balance: Powertech will minimize any disturbance to the prevailing hydrologic balance of the affected land and of the surrounding area and to the quality and quantity of water in surface and groundwater systems both during and after the mining operation and during reclamation. Section 5.3.9 describes how a sediment control plan will be implemented during and after ISR operations to reduce soil loss and potential impacts to surface water quality. Section 5.6.3.1.4 describes how Powertech will be required to demonstrate that water is available for the proposed diversions in the Inyan Kara and Madison aquifers in order to obtain water appropriation permits from the DENR Water Rights Program. Sections 5.6.3.2 and 5.6.4.2 describe the mitigation measures that will be used to minimize potential groundwater and surface water impacts, respectively.
- SDCL 45-6B-42, Slides, subsidence or damage protection: Powertech will protect all areas outside of the affected land from slides, subsidence or damage occurring during the mining operation and reclamation. Since no open pits or high walls will be constructed, the provisions of this section specific to high wall protection are not applicable. Subsidence is addressed in the response to procedural completeness comment #31, which concludes that there is minimal potential for subsidence within the well fields. The potential for subsidence in areas outside of the affected area will be so small as to be negligible. Measures to protect nearby structures from damage are addressed in the previous comment response.
- SDCL 45-6B-43, Surface areas protected--Spoil piles--Weeds: Powertech will stabilize and protect all surface areas of the affected land, including spoil piles, so as to effectively control erosion and attendant air and water pollution. Powertech also will control noxious weed infestations during all phases of the mining operation and reclamation. Section 5.3.7 describes how spoil will be stockpiled separately from topsoil and located/bermed such that losses from wind and water erosion are minimized. Section 5.3.9 describes how

a sediment control plan will be implemented during and after ISR operations to reduce soil loss and associated potential air and water pollution. Section 6.4.3 describes the surface reclamation methods that will be used to stabilize and protect disturbed areas. Appendix 6.4-C describes the noxious weed control plan that be used to control noxious weed infestations.

- SDCL 45-6B-44, Proposed reclamation plan--Copy to adjacent landowner--Approval of plan--Consultation with landowner and local authorities--Reclamation of all affected land: The reclamation plan in Section 6 was developed by Powertech in consultation with DENR and all landowners within the proposed permit area. Landowner consultation on postmining land use is presented in Appendix 6.4-A, and DENR was consulted during a pre-submission meeting on May 10, 2012. Section 6.4.1 describes how the postmining land uses for the affected land include rangeland and agricultural or horticultural cropland. As described in the response to procedural completeness comment #12, Powertech provided a copy of the reclamation plan to all adjacent landowners.
- SDCL 45-6B-45, Choices of reclamation: Section 6.4.1 describes how the two choices of reclamation include rangeland and agricultural or horticultural cropland. As described in Section 6.4.3.4, the final seed mixture for rangeland has been chosen to be compatible with the postmining rangeland use. The local conservation district, landowners, and DENR were consulted when selecting the seed mixture. Seeding methods are described in Section 6.4.3.4. For areas reclaimed to cropland, Powertech will grade the areas so they can be traversed with farm machinery. Preparation for seeding or planting, fertilization and seeding, or planting rates shall be governed by general agricultural and horticultural practices and coordinated with the affected landowner.
- SDCL 45-6B-46, Time for completion of reclamation--Plantings not required under certain conditions. Powertech will carry out all reclamation activities with all reasonable diligence, and each phase of reclamation shall be completed within 5 years unless such period is extended by the Board of Minerals and Environment. Powertech understands that revegetation may not be required on any affected land being used or proposed to be used for the deposit or disposal of refuse until after the cessation of operations, or where permanent ponds or lakes have been formed. Refer to the response to procedural completeness comment #13, which describes how in very limited areas Powertech may request that the revegetation performance criteria not apply if a pre-disturbance evaluation demonstrates that the chemical or physical characteristics of the soil would seriously inhibit plant growth and that it is not feasible to remedy by chemical treatment, overburden replacement, or like measures.

(7) Powertech needs to address whether it is currently in violation of the provisions of SDCL 45-6B with respect to any mining operations in South Dakota.

Response: Attachment C contains an affidavit from Richard Blubaugh, Vice President - Environmental Health & Safety Resources, that affirms that Powertech is not currently in violation of the provisions of SDCL 45-6B with respect to any mining operations in South Dakota.

(8) Powertech can refer to the section of the mine permit application department's special, exceptional, critical, or unique lands determination is located.

Response: SDCL 45-6B-32(8) requires demonstration that the land is suitable for mining, as determined pursuant to SDCL 45-6B-33. Table 1.1-1 has been updated under SDCL 45-6B-32(8) to reference SDCL 45-6B-33. In addition, minor revisions have been made under the SDCL 45-6B-33 subsections in Table 1.1-1. Following is summary of compliance with the requirements of the subsections of SDCL 45-6B-33.

(1) Physical and economic feasibility of reclamation: Powertech has determined that reclamation of the affected land is physically and economically feasible. Experience during exploration drilling has demonstrated that the rangeland can be reclaimed to an equal or greater cover density than surrounding, undisturbed land. The socioeconomic assessment in Appendix 4.0-A demonstrates that the Dewey-Burdock Project, including all reclamation and decommissioning activities, is economically feasible.

(2) Prevention of sediment deposition: Section 5.3.9 describes the sediment control plan that will be implemented to ensure that substantial deposition of sediment in streams will be prevented.

(3) Special, exceptional, critical or unique lands: Appendix 2.3-A demonstrates that the Board of Minerals and Environment has determined that the lands in the proposed permit area do not constitute special, exceptional, critical, or unique lands.

(4) Long-range productivity of aquifer, public and domestic water wells, watershed lands, aquifer recharge areas, or significant agricultural areas: Section 5.6.3.2 describes the mitigation measures that will be implemented to minimize potential impacts to aquifers and water wells. Due to the limited disturbance of uranium ISR and the commitment to reclaim all disturbed areas to DENR-approved postmining land uses, there will be no significant impacts to the long-range productivity of watershed lands, aquifer recharge areas, or agricultural areas.

(5) Threatened or endangered wildlife species: Potential impacts to threatened or endangered wildlife species are addressed in Section 5.6.11.1.11. Section 5.6.11.2 and the response to procedural completeness comment #9 describe the mitigation measures that will be used to minimize potential impacts to threatened or endangered wildlife species.

(6) Socioeconomic costs and benefits: Appendix 4.0-A supports the conclusion that the probable adverse socioeconomic impacts do not outweigh the probable beneficial impacts of the operation.

9. *SDCL 45-6B-33(5) and SDCL 45-6B-92(1): In the mine permit application, Powertech states a bald eagle mitigation plan will be developed for review and approval by the Department of Game, Fish, and Parks. However, SDCL 45-6B-92 requires Powertech to address plans for mitigating potential impacts to bald eagles in the mine permit. Also, Powertech is required to show under SDCL 45-6B-33(5) that a state threatened species such as the bald eagle will not be jeopardized during the mining operation. Therefore, please submit a plan to mitigate impacts to bald eagles. The plan can be similar to the mitigation plan for raptors and other migratory birds in Section 5.6.11.2 in Volume 1 of the mine permit application.*

Response: Section 5.6.11.2 of the LSM permit application has been revised to describe the bald eagle mitigation/management plan that will be developed in accordance with SDCL 45-6B-33(5) and SDCL 45-6B-92(1). Following is a brief summary of the information contained in revised Section 5.6.11.2.

Powertech will develop a bald eagle mitigation/management plan for review and approval by the U.S. Fish & Wildlife Service (USFWS). The plan also will be provided to the South Dakota Department of Game, Fish and Parks (SDGF&P) for review and input, although the USFWS will have the final approval authority. The approved plan and any associated permits will be incorporated into the LSM permit. The bald eagle mitigation/management plan is anticipated to address the following:

- Ensure that annual bald eagle monitoring and survey data for nest and winter roost sites are available within the permit area and buffer area for the life of mine to:
  - determine normal habitat use and movements,
  - determine the location and status of nests and winter roost sites, and
  - document the occurrence and outcome of nesting bald eagle pair(s).
- Establish buffer zones protecting important bald eagle habitat where necessary and stipulating seasonal restrictions on ISR-related disturbances within buffer areas in order to avoid jeopardizing bald eagles during any project phase. Such buffer zones and their associated seasonal restrictions would be established:
  - in keeping with current USFWS recommendations,
  - around nest sites, and
  - around documented winter roost sites.
- If necessary, obtain a USFWS-issued permit and any necessary State permits for eagle take and/or nest relocation or removal, the application for which would address the following:
  - demonstration that the proposed activity meets the requirements of 50 CFR § 22.26 or § 22.27, which contain the federal requirements for take and removal/relocation of eagle nests, respectively;
  - methods to relocate the nest(s) or construct an alternate nest and/or improve conditions at alternate nest sites, if mitigation measures are required;
  - a demonstration that suitable nesting and foraging (including winter) habitat is available to the area nesting population of bald eagles that could accommodate any bald eagles displaced by the take or nest removal/relocation; and
  - implementation of monitoring and reporting procedures to determine the response of bald eagles to the take or nest relocation(s).

10. *SDCL 45-6B-37 and ARSD 74:29:07:04(2-5): In the grading plan in Section 6.4.3.1 in Volume 1 of the mine permit application, please address separately the proposed grading activities for the well field mud pits, the central and satellite plants, the land application areas, and the access and haul roads. Also, please address section 2 through 5 of this regulation. In addressing these sections, please include a timetable for grading each of the above mentioned areas. Also, please describe how erosion and sedimentation will be controlled during final grading activities, how areas outside the graded areas will be*

protected from slides, if any depressions to accumulate water will be created during final grading, and how existing drainage will be preserved during final grading.

Response: Section 6.4.3.1 has been updated to address proposed grading activities for the well field mud pits, processing facilities, land application areas, and access roads. Following is a summary of the information contained in the revised Section 6.4.3.1.

- Mud pits: As described in Section 5.3.7, topsoil will be separated from subsoil during excavation of mud pits. When use of each mud pit is complete, the subsoil will be redeposited in the mud pit followed by replacing topsoil. Prior to topsoil replacement, the subsoil will be graded to match premining topography.
- CPP and Satellite Facility: During reclamation, the CPP and Satellite Facility process buildings and equipment will be removed as described in Section 6.3.1.3. The processing facility areas will be regraded to approximate premining topography, and topsoil stockpiled near the facilities will be replaced. Section 6.5 describes how facility reclamation, including the CPP and Satellite Facility, will occur following well field reclamation. The expected duration of final grading and reclamation activities at the CPP and Satellite Facility is approximately 2 years, as shown in Figure 5.2-1.
- Land application areas: The topography in the land application areas will remain unchanged except for minor areas of grading to reduce slopes [refer to the response to procedural completeness comment #19, part (3)] and construction of catchment areas. Prior to disturbance, topsoil will be stripped from these areas. Topsoil will be temporarily replaced in the areas of minor grading. Topsoil may be spread on the catchment areas and catchment berms, or it may be temporarily stockpiled near the catchment areas for replacement during final reclamation. Following groundwater restoration in all well fields and disposal of all wastewater via deep disposal wells and/or land application, land application areas will be reclaimed. Disturbed areas will be regraded to approximate premining contours, including areas of minor grading to reduce slopes or construct catchment areas and catchment berms. Topsoil will be stripped prior to regrading and replaced after regrading. The anticipated duration of land application reclamation is 1 year. It will be done during the CPP and main facility decommissioning phase shown on Figure 5.2-1.
- Access roads: Access road reclamation is described in Section 6.4.3.3. Access roads will be reclaimed by removing imported road surfacing material and ripping road surfaces and shallow subsoil to loosen the subsoil. Any spoil temporarily stockpiled during access road construction will be replaced. Access road areas will be graded to approximate premining contours. Topsoil will be replaced in a uniform manner and the area revegetated. Access roads will be reclaimed when they are no longer needed. Well field access roads will be reclaimed during reclamation of each well field unless they are used to access other well fields or monitoring locations. The primary access roads will be reclaimed during the CPP and main facility decommissioning phase shown on Figure 5.2-1. The expected duration of access road reclamation is less than 1 year for each access road, but may occur over several years due to phased well field decommissioning/reclamation.

- ARSD 74:29:07:04(2) Erosion and sedimentation control during final grading: A sediment control plan will be implemented during all project phases, including final grading, to reduce soil loss within the proposed permit area. The sediment control measures discussed in Section 5.3.9 will be maintained and inspected until contributing areas are reclaimed. Sediment control structures are described in Section 5.3.9.3 and include silt fence, check dams, sediment traps, and sediment ponds. During final grading, Powertech will identify potential sources of pollution and determine best management practices (BMPs) to be used, including erosion and sediment controls.
- ARSD 74:29:07:04(3) Grading and backfilling timetable: Backfilling and grading mud pits will occur immediately following drilling, typically within 30 days of mud pit construction. Grading and backfilling during reclamation of well fields will occur during well field decommissioning. The total duration of well field decommissioning is anticipated to be approximately 7 years as shown on Figure 5.2-1, but the duration of grading and backfilling each individual well field is only 1 year or less (refer to the decommissioning estimates for each well field in Figure 6.5-1). Access roads will be reclaimed when they are no longer required. Grading and backfilling the CPP, Satellite Facility, ponds, land application areas, and primary access roads will occur after well field reclamation and is anticipated to require 2 years to complete. Diversion channels will be backfilled and graded after reclamation of downgradient facilities.
- ARSD 74:29:07:04(4) Depressions: Section 6.4.3.1 has been updated to indicate that all disturbed areas will be graded to eliminate depressions that could accumulate water and to match premining topography.
- ARSD 74:29:07:04(5) Drainages: Section 6.4.3.1 has been updated to indicate that any altered drainages will be returned to original functionality during the final grading process.

Finally, please include each subsection of ARSD 74:29:07:04 and the applicable permit application reference in Table 1.1-2. The table currently does not list each subsection of the regulation.

Response: Table 1.1-2 has been updated to list each subsection of ARSD 74:29:07:04 and the applicable permit application reference where each subsection is addressed.

11. SDCL 45-6B-43 and ARSD 74:29:07:15: Please submit a letter from the Custer County Weed Board showing that Powertech consulted with the agency during development of the noxious weed control plan.

Response: Replacement pages for Appendix 6.4-C have been provided that modify the noxious weed control plan and provide concurrence from Custer County. During consultation on the noxious weed control plan, the Custer County Weed and Pest Department requested the removal of burning as a potential weed control method. In response to this request, Powertech revised the noxious weed control plan to omit burning as a potential weed control method.

12. SDCL 45-6-44: *Powertech is required to consult with adjacent landowners during development of the reclamation plan. The instrument of consultation can consist of a written receipt from the adjacent landowners stating that they received a copy of the reclamation plan.*

Response: Attachment B includes proof that copies of the reclamation plan were sent to the adjacent surface owners. This attachment includes a distribution list, copy of each transmittal letter, and copy of the U.S. Postal Service return receipt or UPS delivery confirmation.

13. *SDCL 45-6B-46(2): Please address any areas within the permit boundary that cannot be vegetated due to poor or toxic soil conditions and cannot be remedied by fertilization, chemical treatment, or other such treatment. This includes well field BWF-7 in the old Darrow mine area that will be developed in the pits and on the old spoil piles*

Response: Section 6.4.3.2 has been revised to address areas with limited existing vegetation and therefore low revegetation potential. These include the Darrow Mine surface pits/spoil piles and the "alkali area." These areas currently have low vegetative cover densities and likely will have low revegetation potential if disturbed. The historical mine pits and spoil piles have low revegetation potential primarily due to the physical characteristics of the soil (i.e., lack of organic matter). The alkali area is an area of known discharge from the Fall River and/or Chilson through historical exploration holes. This area may have high levels of salinity and alkalinity that are currently devoid of vegetation and would continue to inhibit vegetation if disturbed. In accordance with SDCL 45-6B-46(2), planting may not be required on affected land with chemical and physical characteristics that are "toxic, deficient in plant nutrients, or composed of sand, gravel, shale, or stone to such an extent to seriously inhibit plant growth and such conditions cannot feasibly be remedied by chemical treatment, fertilization, replacement of overburden, or like measures." In only very limited areas, which are anticipated to include the historical mine pits and the alkali area, Powertech will sample the topsoil and subsoil prior to disturbance. If the evaluation demonstrates that its chemical or physical characteristics would seriously inhibit plant growth and that it is not feasible to remedy by chemical treatment, overburden replacement, or like measures, Powertech will request that the revegetation performance criteria in Appendix 6.4-D not apply for these limited areas as allowed by SDCL 45-6B-46(2).

14. SDCL 45-6B-92: *Please address the following critical resources and how impacts to the resources will be mitigated:*

    (8) Air Quality – Any air quality impacts to nearby receptors similar to the noise impact analysis.

Response: Section 5.6.10.2 has been updated to describe mitigation of potential impacts to critical air quality resources, including nearby residences and recreational areas. Following is a summary of the mitigation measures:

- Powertech has submitted a permit application to the DENR Air Quality Program requesting an exemption from South Dakota air permitting as a minor source of emissions. The permit application includes a detailed emissions inventory that demonstrates that total stationary sources of emissions of criteria pollutants will be well below the 25 tons/year threshold.
- Potential impacts to nearby receptors and recreational areas will be mitigated through minimizing disturbance, reclaiming disturbed areas, maintaining vehicles to meet applicable EPA emission standards, encouraging carpooling, and implementing standard dust control measures including watering disturbed areas/roads and implementing speed limits.
- Potential radiological air quality impacts are addressed in Section 5.6.9.1. The anticipated maximum annual total effective dose equivalent (TEDE) for an adult at the nearest residence will be approximately 2% or less of the 10 CFR Part 20 public dose limit of 100 mrem/year.
- Powertech currently is performing detailed ambient air quality modeling that is being coordinated with NRC and EPA. The modeling will evaluate the potential impacts of emissions from the Dewey-Burdock Project on ambient air quality to nearby residences and potential near-field impacts within 50 km of the proposed permit area (including Jewel Cave National Monument). In addition, the modeling specifically will address potential impacts on air quality related values (AQRVs) at the Wind Cave National Park, the nearest Class I area. The modeling results will be publicly available and will be submitted to DENR upon request.

15. *ARSD 74:29:02:04(2, 3, and 4): Please provide a narrative description of the pre-mining contours. Also, please provide post-mining cross-sections of the central and satellite processing areas. In addition, the location of the mine spoil piles need to be shown on Plates 5.3-1 and 5.3-2. Finally, Powertech should also refer to Section 6.4.3.1 in the reference in Table 1.1-2 for ARSD 74:29:02:04(2).*

Response: Section 5.3 of the LSM permit application has been revised to include a narrative description of the premining contours within the proposed affected area boundary. Following is a summary of the information in Section 5.3.

The premining topography within the proposed permit area is described in Section 3.5.2.1. The elevation ranges from approximately 3,600 to 3,900 feet, and the average slope is approximately 6 percent. Within the proposed affected area, the elevation ranges from approximately 3,590 feet near D-WF1 along Beaver Creek to approximately 3,930 feet at a spoil pile associated with the historical Darrow Mine. The slope within the proposed affected area ranges from nearly flat along the Beaver Creek and Pass Creek floodplains to vertical slopes in portions of the historical surface pits. The average slope in the proposed affected area is approximately 5 percent.

Near the proposed CPP and associated ponds, the premining elevation ranges from approximately 3,690 to 3,780 feet. The slope ranges from approximately 1 to 12 percent and averages approximately 5 percent. In the vicinity of the Satellite Facility and associated ponds,

the elevation ranges from approximately 3,630 to 3,680 feet. The slope ranges from approximately 0 to 6 percent and averages approximately 2 percent. Refer to the response to procedural completeness comment #19, part (3) for a description of the slopes within the proposed land application areas.

Cross Sections AA-AA' through HH-HH', provided on Plates 5.3-15 and 5.3-16, depict cross sections through the processing facilities and ponds. These cross sections depict the premining topography, postmining topography and the approximate finished ground topography during ISR operations. The postmining topography will approximate premining topography. References to these cross sections are provided in revised Table 1.1-2 under ARSD 74:29:02(3).

In accordance with ARSD 74:29:04:02(4), Plates 5.3-1 and 5.3-2 have been revised to include the designated spoil pile locations for the central and satellite processing areas. The text in Section 5.3.7 has been revised to indicate that spoil stockpiles along with topsoil stockpiles for the processing facilities and ponds are shown on these plates. Well field topsoil piles and spoil piles will be designated during final well field design, and Plates 5.3-1 and 5.3-2 will be updated accordingly.

Table 1.1-2 has been updated to reference Sections 3.5.2.1, 5.3, 6.4.1 and 6.4.3.1 and Plate 6.4-1 for ARSD 74:29:02:04(2).

16. *ARSD 74:29:02:11(10 and 13): Please submit a conceptual spill contingency plan that addresses the procedures Powertech will use to report spills of plant reagents, fuel, and other chemicals to all state and federal agencies and the personnel responsible for reporting the spills. Also, please provide conceptual plans and specifications for the land application diversions, berms, and catchment areas.*

Response: A conceptual spill contingency plan will be provided the near future.

17. *ARSD 74:29:02:12 (2, 4, and 5): Maps 1 through 3 in the Baseline Wildlife Report in Appendix3.9-A and Plates 315, 335, 337, and 338 in Appendix 5.3-A need to be signed by the person preparing the maps and plates. Also, Powertech needs to identify the purpose the map is fulfilling on Exhibit 3.5-A-1 in Appendix 3.5-A and Plates 315, 335, 337, and 338 in Appendix 5.3-A. In addition, Plate 1 in Appendix 3.2C needs a legend.*

Response: Maps 1 through 3 in Appendix 3.9-A have been updated to include the signature of the preparer and the SDCL reference. Plates 315, 335, 337, and 338 in Appendix 5.3-A are outdated and have been removed. Plate 315 (Isopach of the Upper Confining Graneros Unit [Mowry and Skull Creek Shales]) has been replaced with a reference to Plate 3.2-10 (Isopach of the Graneros Group). Plates 335, 337 and 338 (Land Application Cross Sections) have been replaced with Plates 3.2-23 through 3.2-27. These are updated cross sections through the land application areas that were prepared for the GDP application. A second sheet with a legend has been added to Plate 1 in Appendix 3.2-C.

Finally, please include each subsection of ARSD 74:29:02:12 and the applicable permit application reference in Table 1.1-2. The table currently does not list each subsection of the regulation.

Response: Table 1.1-2 has been updated to include each subsection of ARSD 74:29:02:12.

18. *ARSD 74:29:05:14(2): The permit application reference in Table 1.1-2 for the regulation (Section 5.7.2.6) does not address chemical characterization of land application solution. However, Section 5.4.1.1.4.1 does. Please change the permit reference for this regulation in the table.*

Response: Section 5.7.2.6 was referenced in Table 1.1-2, since ARSD 74:29:05:14(2) requires chemical characterization of the land application solution prior to initiation of land application, and the land application system reporting procedures in Section 5.7.2.6 describe how Powertech will provide the chemical characterization of the solution in the storage ponds prior to operating the land application system each year. Table 1.1-2 has been updated to reference Section 5.4.1.1.4.1 in addition to Section 5.7.2.6.

19. *ARSD 74:29:05:16: Please explain how each of the following items is addressed in the site evaluation and compatibility assessment to show site compatibility with the chemical composition of the land application solution and the amount of solution to be applied:*

Response: Section 5.4.1.1.2 has been updated to address the site evaluation and compatibility criteria in ARSD 74:29:05:16. Following is a summary of the evaluation for each of the areas requested in the comment.

(1) Impacts to wildlife grazing in the land application area;

Response: Potential impacts to wildlife grazing in the land application areas will be minimized through treating the land application effluent prior to application, monitoring vegetation within land application areas, and evaluating the monitoring results annually to detect potential increasing trends in constituent concentrations. As a condition of the GDP, the land application water quality will be required to meet effluent limits established by DENR that are protective of groundwater quality. Section 5.4.1.1.4.1 describes the anticipated land application water quality. Trace metal concentrations are anticipated to be at or below ARSD 74:54:01:04 human health standards. Radionuclide concentrations will be below 10 CFR Part 20, Appendix B, Table 2, Column 2 effluent limits for release of radionuclides to the environment. The suitability of land application vegetation to wildlife grazing will be verified through annual vegetation monitoring in the land application areas. Sections 5.5.6.2 and GDP Section 6.5 describe how vegetation in the land application areas will be sampled each year. The response to procedural completeness comment #20 describes how this information will be evaluated annually and the results reported to DENR to determine whether there is any risk to wildlife.

(2) Site geology;

Response: Section 8.1 in the GDP application describes how the site geology is well suited to land application. The depth to alluvial groundwater, where encountered, is greater than the maximum anticipated infiltration depth of the land application water. The Graneros Group shales will prevent the land application water from reaching bedrock aquifers. Section 3.6.2.2 in the GDP application describes how the thickness of the Graneros Group is approximately 500 to 550 feet beneath the proposed Dewey land application area and approximately 25 to 250 feet beneath the proposed Burdock land application area.

(3) Areas slopes, including the slope of the land application;

Response: In the proposed Dewey land application area, the average slope is approximately 3.5 percent. The maximum slope is between 15 and 25 percent in a small area (approximately 5 acres) at the northern edge of one proposed land application area (refer to page 5.3-B-42 in Appendix 5.3-B). In the proposed Burdock land application area, the average slope is approximately 2 percent. Only about 2 acres of the proposed Burdock land application area has a slope greater than 15 percent (refer to page 5.3-B-43 in Appendix B). These slopes will be compatible with center pivot irrigation.

During final design of the land application systems and catchment areas, Powertech will evaluate any areas with slopes greater than 15 percent to determine whether they can be avoided or whether they require mitigation. The evaluation will consider the maximum manufacturer-recommended slope based on the center pivot climbing capability and ground clearance requirements. It also will consider whether regrading will be necessary to reduce the potential for runoff and erosion. It is currently anticipated that approximately 5 acres in the proposed Dewey land application area and 2 acres in the proposed Burdock land application area will be regraded to a maximum slope of 15 percent unless these areas are avoided during final design.

(4) Site erodibility, including the potential for erosion during land application that was not addressed in Section 8.2 of the ground water discharge permit application;

Response: The potential for erosion within the land application areas will be minimized through siting land application areas in relatively flat terrain, maintaining vegetation, optimizing the irrigation rate to avoid runoff, using low-impact sprinkler heads, and capturing any runoff in catchment areas. The previous response describes how the average slopes are 2 to 3.5 percent in the land application areas. Small areas with slopes greater than 15 percent are anticipated to be regraded to minimize the potential for erosion and to meet the maximum manufacturer-recommended slopes for the center pivots. Relatively flat slopes along with maintenance of the land application areas in a vegetated state will limit the potential for erosion. Section 5.4.1.1.2 and GDP Section 5.4 describe how the land application water will be applied at an agronomic rate to prevent runoff into the catchment areas. Should runoff from precipitation or snowmelt

occur, the runoff and sediment will be captured in the catchment areas and will not reach perennial or ephemeral stream channels.

In addition, Section 10 of the GDP application describes how daily inspections of the land application areas and catchment berms during operation of the land application systems will determine whether there are any unplanned effects such as erosion.

(5) The distances from the land application area to flowing streams;

Response: Beaver Creek is the only flowing stream within the proposed permit area. The minimum distance from a proposed Dewey land application area to Beaver Creek is approximately 280 feet. The minimum distance from a proposed Burdock land application area to Beaver Creek is approximately 1.1 miles.

(6) Effect on adjacent land uses from land application solution that is not addressed in Plate 2.2-2; and

Response: Land uses adjacent to the proposed land application areas includes livestock grazing on rangeland and recreational use (primarily hunting) on private lands. No effects from land application on adjacent land uses are anticipated due to the operation of land application systems to minimize overspray and due to Powertech's commitment to limit hunting within the proposed permit area. Refer to the next comment response for a description of the standard operating procedure (SOP) that Powertech will develop to minimize overspray from the land application systems. Limiting overspray will minimize potential impacts to adjacent rangeland. Section 3.1.2 describes how Powertech will work with BLM, SDGF&P and private landowners to limit hunting within the proposed permit area to the extent practicable.

(7) Effect site weather conditions would have on land application that is not addressed in Section 5.5.10.

Response: Prior to operation of the land application systems, Powertech will develop an SOP for land application system operation that will include provisions to minimize overspray outside of the center pivot areas. The SOP will include using the results of meteorological monitoring (wind speed, wind direction and temperature) to modify operating parameters. It will include maximum wind speed/wind direction combinations for land application system operation. The SOP also will address precipitation thresholds to avoid land application during heavy or prolonged precipitation events. Temperature thresholds also will be included to avoid land application when water cannot infiltrate due to frozen ground. Adherence to this SOP will be required by GDP permit conditions.

Also, Powertech needs to also refer to Section 8 in the ground water discharge permit application in Table 1.1-2 for each subsection of ARSD 74:29:05:16. Finally, since Powertech is referring to sections of the ground water discharge permit application in addressing each sub section of this regulation, please submit a hard copy of the

replacement pages and plates dated 4/16/12, 6/18/12, 7/3/12, and 8/10/12 so we can insert them into our copy of the application. Electronic copies of the application and the replacement pages and plates should be sent to the review agencies and the Custer and Fall River Register of Deeds office.

Response: Table 1.1-2 has been updated to refer to the revised Section 5.4.1.1.2 for the information required by each subsection of ARSD 74:29:05:16. Attachment D includes hard copies of each of the comment responses and replacement pages for the GDP application. These include the 4/16/2012 completeness comment responses and responses to technical comments on 6/18/2012, 7/3/2012, 8/10/2012, 10/18/2012, and 11/21/2012.

20. *ARSD 74:29:05:17(8): Please address the maximum allowable metals accumulations values for soils and vegetation in the land application areas in subsection 8 of this regulation. Also, please include each subsection of ARSD 74:29:05:17 and the applicable permit application reference in Table 1.1-2. The table currently does not list each subsection of the regulation.*

Response: The following information is included in revisions to Sections 5.5.6.1 and 5.5.7.1.

Sections Section 8.3 of the GDP application describes how Powertech will monitor land application soils for the potential buildup of metals and metalloids. Potential impacts will be mitigated by monitoring soil concentrations during operations and implementing a contingency plan if concentrations approach trigger values. The proposed trigger values for arsenic and selenium are the average baseline concentrations plus 2 standard deviations. In addition, Powertech will monitor additional constituents listed in Table 6.4-1 of the GDP application. Powertech will analyze the annual monitoring results and propose additional trigger values if increasing trends are observed. This analysis will be completed annually and provided in the written report described in Section 5.7.2.6 and GDP Section 11.

Section 8.4 of the GDP application describes how Powertech will monitor for the potential buildup of metals, metalloids, and radionuclides in irrigated vegetation. The vegetation sampling parameters are listed in Table 6.5-1 of the GDP application. Metals and metalloids to be monitored include natural uranium, selenium and arsenic. Prior to operation, Powertech will develop trigger values for arsenic and selenium based on the preoperational concentrations and the variability in each parameter. Should routine operational monitoring indicate an increasing trend in constituent concentrations with potential to approach trigger values, a contingency plan will be implemented as described in Section 8.4 of the GDP application. The proposed trigger values will be provided to DENR for review and approval prior to initiating land application. The results of annual monitoring and evaluation of potential increasing trends will be provided in the written report submitted to DENR each year.

Table 1.1-2 has been updated to include each subsection of ARSD 74:29:05:17.

21. *ARSD 74:29:05:19: Sections 6.4 and 6.8.4 do not address revegetation of land application areas in the event vegetative species or cover change significantly during land application of solutions. Please include a separate section in Section 6 that discusses revegetation of land application areas.*

Response: Section 6.4.4 has been added to the LSM permit application to address revegetation of land application areas. The revegetation techniques will depend on the vegetation grown in the land application areas. If native vegetation is irrigated and the species composition of the native vegetation does not change significantly during irrigation, then reseeding is not anticipated to be necessary to meet the reclamation performance criteria. However, if the species composition of the native vegetation significantly changes during the course of land application, Powertech will develop a plan that either demonstrates that after termination of land application a permanent, self-perpetuating ground cover at least equal in character and extent to the original will remain or detail a revegetation program that has been approved by SDGF&P and the local conservation district.

If crops such as alfalfa or wheatgrass are planted in the land application areas, Powertech will revegetate the land application areas during reclamation by preparing the topsoil and using the seeding mixture and methods described in Section 6.4.3.4.

Section 6.8.4 has been updated to reference Sections 5.5.6.1 and 5.5.7.1 for monitoring potential impacts to soil and vegetation in land application areas.

22. *ARSD 74:29:06:02(1 and 4): Please address subsections 1 and 4 of this regulation for the postmine land uses of rangeland and agricultural or horticultural cropland. This can be included as a separate section in the reclamation plan in Section 6. For section 4, Powertech needs to explain how each land use is:*

Response: Section 6.4.1 has been modified to address the requirements of ARSD 74:29:06:02(1) and (4). Following is a summary of how each postmining land use meets the requirements in ARSD 74:29:06:02(4).

a. *Obtainable according to data on expected need and market;*

Response: Appendix 6.4-D describes how for rangeland, two of the criteria to determine revegetation success will be usable forage production and revegetation sustainability. These two parameters will demonstrate that the reclaimed rangeland has at least the same livestock carrying capacity as reference areas. For agricultural or horticultural cropland, the final bond release criterion will be a demonstration that the productive capacity is equal to or exceeds that of similar crop production areas in nearby comparison areas. Powertech will maintain adequate financial assurance to ensure that areas can be reclaimed to the approved postmining land uses.

b. Supported by commitments from public agencies where appropriate;

Response: Powertech is not aware of the need for any commitments from public agencies to support the postmining land uses of rangeland or agricultural or horticultural cropland.

c. *Practicable based on Powertech's financial ability to complete and reclaim the proposed operation;*

Response: As described in Section 6.7.1, Powertech will maintain financial assurance instruments to cover the cost of all reclamation and decommissioning activities, including reclamation and revegetation of affected areas.

d. Planned pursuant to a schedule attached to the reclamation plan that integrates the mining operation and reclamation with each postmine land use;

Response: Sections 6.5 and 6.6 present the schedules for reclamation and reclamation monitoring. Well field reclamation will be carried out concurrently with ISR operations. After uranium recovery is no longer economical in each well field, groundwater restoration will be completed followed by well field reclamation. The minimum period of vegetation establishment for rangeland and agricultural or horticultural cropland prior to evaluation for final financial assurance release will be 3 years.

e. Consistent with existing state and local land use plans and programs; and

Response: The postmining land uses of rangeland and agricultural or horticultural cropland are the same as the predominant premining land uses in the proposed permit area. Therefore, they are expected to be consistent with existing state and local land use plans and programs.

f. Is of beneficial use.

Response: The postmining land uses of rangeland and agricultural or horticultural cropland are the same as the predominant premining land uses in the proposed permit area. These uses will have economic value to the landowners and thus they meet the definition of "beneficial use" in ARSD 74:29:01:01.

Also please include each subsection of ARSD 74:29:06:02 and the applicable permit application reference in Table 1.1-2. The table currently does not list each subsection of the regulation.

Response: Table 1.1-2 has been updated to include each subsection of ARSD 74:29:06:02.

23. *ARSD 74:29:07:02(7 and 9): Please describe how the location of topsoil and spoil stockpiles will facilitate reclamation. Also, please describe how the design of the project facilities is compatible with the surrounding land uses.*

Response: Topsoil and spoil piles will be located in a manner to facilitate reclamation by placing the piles near the locations where they will be used. Section 5.3.7 describes how topsoil and spoil piles associated with the CPP, Satellite Facility and associated ponds will be placed near the processing facilities as shown on Plates 5.3-1 and 5.3-2. Topsoil and spoil piles for the access roads and well fields will be placed near the roads and well fields to minimize the haul distance. Section 5.3.7 also describes how topsoil and spoil piles will be located such that losses from wind and water erosion are minimized. This will facilitate reclamation by ensuring that the stockpiled material is available for reclamation.

The design of the project facilities is compatible with the surrounding land uses, which are primarily livestock grazing on rangeland and, to a lesser extent, cropland and recreational use. Sections 5.6.1.1 and 5.6.1.2 describe how limited disturbance and phased construction and operation of ISR well fields will limit the amount of land temporarily converted from its previous uses as rangeland and cropland to ISR use. Even during maximum production, most of the land within the permit area will be used for rangeland and cropland. This is demonstrated by the limited disturbance area. The proposed affected area boundary encompasses 2,528 to 3,793 acres, but the area anticipated to be disturbed over the life of the mine is only approximately 250 to 440 acres (refer to Section 6.4.3). The proposed affected area is 36% or less of the proposed permit area of 10,580 acres, and the anticipated disturbance area is 4% or less of the proposed permit area.

24. *ARSD 74:29:07:06(3): In the mine permit application, Powertech mentions that a comparison area will be used to determine vegetation success during final reclamation. Since the comparison area is essentially a reference area, please address Section 3 of this regulation. Please show the location of the comparison area on a map and address whether the area is large enough to make comparisons, if it will be affected by future mining, if it will be managed so there will not be significant changes in the cover, productivity, species diversity, and composition of the vegetation, and it is representative of the postmining land uses of rangeland and agricultural or horticultural cropland.*

Response: Appendix 6.4-D has been revised in response to this comment to use designated reference areas rather than adjacent undisturbed areas to determine revegetation success during final reclamation of rangeland. Since the rangeland reclamation seed mixture is an upland grass mixture, all reference areas will be established in the upland grassland vegetation community. At least four reference areas will be established for each of the Dewey and Burdock portions of the proposed permit area. Proposed reference areas are depicted on Plate 6.4-2, which includes the mapped vegetation communities and proposed affected area boundaries. All proposed reference areas are outside of the proposed affected area and therefore are not anticipated to be affected by future mining. Powertech proposes to revise the technical revision list in Appendix 1.0-B to authorize DENR to review and approve relocating, adding or removing reference areas.

Reference areas will be at least 2 acres in size, which will be an adequate size to sample vegetation along three randomly located transects annually without significantly affecting the vegetation in the reference area. Powertech will work with the landowners to manage the reference areas in a similar manner to revegetated areas. During years that the reference areas are used to determine vegetation success, this may involve fencing the reference areas to exclude livestock or rotating livestock out of the pastures in which reference areas are located.

Reference areas will be sampled during each year that reclaimed areas are sampled to determine revegetation success. In each reference area, three 50-meter transects will be randomly located, with different transects located each year to avoid impacts from sampling during previous years. The transects will be used to measure percent cover and usable forage production as described in Appendix 6.4-D. When evaluating a reclaimed area for revegetation success, the percent cover and forage production of the reclaimed area will be compared to the average values for all reference area transects in the associated portion of the permit area (Dewey or Burdock). Revegetated areas will meet the reclamation performance criteria for percent cover and usable forage production if the values in the revegetated areas are within one standard deviation of the average values in the associated reference areas.

Reference areas will be representative of the rangeland postmining land use. Powertech does not propose to designate reference areas for agricultural or horticultural cropland. The use of fields for crop production within the proposed permit area varies from year to year, making it impractical to designate a cropland reference area. Instead Powertech proposes to compare the productive capacity of reclaimed cropland with that in adjacent cropland unaffected by ISR activities.

25. *ARSD 74:29:07:07(2, 3, 5, 6, and 8): Please submit an estimate of the topsoil replacement depth and the volume of topsoil required to attain this depth for the reclaimed areas of the mine site. Also, please compare this to the amount of topsoil estimated to be salvaged and address whether there will be excess or limited topsoil. If there will be limited topsoil as Powertech states in the mine permit application, please address section 8 of this regulation regarding topsoil substitutes.*

Response: Estimates of topsoil stockpile volumes for the processing facilities and ponds are provided in Section 5.3.7. In the Burdock area, the estimated volume is 100,000 to 200,000 cubic yards. (Note that Section 5.3.7 has been corrected from the previous range of 150,000 to 200,000 cubic yards. In addition, the reference to SDCL 45-6B-7(11) has been corrected at the beginning of Section 5.3.7.) This is based on an average estimated topsoil salvage depth of approximately 1.2 feet (from the baseline soil survey in Appendix 3.3-A) and an area of approximately 40 to 90 acres (depending on the wastewater disposal option). In the Dewey area, the estimated topsoil volume for the processing facilities and ponds is 50,000 to 100,000 cubic yards. This is based on an average estimated topsoil salvage depth of approximately 0.8 foot and an area of approximately 30 to 80 acres. The topsoil replacement depth will be approximately the same as the salvage depth. The estimated topsoil replacement depth for the Burdock and Dewey processing areas and ponds is 1.2 feet and 0.8 foot, respectively.

As indicated in Section 5.3.7, the topsoil stockpiles for the well fields (including those for well field access roads) will be designed during final well field design. In the initial Burdock well field, the anticipated topsoil salvage depth is estimated to range from 0 to 3 feet and average approximately 1.0 foot (from the baseline soil survey in Appendix 5.3-A). In the initial Dewey well field, the anticipated topsoil salvage depth is estimated to range from 0 to 1.67 feet and average approximately 0.15 foot. The topsoil replacement depths in the well fields are estimated to be approximately the same as the salvage depths. The topsoil replacement depth in the initial Burdock well field is anticipated to range from 0 to 3 feet, and the topsoil replacement depth in the initial Dewey well field is anticipated to range from 0 to 1.67 feet.

Section 6.4.3.2 describes how during reclamation topsoil temporarily stored in stockpiles will be redistributed over the originally disturbed areas. The replacement depth will be calculated based on the stockpile volume and the area to be reclaimed. The amount of topsoil salvaged is estimated to be the same as the amount replaced, such that there is not anticipated to be excess or limited topsoil. Powertech does not anticipate using topsoil substitutes.

> *Also, due to the poor vegetation noted on drill sites under Powertech's exploration permit, please address section 3 of this regulation and address analyzing the topsoil to see if fertilizer or other amendments will be required to establish and sustain a vegetative cover on reclaimed areas. In addition, please address whether Powertech plans to temporarily distribute a portion of the topsoil. If so, please address section 2 of this regulation.*

Response: Section 6.4.3.2 of the LSM permit application has been revised to indicate that in areas of poor baseline vegetative cover, Powertech may analyze the topsoil to determine whether fertilizer or other amendments will be required to establish and sustain a vegetative cover on reclaimed areas. See also the response to procedural completeness comment #13, which describes how in very limited areas Powertech may request that the revegetation performance criteria not apply if a pre-disturbance evaluation demonstrates that the chemical or physical characteristics of the soil would seriously inhibit plant growth and that it is not feasible to remedy this by chemical treatment, overburden replacement, or like measures.

> *Finally, please list the permit application reference for ARSD 74:29:07:07(6) in Table 1.1-2. This regulation was not included in the table. Powertech should also refer to Section 6.4 in the permit application reference for ARSD 74:29:07:07(5).*

Response: ARSD 74:29:07:07(6) has been added to Table 1.1-2, and the table has been modified to indicate that Section 6.4 addresses ARSD 74:29:07:07(5).

26. *ARSD 74:29:07:08(2): In Section 6.2, Powertech needs to address compliance with South Dakota surface water quality standards for surface water sites and ground water quality standards in the land application area. Also, please include each subsection of ARSD 74:29:07:08 and the applicable permit application reference in Table 1.1-2. The table currently does not list each subsection of the regulation.*

Response: Operational surface water monitoring will occur at 10 stream sampling sites listed in Table 5.5-3. Four of these sites are on stream segments with designated beneficial uses (Beaver Creek and the Cheyenne River). Section 3.5.4.1.1 describes how the sampled segments of Beaver Creek and the Cheyenne River have beneficial uses for warmwater semipermanent fish life propagation and limited-contact recreation. Section 3.5.4.1.1 describes how baseline samples collected from Beaver Creek met the ARSD 74:51:01:48 criteria for warmwater semipermanent fish life propagation waters except for some measurements of total suspended solids (TSS). Similarly, Cheyenne River baseline samples met the criteria except for some TSS measurements and one dissolved oxygen measurement.

Routine operational monitoring of surface water sites will be used to demonstrate compliance with the antidegradation policy for surface waters in ARSD 74:51:01:34, which requires existing beneficial uses to be maintained and protected. The mitigation measures described in Section 5.6.4.2 will ensure that the Dewey-Burdock Project will not cause significant changes in surface water quality. To verify the effectiveness of mitigation measures, Powertech proposes to add the additional parameters of pH, total dissolved solids (TDS), TSS, hardness, chloride, sulfate, arsenic, cadmium, chromium and selenium to the operational surface water monitoring parameters in Table 5.5-4.

Powertech will operate the proposed land application systems in accordance with an approved GDP, the primary purpose of which is to protect groundwater quality in accordance with State standards. Mitigation measures to protect groundwater quality in the land application areas are described in Section 5.6.3.2 and include implementing an extensive land application monitoring system that includes compliance wells, intermediate wells and vadose zone monitoring; siting land application areas at locations where natural conditions make it unlikely that land application water will reach alluvial groundwater; applying land application water at agronomic rates; and treating land application water to remove radionuclides.

Table 1.1-2 has been updated to address each subsection of ARSD 74:29:07:08.

27. *ARSD 74:29:07:09(1, 3, 4, 5, 6, and 8): It appears the diversion ditches around the process facilities and ponds were designed for a 100 year, 24 hour storm event. However, in section 6 of this regulation, diversions around milling or processing facilities using potentially toxic chemical or materials* ***must*** *be designed to carry the flow from a six-hour probable maximum precipitation (PMP) event. Since the Central and Satellite Processing Facilities will be using potentially toxic chemicals and other materials, please submit revised ditch designs for the six-hour PMP event.*

Response: The diversions around the CPP, Satellite Facility and associated radium settling ponds and central plant pond in the DDW option have been redesigned for the 6-hour PMP event. The designs are depicted on Plates 5.3-13 and 5.3-14. These supersede the diversion channel designs for the processing facilities in the DDW option in Appendix 5.3-B. The revised alignments are shown on Plate 5.3-2. Diversions were not designed for the PMP event around the storage ponds or spare storage ponds, since these ponds are not part of uranium processing and

will store only treated water. No diversions are planned around the CPP, Satellite Facility or associated radium settling ponds or central plant pond in the land application option. Due to the placement of the ponds, which will have adequate freeboard storage capacity for the 6-hour PMP event, the resulting drainage area around the processing facilities, radium settling ponds and central plant pond is minimal in the land application option.

Also, for the surface water diversions, please describe how the bottom and side slopes of the diversions will be stabilized and how they will be protected from erosion. Also, please describe how the diversions will be constructed to minimize hazards to humans, wildlife, and livestock and if the ditches will discharge onto topsoil or spoil stockpiles or other unconsolidated material such as newly reclaimed areas. Finally, will culverts or bridges be necessary to allow access over the diversions? If so, please submit plans and specifications for the culverts or bridges.

Response: Section 5.3.9.1 of the LSM permit application has been updated to describe the design of the surface water diversions. Interim revegetation will be performed on the bottoms and side slopes of all diversions to reduce erosion. In instances where the diversion channel velocity during the design storm exceeds 5 feet per second, other erosion control measures will be implemented such as geosynthetic liners, geosynthetic filter media, or riprap. Diversions will be constructed with 3:1 or shallower side slopes to reduce the risk of slope failure, promote interim revegetation, and allow safe passage for humans, wildlife and livestock. Diversion bottom elevations will tie to undisturbed upstream and downstream channel elevations to eliminate increased erosion potential. Diversions will not discharge onto topsoil or spoil stockpiles or other unconsolidated material such as newly reclaimed areas. Culvert or bridge crossings over the diversions are not planned. If it becomes necessary to cross a diversion in the future, Powertech will submit design drawings to DENR for review and approval prior to construction.

Also, please include each subsection of ARSD 74:29:07:09 and the applicable permit application reference in Table 1.1-2. The table currently does not list each subsection of the regulation.

Response: Table 1.1-2 has been updated to include each subsection of ARSD 74:29:07:09.

28. *ARSD74:29:07:10 (2 and 3): Please describe how the intermittent stream diversions will be stabilized and protected from erosion. Also, please include each subsection of ARSD 74:29:07:10 and the applicable permit application reference in Table 1.1-2. The table currently does not list each subsection of the regulation.*

Response: There are no intermittent stream channels within the proposed permit area. Beaver Creek is a perennial stream. The next largest drainage is Pass Creek, which is ephemeral within the proposed permit area since it is normally dry and does not normally obtain flow from groundwater discharge. All stream channels within the proposed permit area except Beaver Creek are ephemeral.

Section 5.3.9.1 and Table 1.1-2 have been updated to indicate that no diversions are planned on Beaver Creek, Pass Creek, or any intermittent or perennial stream channels. Since this rule is not applicable to the Dewey-Burdock Project, the subsections of ARSD 74:29:07:10 have not been added to Table 1.1-2. The previous response and Section 5.3.9.1 indicate how ephemeral stream diversions will be stabilized and protected from erosion.

29. *ARSD 74:29:07:12(1, 2, 5, and 9): Will any roads be constructed within the cottonwood galley riparian zone along Pass Creek? If so, please address the feasibility of constructing roads in the riparian zone and describe how negative impacts to Pass Creek are minimized. Also, please describe the drainage controls that will be used on the roads. Finally, describe how utility corridors such as power lines and pipelines will be constructed and maintained to control degradation of water quality and quantity.*

Also, please include each subsection of ARSD 74:29:07:12 and the applicable permit application reference in Table 1.1-2. The table currently does not list each subsection of the regulation.

Response: Section 5.6.4.1.2 has been added to address potential impacts to stream channels and riparian areas. Access roads will be constructed within the cottonwood gallery riparian zone. Most of these roads will be light-use roads (tertiary access roads), which are described in Section 5.3.8 as essentially non-constructed, two-track trails. To the extent possible, existing two-track roads will be used. The route for any new light-use roads that will be required within the cottonwood gallery riparian zone will be selected to minimize impacts to the riparian zone and to minimize erosion.

One secondary access road is planned through the cottonwood gallery riparian zone. This road is depicted on Plate 5.3-5 (Sheet 2) in the NWNW Section 3, T7S, R1E. It is an existing road near a dwelling that crosses Pass Creek and the riparian zone using a well-established route. The location where the existing road crosses Pass Creek was previously labeled as an existing bridge crossing on Plate 5.3-5 (Sheet 2). Plate 5.3-5 (Sheet 2) has been revised to indicate that this is a low-water crossing and not a bridge. Since the proposed secondary access road will be an upgrade to an existing road, potential impacts to Pass Creek will be minimized. Powertech intends to continue to use the existing low-water crossing and not install a bridge or culvert at this location. Erosion control measures described in Section 5.3.9 will be used for any disturbance areas that could contribute sediment to Pass Creek.

The plant-to-plant pipeline(s), if constructed, will cross the riparian zone near the existing low-water crossing. In addition, a utility corridor consisting of an overhead power line and buried pipeline is planned across the Pass Creek riparian zone in the SESW Section 34, T6S, R1E (refer to Plate 5.3-1, Sheet 2). The pipeline and utility routes through the riparian zone will be selected to minimize potential impacts. The Pass Creek pipeline crossings will be trenched or bored. Mitigation measures to minimize impacts will include use of sediment control measures, avoiding construction during early spring while runoff from snowmelt is occurring, and complying with applicable U.S. Army Corps of Engineers permitting requirements.

Disturbance to the cottonwood gallery riparian zone will be relatively small due to the limited number of utility crossings and use of existing roads. Special care will be taken in this area to control sediment. During construction, silt fences, straw beds, and other sediment control measures will be used to minimize any potential water quality impacts.

Table 1.1-2 has been updated to include each subsection of ARSD 74:29:07:12.

30. *ARSD 74:29:07:14: Please discuss whether the spoil material will be acid forming, toxic, or a source of water pollution and how it will be mitigated if it is a source. Also, please include each subsection of ARSD 74:29:07:14 and the applicable permit application reference in Table 1.1-2. The table currently does not list each subsection of the regulation.*

Response: The following information is included in revised Section 5.3.7. Table 1.1-2 has been updated to include the subsections of ARSD 74:29:07:14.

Spoil material is not anticipated to be acid forming, toxic, or a source of water pollution. The baseline soil sampling results in Appendix 3.3-A show that only in limited instances were the pH levels within sampled soil profiles deemed unsuitable as a plant growth medium according to the guideline used for comparison. If any spoil material is suspected of being acid forming, toxic, or capable of causing water pollution, Powertech will sample the material and have it analyzed for pH and other parameters deemed necessary by DENR. If the material is determined to have potential to cause water pollution, Powertech will prepare a plan for mitigating the condition in accordance with ARSD 74:29:07:14(3) and (4). Potential mitigation measures include disposing the spoil material in an appropriately permitted landfill and using suitable spoil material excavated from another area as a replacement during backfill. Since it is not anticipated that spoil material will be acid forming, toxic, or a source of water pollution, only minimal changes in the postmining topography are expected due to disposing unsuitable spoil material.

31. *ARSD 74:29:07:16: Please discuss the potential for subsidence in the well fields from in-situ mining activities.*

Response: Section 5.6.3.1.5 has been added to address the potential for subsidence in the well fields. There is no potential for subsidence in the ISR well fields due to limited drawdown in the ore zone and other aquifers and due to the nature of uranium ISR, which does not affect the structural integrity of the ore zone sands. Section 5.6.3.1.2 discusses the potential drawdown in the Inyan Kara aquifer and other aquifers during ISR operation and groundwater restoration. It describes how the maximum anticipated drawdown outside the proposed permit area is approximately 10 to 12 feet in the Fall River and Chilson, with recovery to within 1 to 2 feet of pre-ISR levels within one year after the end of ISR activities. In addition, Appendix 5.6-A describes how simulated modeling at a gross pumping rate of up to 8,000 gpm with simulated groundwater restoration and a 1 percent bleed did not result in dewatering the aquifer within the well fields. Further, Section 5.3.3.6 indicates that Powertech does not anticipate that ISR operations will occur where there is less than 50 feet of potentiometric head over the ore body.

Section 5.6.3.1.2 also describes how the conceptual groundwater flow model of the Madison Limestone developed in support of the Madison water appropriation permit application shows that sufficient Madison water is available such that the proposed diversion can be developed without unlawful impairment of existing rights. Analytical drawdown calculations in the Madison water appropriation permit application show that the maximum anticipated drawdown within 0.5 mile of a Madison well, or approximately the distance to the nearest well field, will be around 15 to 30 feet, which represents only a small portion of the several thousand feet of likely confining pressure above the top of the Madison Limestone. At a distance of 5 miles from a pumped Madison well, the estimated drawdown is only about 8.5 feet.

The following information from Section 4.4.3.2 of NRC's Generic Environmental Impact Statement (GEIS) for *In-Situ* Leach Uranium Milling Facilities[2] addresses subsidence potential in ISR well fields in the Nebraska-South Dakota-Wyoming Uranium Milling Region, which includes the proposed permit area:

> "The removal of uranium mineral coatings on sediment grains in the target sandstones during the uranium mobilization and recovery process will result in a change to the mineralogical composition of uranium-producing formations. However, the uranium mobilization and recovery process in the target sandstones does not result in the removal of rock matrix or structure, and therefore no significant matrix compression or ground subsidence is expected. In addition, the source formations for uranium in the Nebraska-South Dakota-Wyoming Milling Region occur at depths of tens to hundreds of meters [hundreds of feet] ... and individual mineralization fronts are typically 0.6 to 7.5 m [2 to 25 ft] thick ... At these depths and thicknesses and considering that rock matrix is not removed during the uranium mobilization and recovery process, it is unlikely that collapse in the target sandstones would be translated to the ground surface. Therefore, impacts to geology from ground subsidence would be expected to be SMALL."

32. ARSD 74:29:07:21(1): *For an agricultural crops postmining land use, please describe the crop production in the surrounding area that will be used to determine reclamation success.*

Response: Please refer to Section 6.4.3.4, which states that alfalfa is the only crop currently proposed for reclamation of designated agricultural or horticultural cropland in the proposed permit area. Alfalfa is the only crop currently grown in the proposed permit area and is grown in several areas nearby, so comparative production figures from nearby areas will be readily available. Section 6.4.1.2 has been updated to include this information.

[2] Generic Environmental Impact Statement for In-Situ Leach Uranium Milling Facilities, NUREG-1910, Final Report, May 2009.

Technical Comments

1. *Please submit on a disk, electronic copies of Plates 5.3-1, 5.3-2, and 6.4-1 and Figures 2.0-1 and 3.1-1 in .dwg format so we can use them in our ArcMap software to confirm affected, permit boundary, surface mine affected, reclamation, bonding, and other acreages.*

Response: Enclosed is a disk containing electronic copies of the requested figures and plates. Plates 5.3-1 and 5.3-2 are in AutoCAD .dwg format, while Plates 6.4-1 and the figures are in ArcGIS .shp and .mxd format.

2. *Figures 3.1-1 and 3.2-6, Volume 1: Please show the affected acreage boundary on these figures. Also, Table 3.1-3 needs to show the distance of the nearest residences shown in Figure 3.1-1 from the proposed affected areas instead of the center of the permit area.*

Response: Figures 3.1-1 and 3.2-6 have been revised to show the affected area boundaries for both wastewater disposal options. Also, Table 3.1-3 has been revised to show the distance to the nearest residences from the proposed affected areas.

3. *Secondary Access Roads, Page 5-77: In the second paragraph of this section, it states secondary access road culverts are designed to convey the discharge from a 2-year, 24-hour storm event. However, the table in Plate 5.3-3 states the culverts were designed for a 2-year, 6 hour storm event. Which storm event is correct?*

Response: The culverts have been designed for the 2-year, 6-hour precipitation event. The table on Plate 5.3-5 correctly states the design event. The text on page 5-77 has been updated to indicate that culverts were designed for a 2-year, 6-hour storm event.

4. *Section 5.6.3.2, page 5-132: DENR should also be listed as one of the agencies that will be notified in the event of an excursion. Even though the NRC will have regulatory authority on excursions, DENR would like to be notified in the event there are any questions from the public, other agencies, or the press on any excursions.*

Response: Section 5.6.3.2 has been updated to indicate that DENR will be notified in writing within 7 days from the time an excursion is verified.

5. *The land application monitoring plans appear to only include the areas around the pivots. There is some concern that the areas where water could pool, such as catchment areas, can also have impacts to soil and vegetation in the land application areas. Please address other areas such as the catchment areas in the soil and vegetation sampling plans and monitoring plans.*

Response: Although land application solutions will not be allowed to accumulate in the catchment areas during normal operations (i.e., dry weather conditions), runoff and snowmelt

accumulating in the catchment areas could accumulate salts or other dissolved constituents from the land application areas. Therefore, Sections 5.5.6.1 and 5.5.7.1 have been modified to commit to collecting baseline soil and operational soil and vegetation samples from the catchment areas.

In addition to our procedural completeness and technical comments, we have also enclosed comments on the mine permit application from the Department of Game, Fish, and Parks. Please also respond to these technical comments.

Response: As discussed during a November 6, 2012 conference call, Powertech will provide responses to the SDGF&P technical comments during the technical review period for the LSM permit application, following the determination of procedural completeness.

Thank you for the prompt completeness review. Please direct any questions regarding these comment responses to Richard Blubaugh at (303) 790-7528 or Jack Fritz at (307) 672-0761.

Sincerely,

Jack W. Fritz

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WWC Project Manager

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Encl: Attachment A Memoranda of Mining Leases
Attachment B Mine and Reclamation Plans Proofs of Delivery
Attachment C Affidavit from Richard Blubaugh
Attachment D GDP Comment Responses and Replacement Pages
Change index
Replacement pages