POWERTECH (USA) INC.

RICHARD E. BLUBAUGH
Vice President – Environmental
Health & Safety Resources

October 3, 2008

Natural Resources Project Engineer
Minerals and Mining Program
Department of Environment
And Natural Resources
Joe Foss Building, PMB 20220
523 East Capitol
Pierre, South Dakota 57501-3182

Attention: Eric Holm, E.I.T. - Natural Resources Project Engineer
Minerals and Mining Program

Re: Request for Determination of Special, Exceptional, Critical, or Unique Lands that Powertech submitted on August 21, 2008.

1. *SDCL 45-6B-33.3 (1 and 2) and ARSD 74:29:10:03(6): Please submit a detailed assessment of whether the lands included in the proposed mining operation meet the criteria of the following sections of SDCL 45-6B-33.3:*

   (1) The land is so ecologically fragile that, once it is adversely affected, it could not return to its former ecological role in the reasonably foreseeable future; and

   (2) The land has such a strong influence on the total ecosystem of which it is a part that even temporary effects felt by it could precipitate a system-wide ecological reaction of unpredictable scope or dimension.

   This item has been introduced in Section 1.3 Scope of Work and discussed in Section 4.0 Special, Exceptional, Critical, or Unique. Two paragraphs were dedicated to address items listed above and the document has been renumbered per DENR's suggestion.

2. *SDCL 45-6B-33.3 (3) and ARSD 74:29:10:03(6): In the detailed assessment that addresses scenic, historic, archaeologic, topographic, geologic, ethnologic, scientific, cultural or recreational significance, Powertech needs to include all information and data necessary to support its assessment and conclusions. Please consider using baseline data from wildlife, vegetative, archaeologic and other surveys to support the conclusions in section 4.0.*

   Section 4.0 has been renumbered to reflect additional information; additional responses from BKS and Jones and Stokes along with baseline data have been inserted into the appropriate appendices as well as updated Archaeology maps in appendix D.

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The department needs more information about all of the archaeologic or historic sites in the proposed mine area so it can make an adequate determination on whether the sites are special, exceptional, critical, or unique. I have enclosed a copy of cultural resources information provided by a large scale gold mine in its Request for Determination. It is very important that Powertech provide this information to the department. After reviewing the information, if we determine that some of the archaeologic sites are special, exceptional, critical, or unique, the department will need to place lands containing these sites on the preliminary list of special, exceptional, critical, or unique lands. The information will also be helpful during the upcoming inspection of the proposed mining area with Mike Fosha of the State Archaeologist office.

The report remains confidential by authority of the State Archaeologist; any information beyond what is provided in this request should be obtained from Mike Fosha of the State Archaeologist office.

3. *ARSD 74:29:10:04: Please submit proof, such as certified mail receipts, that copies of the August 21, 2008 Request and the information requested in this letter have been sent to the various review agencies. I have enclosed a revised list of the review agencies that includes some contact and address changes.*

Proof of submittal to review agencies will be sent to your office upon receipt.

4. *Section 1.0, Introduction, Page 1: In the first paragraph, please change (ARSD) 74:29:11 to (ARSD) 74:29. Even though ARSD 74:29:11 addresses in situ leach mines, the other sections in ARSD 74:29 will also apply to the mining operation. Also, in the second paragraph, please change (SDCL) 45-6B-81 to (SDCL) 45-6B-33.3 since it is the statute that includes the requirements that must be addressed in the Request for Determination.*

Changes were addressed for this item.

5. *Section 1.2, Clearance, Page 2: Please note that lands determined to be special, exceptional, critical, or unique are not necessarily excluded from the mining operation. The Board of Minerals and Environment may place special conditions on the mine permit to protect or mitigate impacts to any special, exceptional, critical, or unique features in the proposed mining area. The goal of the process is actually to determine whether lands in the proposed mining area are eligible for inclusion on the preliminary list of special, exceptional, critical, or unique lands.*

The verbiage has been added in Section 1.2 to reflect the above stated goal of the process.

6. *Section 1.3, Scope of Work, Page 2: Instead of stating that Powertech is helping the department in making its determination, Powertech should state that it is doing a detailed assessment of the items in SDCL 45-6B-33.3 to comply with the requirements of ARSD 74:29:10:03(6). Also, Powertech needs to include the ecological fragile sections of SDCL 45-6B-33.3 (1 and 2) in the list in this section.*

These changes were addressed.

7. *Section 3.0, Description of the Proposed Mining Operation, Page 8: In the first full sentence on page 8, the statement "During this process, the aquifer returns to a reduce state, thus precipitating any metals or salts that become mobilized during the recovery process of mining" is misleading and needs to be modified. A reducing agent must be introduced before the aquifer can return to a reduced state.*

   Powertech deleted the "misleading" statement. This topic is one of technical complexity beyond the scope of this document. Groundwater restoration will be thoroughly discussed in the large scale mine permit application.

8. *Section 4.2, Historic, Page 10: Powertech should include dates of the various periods mentioned in this section. Also, Powertech should include a discussion of the pictographs in Craven Canyon even though it will not be impacted by the mining operation.*

   This information was added to the discussion of Historic in Section 5.2.

9. *Section 4.7.3, Wildlife, Page 14: Powertech needs to include a discussion of prairie dog towns in the proposed mining area.*

   Information concerning this item is now in Section 5.7.3

10. *Section 4.9, Recreational, Page 17: Powertech needs to include a discussion of the Department of Game, Fish, and Parks walk-in and Cooperative Management Areas in this section.*

    This item is addressed in Section 5.9 Recreational.

Thank you for working efficiently with Powertech in preparation of this petition. Please contact me regarding any questions or comments you may have about Powertech's submittal of additional information.

Respectfully yours,

Richard E. Blubaugh
Vice President – Environmental
Health & Safety Resources
Enclosure

cc: Mark Hollenbeck, Powertech (USA) Inc.
Richard Clement, Powertech (USA) Inc.
Paul Bergstrom, Knight-Piesold
Cory Foreman, RESPEC
Jay Vogt, South Dakota State Historical Society
Billie Jo Waara, South Dakota Department of Tourism
Raymond Sowers, U.S. Department of Agriculture
Paul Caughlin, U.S. Department of Game, Fish, & Parks
Stan Michals, U.S. Department of Game, Fish, & Parks
Mike Fosha, Archaeeological Research Center
Custer County Register of Deeds
Fall River County Register of Deeds

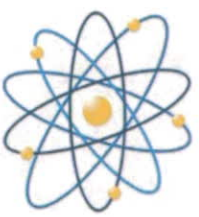
REQUEST FOR DETERMINATION OF SPECIAL, EXCEPTIONAL, CRITICAL, OR UNIQUE LANDS AND NOTICE OF INTENT TO OPERATE

Topical Report RSI-2001

prepared for

South Dakota Department of Environment
and Natural Resources
523 East Capitol Avenue
Pierre, South Dakota 57501

August 2008



POWERTECH (USA) INC.

DEWEY-BURDOCK LARGE-SCALE MINING PERMIT REQUEST FOR DETERMINATION OF SPECIAL, EXCEPTIONAL, CRITICAL, OR UNIQUE LANDS

Topical Report RSI-2001

by

Powertech (USA) Inc.
P.O. Box 812
Edgemont, South Dakota 57735

prepared for

South Dakota Department of Environment
and Natural Resources
523 East Capitol Avenue
Pierre, South Dakota 57501

August 2008

TABLE OF CONTENTS

LIST OF FIGURES

1.0 INTRODUCTION

This document is submitted in support of Powertech (USA) Inc. (Powertech) to obtain the required permits and licenses to construct and operate a uranium in situ recovery mine under Administrative Rules of South Dakota (ARSD) 74:29.

Per South Dakota regulations, a Large-Scale Mine Permit is required for operations that mine and disturb more than 10 acres of land and extract more than 25,000 tons annually and for any operation that uses cyanide or other chemical or biological leaching agents. A prospective mining operator must request the South Dakota Department of Environmental and Natural Resources (SD DENR) to determine whether or not the lands included in the proposed mining operation constitute special, exceptional, critical, or unique lands by submitting a notice of intent to operate to the department. To fulfill the requirement, South Dakota Codified law (SDCL) 45-6B-33.3 and ARSD 74:29:10:02 require the operator to submit a *Request for Determination of Special, Exceptional, Critical, or Unique Lands*. The Agency requires submittal of the request at least 60 days before the submittal of the permit application.

1.1 LAND CLASSIFICATION

SDCL 45-6B-33 specifies the following classifications:

1. Land is unsuitable for mining if:
   a. Reclamation of the affected land pursuant to the requirements of this chapter is not physically or economically feasible.
   b. Substantial deposition of sediment in stream or lake beds, landslides, or water pollution cannot feasibly be prevented.
   c. The land to be affected by a proposed mining operation includes land that is special, exceptional, critical, or unique as defined in § 45-6B-33.3 and satisfactory mitigation is not possible.
   d. The proposed mining operation will result in the loss or reduction of long-range productivity of aquifer, public and domestic water wells, watershed lands, aquifer recharge areas, or significant agricultural areas.
   e. The biological productivity of the land is such that the loss would jeopardize threatened or endangered species of wildlife indigenous to the area.
   f. The board finds that any probable adverse socioeconomic impacts of the proposed mining operation outweigh the probable beneficial impacts of the operation.

2. Land is deemed to be special, exceptional, critical, or unique if it possesses one or more of the following characteristics:
   a. The land is so ecologically fragile that, once it is adversely affected, it could not return to its former ecological role in the reasonably foreseeable future.
   b. The land has such a strong influence on the total ecosystem of which it is a part that even temporary effects felt by it could precipitate a systemwide ecological reaction of unpredictable scope or dimension.

c. The land has scenic, historic, archaeological, topographic, geologic, ethnologic, scientific, cultural, or recreational significance.

1.2 CLEARANCE

The ultimate goal of this process is to identify those lands, if any, that are eligible for inclusion on the preliminary list of special, exceptional, critical, or unique lands. Lands determined to be special, exceptional, critical or unique may require special conditions in the Large Scale Mine Permit to protect or mitigate impacts of mining related activities. State Rule ARSD 74:29:10:15 defines the stage when mining is deemed applicable for the land under consideration as "Clearance" with the following language:

"The lands described in a notice of intent to operate shall be considered cleared for special, exceptional, critical, or unique land characteristics if the department determines that the lands do not constitute special, exceptional, critical, or unique land and no nominating petitions pertaining to lands described in the notice are filed. The clearance shall remain in effect for seven years. If a mine permit application is not submitted within the seven-year period, the board may declare the clearance void and the lands may be reevaluated for special, exceptional, critical, or unique land characteristics."

1.3 SCOPE OF WORK

Powertech conducted a detailed assessment of the lands included in the proposed mining operation according to criteria set out in SDCL 45-6B-33.3 all information and data necessary to support the assessment and its conclusions are included in this report application to comply with the requirements of ARSD 74:29:10:03(6).

Objectives of the assessment were to evaluate the land so a determination can be made by the South Dakota Department of Environment and Natural Resources as to whether the lands included in the proposed mining operation meet the criteria of SDCL 45-6B-33.3:

1) *The land is so ecologically fragile that, once it is adversely affected, it could not return to its former ecological role in the reasonably foreseeable future;*
2) *The land has such a strong influence on the total ecosystem of which it is a part that even temporary effects felt by it could precipitate a system-wide ecological reaction of unpredictable scope or dimension*
3) *The land has scenic, historic, archaeologic, topographic, geologic, ethnologic, scientific, cultural, or recreational significance.*

The detailed list concerning 45-6B-33.3(3) of research and surveys performed are listed below and expanded upon in section 5.0 of this document:

- Scenic
- Historic
- Archaeological
- Topographic
- Geologic
- Ethnological
- Scientific
- Cultural
- Recreational.

2.0 PROPOSED MINING AREA

The proposed mining area is located approximately 13 miles north-northwest of Edgemont, South Dakota, in parts of Custer and Fall River Counties and covers approximately 10,580 acres. Figure 2-1 outlines the proposed mining area pursuant to ARSD 74:29:10:03 and Appendix A lists surface and mineral owners. Additionally, Figure 2-1 shows the proposed operations and maintenance areas and potential transportation access routes into site operations areas. Surface disturbances will impact approximately 10-15percent of the total acreage permitted; operations and activities that have the potential to cause the greatest disturbances would be expected to take place in the well fields. Approximately 1,600 acres will potentially be affected by the mining operation and associated activities. The following legal descriptions for the project comprise all properties included within the proposed mining area:

T6S-R1E, Custer County
Section 20: E2NE4, E2SE4, SW4SE4, S2NW4SE4, SE4SW4, S2NE4SW4
Section 21: W2, W2W2NE4, W2NW4SE4
Section 27: S2
Section 28: N2NW4, SW4NW4, SW4
Section 29
Section 30
Section 31: E2
Section 32
Section 33: NW4, SW4, SE4, S2NE4
Section 34
Section 35

T7S-R1E, Fall River County
Section 1
Section 2
Section 3
Section 4: W2W2
Section 5
Section 10
Section 11
Section 12
Section 14: NW4, W2NE4, NE4NE4
Section 15: N2

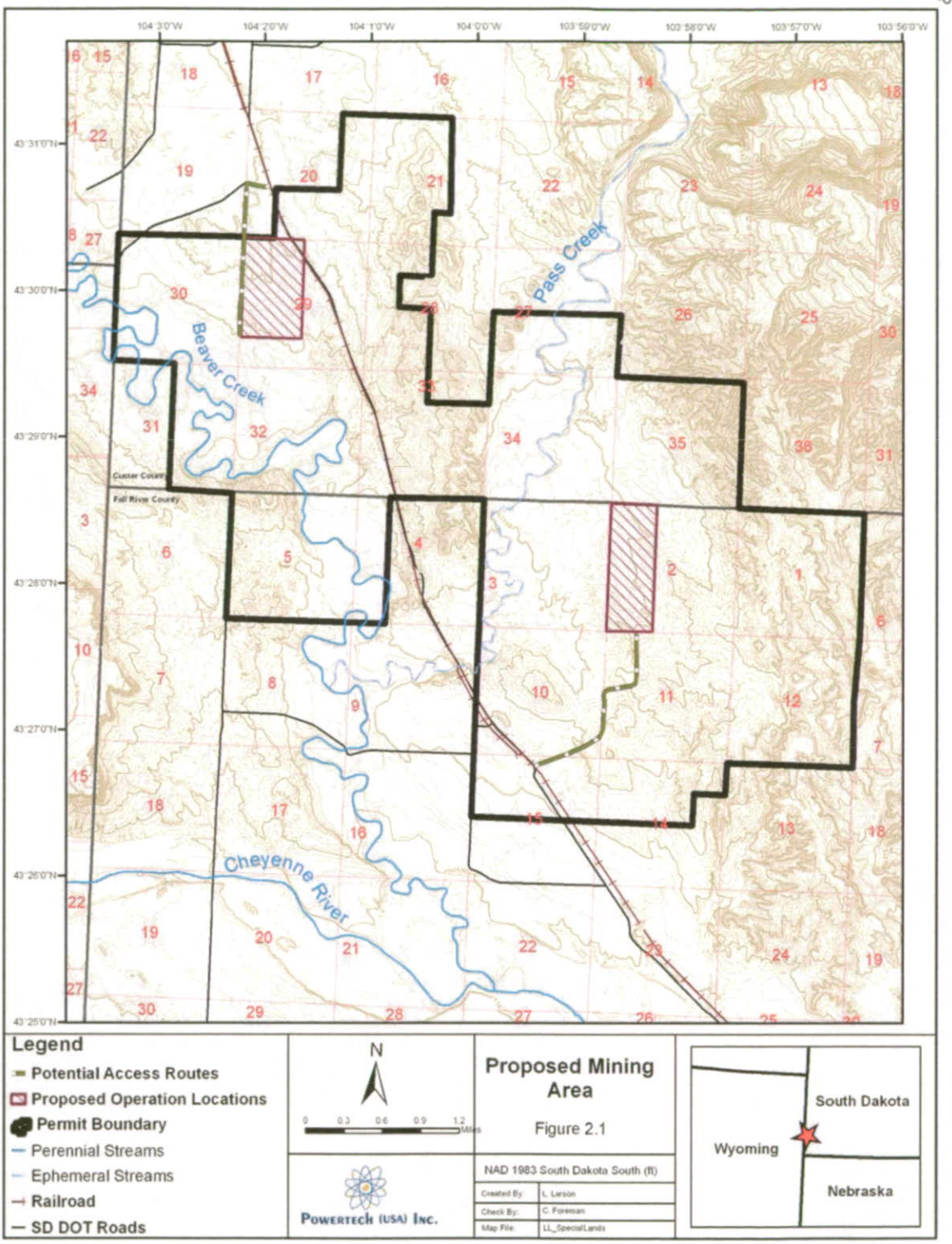


Figure 2-1. Proposed Mining Area With Proposed Facility Locations and Potential Access Routes to Those Facilities.

3.0 DESCRIPTION OF THE PROPOSED MINING OPERATION

Powertech proposes to construct and operate an in situ uranium mining operation on land known as the Dewey-Burdock property, located approximately 13 miles north-northwest of Edgemont, South Dakota. The property is accessed by Dewey Road which leads north from Edgemont through the permit area. The proposed operation will classify as a large-scale mine under South Dakota regulations. The proposed permit area will contain approximately 10,580 acres (see Figure 2-1). Approximately 1,600 acres will potentially be affected by the mining operation and associated activities.

In situ leaching, or recovery, of uranium is a method of mining that involves using injection wells to pump oxygen and carbon dioxide water into a deposit to dissolve the uranium and production wells (also referred to as extraction or recovery wells) to pump the uranium-laden fluids to the surface. The fluids are then processed at the surface to extract and concentrate the uranium. This type of mining is used for sedimentary-hosted uranium deposits that occur in permeable sandstone beds bound by lower permeability strata. In this mining method, the barren ore is left in the subsurface so there is little surface disturbance, no subsidence, and no tailings or waste rock generated.

The uranium ore that underlies the Dewey-Burdock property lies in sandstone beds within the Cretaceous Inyan Kara Group. Pumping tests at both Dewey and Burdock were performed to define the hydrological characteristics of the ore zone. During the mining operation, a network of monitoring wells will be sampled to ensure that drilling fluids are contained and not impacting local aquifers.

The mining operation will be conducted sequentially with mining occurring in one or two mining units at a time. A mining unit is approximately a 10-acre plot along the uranium roll front. The solution-mining unit will be set up in a grid-like pattern consisting of alternating extraction and injection wells. Minor surface disturbances associated with well drilling will be primarily concentrated within a 400-foot buffer around the uranium roll fronts. Other disturbances include trenching for piping (buried deep enough to protect them from freezing) that will connect the production wells to header houses (piping manifolds) and the on-site processing facility. In an effort to minimize the total disturbed area, steep slopes will be avoided and existing access roads will be used where possible. After a well is drilled, all areas which were disturbed by the drilling operations, and which are not needed for production operations, will be reclaimed by removing equipment, backfilling drilling pits, and revegetating.

A typical well field may have 520 injection/recovery wells and 50 monitoring wells that are arranged dependent upon roll front geometry and hydraulic properties of the aquifer. The wells will be cased and cemented to ensure that fluids only flow into and out of the target ore zone and do not affect the surrounding water quality. During mining, production wells are pumped at a greater rate than the injection wells. The well field design combined with the injection/extraction rates and "bleed" (discussed below) will create a cone of depression. This cone of depression will ensure that mining fluids migrate toward the recovery wells by maintaining hydraulic gradients toward the production wells. If mining solutions are detected in monitor wells surrounding the grid, the injection of fluids is adjusted and the nearby recovery wells are over-pumped until the hydrologic control of fluids is reestablished.

After mining fluids are extracted from the formation, they will be piped to an on-site facility to extract the uranium from the solution. This process involves circulating the fluids through an ion exchange column where dissolved uranium is adsorbed onto resin beads. The uranium-coated resin will then be transferred to a

central processing plant for further processing. At the central processing plant, the uranium is stripped from the loaded resin, precipitated and dried, yielding a uranium oxide product (U_3O_8) with a yellow color, called "yellowcake." Yellowcake is the final product produced at the site. In order to be converted to nuclear fuel, this product must go through conversion, enrichment, and fuel fabrication processes at different facilities.

In situ mining circulates significant quantities of water through the ore zone but consumes only a small fraction of that amount since the water utilized in the process is extracted from and then re-injected back into the deposit. After circulating through the ion exchange columns, the water is re-pressurized, recharged with oxygen and carbon dioxide, and re-injected as recovery solution into the ore to continue mining. During operations, 1 to 3 percent of the solution extracted from the aquifer will be "bled" from the system to ensure a cone of depression is maintained and that no mining solutions are released from the recovery area.

This "bleed" or small waste stream will be treated to remove undesirable elements and directed to small-surface retention and evaporation ponds where solids will settle out. Powertech may propose 3 retention pond areas in two separate sections. Each pond will be lined with double layers of high-density polyethylene. A leakage detection system will be installed for each retention pond. The sludge from the pond will be recovered, packaged, and transported to a disposal facility licensed by the United States Nuclear Regulatory Commission (US NRC) or a state that has an agreement with the US NRC for implementing its requirements (Agreement State).

Reclamation will begin as soon as each mining unit has been depleted of economically recoverable uranium. When one mine unit is depleted, it will be reclaimed at the same time mining continues in another mining unit along the ore front. The main focus of restoration is returning the groundwater quality to baseline conditions or class of use, as appropriate.

Groundwater restoration involves pumping water from selected wells to flush potentially mobile metals and salts out of the formation, known as groundwater sweep. In aboveground treatment, metals and salts from the water will be removed before the water is re-circulated through the aquifer or applied to land via irrigation method.

After the aquifer is restored in each mine unit, wells will be permanently plugged and abandoned. In the final stages of restoration and decommissioning, pipes are removed from the ground; surface processing facilities (including evaporation ponds) are removed; and disturbed areas are graded, top soil laid, and revegetated with state-approved grass seed mixtures. The reclaimed land can readily revert to its pre-mining land use of livestock pasture without any long-term surface impacts of mining.

Once mining begins on this project, it is anticipated the currently known ore reserves will be mined out within 10 to 15 years. Restoration activities will likely extend 2 to 4 years beyond the end of the uranium-recovery phase. Final approval for closure is expected to occur 4 years after the end of active uranium recovery. The actual mining schedule may vary depending on the extent of uranium reserves found during mining as well as market conditions.

4.0 SPECIAL, EXCEPTIONAL, CRITICAL, OR UNIQUE

This section addresses potential temporary land use impacts associated with the proposed mining operations with respect to SDL 45-6B-33.3 (1) and (2).

4.1 The Land is so Ecologically Fragile that, once it is Adversely Affected, it could not return to its Former Ecological Role in the Reasonably Foreseeable Future.

Any disturbance to the land via proposed mining operations are considered to be small to moderate. Small environmental impacts as a result of proposed mining operations will not be detectable or will be so minimal that they will not destabilize or noticeably alter any important attribute of the resources considered. The environmental moderate effects will be sufficient to noticeably alter but not destabilize attributes of the resources considered (NUREG-1910, Vols. 1-2, 2008) to the point the land could not return to its former ecological role in the reasonably foreseeable future.

4.2 The Land Has Such a Strong Influence on the Total Ecosystem of which it is a Part That Even Temporary Effects Felt By it could precipitate a System-Wide Ecological Reaction of Unpredictable Scope or Dimension.

Current information indicates that potential mining operations would primarily be developed on rangeland used for livestock grazing and to a lesser extent for farming. Much of the total permitted area would be expected to remain undisturbed since surface activities would affect only a small portion of the land permitted. Land disturbances typically affect a small portion of the actual permitted area approximately 10 percent of the land use may be changed or disturbed (NUREG-1910, Vols. 1-2, 2008). Within the method of in-situ recovery mining, barren ore is left in the subsurface so there is little surface disturbance, no subsidence, and no tailings or waste rock generated. The mining operations proposed by this corporation will not affect or cause an influence strong enough to impact the total ecosystem and will not precipitate a system–wide reaction of unpredictable scope or dimension.

5.0 ASSESSMENTS OF SCENIC, HISTORIC, ARCHAEOLOGIC, TOPOGRAPHIC, GEOLOGIC, EHTNOLOGIC, SCIENTIFIC, CULTURAL, OR RECREATIONAL SIGNIFICANCE

This section provides a summary of results of the baseline environmental studies to date. The information presented in this section is based on the data collected as part of the baseline environmental monitoring program. The detailed findings from these assessments will be submitted with the Large-Scale Mine Permit.

To meet US NRC and SD DENR license and permit requirements, a baseline environmental monitoring program, including the following, was initiated:

- Wildlife and fishery surveys (Appendix B).
- Baseline soils, vegetation, (Appendix C), and wetlands surveys.
- Baseline hydrology and water-quality studies, including both surface and groundwater resources.
- Cultural resources including an archaeological survey (Appendix D)
- Baseline radiological studies including air particulate sampling, soils, vegetation, and food radionuclide.

5.1 SCENIC

The land within the permit boundary is similar to surrounding land. The predominant land use is rangeland for cattle with the remaining area consisting of forest and minor croplands. The area encompassing the project site is grass and sagebrush-covered plains interspersed with ponderosa pine-covered slopes. Surrounding the project area, a number of scenic canyon formations exist. Although the characteristics of these features provide aesthetic appeal, they are similar to surrounding lands and none are unique to the area.

Visual impacts of the mining operation will be minimal. It is anticipated that well houses and the surface ion exchange facility may be visible from Dewey Road. The nearest major highway, Highway 18, is about 13 miles south of the project site and is not visible from the site.

An aesthetic and scenic-quality evaluation of the project site area was conducted in accordance with the Bureau of Land Management (BLM) Handbook H-8410-1, *Visual Resource Inventory* [Bureau of Land Management, 2008] license application. The landscape within the approximate 9,425-acre Dewey-Burdock license/permit area and the surrounding 2-mile area was rated in accordance with the above-referenced BLM handbook. Two Scenic Quality Rating Units representing the Great Plains Physiographic Province and the Black Hills Uplift were identified. Based on the following criteria: (1) scenic quality, (2) sensitivity level, and (3) distance zones, the area was rated as a Visual Resource Management (VRM) Class IV. This class allows for the management of major modifications of the existing character of the landscape. The level of change permitted for this class can be high. In addition, the scenic-quality rating of both the Scenic Quality Resource Units was below 19; therefore, according to the US NRC NUREG-1569, no special management is required.

5.2 HISTORIC

A Level III Cultural Resources Evaluation was conducted in the project area. Personnel from the Archeology Laboratory, Augustana College (Augustana), Sioux Falls, South Dakota, conducted on-the-ground field investigations between April 17 and August 3, 2007.

Augustana documented 161 previously unrecorded archaeological sites and revisited 29 previously recorded sites during the current investigation. Expansion of site boundaries during the 2007 survey resulted in a number of previously recorded sites being combined into a single, larger site. Twenty-eight previously recorded sites were not relocated during the current investigation. Excepting a small foundation, the sites not relocated were previously documented as either prehistoric isolated finds or diffuse prehistoric artifact scatters.

Approximately 87 percent of the total numbers of sites recorded are prehistoric. Historic sites comprise approximately 5 percent of total sites recorded, while multi-component (prehistoric/ historic) sites comprise the remaining 8 percent.

The small number of Euroamerican sites documented was not unanticipated given the peripheral nature of the project area in relation to the Black Hills proper. The disparity existing between the number of historic and prehistoric sites observed in the project area is also not unexpected; however, the sheer volume of sites documented in the area is noteworthy. The land evaluated as part of the Level III cultural resources evaluation has an average site density of approximately 1 site per 8.1 acres. Even greater site densities were reported in 2000 during the investigation of immediately adjacent land parcels for the Dacotah Cement/BLM land

exchange [Winham et al., 2001]. This indicates that the permit area is not unique, in regards to the number of documented sites, and is typical of the periphery of the Black Hills.

The density of sites observed in the project area, specifically those of prehistoric affiliation, is both consistent with previous findings in the immediate vicinity [Winham et al., 2001] and strongly indicative of the intense degree to which this landscape was being exploited during prehistoric times. Data indicate a slight rise in the number of sites observed from earlier periods into the Middle Plains Archaic, and then a major increase into the Late Plains Archaic/Plains Woodland period before an equally significant drop-off into Late Prehistoric times. In general, this trend is largely consistent with the majority of available paleodemographic data from the region [Rom et al., 1996]. Despite the high density of sites within the permit area, there is a lack of evidence indicative of extended or long-term settlement localities in the region. Though the reason behind this phenomenon remains unclear, the bulk of preliminary data from the current investigation appear to mirror this trend.

The landscape comprising the project area is erosional in nature, leading to many sites being heavily deflated. The extent of the erosion processes is evidenced by the large number of sites recommended by Augustana as not eligible for listing on the National Register of Historic Places because of their location on deflated landforms. This equates to approximately half of the total number of identified sites in the project area. Notable exceptions to these deflated localities include the valleys and terraces along Beaver and Pass Creeks, as well as many places within and adjacent to, some of the more heavily wooded areas.

Nearly 200 hearths were identified within 24 separate site areas during Augustana's investigation. These features varied considerably from one another in both size and form (and likely function in many cases) and ranged from fully intact to completely eroded. Previous research in the nearby area has demonstrated a similar pervasiveness of such features in the archaeological record [Buechler, 1999; Lippincott, 1983; Reher, 1981; Sundstrom, 1999; Winham et al., 2001], and specifically in relation to Plains Archaic-period site assemblages [Rom et al., 1996]. Radiocarbon data obtained from a number of these hearths produced dates ranging from approximately 3,150–1,175 before present (B.P.) (UGa-4080 and UGa-4081), with the majority of these samples dating to Middle and Late Plains Archaic times [Reher, 1981].

A supplemental survey of areas added to the permit area and an alternative screening of sites was performed between July 22, and September 2, 2008 by Augustana College, Archaeological Laboratory. The results of the surveys of 2007 and 2008 are graphically depicted on the draft maps included in Appendix D; to the extent they are available. The maps are considered to be Confidential according to the State Archaeologists.

The most prominent historic site in the Edgemont area is Craven Canyon which contains prehistoric petroglyphs and pictographs on the canyon walls. Craven Canyon is more than five miles east of the eastern edge of the permit boundary and will not be impacted by any proposed mining activities (Jason M. Kruse, et al. 2008)

Protection by way of avoidance of archaeological sites was maintained during the exploration phase of the project, and site avoidance is the continued goal during development and mining. Where required, sites in the area of mining activity will be flagged and/or fenced and mining personnel will be made aware of their presence. In the event that a new site is discovered, the site will be protected and the state archaeologist will be notified. Powertech has been working closely with the state of South Dakota's Archaeological Research

Center, and will continue to do so throughout the life of this project. Powertech has executed a Memorandum of Agreement (MOA), attached as an appendix to this document, with the state archaeologist in order to ensure the preservation of any historical sites that may be present within the permit area. The MOA outlines all actions needed to ensure no significant historic, cultural, or archaeological resources will be damaged during mining activities. The South Dakota State Historic Preservation Officer (SHPO) will likely become involved once the license application is submitted to the US NRC.

5.3 ARCHAEOLOGICAL

Archaeology was previously discussed in Section 4.2 titled *Historic*.

5.4 TOPOGRAPHIC

The proposed permit lands lie along the southwestern flank of the Black Hills. The topography is steepest along the eastern side of the project where rock outcrops; the land becomes gently rolling to nearly flat to the west, at the western extent of the permit area. Elevations on the site range from 3,550 to 4,110 feet. Drainages on the site include Beaver Creek, Pass Creek, and Bennett Canyon. These intermittent and ephemeral drainages are tributaries to the Cheyenne River. There is nothing significant about the topography of the Dewey-Burdock project in that it is similar with the topography of the western flank of the Black Hills.

5.5 GEOLOGIC

The Dewey-Burdock project is located on the southwestern flank of the Black Hills Uplift in the southwest corner of South Dakota. The Powder River Basin is located to the west and southwest of the project area. The stratigraphy in the region consists of Precambrian rocks near the center of the uplift with rocks becoming progressively younger toward the Powder River Basin. Within the project area, the rocks range in age from Cretaceous through recent.

Mining on the proposed permit land will consist of in situ mining for uranium in the Fall River and Lakota Formations of the Inyan Kara Group. The Inyan Kara Group consists of complexly interbedded sandstone, siltstone, and claystone. These rocks were deposited in continental to marginal marine environments. After the uplift of the Black Hills, the uranium was introduced into the Inyan Kara as a result of leaching out of the White River Group volcanic deposits. The depth of the top of the Inyan Kara on the Dewey-Burdock project ranges from zero at the outcrop to approximately 600 feet below the surface along the western portion of the site. The Inyan Kara Group is overlain by the marine Skull Creek Shale of Lower Cretaceous age and is underlain by Jurassic age Morrison Formation shale. The area is not considered to be geologically unique as similar rock outcrops and subsurface geology occurs surrounding the entire Black Hills.

Uranium mining occurred in this area shortly after it was discovered to be a northern extension of the Edgemont uranium district in the 1950s. Three open-pit uranium mines (Darrow, Triangle, and Spencer-Richardson) are located on the Fall River outcrop within the Dewey-Burdock site with two other pits located just northeast of the project boundary. The proposed project will utilize in situ recovery methods as described

above; therefore, activities will not reflect those of historical mining that included open pits and/or tailings piles.

Exploration drilling was conducted in the 1960s, 1970s, 2007, and 2008 on the proposed permit land. The deepest geologic drill logs extend to depths of approximately 1,000 feet penetrating the Belle Fourche shale through the Sundance Formations. The drill logs do not indicate any special or unique geologic characteristics.

5.6 ETHNOLOGIC

Ethnology was previously discussed in Section 4.2 titled *Historic*.

5.7 SCIENTIFIC

The following sections summarize the results of environmental baseline studies conducted by Powertech. The environmental baseline studies did not find that the permit area is ecologically fragile and that disturbance from mining activities will be able to be restored and returned to its pre-mining ecological role. The permit area does not have a strong ecological influence on the total ecosystem, so that any disturbances during mining activities are not expected to create system wide ecological reactions.

5.7.1 Vegetation

Four major vegetation communities are located within the project area: big sagebrush shrubland, greasewood shrubland, ponderosa pine woodland, and upland grassland. Big sagebrush shrubland communities are dominated by blue grama, buffalograss, and big sagebrush. The greasewood shrubland is dominated by greasewood and western wheatgrass. The ponderosa pine community contains ponderosa pine, rocky mountain juniper, and big sagebrush. Upland grassland communities are dominated by buffalograss, blue grama, and western wheatgrass. The majority of the area is covered by the big sagebrush and greasewood communities. Flora on the site are adapted to withstand a wide range of temperature, humidity, sunlight, and wind conditions and are similar to those observed throughout the southwestern Black Hills area.

The state of South Dakota has only one federally listed threatened plant species, the Western Prairie Fringed Orchid (Platanthera praeclara). The results of the field surveys in 2007 and 2008 found no individuals of the Western Prairie Fringed Orchid within or adjacent to the Dewey-Burdock Uranium Project area. Additionally, no potential habitat for the Western Prairie Fringed Orchid was found within or adjacent to the Dewey-Burdock Uranium Project area. The results of the field surveys in 2007 and 2008 also found none of the sensitive species or species of local concern within or adjacent to the Dewey-Burdock uranium project area.

5.7.2 Surface Soils

Results from the 2007 soils assessment indicate that the proposed mining area is characterized by fine-textured soils, such as Pierre, Grummit, Kyle, Tilford, as well as salt-affected soils, such as Arvada and Hisle. All soils are common throughout the southwestern Black Hills area. The habitat on the proposed permit area

is typical of the surrounding region and no special, exceptional, critical, unique, or unusual features are present.

Radium-226 concentrations in soils collected at the site were compared to regional and U.S. concentrations determined by researchers at Oak Ridge National Laboratories (ORNL) [Myrick et al., 1983]. Radium-226 concentrations at the Dewey-Burdock site are similar to those obtained regionally and nationally.

5.7.3 Wildlife

Wildlife surveys in the Dewey-Burdock project area (proposed permit area and 1-mile perimeter) conducted from June 2007 through mid-July 2008 have been completed. Numerous common vertebrate species were recorded during that period. Mammals present in the area include, but are not limited to, big game such as antelope, deer, and elk; predators and furbearers such as the coyote, red fox, bobcat, beaver, raccoon, badger, and striped skunk; and small and medium-sized mammals, such as the porcupine, jackrabbits, cottontails, prairie dogs, pocket gophers, and several rodent species. Many of the smaller species, such as prairie dogs, are common throughout the permit area, including the area where proposed facilities are planned to be constructed. A wide variety of common avian species are also present in the area either as seasonal or year-long residents or as migrants passing through the area. Avian species include, but are not limited to, various raptors such as hawks, owls, eagles, and vultures; woodpeckers, waterfowl, and shorebirds; wild turkeys and mourning doves; and numerous songbirds (McKee, 2008).

No federally listed vertebrate species have been documented in the Dewey-Burdock survey area (permit area and 1-mile perimeter) during the year-long survey period. The black-footed ferret (Mustela nigripes) was the only federally threatened and endangered vertebrate species that could potentially occur in the project area. The U.S. Fish and Wildlife Service issued a block-clearance for ferrets throughout the entire state of South Dakota in recent years, including the Dewey-Burdock survey area in extreme southwestern Custer County and northwestern Fall River County. The only exception to that clearance is in Custer State Park in northern Custer County.

The state of South Dakota lists 23 vertebrate species as threatened or endangered:

- Threatened: 4 fish, 4 birds, 2 mammals, 1 snake, and 1 turtle.
- Endangered: 5 fish, 4 birds, 1 mammal, and 1 snake.

The current list of these state species is available on the South Dakota Game, Fish and Parks (SD GFP) Web site <*http://www.sdgfp.info/Wildlife/Diversity/TES.htm*>.

Only 1 of those 23 state-level threatened and endangered species was documented within the proposed Dewey-Burdock permit area or 1-mile survey perimeter during the survey period (June 2007 through July 2008, ongoing). Individual bald eagles (Haliaeetus leucocephalus) (state-threatened species) were repeatedly observed along Beaver Creek in the western portion of the proposed permit area during winter roost surveys conducted in late 2007 and early 2008. One active bald eagle nest is located in SE¼ SW¼ Section 30, Township 6 South, Range 1 East. The nest is in a cottonwood (Populus spp.) tree along Beaver Creek inside the western portion of the proposed permit boundary. The nest had at least one large, mostly-feathered young in the nest in mid-June 2008.

A list of other vertebrate species of interest or concern tracked by the South Dakota Natural Heritage Program was provided by Mr. Stan Michals (SD GFP) in July 2007. To date, six additional vertebrate sensitive species or species of local concern have been documented within the proposed Dewey-Burdock permit area: the long-billed curlew (Numenius americanus), golden eagle (Aquila chrysaetos), merlin (Falco columbarius), Cooper's hawk (Accipiter cooperii), American white pelican (Pelecanus erythrorhynchos), and long-eared owl (Asio otus). The long-eared owl and curlew are known or are suspected to have nested in the permit area, based on evidence (young present) or persistent defensive behavior, respectively. The golden eagle, merlin, Cooper's hawk, and pelican were merely observed flying over the area; each of those four species was recorded only once to date. All six additional species of special interest are considered as secure populations within their respective overall ranges, though one or more could be less common in parts of a given range, especially in the periphery. Likewise, all six are considered to be either rare and local throughout their statewide ranges, or locally abundant in restricted portions of those ranges.

Aquatic species inventories were also conducted according to SD GFP guidelines. Several common fish species were recorded in Beaver Creek, which flows through the western portion of the survey area. The most common species include the fathead minnow, green sunfish, and channel catfish. Other less common fish species included the long-nosed dace and plains killifish. The most common aquatic macroinvertebrates were from the family Physidae (snails) and Chironomidae. No aquatic species of concern were documented in Beaver Creek during surveys completed to date.

In summary, no federally listed vertebrate species occur in the Dewey-Burdock project area. Therefore, in situ uranium development in the area will have no adverse impacts on these species. Potential impacts and proposed mitigation measures related to the presence of three other nesting species of concern (bald eagle, long-billed curlew, long-eared owl) will be addressed in the US NRC license and SD DENR permit application documents (see Appendix B). Complete data tables outlining the wildlife and fisheries tables are attached at the end of this document.

5.7.4 Surface Water

Surface water resources on the proposed permit consist of small stock ponds, mine pits, and two creeks. There are 25 stock ponds within the proposed permit area, the majority of which tend to be dry except after rainfall events. Unreclaimed uranium mine pits, including the Triangle and Darrow Mines, also contain water. Based on water-quality results, it is likely that the water in the Triangle Mine is the exposed groundwater table of the Inyan Kara aquifer in that area. Surface drainage on the site is generally southwest toward Beaver Creek, a tributary of the Cheyenne River. Beaver Creek itself is fed by Stockade Beaver, Line, and Hay Creeks. Pass Creek bisects the Dewey-Burdock area and drains into Beaver Creek. The easternmost area of the site is drained by Bennett Canyon, another northern tributary of the Cheyenne. All of the streams in and surrounding the project area, including the Cheyenne River, experience extended periods of no flow.

5.7.5 Groundwater

The aquifers in the Dewey-Burdock area are similar to those throughout the Black Hills and are not evidently special, exceptional, critical, or unique resources. Regionally, the area is underlain by four principal aquifers: Quaternary alluvium, the Inyan Kara Group, the Sundance Formation, and the Madison. Locally, where present, the Unkpapa may also serve as an aquifer. These formations receive recharge where they outcrop on the periphery of the Black Hills with water movement generally toward the southwest. Where

present, the shallowest aquifer is the alluvium. Several hand-dug alluvial wells are located within and near the site although all have been abandoned. Five alluvial monitor wells were installed in 2007 to monitor baseline conditions. Below the Inyan Kara are the Unkpapa and Sundance Aquifers; in the Dewey-Burdock area there are a few wells into these aquifers although they are not widely used in the Black Hills because of low yields. There is no well control in the project area, but based on general formation thicknesses throughout the region, the Madison Limestone lies approximately 1,000 feet or more below the Inyan Kara. The town of Edgemont obtains the majority of its water from Madison wells that are artesian and exhibit high-water temperatures.

The aquifer of greatest interest in the Dewey-Burdock area is the Inyan Kara, which locally is both ore- and water-bearing. In situ leaching of uranium will be conducted within this confined aquifer on the Dewey-Burdock property. Away from the outcrop, the water is under artesian conditions with several wells in the area free flowing. For decades, it has been common practice to allow free-flowing wells to continually discharge. Groundwater mining will not occur from mining-related activities as mining is expected to use (bleed) only about 120 gallons per minute. In an effort to balance mining water usage, it has been proposed that a few "wild" wells in the area be either plugged or shut in. Whatever action is taken, the main objective is water conservation.

Currently, there are three domestic and eleven stock wells within the proposed permit area that utilize water from the Inyan Kara. Before mining begins, wells within the exempted areas will be abandoned. A comprehensive baseline study includes periodical measurement of water levels and analyses of groundwater samples. Preliminary results show levels elevated above drinking water standards for radium and levels of radon gas elevated above the proposed drinking water standard in most wells. Water levels and chemistry of wells outside the proposed EPA exempted areas are not anticipated to be affected by mining activities.

Mined areas will be reclaimed following the groundwater restoration phase described above. After groundwater restoration has been deemed complete, plumbing and surface facilities will be removed and the ground will be recontoured, if necessary, and re-vegetated.

5.8 CULTURAL

Culture was previously discussed in Section 4.2 titled *Historic*.

5.9 RECREATIONAL

Recreational use within the project boundary is primarily limited to hunting and trapping. Within and surrounding the project area, hunting is open to the public on BLM and National Forest Service (NFS) federal lands as well as Walk-in and State Game Production areas on private lands. 5,680 acres of private lands within the permit boundary are leased by the Game Fish and Parks for open public hunting. These leases are renewed annually and will be discontinued once mining activities begin. Fall River and Custer counties contain a total of 861,950 acres of land open to public hunting. The land currently open to public hunting that will be closed due to mining operations represents 0.66 percent of the total lands open to public hunting in Fall River and Custer Counties.

Because of low flows and turbid water conditions, fishing and other water-based recreational activities on streams within the project vicinity is very limited. Nearby major regional recreation areas include Buffalo Gap National Grassland and the Black Hills National Forest.

Anticipated mining impacts may include the increased use of regional recreation facilities and pressure on wildlife resources from in-moving project employees. However, land within the project boundary itself is not considered recreational and project-related effects on regional recreation opportunities are expected to be minor.

6.0 SUMMARY AND CONCLUSIONS

Powertech (USA) Inc. is submitting this request for a determination with required environmental and cultural information collected in 2007 in support of a determination of whether or not the lands included in the proposed mining operation constitute special, exceptional, critical, or unique lands. All studies were performed in accordance with US NRC and SD DENR guidelines and regulations.

The following conclusions resulted from these studies:

- The proposed in situ recovery mining operation will have minimal impact on the natural and cultural resources within and adjacent to the proposed permit area, particularly when compared to conventional surface mining and milling operations.
- The projected mining operations will impact approximately 10-15 percent of the total permit area.
- Per state guidelines, the site-specific baseline studies do not indicate that the proposed permit area has significant scenic, historic, archaeological, topographic, geologic, ethnologic, scientific, cultural, or recreational value.
- The proposed mine area is suitable for mining operations.

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APPENDIX A

SURFACE AND MINERAL OWNERS

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SURFACE AND MINERAL OWNERS

SURFACE OWNERS

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SURFACE OWNERS WITHIN 500 FEET (NOT PREVIOUSLY LISTED)

Hell Canyon Ranger District, BHNF
1225 Washington
Newcastle, WY 82701

Clayton J. Sander
12469 Willow Creek
Custer, SD 57730

South Dakota School and Public Lands (land adjacent to project)
500 East Capital Ave.
Pierre, SD 57501

Craig Stodart
HCR 59 Box 42
Edgemont, SD 57735

APPENDIX B

LETTER FROM JONES & STOKES ON WILDLIFE

Jones & Stokes

1901 Energy Court, Suite 115 • Gillette, WY 82718 • phone/fax (307) 686-6178
gmckee@jsanet.com

October 1, 2008

Mr. Richard E. Blubaugh
Vice President
Powertech (USA) Inc.
5575 DTC Parkway, Suite 140
Greenwood Village, Colorado 80111

Dear Mr. Blubaugh:

As you know, Jones & Stokes Associates, Inc. (formerly Thunderbird-Jones & Stokes) conducted baseline wildlife and fisheries field surveys in 2007 and 2008 in support of United States Nuclear Regulatory Commission (USNRC) licensing and State of South Dakota Department of Environment and Natural Resources (DENR) permitting of the Dewey-Burdock In-Situ Uranium Project. Those surveys included vertebrate species listed as threatened or endangered (T&E) at the federal and/or state level, species of concern tracked by the South Dakota Natural Heritage Program (SDNHP), and numerous other species of interest at the state and/or federal level.

In early July 2008, we provided a summary of information collected during these baseline studies to include with the submittal of the Scenic and Unique report provided to South Dakota agencies for review. The coverage area for that information included the permit area (original and April 2008 revisions) and one-mile perimeter for T&E, bald eagle winter roosts, nesting raptors, upland game bird leks, and big game. Survey results were also included from additional efforts conducted in the permit area for species of concern tracked by SDNHP and others not already included in the previous categories, as well as bats, small mammals, lagomorphs, breeding birds, predators, and herptiles (reptiles and amphibians). Those survey areas were prescribed by the South Dakota Game, Fish and Parks Department (SDGFP, Mr. Stan Michals).

Since the submittal of the early July 2008 wildlife summary, we received two additional revisions to the permit boundary delineation from Powertech: one in late July and the most recent in early September 2008. Those changes have raised the question as to whether or not the entire, current (September) version of the permit area was included in baseline wildlife surveys for this project.

I have provided a map with this letter illustrating the various delineations of the permit boundary and one-mile perimeter that have occurred since we began our field work in July 2007. Due to the similarities and overlap among the various configurations of both the permit area and their corresponding one-mile perimeters, I am pleased to report that the entire current permit area was covered during all surveys for T&E, bald eagle winter roosts, nesting raptors, and grouse leks. Furthermore, even though some portions of the new permit boundary were not specifically

included in surveys for other species of interest such as breeding birds, small mammal trapping, etc., they are comprised of the same habitat types as those sampled elsewhere in the permit area. Because we conduct these targeted surveys in representative habitats throughout the permit area, and no new habitat types were included in the permit expansions, it is my professional opinion that we have not lost any unique or critical data by not having conducted all surveys in the expanded portions of the permit area themselves. Although we no longer have full coverage of the current one-mile perimeter due to the September 2008 permit revision (please refer to the map), we did retain coverage over the vast majority of that area.

As for the effects of these boundary changes on the information provided in the Scenic and Unique report submitted earlier this year, I offer the following updated summary.

- No federally listed vertebrate species were documented in the Dewey-Burdock survey area (current permit area and one-mile perimeter) during the year-long survey period. The black-footed ferret (*Mustela nigripes*) was the only federal T&E vertebrate species that could potentially occur in the project area. The U.S. Fish and Wildlife Service issued a block-clearance for ferrets throughout the entire state of South Dakota in recent years, including the Dewey-Burdock survey area in extreme southwestern Custer County and northwestern Fall River County. The only exception to that clearance is in Custer State Park in northern Custer County.

- The State of South Dakota lists 23 vertebrate species as threatened or endangered:
  - Threatened: 4 fish, 4 birds, 2 mammals, 1 snake, and 1 turtle;
  - Endangered: 5 fish, 4 birds, 1 mammal, and 1 snake.

  The current list of these state species is available on the SDGFP website: http://www.sdgfp.info/Wildlife/Diversity/TES.htm

  Only 1 of those 23 state-level T&E species was documented within the current Dewey-Burdock permit area or one-mile perimeter during the survey period (June 2007 through August 2008). Individual bald eagles (*Haliaeetus leucocephalus*) (state threatened species) were repeatedly observed along Beaver Creek in the western portion of the proposed permit area and perimeter during winter roost surveys conducted in late 2007 and early 2008. One active bald eagle nest is located in the northwestern portion of the revised permit area in mid-SW¼ Section 30, Township 6 South, Range 1 East. The nest is in a cottonwood (*Populus* spp.) tree along Beaver Creek. The nest fledged one young in 2008.

- Lists of other vertebrate species of interest or concern tracked by the SDNHP were obtained from Mr. Stan Michals (SDGFP) in July 2007 and the SDGFP website in September 2008.

  Six vertebrate sensitive species or species of local concern other than the bald eagle were documented within the current (September 2008 configuration) Dewey-Burdock permit area during the baseline survey period: the long-billed curlew (*Numenius americanus*), great blue heron (*Ardea herodias*), golden eagle (*Aquila chrysaetos*), Cooper's hawk (*Accipiter cooperii*), American white pelican (*Pelecanus erythrorhynchos*), and long-eared owl (*Asio otus*). The long-eared owl and curlew are

known or are suspected to have nested in the permit area, based on evidence (young present) or persistent defensive behavior, respectively. The heron, golden eagle, Cooper's hawk, and pelican were merely observed flying over the area; those four species were recorded only once each.

These six species of special interest are considered as secure populations within their respective overall ranges, though one or more could be less common in parts of a given range, especially in the periphery. Likewise, all six are considered to be either rare and local throughout their statewide ranges, or locally abundant in restricted portions of those ranges.

Four additional vertebrate species of concern were documented at least once each in the one-mile perimeter: the northern river otter (*Lontra canadensis*), merlin (*Falco columbarius*), Clark's nutcracker (*Nucifraga columbiana*), and plains topminnow (*Fundulus sciadicus*). An otter carcass was discovered at one of the fisheries sampling points along Beaver Creek in April. The merlin was recorded at a potential nest site in the pine breaks southeast of the current permit boundary; that sighting was in the former permit alignment. The nutcracker was also recorded in the pine breaks east of the permit area, and the topminnow was captured during fisheries sampling efforts in Beaver Creek, beyond all permit boundary outlines, in July 2008.

A full wildlife and fisheries baseline document will be prepared and submitted to SDGFP immediately following completion of the Technical and Environmental Reports for the licensing process, including tables and maps that describe the presence and locations of wildlife and wildlife features of concern, respectively.

In summary, the revisions to the permit boundary during the baseline wildlife and fisheries surveys for the Dewey-Burdock In-Situ Uranium Project did not impact the quality or quantity of data collected for the permit area itself, though small portions of the one-mile perimeter were not included in survey efforts due to those changes. Additionally, the presence of three nesting species of concern (bald eagle, long-billed curlew, long-eared owl) within the proposed permit area should not preclude development of the Dewey-Burdock project. We will address potential impacts and proposed mitigation measures related to these species in the USNRC license and DENR permit application documents.

If you have any questions or comments, please do not hesitate to contact me at 307-686-6178 or gmckee@jsanet.com.

Sincerely,

Gwyn McKee
Technical Director/Senior Wildlife Biologist

cc. Paul Bergstrom (Knight Piésold and Company)

Table 1. Small mammal abundance[1] during trapping within the Dewey-Burdock Uranium Project Area in September 2007.

Species	Total
Deer mouse (*Peromyscus maniculatus*)	154
Olive-backed pocket mouse (*Perognathus fasciatus*)	3
Western harvest mouse (*Reithrodontomys megalotis*)	2
Totals	**159**

Table 2. Total lagomorphs observed during spotlight surveys and abundance indices within the Dewey-Burdock Uranium Project Area in September 2007.

Habitat	2007[1,2]		
	Species		Totals
	White-tailed jackrabbit	Cottontail	
Totals	**12**	**49**	**61**
Lagomorphs/Survey Mile	**1.5**	**5.9**	**7.4**

[1] Survey route totaled 8.2 miles.

[2] Number given is highest count per species from two survey nights.

Table 3. Raptor nest locations and activity in and within one mile of the Dewey-Burdock Uranium Project Area during baseline wildlife surveys from July 2007 through August 2008.

Species[1,2]	¼ ¼ Section	Township/Range	Habitat	Status	Location
LEOW	**SESW 35**	**6 South/1 East**	**Ponderosa Pine**	**1+ owl fledged**	**Permit area**
RTHA	SENE 29	6 South/1 East	Ponderosa Pine	1 hawk fledged	Permit area
RTHA	SESW34	6 South/1 East	Cottonwood-riparian	2 hawks fledged	Permit area
BAEA	**Mid-SW 30**	**6 South/1 East**	**Cottonwood-riparian**	**1 eagle fledged**	**Permit area**
MERL	**NWSW 36**	**6 South/1 East**	**Ponderosa Pine**	**Nest defense but no confirmed young**	**1-mile perimeter**
GHOW	SWNE 5	7 South/1 East	Lone, live cottonwood tree	Status unknown[3]	Permit area
Unk Buteo	NWSE 27	41 North/60 West (Wyoming)	Lone, dead cottonwood tree	Inactive	1-mile perimeter

[1] **Bold** species are tracked by the South Dakota Natural Heritage Program – South Dakota Department of Game, Fish and Parks (SDGFP web page, last updated September 2, 2008).

[2] Species Codes:

BAEA = Bald eagle

GHOW = Great horned owl

LEOW = Long-eared owl

MERL = Merlin

RTHA = Red-tailed hawk

Unk Buteo = Unknown *Buteo* (soaring hawks) species

[3] One adult GHOW was observed in the nest tree, but no chicks, feathers, droppings, or prey items were observed in or on the nest, or on the ground under the nest.

Table 4. Breeding bird species richness and relative abundance in six habitat types within the Dewey-Burdock Uranium Project Area in June 2008.

	Average number of birds per habitat type[1]						
Species[2]	**BB**	**COT-RIP**	**G**	**GW**	**P-SB Edge**	**PP**	**Total**
Western meadowlark (*Sturnella neglecta*)	3.0	1.7	2.9	7.0	2.0	---	2.8
Mourning dove (*Zenaida macroura*)	5.0	1.7	1.9	0.7	0.3	2.0	1.9
Long-billed curlew (*Numenius americanus*)	---	---	1.9	---	---	---	0.9
Chipping sparrow (*Spizella passerina*)	---	---	---	0.3	4.0	1.6	0.6
Lark sparrow (*Chondestes grammacus*)	3.7	---	---	---	1.7	---	0.6
Grasshopper sparrow (*Ammodramus savannarum*)	---	---	0.1	4.3	---	---	0.5
Northern flicker (*Colaptes auratus*)	---	4.3	---	0.3	---	---	0.5
Mountain bluebird (*Sialia currucoides*)	---	---	---	---	2.3	2.0	0.5
Brewer's blackbird (*Euphagus cyanocephalus*)	---	3.7	---	---	---	---	0.4
Spotted towhee (*Pipilo maculatus*)	---	1.3	---	0.3	0.7	1.0	0.4
American kestrel (*Falco sparverius*)	0.3	2.3	0.2	---	---	---	0.4
Brown-headed cowbird (*Molothrus ater*)	---	0.3	---	---	2.0	1.0	0.4
House wren (*Troglodytes aedon*)	---	2.7	---	---	---	---	0.3
Yellow warbler (*Dendroica petechia*)	---	2.0	---	---	---	---	0.2
Say's phoebe (*Sayornis saya*)	---	0.3	---	---	1.3	---	0.2
Bullock's oriole (*Icterus bullockii*)	---	1.7	---	---	---	---	0.2
Unknown flycatcher	---	---	---	---	---	1.7	0.2
Eastern kingbird (*Tyrannus tyrannus*)	---	1.3	---	---	---	---	0.1
Red-tailed hawk (*Buteo jamaicensis*)	---	0.3	0.1	0.3	---	---	0.1
Black-capped chickadee (*Poecile atricapillus*)	---	0.3	---	---	---	0.7	0.1
Yellow-rumped warbler (*Dendroica coronata*)	---	0.3	---	---	---	0.7	0.1

Table 4. Continued.

Unknown passerine	0.3	---	0.2	---	---	---	0.1
European starling (*Sturnus vulgaris*)	---	1.0	---	---	---	---	0.1
Great horned owl (*Bubo virginianus*)	---	1.0	---	---	---	---	0.1
Vesper sparrow (*Pooecetes gramineus*)	---	---	0.3	---	---	---	0.1
American crow (*Corvus brachyrhynchos*)	---	---	0.1	---	---	0.3	0.1
Red-headed woodpecker (*Melanerpes erythrocephalus*)	---	0.7	---	---	---	---	0.1
Rock wren (*Salpinctes obsoletus*)	---	---	---	---	0.7	---	0.1
Western kingbird (*Tyrannus verticalis*)	I	0.7	---	---	---	---	0.1
American robin (*Turdus migratorius*)	---	0.3	---	---	---	---	<0.1
Common nighthawk (*Chordeiles minor*)	---	I	---	---	---	0.3	<0.1
Indigo bunting (*Passerina cyanea*)	---	0.3	---	---	---	---	<0.1
Killdeer (*Charadrius vociferous*)	---	---	0.1	---	---	---	<0.1
Lazuli bunting (*Passerina amoena*)	---	0.3	---	---	---	---	<0.1
Western wood peewee (*Contopus sordidulus*)	---	---	---	---	0.3	---	<0.1
Yellow-breasted chat (*Icteria virens*)	---	0.3	---	---	---	---	<0.1
Red-winged blackbird (*Agelaius phoeniceus*)	---	---	I	---	---	---	I
Turkey vulture (*Carthartes aura*)	I	I	---	---	---	---	I
Average # Birds/Transect	**12.3**	**29.0**	**7.7**	**13.3**	**15.3**	**10.7**	**12.4**
Total Species	**5**	**23**	**10**	**7**	**10**	**10**	**36**

[1]Table acronyms defined:
BB = Bentonite breaks
COT-RIP = Cottonwood-riparian
G = Grassland
GW = Greasewood
P-SB = Pine-sagebrush
PP = Ponderosa pine
I = Incidental flyover during breeding bird survey (not counted in totals)

[2] **Bold** species are tracked by the South Dakota Natural Heritage Program – South Dakota Department of Game, Fish and Parks (SDGFP web page, last updated September 2, 2008).

Jones & Stokes

1901 Energy Court, Suite 115 • Gillette, WY 82718 • phone/fax (307) 686-6178
gmckee@jsanet.com

July 2, 2008

Mr. Richard E. Blubaugh
Vice President
Powertech (USA) Inc.
5575 DTC Parkway, Suite 140
Greenwood Village, Colorado 80111

Dear Mr. Blubaugh:

Jones & Stokes Associates, Inc. (formerly Thunderbird-Jones & Stokes) has been conducting baseline wildlife and fisheries field surveys in 2007 and 2008 in support of Unites States Nuclear Regulatory Commission licensing and State of South Dakota Department of Environment and Natural Resources permitting of the Dewey-Burdock In-Situ Uranium Project. Those surveys included vertebrate species listed as threatened or endangered (T&E) at the federal and/or state level, and species of concern tracked by the South Dakota Natural Heritage Program (SDNHP).

No federally listed vertebrate species have been documented in the Dewey-Burdock survey area (permit area and one-mile perimeter) during the year-long survey period. The black-footed ferret (*Mustela nigripes*) was the only federal T&E vertebrate species that could potentially occur in the project area. The U.S. Fish and Wildlife Service issued a block-clearance for ferrets throughout the entire state of South Dakota in recent years, including the Dewey-Burdock survey area in extreme southwestern Custer County and northwestern Fall River County. The only exception to that clearance is in Custer State Park in northern Custer County.

The State of South Dakota lists 23 vertebrate species as threatened or endangered:

- Threatened: 4 fish, 4 birds, 2 mammals, 1 snake, and 1 turtle;
- Endangered: 5 fish, 4 birds, 1 mammal, and 1 snake.

The current list of these state species is available on the South Dakota Game, Fish and Parks (SDGFP) website: http://www.sdgfp.info/Wildlife/Diversity/TES.htm

Only 1 of those 23 state-level T&E species has been documented within the proposed Dewey-Burdock permit area or one-mile survey perimeter during the survey period (June 2007 through July 2008, ongoing). Individual bald eagles (*Haliaeetus leucocephalus*) (state threatened species) were repeatedly observed along Beaver Creek in the western portion of the proposed permit area and perimeter during winter roost surveys conducted in late 2007 and early 2008. One active bald eagle nest is located in mid-SW¼ Section 30, Township 6 South, Range 1 East. The nest is in a cottonwood (*Populus* spp.) tree along Beaver Creek approximately 0.25 mile west of the proposed permit boundary. The nest had at least one large, mostly-feathered young in the nest in mid-June 2008.

A list of other vertebrate species of interest or concern tracked by the SDNHP was provided by Mr. Stan Michals (SDGFP) in July 2007. To date, six additional vertebrate sensitive species or species of local concern have been documented within the proposed Dewey-Burdock permit area: the long-billed curlew (*Numenius americanus*), golden eagle (*Aquila chrysaetos*), merlin (*Falco columbarius*), Cooper's hawk (*Accipiter cooperii*), American white pelican (*Pelecanus erythrorhynchos*), and long-eared owl (*Asio otus*). The long-eared owl and curlew are known or are suspected to have nested in the permit area, based on evidence (young present) or persistent defensive behavior, respectively. The golden eagle, merlin, Cooper's hawk, and pelican were merely observed flying over the area; each of those four species was recorded only once to date. All six additional species of special interest are considered as secure populations within their respective overall ranges, though one or more could be less common in parts of a given range, especially in the periphery. Likewise, all six are considered to be either rare and local throughout their statewide ranges, or locally abundant in restricted portions of those ranges.

In summary, the presence of these three nesting species of concern (bald eagle, long-billed curlew, long-eared owl) within the proposed permit area should not preclude development of the Dewey-Burdock Uranium Project. We will address potential impacts and proposed mitigation measures related to these species in the USNRC license and DENR permit application documents.

If you have any questions or comments, please do not hesitate to contact me at 307-686-6178 or gmckee@jsanet.com.

Sincerely,

Gwyn McKee
Technical Director/Senior Wildlife Biologist

cc. Paul Bergstrom (Knight Piesold and Company)

APPENDIX C

LETTER FROM BKS ENVIRONMENTAL ASSOCIATES, INC. ON VEGETATION

BKS Environmental Associates, Inc.

October 2, 2008

Mr. Richard E. Blubaugh
Vice President
Powertech (USA) Inc.
5575 DTC Parkway, Suite 140
Greenwood Village, Colorado 80111

Dear Mr. Blubaugh:

BKS Environmental Associates, Inc. (BKS) conducted baseline vegetation field surveys in 2007 and 2008 in support of United States Nuclear Regulatory Commission licensing and State of South Dakota Department of Environment and Natural Resources (DENR) mine permitting of the Dewey-Burdock In-Situ Uranium Project. In September 2008, additional lands in Sections 21, 27 and 28 T41N R01E were incorporated in the original project area. Based on a review of aerial photography, vegetation types within these areas resemble those defined in the original project area.

The State of South Dakota has only one federally listed threatened (T) plant species, the western prairie fringed orchid (*Platanthera praeclara*). The results of the field surveys in 2007 and 2008 found no individuals of the western prairie fringed orchid within or adjacent to the original Dewey- Burdock Uranium Project. The potential habitat for the western prairie fringed orchid is typically a tall grass prairie with moist subirrigated soils. No tall grass prairie communities were mapped within the Dewey Burdock In-Situ Uranium Project and the associated one-half mile mapping; grassland communities within those boundaries are considered short grass prairie. Based on earlier mapping and the 2007-2008 findings of the original project area, as well as a review of the photography within the additional lands, no potential habitat for the western prairie fringed orchid is likely in these additional areas.

A list of potential sensitive and/or species of local concern was provided by Dave Ode (DENR) to BKS on June 19, 2007. The results of the field surveys in 2007 and 2008 found none of the sensitive species or species of local concern within or adjacent to the Dewey-Burdock In-Situ Uranium Project. The primary limiting factor for these species was the presence of limestone soils which were absent from the original project area. Based on earlier mapping and the 2007-2008 findings of the original project area, as well as a review of the photography within the additional lands, no limestone soil areas are likely in these additional areas.

If you have any questions or comments, please do not hesitate to contact me at 307-686-0800 or bschladweiler@bksenvironmental.com.

Sincerely,

Brenda K Schladweiler

Brenda Schladweiler, Ph.D.
BKS Environmental Associates, Inc.

cc. Paul Bergstrom (Knight Piesold and Company)

P.O. Box 3467
Gillette, WY 82717-3467
(307) 686-0800
(307) 686-0880 Fax

www.bksenvironmental.com

P.O. Box 3017
Rock Springs, WY 82902-3017
(307) 922-1703

BKS Environmental Associates, Inc.

June 30, 2008

Mr. Richard E. Blubaugh
Vice President
Powertech (USA) Inc.
5575 DTC Parkway, Suite 140
Greenwood Village, Colorado 80111

Dear Mr. Blubaugh:

BKS Environmental Associates, Inc. (BKS) conducted baseline vegetation field surveys in 2007 and 2008 in support of Unites States Nuclear Regulatory Commission licensing and state of South Dakota Department of Environment and Natural Resources permitting of the Dewey-Burdock In-Situ Uranium Project. The state of South Dakota has only one federally listed threatened (T) plant species, the western prairie fringed orchid (*Platanthera praeclara*). The results of the field surveys in 2007 and 2008 found no individuals of the western prairie fringed orchid within or adjacent to the Dewey-Burdock Uranium Project area. Additionally, no potential habitat for the western prairie fringed orchid was found within or adjacent to the Dewey-Burdock Uranium Project area.

A list of potential sensitive and/or species of local concern was provided by Dave Ode (DENR) to BKS on June 19, 2007. The results of the field surveys in 2007 and 2008 found none of the sensitive species or species of local concern within or adjacent to the Dewey-Burdock Uranium Project area.

If you have any questions or comments, please do not hesitate to contact me at 307-686-0800 or bschladweiler@bksenvironmental.com.

Sincerely,

Brenda K Schladweiler

Brenda Schladweiler, Ph.D.
BKS Environmental Associates, Inc.

cc. Paul Bergstrom (Knight Piesold and Company)

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			Vegetation Community				
Code	Scientific Name	Common Name	Big Sagebrush Shrubland	Cottonwood Gallery	Greasewood Shrubland	Ponderosa Pine Woodland	Upland Grassland
Cool Season Perennial Grasses							
AGRCRI	*Agropyron cristatum*	crested wheatgrass	X	X	X		X
BROINE	*Bromus inermis*	smooth brome		X	X		
CARFIL	*Carex filifolia*	threadleaf sedge	X		X	X	X
CARGEY	*Carex geyeri*	Geyer's sedge				X	
CARSTE	*Carex stenophylla*	needleleaf sedge	X		X		
ELYCAN	*Elymus canadensis*	Canada wildrye				X	
ELYCIN	*Elymus cinereus*	basin wildrye			X		
ELYELY	*Elymus elymoides*	bottlebrush squirreltail	X				
ELYHIS	*Elymus hispidus*	intermediate wheatgrass			X		
ELYLAN	*Elymus lanceolatus*	thickspike wheatgrass	X		X	X	
ELYSMI	*Elymus smithii*	western wheatgrass	X	X	X	X	X
ELYTRA	*Elymus trachycaulus*	slender wheatgrass			X		
HESCOM	*Hesperostipa comata*	needleandthread	X			X	X
HORJUB	*Hordeum jubatum*	foxtail barley			X		
KOEMAC	*Koeleria macrantha*	prairie junegrass	X			X	
NASVIR	*Nassella viridula*	green needlegrass			X	X	
SCHPAN	*Schedonnardus panniculatus*	common tumblegrass			X		
PHLALP	*Phleum alpinum*	alpine timothy			X		
POAPRA	*Poa pratensis*	Kentucky bluegrass		X	X	X	
POASEC	*Poa secunda*	Sandberg bluegrass	X		X	X	X
Warm Season Perennial Grasses							
ARISPP	*Aristida* spp.	Threeawn	X		X		
ARIPUR	*Aristida purpurea*	purple threeawn	X				X
ARIPUR	*Aristida purpurea var. fendleriana*	Fendler's threeawn				X	
BOUCUR	*Bouteloua curtipendula*	sideoats grama	X			X	X
BOUGRA	*Bouteloua gracilis*	blue grama	X		X	X	X
BUCDAC	*Buchloe dactyloides*	buffalograss	X		X	X	X
DISSTR	*Distichlis stricta*	inland saltgrass		X	X		
SCHSCO	*Schizachyrium scoparium*	little bluestem	X			X	
SPOAIR	*Sporobolus airoides*	alkali sacaton			X		
SPOCRY	*Sporobolus cryptandrus*	sand dropseed			X		
	Species observed but not sampled						

			Vegetation Community				
Code	Scientific Name	Common Name	Big Sagebrush Shrubland	Cottonwood Gallery	Greasewood Shrubland	Ponderosa Pine Woodland	Upland Grassland
Warm Season Perennial Grasses continued							
PANVIR	*Panicum virgatum*	switchgrass	X	X	X		X
Annual Grasses							
BROJAP	*Bromus japonicus*	Japanese brome	X	X	X	X	X
BROTEC	*Bromus tectorum*	cheatgrass	X	X	X	X	X
HORPUS	*Hordeum pusillum*	little barley	X		X		X
VULOCT	*Vulpia octoflora*	sixweeks fescue			X		X
Annual Forbs							
ALYDES	*Alyssum desertorum*	desert alyssum	X		X	X	X
ATRPAT	*Atriplex patula*	spear saltbush	X		X		X
BASSIE	*Bassia sieversiana*	summer cypress		X	X		
BORAGE	*Boraginaceae* spp.	borage species	X		X	X	
CAMMIC	*Camelina microcarpa*	littleseed falseflax	X		X		X
CHEALB	*Chenopodium album*	lambsquarters goosefoot	X	X	X	X	
CHEBER	*Chenopodium berlandieri*	pitseed goosefoot	X	X	X	X	
CHELEP	*Chenopodium leptophyllum*	narrowleaf goosefoot	X				
CHOTEN	*Chorispora tenella*	crossflower		X		X	
CRYSPP	*Cryptantha* spp.	cryptantha	X		X		
DESPIN	*Descurainia pinnata*	pinnate tansymustard	X	X	X	X	
DESSOP	*Descurainia sophia*	flixweed tansymustard	X	X	X	X	
DRANEM	*Draba nemorosa*	yellow draba			X	X	X
GERVIS	*Geranium viscosissimum*	sticky purple geranium				X	
HEDHIS	*Hedeoma hispidum*	rough false pennyroyal	X		X	X	X
HELANN	*Helianthus annuus*	annual sunflower				X	
LAPRED	*Lappula redowski*	beggars-tick	X	X	X	X	
LEPDEN	*Lepidium densiflorum*	prairie peppergrass	X		X	X	X
LEPPER	*Lepidium perfoliatum*	clasping peppergrass			X		X
LINAUS	*Linum australe*	southern flax	X				X
LINPUB	*Linum puberulum*	plains flax	X				
LUPUS	*Lupinus pusillus*	rusty lupine	X				
MICGRA	*Microsteris gracilis*	slender phlox				X	
	Species observed but not sampled						

			Vegetation Community				
Code	Scientific Name	Common Name	Big Sagebrush Shrubland	Cottonwood Gallery	Greasewood Shrubland	Ponderosa Pine Woodland	Upland Grassland
Annual Forbs continued							
MONUT	*Monolepis nuttalliana*	Nuttall's povertyweed	X		X		
OROMUL	*Orobanche multiflora*	manyflower broomrape	X				
PLAPAT	*Plantago patagonica*	Pursh's plantain	X		X	X	X
POLAVI	*Polygonum aviculare*	prostrate knotweed			X	X	
SALTRA	*Salsola tragus*	Russian thistle		X	X		
SISALT	*Sisymbrium altissimum*	tumbling hedgemustard	X	X	X		
SOLROS	*Solanum rostratum*	buffalobur nightshade					X
SOLTRI	*Solanum triflorum*	cutleaf nightshade			X		
THLARV	*Thlaspi arvense*	field pennycress	X	X	X	X	X
Biennial Forbs							
IPOAGG	*Ipomopsis aggregata*	scarlet gilia	X				
MELOFF	*Melilotus officinalis*	yellow sweetclover	X		X	X	X
TRADUB	*Tragopogon dubius*	yellow salsify	X		X	X	X
Perennial Forbs							
ACHMIL	*Achillea millefolium*	common yarrow		X			
ALLSPP	*Allium* spp.	onion	X		X		
ALLTEX	*Allium textile*	prairie onion	X		X	X	
AMBPSI	*Ambrosia psilostachya*	western ragweed			X		X
ANTMIC	*Antennaria microphylla*	little-leaf pussytoes	X			X	
ANTPAR	*Antennaria parvifolia*	small-leaf pussytoes				X	
ASCSPE	*Asclepias speciosa*	showy milkweed		X			
CALNUT	*Calochortus nuttallii*	sego mariposalily	X				
CAMROT	*Campanula rotundifolia*	harebell				X	
CERSPP	*Cerastium* spp.	chickweed	X				
CIRCAN	*Circaea canadensis*	broadleaf enchanter's nightshade			X		
CIRARV	*Cirsium arvense*	Canada thistle		X			
CIRSPP	*Cirsium* spp	thistle	X				
COMUMB	*Comandra umbellata*	common bastardtoadflax	X			X	
CONARV	*Convolvulus arvensis*	field bindweed			X		
CRESPP	*Crepis* spp.	hawksbeard	X				
	Species observed but not sampled						

			Vegetation Community				
Code	Scientific Name	Common Name	Big Sagebrush Shrubland	Cottonwood Gallery	Greasewood Shrubland	Ponderosa Pine Woodland	Upland Grassland
Perennial Forbs continued							
DALCAN	*Dalea candida*	white prairie-clover					X
DALENN	*Dalea ennandra*	nineanther prairie-clover				X	
DALPUR	*Dalea purpurea*	purple prairie-clover	X				
ECHANG	*Echinacea angustifolia*	purple coneflower					X
EREHOO	*Eremogone hookeri*	Hooker sandwort	X			X	
ERISPP	*Erigeron* spp	fleabane	X			X	
GAISPP	*Gaillardia* spp.	blanketflower				X	
GAUCOC	*Gaura coccinea*	scarlet gaura	X				
GRISQU	*Grindelia squarrosa*	curlycup gumweed	X			X	
HELPAU	*Helianthus pauciflorus*	stiff sunflower					X
HELSPP	*Helianthus* spp.	sunflower	X	X			
HESPUM	*Hesperochiron pumilus*	dwarf hesperochiron	X				
HETVIL	*Heterotheca villosa*	goldenaster	X			X	
LIAPUN	*Liatris punctata*	dotted blazingstar	X			X	
MACSPP	*Machaeranthera* spp.	tansyaster	X				
PEDARG	*Pediomelum argophyllum*	silverleaf scurfpea	X				X
PENSPP	*Penstemon* spp.	penstemon	X			X	
PHLMUL	*Phlox multiflora*	flowery phlox				X	
PHLSPP	*Phlox* spp.	phlox	X		X	X	X
PSOSPP	*Psoralidium* spp.	scurfpea	X				
PSOTEN	*Psoralidium tenuiflorum*	slimflower scurfpea				X	
PTESPP	*Pterospora* spp.	pinedrops				X	
SPHCOC	*Sphaeralcea coccinea*	scarlet globemallow	X		X	X	X
THERHO	*Thermopsis rhombifolia*	prairie thermopsis	X			X	
VICAME	*Vicia americana*	American vetch	X			X	X
WOOORE	*Woodsia oregana var. cathcartiana*	Oregon cliff fern				X	
Perennial Half and Sub-shrubs							
ARTFRI	*Artemisia frigida*	fringed sagewort	X	X	X	X	X
ARTLUD	*Artemisia ludoviciana*	Louisiana sagewort				X	
GUTSAR	*Gutierrezia sarothrae*	broom snakeweed	X			X	X
ROSARK	*Rosa arkansana*	prairie rose				X	
	Species observed but not sampled						

			Vegetation Community				
Code	Scientific Name	Common Name	Big Sagebrush Shrubland	Cottonwood Gallery	Greasewood Shrubland	Ponderosa Pine Woodland	Upland Grassland
Perennial Half and Sub-shrubs continued							
YUCGLA	*Yucca glauca*	yucca (small soapweed)				X	
Perennial Shrubs							
ARTCAN	*Artemisia cana*	silver sagebrush		X	X	X	
ARTTRI	*Artemisia tridentata*	big sagebrush	X	X	X	X	X
CHRVIS	*Chrysothamnus viscidflorus*	Douglas rabbitbrush				X	
ERINAU	*Ericameria nauseosa*	rubber rabbitbrush		X	X	X	
SARVER	*Sarcobatus vermiculatus*	greasewood	X	X	X		
SYMOCC	*Symphoricarpos occidentalis*	western snowberry		X			
Succulents							
CORSPP	*Coryphantha* spp.	ball cactus	X				
OPUPOL	*Opuntia polyacantha*	plains prickly pear	X		X	X	X
PEDSIM	*Pediocactus simpsonii*	mountain ball cactus	X				
Trees							
JUNSCO	*Juniperus scopulorum*	Rocky Mountain juniper				X	
PINPON	*Pinus ponderosa*	ponderosa pine				X	
POPDEL	*Populus deltoides*	plains cottonwood		X			
Lichens and Moss							
LICSPP	*Lichen* spp.	lichen	X		X	X	X
MOSSPP	*Moss* spp.	moss			X	X	
	Species observed but not sampled						

APPENDIX D

MEMORANDUM OF AGREEMENT BETWEEN

SOUTH DAKOTA STATE ARCHAEOLOGIST AND POWERTECH (USA) INC.

MAP NOTES:

- NOT NHRP ELIGIBLE-MAP No.s 1 and 4 (Maps 2&3 not included since Map 1 & 4 provide coverage for site).
- 2008 EVALUATED SITES – MAP No.s 1 & 2
- ELIGIBLE SITES – MAP 1 (site numbers shown for 2 sites only).

MEMORANDUM OF AGREEMENT

BETWEEN POWERTECH (USA) INC.

AND THE
ARCHAEOLOGICAL RESEARCH CENTER (ARC), A PROGRAM OF THE SOUTH DAKOTA STATE HISTORICAL SOCIETY,
REGARDING THE DEWEY-BURDOCK PROJECT
Located in Custer and Fall River Counties, South Dakota
Establishing Procedures to Avoid or Mitigate Potential Effects on Archeological and Historic Sites pursuant to SDCL 45-6D-14 and SDCL ch. 45-6B

WHEREAS Powertech (USA) Inc. (Powertech) plans to seek a mining permit for the Dewey-Burdock Uranium In Situ Mining Project ("Project") pursuant to the South Dakota Mined Land Reclamation Act (SDCL ch. 45-6B);

WHEREAS the Project consists of construction, operation and reclamation of uranium in situ mining and recovery facilities in Custer and Fall River Counties;

WHEREAS, Powertech has defined the Project's area of potential effect ("APE") as described in Attachment A;

WHEREAS Powertech has determined that the Project may have an affect on archaeological or historic sites that contain or are likely to contain information significant to the state or local history or prehistory, and has consulted, and will continue to consult, with the ARC Archaeologist pursuant to SDCL 45-6D-14 and SDCL ch. 45-6B;

WHEREAS, Powertech has also consulted with the South Dakota Department of Environment and Natural Resources (DENR) regarding the effects of the Project on archaeological or historic properties;

NOW, THEREFORE, Powertech and the ARC agree that the Project shall be implemented in accordance with the following stipulations in order to prevent or mitigate any effect of the Project on archeological or historic sites.

STIPULATIONS

Powertech shall ensure that the following measures are carried out:

I. Archaeological or historic sites threatened or potentially threatened by proposed ground disturbing activity in the current and projected phases of the Project will be investigated prior to the proposed activity to determine their significance or research potential.

II. Historic or archaeological sites located in the remainder of the APE that are not

proposed to be affected, and that were previously identified in the archaeological investigation conducted by Augustana Laboratory ("Augustana") entitled, *A Level III Cultural Resources Evaluation of Powertech (USA) Incorporated's Proposed Dewey-Burdock Uranium Project Locality within the Southern Black Hills, Custer and Fall River Counties, South Dakota* by Kruse *et al.* that was provided to the ARC, will be avoided. If surface disturbance of a site becomes necessary, the ARC will be notified at least 30 days in advance of surface disturbance.

III. Augustana will be authorized to proceed with the evaluation of the selected sites pursuant to the scope of work described in Attachment WWW upon execution of this MOA.

IV. Each quarter during the first year and each year thereafter following the execution of this MOA until it expires or is terminated, Powertech shall provide ARC a summary report detailing work undertaken pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in Powertech's efforts to carry out the terms of this MOA.

V. DURATION

This MOA will be null and void if its terms are not carried out within five (5) years from the date of its execution. Prior to such time, Powertech may consult with the other signatory to reconsider the terms of the MOA and amend it in accordance with Stipulation VIII below.

VI. UNANTICIPATED DISCOVERIES

If historic or archaeological sites are discovered or unanticipated effects on historic or archeological sites are found during any phase of the Project, Powertech shall temporarily halt any surface disturbing activities in the immediate vicinity and contact ARC. Powertech will not resume its activities in the area until and unless the unanticipated effects or sites are investigated and clearance to proceed is granted by ARC.

VII. REPORTING

Refer to article IV in this MOA.

VIII. DISPUTE RESOLUTION

Should either party to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, Powertech and ARC shall consult to resolve the objection. If Powertech determines the objection cannot be resolved, Powertech will:

A. File a petition for a contested case hearing that includes all documentation relevant to the dispute, including Powertech's proposed resolution, with the South

Dakota Board of Minerals and Environment (BME), which is the entity with jurisdiction over such mining activities pursuant to SDCL ch. 45-6B, and including 45-6B-33.3 to -33.8, inclusive . The BME shall timely schedule a hearing on the issues and shall notify all parties of the hearing. All parties shall be allowed to present evidence and argument to the BME at the hearing. Powertech will proceed in accordance with the final decision of the BME.

B. Powertech may not proceed until the BME has issued a final decision on the dispute.

C. Powertech's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

IX. AMENDMENTS

This MOA may be amended when such an amendment is agreed to in writing by both parties. The amendment will be effective on the date a copy signed by ARC.

X. TERMINATION

If either party to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation VIII, above. If within thirty (30) days (or another time period agreed to by both parties) an amendment cannot be reached, either party may terminate the MOA upon written notification to the other signatories.

Execution of this MOA by Powertech and ARC and implementation of its terms constitute evidence that Powertech has taken into account the effects of this Project on potential significant historic and archaeological sites and is committed to working closely with ARC to avoid and/or mitigate any potential affects on such properties.

This MOA does not supersede any future Federal involvement in the Project and does not constitute compliance with Federal laws such as the National Historic Preservation Act or the National Environmental Policy Act.

SIGNATORIES:

Powertech (USA) Inc.

Date 9/10/08

Richard E. Blubaugh
Vice President-Environmental,
Health and Safety Resources

Archaeological Research Center

Date 9.15.08

James Haug
State Archaeologist

ATTACHMENT A

Powertech (USA) Inc.'s Dewey-Burdock Project in Custer and Fall River Counties, South Dakota is outlined by its proposed **Project Boundary** in Figure A (Confidential), following this Attachment. The Project Boundary encompasses the following sections (or portions thereof):

T6S, R1E:
Sections 20, 21, and 27 – 35

T7S, R1E:
Sections 1 – 5, 10 – 12, and 15

The **Area of Potential Effect (APE)** is defined as the areas that would potentially be affected by the surface-disturbing activities of the project and is a much smaller area than the area encompassed by the Project Boundary. The APE is based on known mining resources and is subject to change as additional resources are identified. The APE is depicted in Figure A (Confidential) and is generally described as follows:

T6S, R1E:
Sections (or portions thereof): 28, 29, 32, 33, 35

T7S, R1E:
Sections (or portions thereof): 1 – 3, 10 - 12