

Department of Environment and Natural Resources
Minerals and Mining Program
Joe Foss Building
523 East Capitol Avenue
Pierre, South Dakota 57501-3181
Telephone: (605) 773-4201 Fax: (605) 773-5286

**APPLICATION FOR
MINING/MILLING PERMIT**
Pursuant to SDCL 45-6B:
Relating to The Extraction and
Processing of Minerals in
Operations Affecting More
Than 10 Acres Per Year
and/or Removing Over
25,000 Tons Per Year

Name of Operator: Powertech (USA) Inc.

General Office Address:
 5575 DTC Parkway, Suite #140
Greenwood Village, CO 80111

Telephone:
 (303) 790-7528

Name and Address of Surface Owner: (Enter additional owners on last page)
 See Appendix 2.2-A in accompanying report

Legal Description of Affected Land:
 See Sec. 2.0 in accompanying report

County: Custer and Fall River

Minerals to be Extracted and, if Applicable,
Milled:
 Uranium (U3O8) and, potentially, vanadium

Size of Area to be Worked at Any One Time
(acres):
 <100 acres of well field pattern area

Estimated Tonnage Mined Per Year
 1 million pounds U3O8 per year

Estimated Tons of Ore Per Year:
 1 million pounds U3O8 per year

Overburden/Waste Tons Per Year:
 N/A - ISR project

Source of Legal Right to Enter and Initiate Operations:
Attach Copy

Lease Letter USFS Permit

Local Address:
 310 2nd Avenue
P.O. Box 812
Edgemont, SD 57735

Telephone:
 (605) 662-8308

Name and Address of Mineral Owner: (Enter additional owners on last page)
 See Appendix 2.2-A in accompanying report

Name and Address of Operator's Legal Resident Agent
(if out-of-state corporation):
 Powertech (USA) Inc. is a SD corporation and
has a registered agent: CT Corporation System,
319 S. Coteau St., Pierre, SD 57501

Proposed Starting Date: 3/1/2013

Proposed Completion Date: 12/31/2035

Estimated Working Days Per Year:
 365

Estimated Duration of Operation (years):
 20

Reclamation Type:
 Return to rangeland or cropland use

Source of Legal Right to Dispose of Tailings:
Attach Copy

Lease Letter USFS Permit
NRC source and byproduct material license

Department of Environment and Natural Resources
Minerals and Mining Program
523 East Capitol Avenue
Pierre, SD 57501-3182
Telephone: (605) 773-4201 Fax: (605) 773-5286

STATE OF SOUTH DAKOTA
BEFORE THE SECRETARY OF
THE DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

IN THE MATTER OF THE)
APPLICATION OF Powertech (USA) Inc.) CERTIFICATION OF APPLICANT

STATE OF Colorado)
) SS
COUNTY OF Arapahoe)

I, Powertech (USA) Inc. , the applicant in the above matter after being duly sworn upon oath hereby certify the following information in regard to this application:

South Dakota Codified Laws Section 1-40-27 provides:

"The secretary may reject an application for any permit filed pursuant to Titles 34A or 45, including any application by any concentrated swine feeding operation for authorization to operate under a general permit, upon making a specific finding that:

(1) The applicant is unsuited or unqualified to perform the obligations of a permit holder based upon a finding that the applicant, any officer, director, partner, or resident general manager of the facility for which application has been made:

- (a) Has intentionally misrepresented a material fact in applying for a permit;*
- (b) Has been convicted of a felony or other crime of moral turpitude;*
- (c) Has habitually and intentionally violated environmental laws of any state or the United States which have caused significant and material environmental damage;*
- (d) Has had any permit revoked under the environmental laws of any state or the United States;*
- (e) Has otherwise demonstrated through clear and convincing evidence of previous actions that the applicant lacks the necessary good character and competency to reliably carry out the obligations imposed by law upon the permit holder; or*

(2) The application substantially duplicates an application by the same applicant denied within the past five years which denial has not been reversed by a court of competent jurisdiction. Nothing in this subdivision may be construed to prohibit an applicant from submitting a new application for a permit previously denied, if the new application represents a good faith attempt by the applicant to correct the deficiencies that served as the basis for the denial in the original application.

All applications filed pursuant to Titles 34A and 45 shall include a certification, sworn to under oath and signed by the applicant, that he is not disqualified by reason of this section from obtaining a permit. In the absence of evidence to the contrary, that certification shall constitute a prima facie showing of the suitability and qualification of the applicant. If at any point in the application review recommendation, or hearing process, the secretary finds the applicant has intentionally made any material misrepresentation of fact in regard to this certification, consideration of the application may be suspended and the application may be rejected as provided for under this section.

Applications rejected pursuant to this section constitute final agency action upon that application and may be appealed to circuit court as provided for under chapter 1-26."

Pursuant to SDCL 1-40-27, I certify that I have read the forgoing provision of state law, and that I am not disqualified by reason of that provision from obtaining the permit for which application has been made.

I declare and affirm under the penalties of perjury that this claim (petition, application, information) has been examined by me, and to the best of my knowledge and belief, is in all things true and correct.

Dated this 15th day of November, 2012.

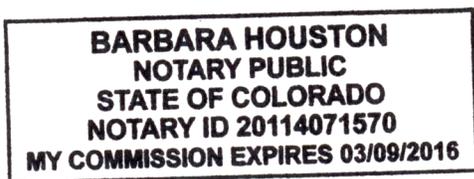
Phil E. Bluyz, VP-HS&E Resources
Applicant

Subscribed and sworn before me this 15th day of November, 2012.

Barbara Houston
Notary Public

My commission expires: 3/9/2016

(SEAL)



**PLEASE ATTACH SHEET DISCLOSING ALL FACTS PERTAINING TO
SDCL 1-40-27 (1)(a) THROUGH (e).
ALL VIOLATIONS MUST BE DISCLOSED, BUT WILL NOT
AUTOMATICALLY RESULT IN THE REJECTION OF AN APPLICATION.**

POWERTECH (USA) Inc.
DEWEY-BURDOCK PROJECT
Technical Revisions

Powertech (USA) Inc. proposes the following list of technical revisions for which the Board of Minerals and Environment will authorize the Department of Environment and Natural Resources (department) to review and approve pursuant to ARSD 74:29:03:16.

1. Modify monitoring plans, locations, parameters, and time frames;
2. Modify monitoring analytical methods, limits of detection and reporting requirements;
3. Modify compliance limits for chemical parameters;
4. Modify the chemicals added to the lixiviant to include alternative oxidizing agents such as hydrogen peroxide and alternate complexing agents such as sodium bicarbonate;
5. Modify plans and specifications for permitted facilities;
6. Submitting and modifying quality control and quality assurance plans;
7. Add contiguous, affected land within the permit boundary with the total of such additions not to exceed twenty (20) percent of the permitted affected land area of 2,528 acres for this permit if deep disposal wells are used without land application to dispose treated wastewater or 3,793 acres for this permit if land application is used. The maximum amount of expansion allowed without land application (20% of 2,528 acres) is 252.8 acres, and the maximum amount of expansion allowed with land application (20% of 3,793 acres) is 379.3 acres;
8. Modify the mine plan within the constraints of ARSD 74:29:03;
9. Modify or relocate erosion, sedimentation, or drainage control structures;
10. Modify or relocate ancillary facilities within the permit boundary, including equipment storage areas, parking lots, office buildings, septic systems, perimeter fencing, utilities (phone lines, natural gas lines, power lines, water lines), sediment ponds, and stockpiles;
11. Modify well field configurations within permitted disturbance limits;
12. Modify mine designs and disturbance areas to include contiguous areas of potential ore;
13. Modify the recovery process within the processing facilities to improve performance, recovery or environmental aspects, including the potential recovery of vanadium;
14. Relocate processing facilities to improve operations aspects and recovery;
15. Relocate chemical or petroleum storage areas;
16. Develop and implement other mineral processing technologies that would improve both economic and environmental aspects;
17. Modify or relocate roads within the permit boundary;
18. Modify or relocate pipelines and utilities within the permit boundary;
19. Modify topsoil stripping plans and relocate topsoil and spoil stockpiles;
20. Modify the size of area to be worked at any one time;
21. Modify dust control measures;
22. Modify operating time tables for proposed operations;
23. Modify groundwater restoration methods or schedule;
24. Change, modify, develop, enhance, or increase water treatment technology and water treatment regimens;
25. Modify water usage and sources as allowed by water rights permits;
26. Modify water storage capacity and pond configurations;
27. Modify the size and configuration of the land application areas;
28. Modify the reclamation plan within the constraints of ARSD 74:29:03;
29. Modify the reclamation time tables for proposed reclamation and decommissioning;
30. Implementing new and improved reclamation techniques as they are developed;
31. Modify seeding mixtures or rates;



32. Use irrigation, fertilizer or nurse crops in reclamation;
33. Modify reclamation or vegetation performance standards;
34. Relocate, add or remove reference areas used to establish revegetation success;
35. Modify stocking guidelines and reclamation success standards to reflect climatic conditions;
36. Modify reclamation monitoring techniques;
37. Modify livestock carrying capacities of surrounding areas;
38. Modify areas designated with postmining land uses of rangeland or agricultural or horticultural cropland.
39. Modify designated crop types for areas designated with postmining land use of agricultural or horticultural cropland.
40. Modify reporting procedures and parameters as allowed within the mining laws and mine permit; and
41. Modifying postclosure plans and monitoring time frames;

Powertech (USA) understands that technical revisions must comply with ARSD 74:29:03:03 and must be submitted to the department in writing. The department shall approve, disapprove, conditionally approve, or request additional information deemed necessary to approve technical revisions within 30 days of receipt.

----- Original Message -----

From: "David Green" <dgreen@custercountysd.com>

Date: Wed, 5 Nov 2008 15:14:00 -0700

Lisa,

You are correct in that we do not have a conditional use permit for mining operations at this time. We do have one for wireless communication towers though. As far as the necessary permits that you may need to perform your mining operations, they may include a grading permit, building permit and wastewater permit. In addition, if there is any work to be done in or near a FEMA designated floodplain, then a permit will be necessary for that as well. Prior to any construction there will need to take place a coordination meeting to discuss issues such as road access, emergency management and security issues. Thank you for keeping me informed as to the progress of this project.

David J. Green, Director

Custer County Planning and Economic Department



CUSTER COUNTY

October 24, 2012

Mark Hollenbeck
Powertech Uranium Corp
310 2nd Avenue
Edgemont, SD 57735

Mr. Hollenbeck

This communication is in response to your inquiry about county issued permits relating to your proposed mining operations. After an on-site visit and a review of local ordinances, it appears that this venture may be subject to Custer County's land use regulations. Ordinance 2 is the document that regulates land uses in Custer County. Specifically, Article V, Section 2 relates to industrial uses such as mining operations. Proposed industrial uses and associated structures require the approval of the Board of County Commissioners. The Board will evaluate the land use application and base its decision on a number of factors including but not limited to, access and impact to county road network, accessibility of emergency management staff and vehicles, and the impact to the local economy and environment. In addition, grading, on-site wastewater disposal and building permits may be necessary. If any construction, grading, fill or mining operations are to take place in a FEMA designated flood hazard area then a floodplain development permit will be necessary.

At this time you are in substantial compliance with applicable county ordinances and standards. Therefore, the acquisition of permits is not necessary. However, you will need to acquire your permits in advance of any construction activities.

Based upon information submitted in reference to your mining operation plan, neither the Planning Department nor the Board currently has an objection to the proposed land use. When the time arrives to schedule a public hearing on the proposed land use and to secure the grading, building and floodplain permits, the planning office will be available to assist you.

David J. Green,
Custer County Planning
and Economic Development, Director

Travis Bies, Chairman
Custer County Board of Commissioners

Planning Department • 420 Mt. Rushmore Road • Custer, South Dakota 57730 • 605-673-8174

APPENDIX 2.2-A

**Surface and Mineral
Ownership**

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	Legal Description	Area (acres)	Surface Owner(s)	Mineral Owner(s)
Township 6S, Range 1E, Custer County, SD Black Hills Meridian				
Section 20	E $\frac{1}{2}$ NE $\frac{1}{4}$; E $\frac{1}{2}$ SE $\frac{1}{4}$; SW $\frac{1}{4}$ SE $\frac{1}{4}$; S $\frac{1}{2}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$; SE $\frac{1}{4}$ SW $\frac{1}{4}$; S $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$	280	GCC Dacotah, Inc.	BLM Minerals
Section 21	W $\frac{1}{2}$; W $\frac{1}{2}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$; W $\frac{1}{2}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$	360	GCC Dacotah, Inc.	BLM Minerals
	W $\frac{1}{2}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$	20	Donald L. Spencer	BLM Minerals
Section 27	W $\frac{1}{2}$ SW $\frac{1}{4}$; E $\frac{1}{2}$ SE $\frac{1}{4}$	160	Clayton Sander	BLM Minerals
	E $\frac{1}{2}$ SW $\frac{1}{4}$; W $\frac{1}{2}$ SE $\frac{1}{4}$	160	Clayton Sander	Clayton Sander
Section 28	N $\frac{1}{2}$ NW $\frac{1}{4}$; SW $\frac{1}{4}$ NW $\frac{1}{4}$	120	GCC Dacotah, Inc.	BLM Minerals
	SW $\frac{1}{4}$	160	Putnam & Putnam, LLP	BLM Minerals
Section 29	SW $\frac{1}{4}$ NE $\frac{1}{4}$; N $\frac{1}{2}$ NW $\frac{1}{4}$; W $\frac{1}{2}$ SE $\frac{1}{4}$	200	GCC Dacotah, Inc.	Richard E. Elston; Elston Bros. Realty Co., LLC
	N $\frac{1}{2}$ NE $\frac{1}{4}$; SE $\frac{1}{4}$ NE $\frac{1}{4}$; S $\frac{1}{2}$ NW $\frac{1}{4}$; SW $\frac{1}{4}$; E $\frac{1}{2}$ SE $\frac{1}{4}$	440	GCC Dacotah, Inc.	BLM Minerals
Section 30	NE $\frac{1}{4}$; W $\frac{1}{2}$	480	GCC Dacotah, Inc.	Francis A. and Phyllis Jozwik Paul and Janet Jozwik Robert and Alice Barnard (Barnard & Lowham, LLC) William and Joyce Barnard (Barnard & Lowham, LLC) Paul Lowham (Barnard & Lowham, LLC)
	SE $\frac{1}{4}$	160	GCC Dacotah, Inc.	Richard E. Elston; Elston Bros. Realty Co., LLC
Section 31	E $\frac{1}{2}$	320	Bakewell-Andis Ranch, LLP	Bakewell-Andis Ranch, LLP
Section 32	NE $\frac{1}{4}$ NE $\frac{1}{4}$; N $\frac{1}{2}$ NW $\frac{1}{4}$	120	GCC Dacotah, Inc.	BLM Minerals
	NW $\frac{1}{4}$ NE $\frac{1}{4}$; S $\frac{1}{2}$ NE $\frac{1}{4}$; S $\frac{1}{2}$ NW $\frac{1}{4}$	200	GCC Dacotah, Inc.	Richard E. Elston; Elston Bros. Realty Co., LLC
	S $\frac{1}{2}$	320	Putnam & Putnam, LLP	Putnam & Putnam, LLP
Section 33	S $\frac{1}{2}$ NE $\frac{1}{4}$; SE $\frac{1}{4}$	240	Donald and Pat Spencer	BLM Minerals
	W $\frac{1}{2}$	320	Putnam & Putnam, LLP	BLM Minerals
Section 34	NE $\frac{1}{4}$ NE $\frac{1}{4}$	40	Donald and Pat Spencer	BLM Minerals
	W $\frac{1}{2}$ NE $\frac{1}{4}$; SE $\frac{1}{4}$ NE $\frac{1}{4}$; W $\frac{1}{2}$; SE $\frac{1}{4}$	600	Donald and Pat Spencer	Donald and Pat Spencer
Section 35	NE $\frac{1}{4}$; E $\frac{1}{2}$ NW $\frac{1}{4}$; NW $\frac{1}{4}$ NW $\frac{1}{4}$; NE $\frac{1}{4}$ SW $\frac{1}{4}$; N $\frac{1}{2}$ SE $\frac{1}{4}$	400	Donald and Pat Spencer	BLM Minerals
	SW $\frac{1}{4}$ NW $\frac{1}{4}$; NW $\frac{1}{4}$ SW $\frac{1}{4}$	80	Donald and Pat Spencer	Donald and Pat Spencer
	S $\frac{1}{2}$ SW $\frac{1}{4}$; S $\frac{1}{2}$ SE $\frac{1}{4}$	160	Chris and Amy Daniel	Chris and Amy Daniel

	Legal Description	Area (acres)	Surface Owner(s)	Mineral Owner(s)
Township 7S, Range 1E, Fall River County, SD				
Black Hills Meridian				
Section 1	All	640	Daniel Properties, LLC	BLM Minerals
Section 2	All	640	Daniel Properties, LLC	Daniel Properties, LLC
Section 3	N $\frac{1}{2}$; SW $\frac{1}{4}$; N $\frac{1}{2}$ SE $\frac{1}{4}$; SW $\frac{1}{4}$ SE $\frac{1}{4}$	600	Donald and Pat Spencer	Donald and Pat Spencer
	SE $\frac{1}{4}$ SE $\frac{1}{4}$	40	BLM	BLM Minerals
Section 4	W $\frac{1}{2}$ W $\frac{1}{2}$	160	Putnam & Putnam, LLP	Putnam & Putnam, LLP
Section 5	All	640	Putnam & Putnam, LLP	Putnam & Putnam, LLP
Section 10	NE $\frac{1}{4}$; W $\frac{1}{2}$ SE $\frac{1}{4}$; E $\frac{1}{2}$ SW $\frac{1}{4}$; SW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$; SW $\frac{1}{4}$ SW $\frac{1}{4}$ minus 3.97 ac in NE portion	366.03	Peterson & Son, Inc.	Peterson & Son, Inc. Black Stone Minerals Company, LP Jean Swirczynski Roy Guess
	NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$	10	TerraTecTonics Corporation	TerraTecTonics Corporation
	E $\frac{1}{2}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ minus lots in southern portion (1.44 ac)	18.56	Donald and Lynda Andersen	Donald and Lynda Andersen
	14 lots in southern portion of E $\frac{1}{2}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$; 3.97 ac in NE portion of SW $\frac{1}{4}$ SW $\frac{1}{4}$	5.1	Kathleen Klausen	Kathleen Klausen
	4 lots in southern portion of E $\frac{1}{2}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$	0.31	Clifford James Lovell and Patricia C. Johnson	Clifford James Lovell and Patricia C. Johnson
	N $\frac{1}{2}$ NW $\frac{1}{4}$	80	Donald and Pat Spencer	Steven and Elizabeth Laesch Roger C. and Jeanette R. Laesch Christopher and Kelly Ann Viel Rev. Norman and Joyce Laesch Carol A. Laesch Barbara Jacqueline S. Laesch Ellison Frederick and Marilyn Laesch Helen L. and Carl Leroy Kellberg Rev. Richard and Irene L. Mueller William J. Laesch Allen G. and Barbara B. Wilson
	S $\frac{1}{2}$ NW $\frac{1}{4}$	80	Donald and Pat Spencer	Donald and Pat Spencer
NE $\frac{1}{4}$ SE $\frac{1}{4}$	40	BLM	BLM Minerals	

	Legal Description	Area (acres)	Surface Owner(s)	Mineral Owner(s)
Township 7S, Range 1E, Fall River County, SD Black Hills Meridian				
Section 10	SE $\frac{1}{4}$ SE $\frac{1}{4}$	40	Peterson & Son, Inc.	Agnes Medsker Irene R. Andersen Clint Andersen
Section 11	NE $\frac{1}{4}$; SE $\frac{1}{4}$ NW $\frac{1}{4}$; NE $\frac{1}{4}$ SW $\frac{1}{4}$; N $\frac{1}{2}$ SE $\frac{1}{4}$	320	Daniel Properties, LLC	BLM Minerals
	NE $\frac{1}{4}$ NW $\frac{1}{4}$	40	Daniel Properties, LLC	Daniel Properties, LLC
	W $\frac{1}{2}$ NW $\frac{1}{4}$; NW $\frac{1}{4}$ SW $\frac{1}{4}$	120	BLM	BLM Minerals
	SW $\frac{1}{4}$ SW $\frac{1}{4}$	40	Peterson & Son, Inc.	Agnes Medsker Irene R. Andersen Clint Andersen
	SE $\frac{1}{4}$ SW $\frac{1}{4}$; S $\frac{1}{2}$ SE $\frac{1}{4}$	120	Peterson & Son, Inc.	Peterson & Son, Inc. Black Stone Minerals Company, LP Jean Swirczynski Roy Guess
Section 12	N $\frac{1}{2}$; NW $\frac{1}{4}$ SW $\frac{1}{4}$	360	Carolyn Fines	BLM Minerals
	NE $\frac{1}{4}$ SW $\frac{1}{4}$	40	BLM	BLM Minerals
	S $\frac{1}{2}$ SW $\frac{1}{4}$; SE $\frac{1}{4}$	240	Everett and Dawn Englebert	BLM Minerals
Section 14	NE $\frac{1}{4}$ NE $\frac{1}{4}$; S $\frac{1}{2}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; S $\frac{1}{2}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$; S $\frac{1}{2}$ NW $\frac{1}{4}$	200	Peterson & Son, Inc.	Peterson & Son, Inc.
	N $\frac{1}{2}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$; N $\frac{1}{2}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$	40	Peterson & Son, Inc.	Peterson & Son, Inc. Jean Swirczynski Roy Guess
	NW $\frac{1}{4}$ NW $\frac{1}{4}$	40	Peterson & Son, Inc.	Agnes Medsker Irene R. Andersen Clint Andersen
Section 15	NE $\frac{1}{4}$ NE $\frac{1}{4}$	40	Peterson & Son, Inc.	Agnes Medsker Irene R. Andersen Clint Andersen
	NW $\frac{1}{4}$ NE $\frac{1}{4}$; S $\frac{1}{2}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$	280	Peterson & Son, Inc.	Peterson & Son, Inc. Black Stone Minerals Company, LP Jean Swirczynski Roy Guess

Notes: 1) Portions of Sections 20, 29, 32 and 33, T6S, R1E and Sections 10 and 15, T7S, R1E are owned by BNSF Railway Company, Custer County and Fall River County (surface ownership only). Refer to Plate 2.2-2 for locations of railroad and county road rights of way.

2) All unpatented claims within the proposed permit area are held by Powertech.

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POWERTECH (USA) INC.

SURFACE OWNERS WITHIN THE PERMIT BOUNDARY

Donald and Lynda Andersen
10194 Argentine Road
Edgemont, SD 57735

Bakewell-Andis Ranch, LLP
P.O. Box 2010
Buena Vista, CO 81211

BNSF Railway Company
c/o Chuck Olsen, Roadmaster
4625 West Highway 16
Newcastle, WY 82701

Custer County Highway Department
c/o Gary Woodford, Superintendent
25365 U.S. Highway 385
Custer, SD 57730

Chris and Amy Daniel
48235 334th Street
Jefferson, SD 57038

Daniel Properties, LLC
c/o Chris Daniel
48235 334th Street
Jefferson, SD 57038

Everett and Dawn Englebert
27449 Dewey Road
Burdock, SD 57735

Fall River County Highway Department
c/o Randy Seiler, Superintendent
906 N. River Street
Hot Springs, SD 57747

Carolyn Fines
P.O. Box 478
Edgemont, SD 57735



POWERTECH (USA) INC.

GCC Dacotah, Inc.
501 North St. Onge Street
Rapid City, SD 57702
w/ a copy to
James S. Nelson, Esq.
Gunderson, Palmer, Goodsell & Nelson, LLP
P.O. Box 8045
Rapid City, SD 57709-8045

Clifford James Lovell and Patricia C. Johnson
P.O. Box 473
Hot Springs, SD 57747

Peterson & Son, Inc.
c/o Wayne Peterson
27389 Burdock Loop
Edgemont, SD 57735

Putnam & Putnam, LLP
c/o John A. Putnam
27150 N. Flat Top Road
Burdock, SD 57735

Clayton Sander
12469 Willow Creek Road
Custer, SD 57730

Donald L. Spencer
27269 Elbow Canyon Road
Edgemont, SD 57735

Donald and Pat Spencer
27269 Elbow Canyon Road
Edgemont, SD 57735

Kathleen Stritar
23000 Morninglight Drive
Rapid City, SD 57703

TerraTecTonics Corporation
c/o Del Gehrett, President
10852 W. Ontario Avenue
Littleton, CO 80127

U.S. Department of the Interior
Bureau of Land Management
310 Roundup Street
Belle Fourche, SD 57717



POWERTECH (USA) INC.

MINERAL OWNERS WITHIN THE PERMIT BOUNDARY

Clint Andersen
1703 Omarr Avenue
Sheridan, WY 82801

Donald and Lynda Andersen
10194 Argentine Road
Edgemont, SD 57735

Irene R. Andersen
27360 S. Flat Top Road
Edgemont, SD 57735

Bakewell-Andis Ranch, LLP
P.O. Box 2010
Buena Vista, CO 81211

Robert and Alice Barnard (Barnard & Lowham, LLC)
480 South Cache Street, Suite 2
Jackson, WY 83001

William and Joyce Barnard (Barnard & Lowham, LLC)
480 South Cache Street, Suite 2
Jackson, WY 83001

Black Stone Minerals Company, LP
Minerals Management and Legal
1001 Fannin, Suite 2020
Houston, TX 77002-6709

Chris and Amy Daniel
48235 334th Street
Jefferson, SD 57038

Daniel Properties, LLC
c/o Chris Daniel
48235 334th Street
Jefferson, SD 57038

Barbara Jacqueline S. Laesch Ellison
10012 Mayfield Drive
Bethesda, MD 20817



POWERTECH (USA) INC.

Elston Bros. Realty Co., LLC
2227 So. 185th Street
Omaha, NE 68130

Richard E. Elston
3312 W. Connaught Drive
Spokane, WA 99208

Roy Guess
1865 Beverly Street, Apt. 101
Casper, WY 82609

Francis A. and Phyllis Jozwik
2941 Pilot Drive
Casper, WY 82604

Paul and Janet Jozwik
2938 Pilot Drive
Casper, WY 82604

Helen L. and Carl Leroy Kellberg
14516 SE 112th Place
Renton, WA 98059

Carol A. Laesch
6 Clearbrook Court
St Charles, MO 63304

Frederick and Marilyn Laesch
524 North 14th Street
Niles, MI 49120

Rev. Norman and Joyce Laesch
3114 W. Via De Pedro Miguel Drive
Phoenix, AZ 85086

Roger C. and Jeanette R. Laesch
4503 North 106th Street
Wauwatosa, WI 53225

Steven and Elizabeth Laesch
7509 Vista Ridge Court
Garland, TX 75044

William J. Laesch
40275 N. Patriot Way
Anthem, AZ 85086



POWERTECH (USA) INC.

Clifford James Lovell and Patricia C. Johnson
P.O. Box 473
Hot Springs, SD 57747

Paul Lowham (Barnard & Lowham, LLC)
480 South Cache Street, Suite 2
Jackson, WY 83001

Agnes Medsker
62 Cypress Circle
Port Angeles, WA 98362-9104

Rev. Richard and Irene L. Mueller
1520 Lakeside Terrace
Watertown, WI 53094

Peterson & Son, Inc.
c/o Wayne Peterson
27389 Burdock Loop
Edgemont, SD 57735

Putnam & Putnam, LLP
c/o John A. Putnam
27150 N. Flat Top Road
Burdock, SD 57735

Clayton Sander
12469 Willow Creek Road
Custer, SD 57730

Donald and Pat Spencer
27269 Elbow Canyon Road
Edgemont, SD 57735

Kathleen Stritar
23000 Morninglight Drive
Rapid City, SD 57703

Jean Swirczynski
P.O. Box 1848
Casper, WY 82602

TerraTecTonics Corporation
10852 W. Ontario Avenue
Littleton, CO 80127



POWERTECH (USA) INC.

U.S. Department of the Interior
Bureau of Land Management
310 Roundup Street
Belle Fourche, SD 57717

Christopher and Kelly Ann Viel
10916 Jeffrey Lane
Milwaukee, WI 53225

Allen G. and Barbara B. Wilson
P.O. Box 731
Hot Springs, SD 57747



POWERTECH (USA) INC.

SURFACE OWNERS ADJACENT TO THE PERMIT BOUNDARY

Donald and Lynda Andersen
10194 Argentine Road
Edgemont, SD 57735

James and Rose Andersen
P.O. Box 33
Hermosa, SD 57744

Bakewell-Andis Ranch, LLP
P.O. Box 2010
Buena Vista, CO 81211

Danny Ray Dixon
641 Grieves Road
Newcastle, WY 82701

Everett and Dawn Englebert
27449 Dewey Road
Burdock, SD 57735

LeeAnn Ferley and Donna Sue Willey
29570 Highway 385
Oelrichs, SD 57763

GCC Dacotah, Inc.
501 North St. Onge Street
Rapid City, SD 57702
w/ a copy to
James S. Nelson, Esq.
Gunderson, Palmer, Goodsell & Nelson, LLP
P.O. Box 8045
Rapid City, SD 57709-8045

Peterson & Son, Inc.
c/o Wayne Peterson
27389 Burdock Loop
Edgemont, SD 57735

Clayton Sander
12469 Willow Creek Road
Custer, SD 57730

Donald L. Spencer
27269 Elbow Canyon Road
Edgemont, SD 57735



POWERTECH (USA) INC.

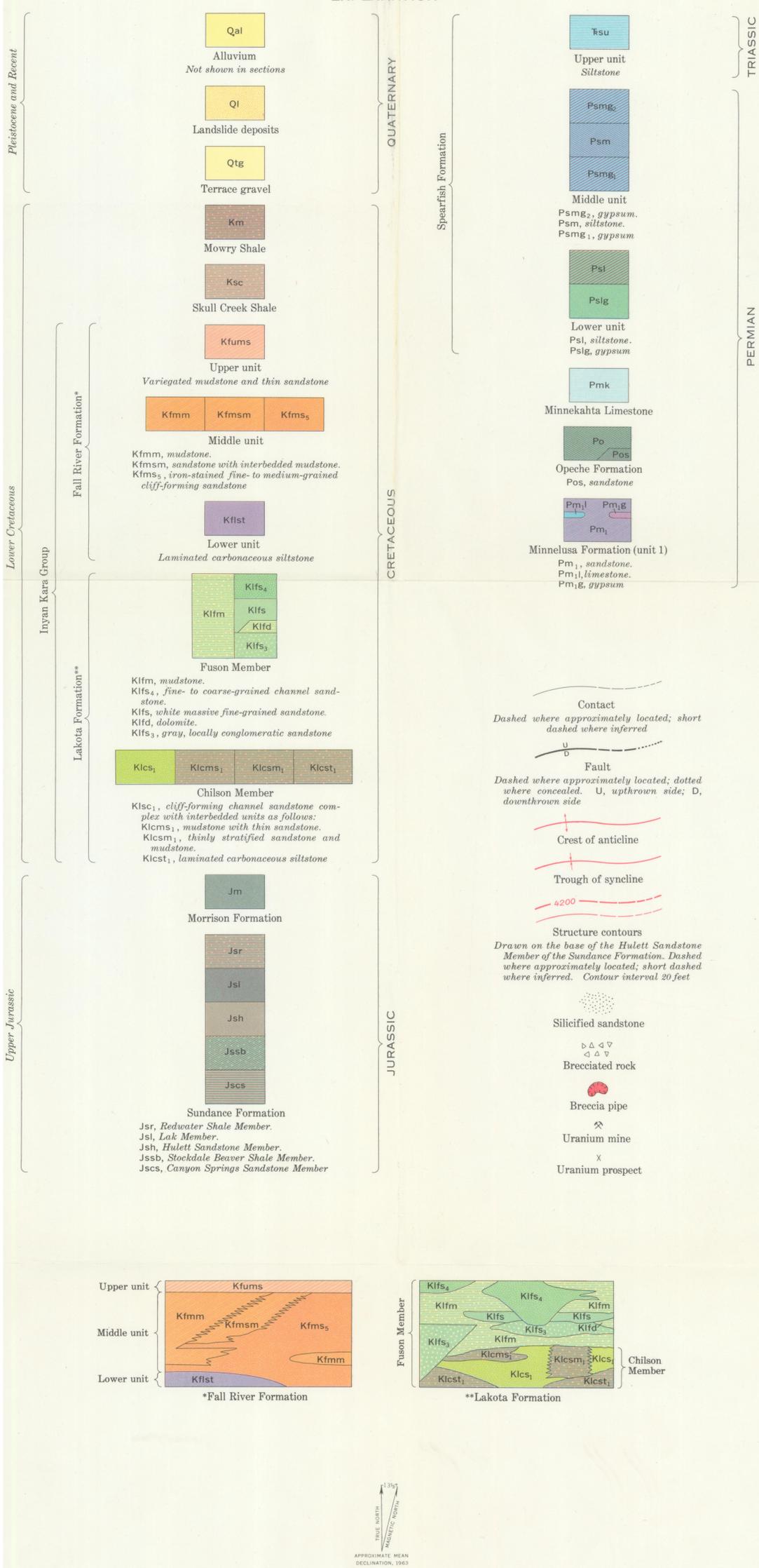
Donald and Pat Spencer
27269 Elbow Canyon Road
Edgemont, SD 57735

State of South Dakota
School and Public Lands
c/o Mr. Jarrod Johnson, Commissioner
500 East Capitol Avenue
Pierre, SD 57501

U.S. Department of Agriculture
Black Hills National Forest
c/o Mr. Craig Bobzien, Supervisor
1019 North 5th Street
Custer, SD 57730

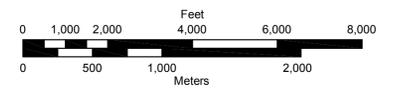
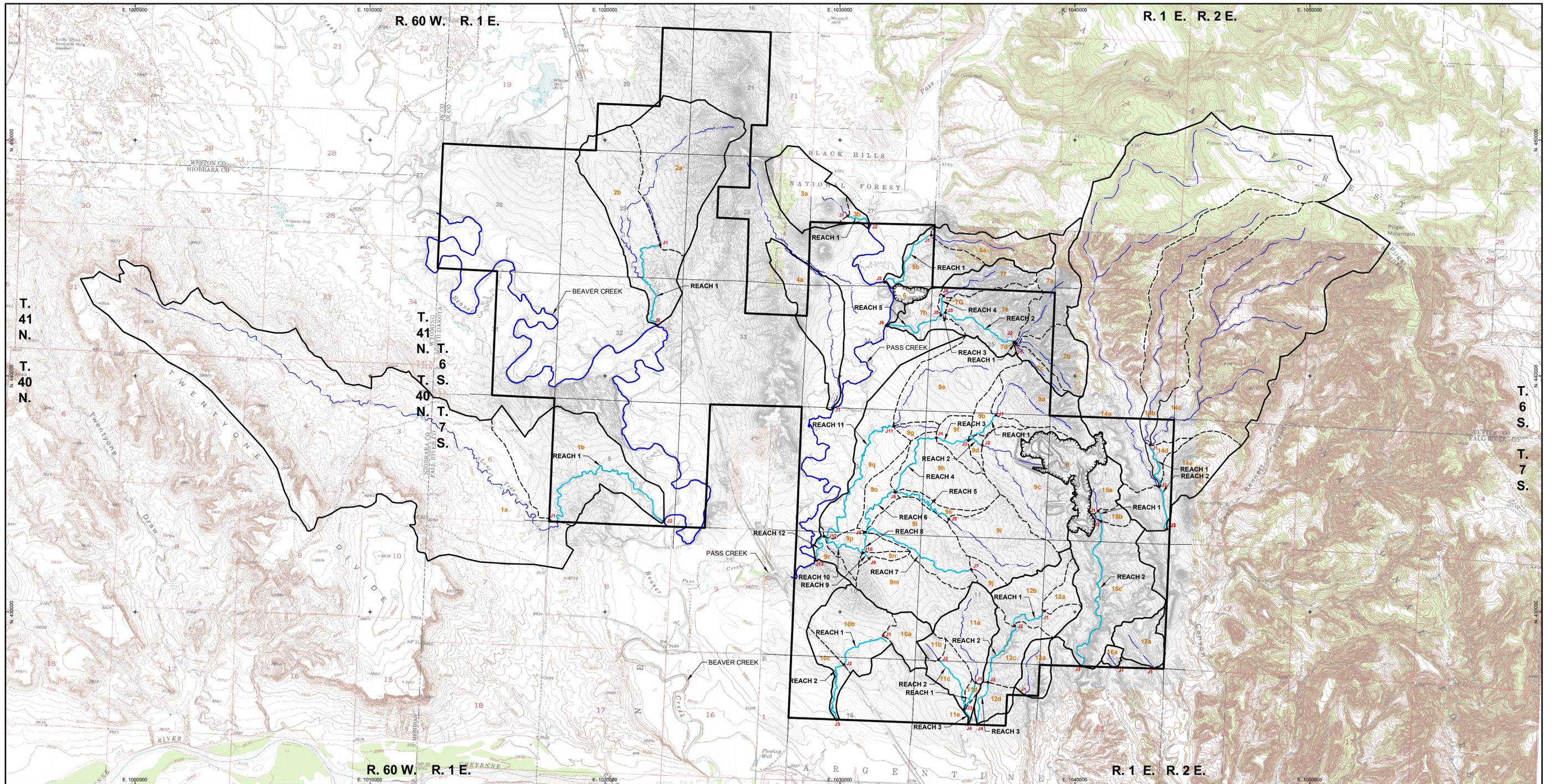
U.S. Department of the Interior
Bureau of Land Management
310 Roundup Street
Belle Fourche, SD 57717

EXPLANATION



This plate is provided to fulfill the requirements of ARSD 74:29:02.1(1).

CONSULTANT		REVISIONS		<p>POWERTECH (USA) INC. App. 3.2-C Plate 1 Sheet 2 of 2 Geologic Map Jewel Cave SW</p>
#	DRAWN	CHECKED	APPROVED	
BY	949	SIGNATURE OF PREPARED		<i>James A. Bonner</i>
CHECK SCALES	DATE	DATE	DATE	DATE
BY	27-Nov-2012	16-Nov-2012		
BY	R. Lichnowsky	RMS	GeologicMapJewelCaveSWLegend.pdf	FILE
BY	James A. Bonner	DATE	p:\dewey-burdock\submittal\temp\comment answers\geonapjewelcaveswlegend.dwg	FILE



This exhibit is provided to fulfill the requirements of ARSD 74-29.02:11(3) and SDCL 45-6B-10(4).

LEGEND

- PERMIT BOUNDARY
- PRIMARY DRAINAGE BASIN
- SECONDARY DRAINAGE BASIN
- CLOSED DRAINAGE BASIN
- PREVIOUSLY ANALYZED CHANNEL
- EPHEMERAL STREAM CHANNEL
- HEC-HMS REACH
- HEC-HMS SUB BASIN IDENTIFIER
- HEC-HMS JUNCTION LOCATION AND NUMBER



CONSULTANT

WVC
ENGINEERING

REF

CHECK SCALES

If this bar does not measure 1 inch this map is not at its original scale

REVISIONS				
#	DRAWN	CHECKED	APPROVED	DATE

SIGNATURE OF PREPARER

Dale E. Brown

DATE: 13 November 2012

DATE: 13 November 2012

DRAWN: DAVE C. JOHNSON

PREPARED: DALE E. BROWN

POWERTECH (USA) INC.

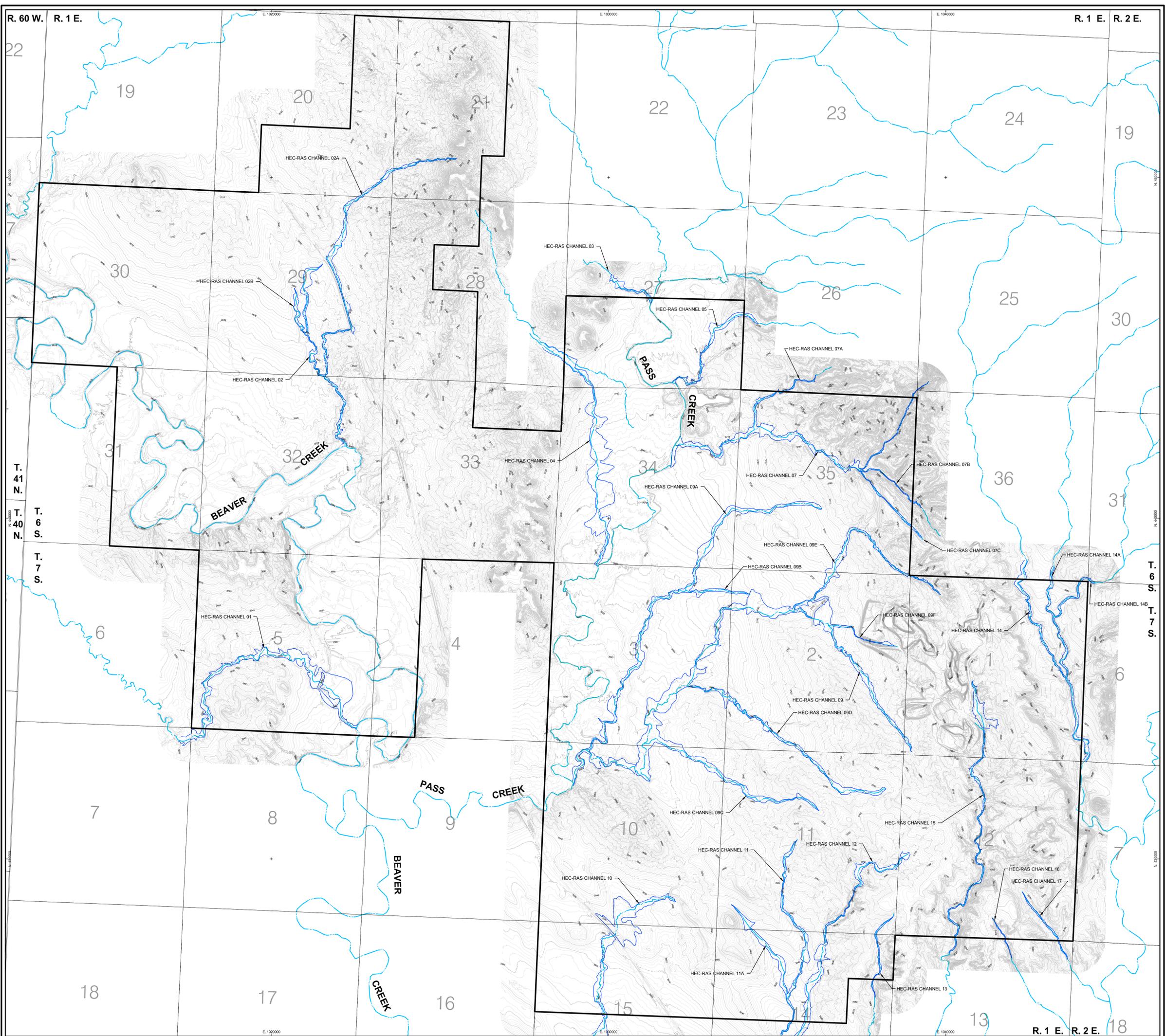
Exhibit 3.5-A-1

Drainage Basins

Dewey-Burdock Project

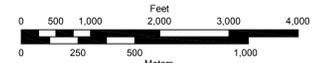
COORDS: NAD 27, South Dakota State Plane South (feet)

CAD FILE: K:\Powertech\11270\PERMIT\Appendix\REPORT\DWG\WATERSHED.dwg



LOCATION MAP

SCALE: 1" = 1000'
C.I. = 2"



- LEGEND**
- PERMIT BOUNDARY
 - 100-YEAR INUNDATION BOUNDARY



REVISIONS			
#	DRAWN	CHECKED	APPROVED DATE

SIGNATURE OF PREPARED: *Dale E. Brown*

CHECK SCALES:
If this bar does not measure 1 inch this map is not at its original scale.

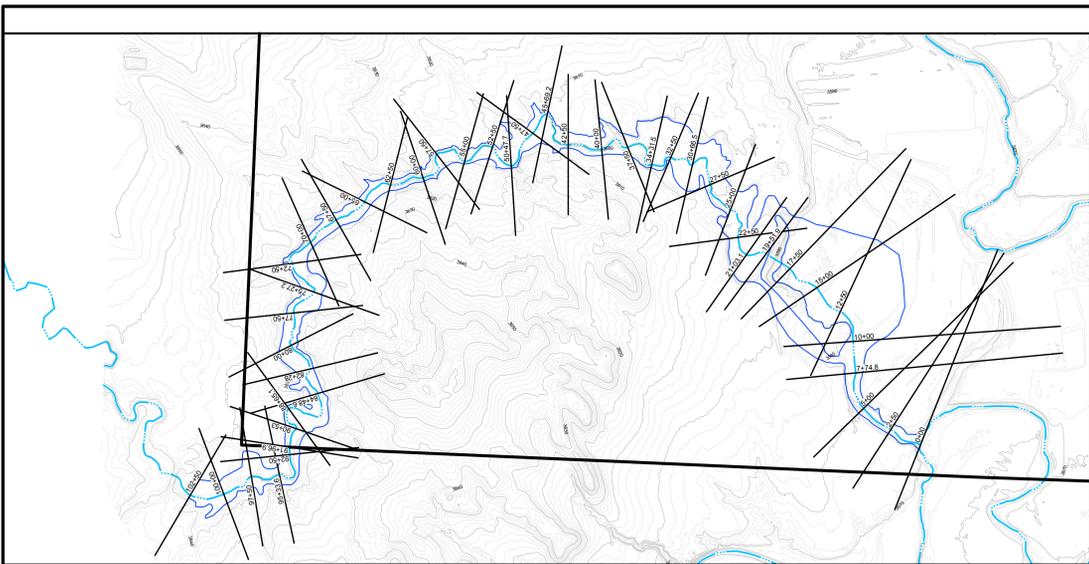
DATE: 13 November 2012
 DRAWN: DAVE C. JOHNSON
 PREPARED: DALE E. BROWN

DATE: 13 November 2012
 PDF FILE
 CAD FILE: K:\PowerTech\11270\PERMIT\Appendix\REPORT\OWSG\HEC_RAS.dwg

This exhibit is provided to fulfill the requirements of ARSD 74 29-02-11(3) and SDCL 45-6B-10(4).

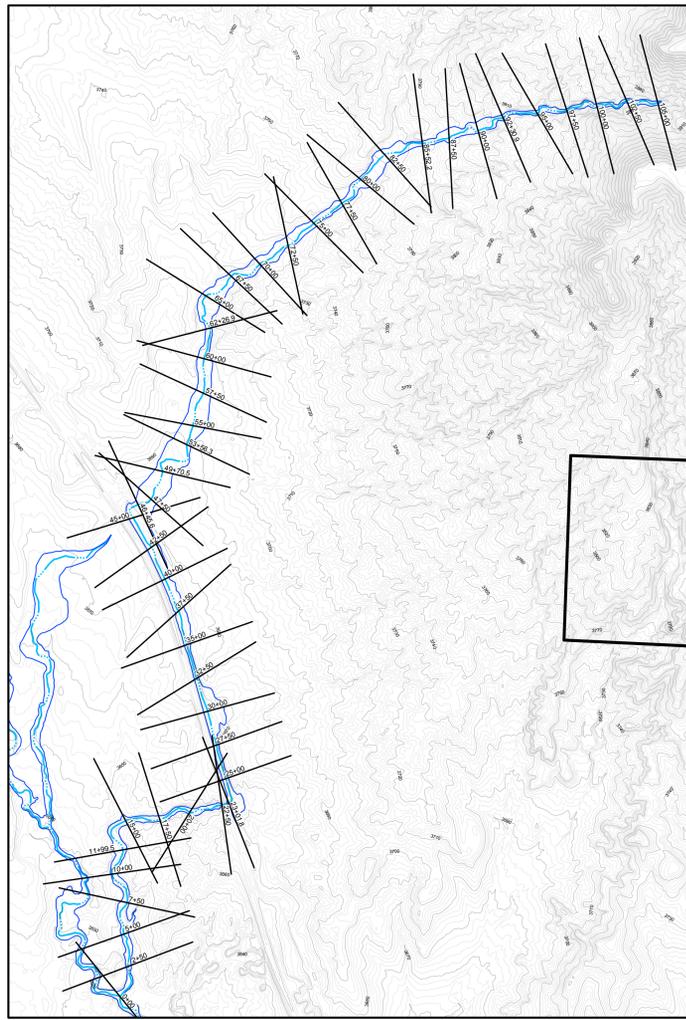
PowerTech (USA) Inc.
Exhibit 3.5-A-2
HEC-RAS Location and
100-year Inundation Map

Dewey-Burdock Project
©2012 NAD 27, South Dakota State Plane South (feet)



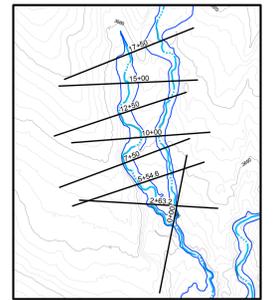
HEC-RAS CHANNEL 01

SCALE: 1" = 500'
C.I. = 2'



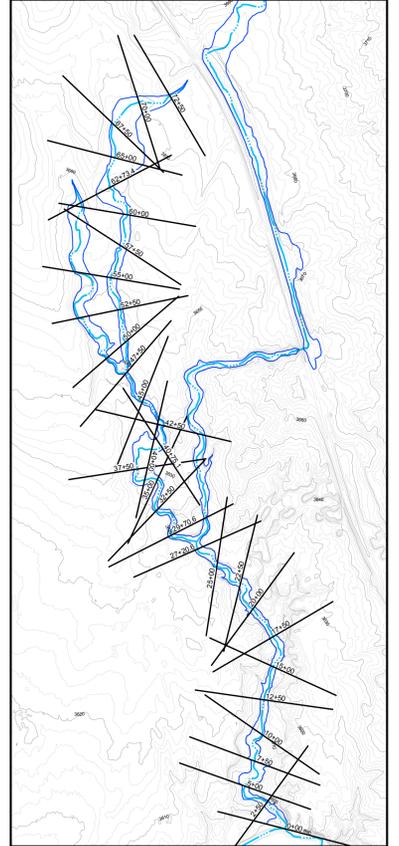
HEC-RAS CHANNEL 02A

SCALE: 1" = 500'
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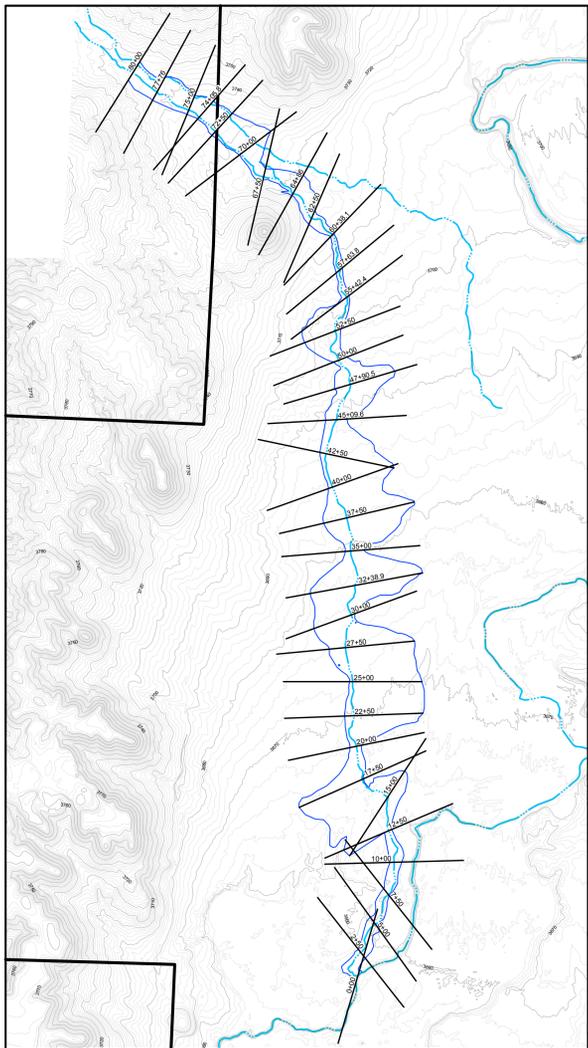
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SCALE: 1" = 500'
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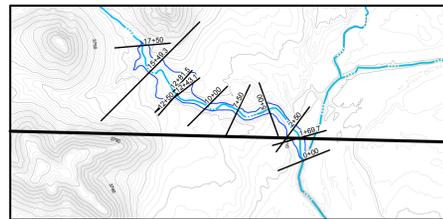
HEC-RAS CHANNEL 02

SCALE: 1" = 500'
C.I. = 2'



HEC-RAS CHANNEL 03

SCALE: 1" = 500'
C.I. = 2'



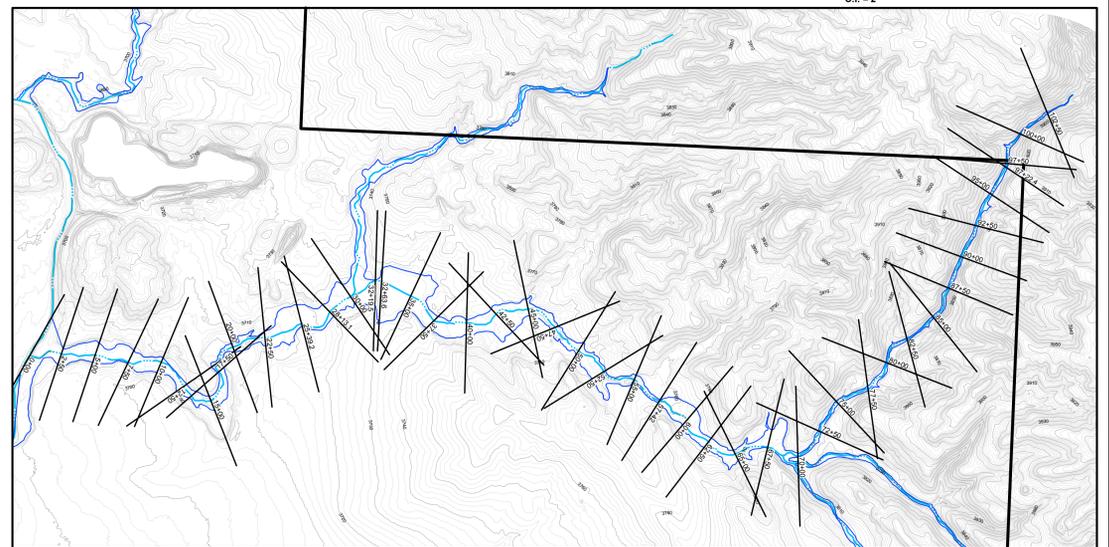
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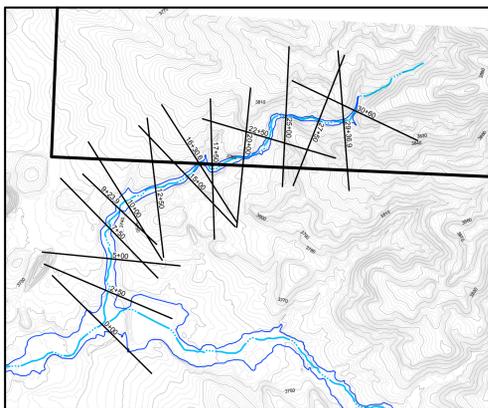
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C.I. = 2'



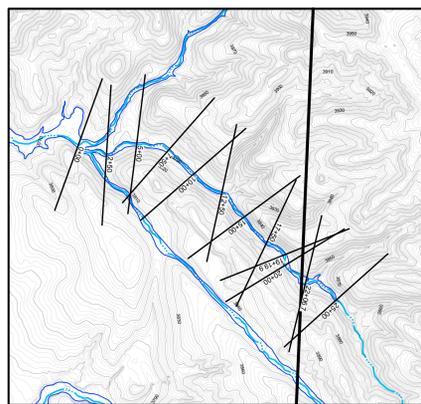
HEC-RAS CHANNEL 07

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C.I. = 2'



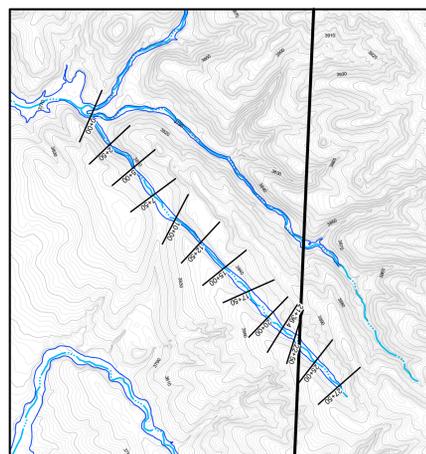
HEC-RAS CHANNEL 7A

SCALE: 1" = 500'
C.I. = 2'



HEC-RAS CHANNEL 07B

SCALE: 1" = 500'
C.I. = 2'



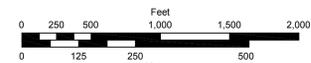
HEC-RAS CHANNEL 07C

SCALE: 1" = 500'
C.I. = 2'

LEGEND

- PERMIT BOUNDARY
- 100-YEAR FLOODLINE BOUNDARY

NOTE: THERE IS NO HEC-RAS ANALYSIS FOR CHANNEL 06 OR CHANNEL 08. THEY ARE CLOSED BASINS.



This exhibit is provided to fulfill the requirements of ARSD 74:29-02-11(3) and SDCI 45-6B-10(4).



REVISIONS

#	DRAWN	CHECKED	APPROVED	DATE

SIGNATURE OF PREPARER: *Dale E. Brown*

CHECK SCALES
If this bar does not measure 1 inch on the map to 1 inch on the original scale.

PLOT DATE: 13 November 2012
DRAWN: DAVE C. JOHNSON
PREPARER: DALE E. BROWN

DATE: 13 November 2012
PDF FILE
CAD FILE: K:\PowerTech\11270\PERMIT\Appendix\REPORT\QWS\HEC_RAS.dwg



PowerTech (USA) Inc.

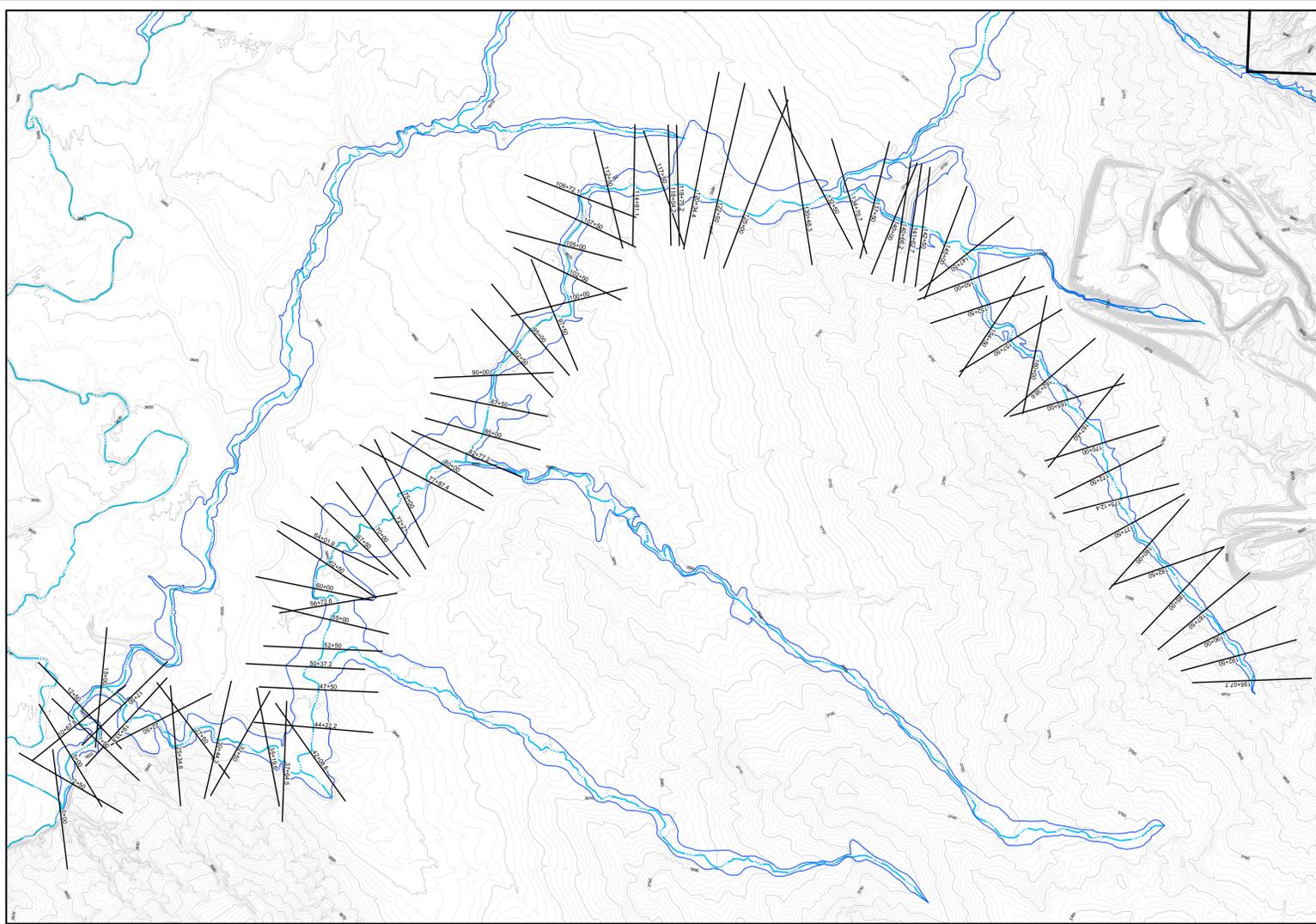
Exhibit 3.5-A-3

HEC-RAS Cross Sections

Dewey-Burdock Project

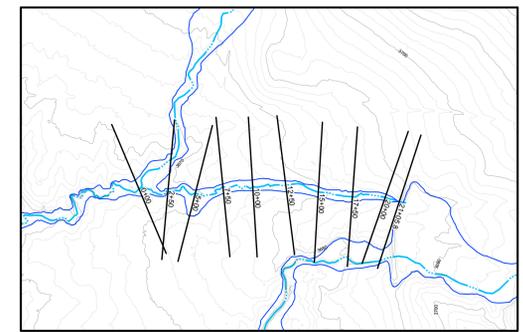
2009010 - NAD 27, South Dakota State Plane South (feet)





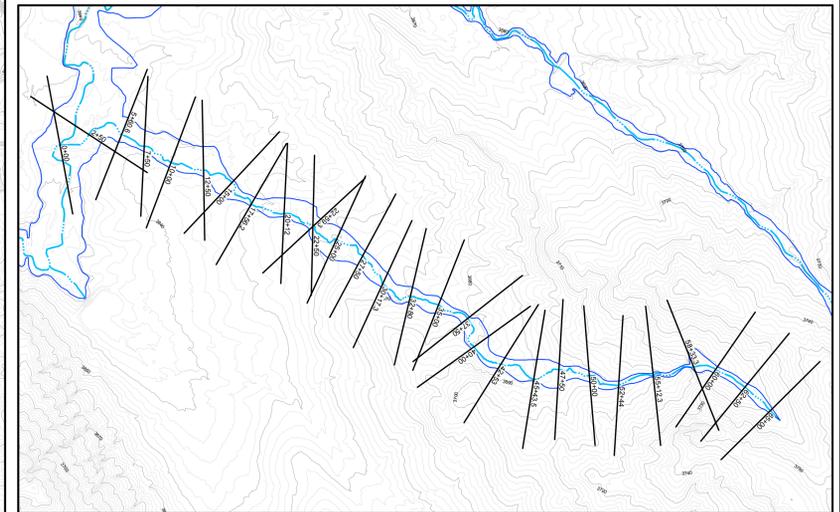
HEC-RAS CHANNEL 09

SCALE: 1" = 500'
C.I. = 2'



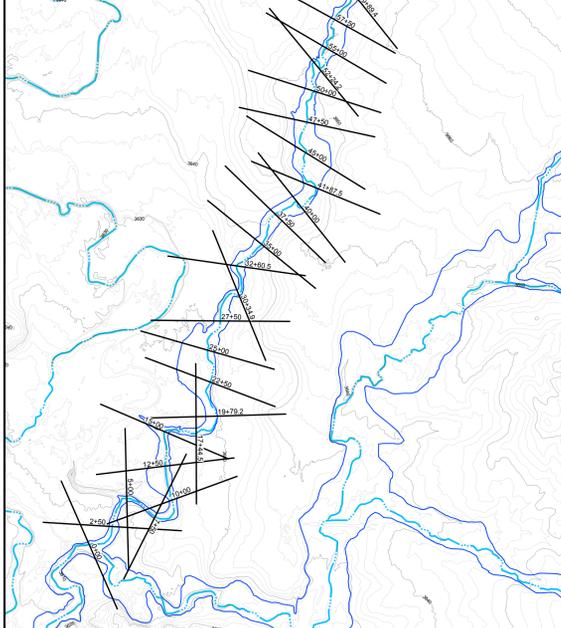
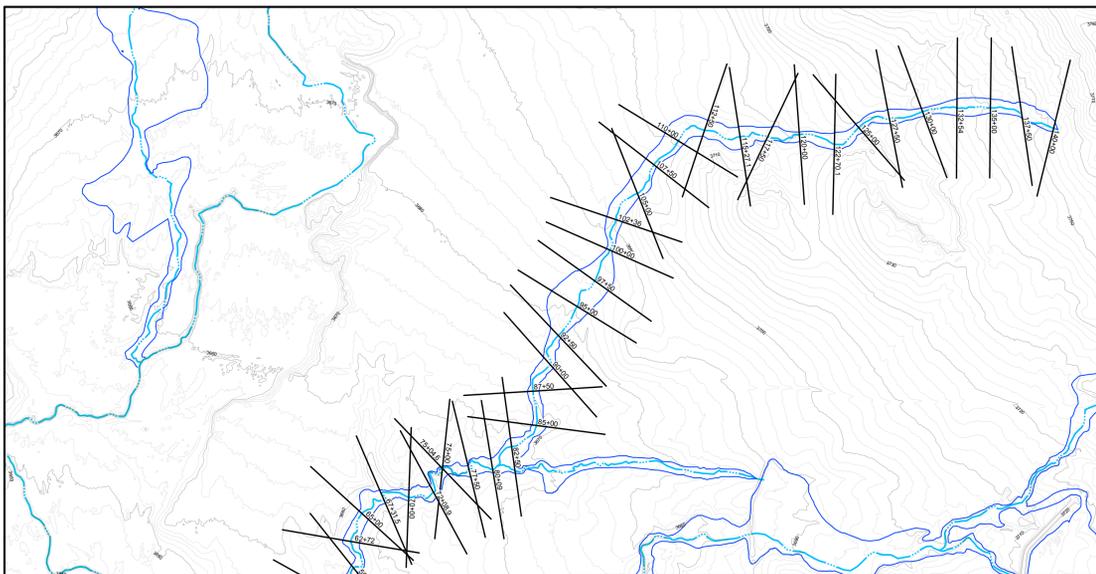
HEC-RAS CHANNEL 09B

SCALE: 1" = 500'
C.I. = 2'



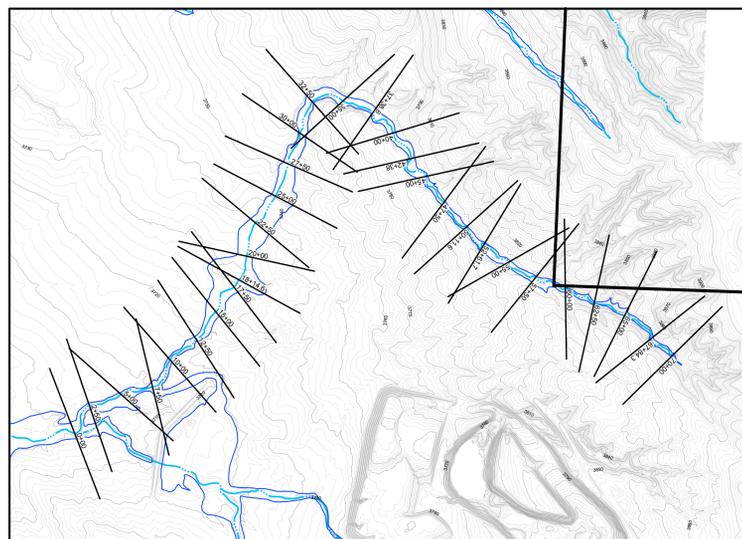
HEC-RAS CHANNEL 09C

SCALE: 1" = 500'
C.I. = 2'



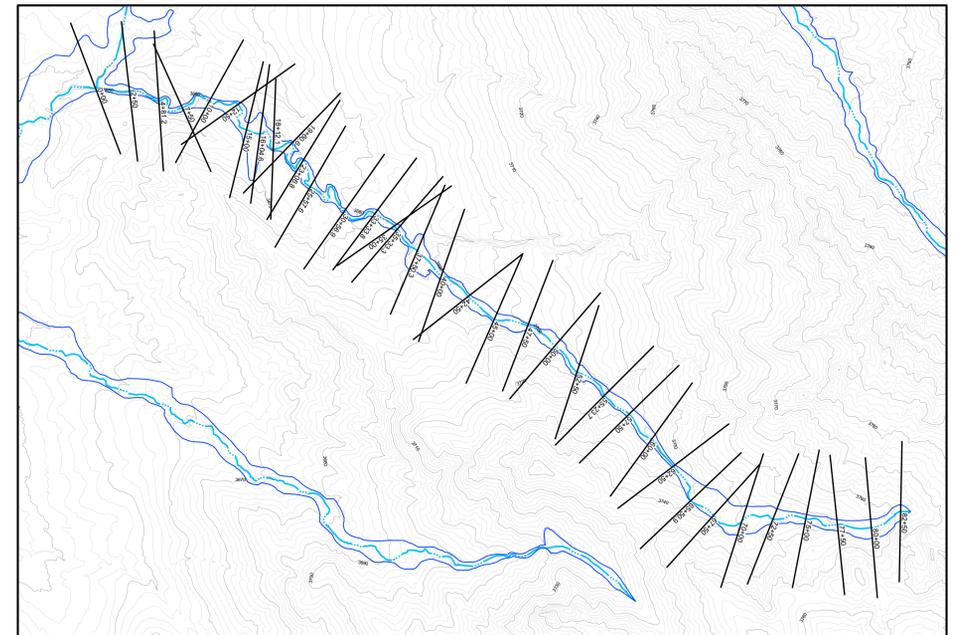
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SCALE: 1" = 500'
C.I. = 2'



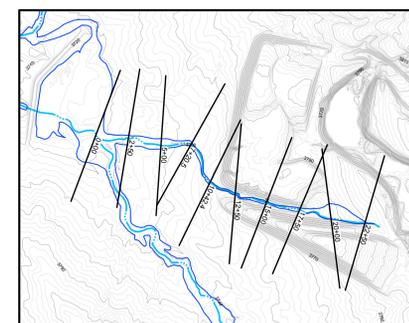
HEC-RAS CHANNEL 09E

SCALE: 1" = 500'
C.I. = 2'



HEC-RAS CHANNEL 09D

SCALE: 1" = 500'
C.I. = 2'

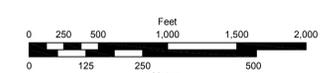


HEC-RAS CHANNEL 09F

SCALE: 1" = 500'
C.I. = 2'

LEGEND

- PERMIT BOUNDARY
- 100-YEAR INUNDATION BOUNDARY



This exhibit is provided to fulfill the requirements of ARSD 74 29.02(11)(3) and SDCI 45-6B-10(4).

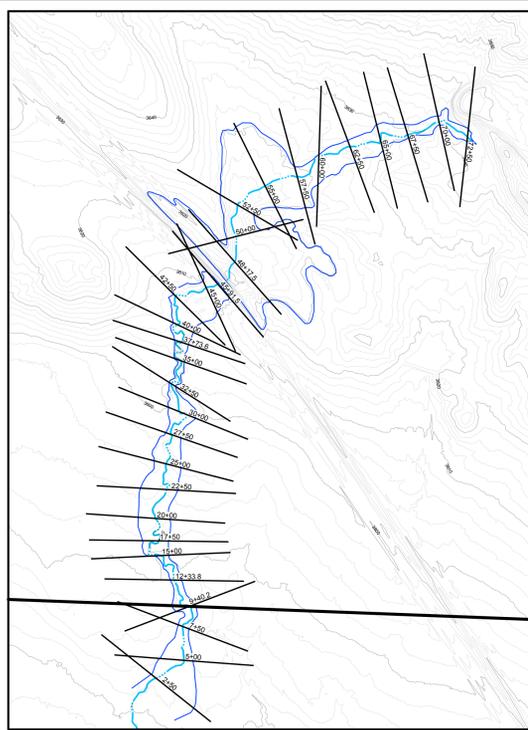
CONSULTANT

ENGINEERING

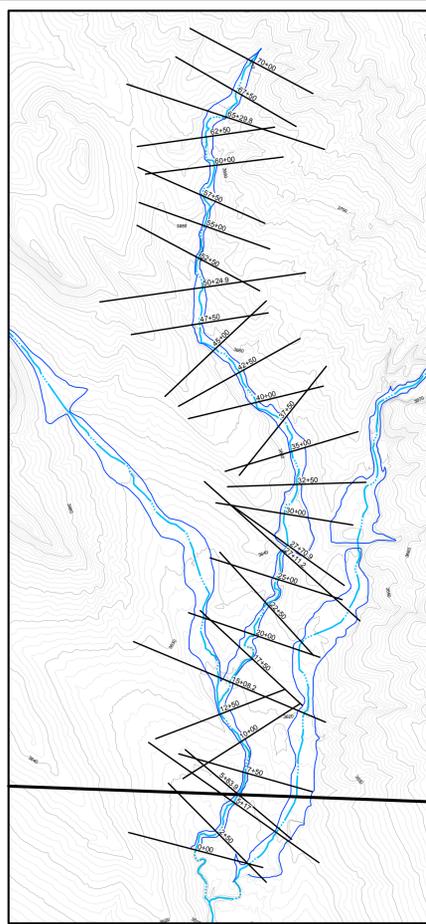
REVISIONS				
#	DRAWN	CHECKED	APPROVED	DATE

SIGNATURE OF PREPARER

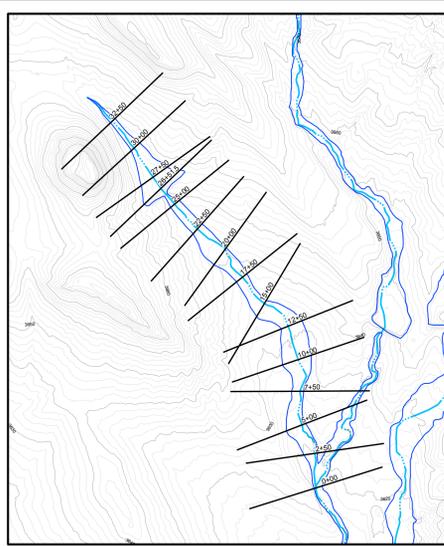
PowerTech (USA) Inc.
Exhibit 3.5-A-3 Sheet 2 of 3
HEC-RAS Cross Sections
 Dewey-Burdock Project
 PROJECT: N40-27, South Dakota State Fair, South (feet)
 PREPARED BY: DALE E. BROWN
 DATE: 13 November 2012
 DRAWN: DAVE C. JOHNSON
 CHECK SCALES: If this bar does not measure 1 inch on the map to that of its original scale.
 CAD FILE: K:\PowerTech\11270\PERMIT\Appendix\REPORT\QWGS\HEC_RAS.dwg



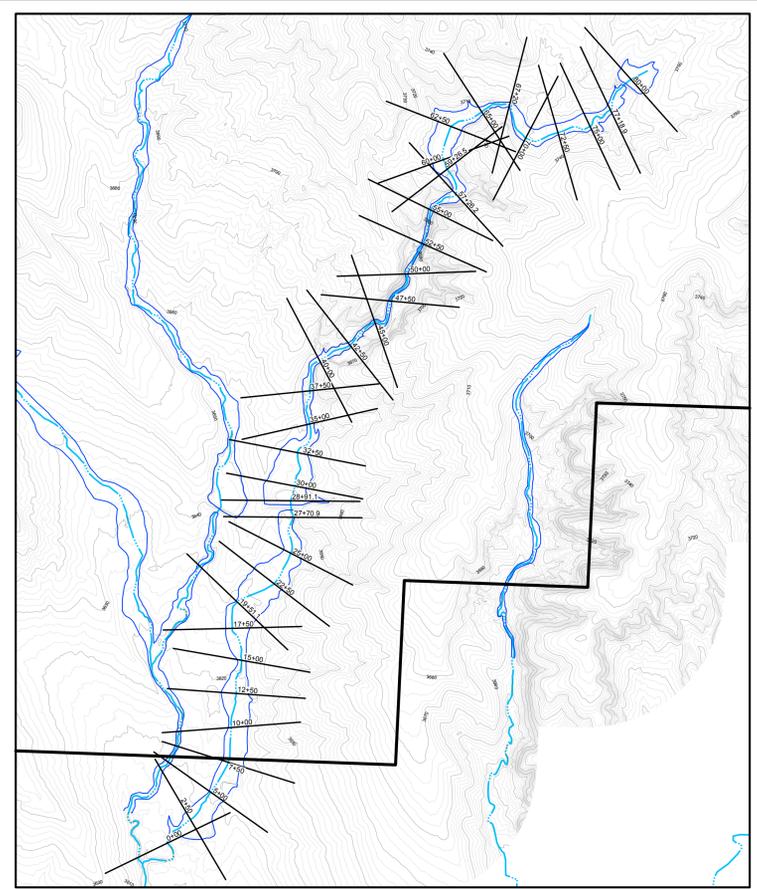
HEC-RAS CHANNEL 10
SCALE: 1" = 500'
C.I. = 2'



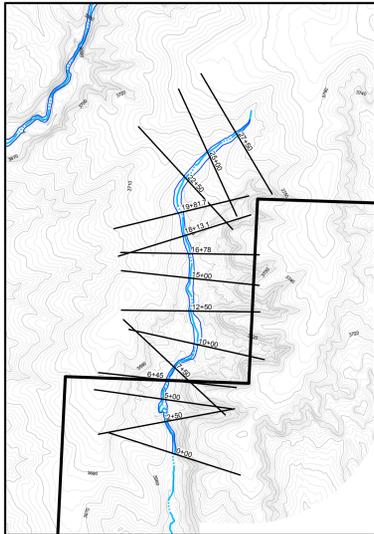
HEC-RAS CHANNEL 11
SCALE: 1" = 500'
C.I. = 2'



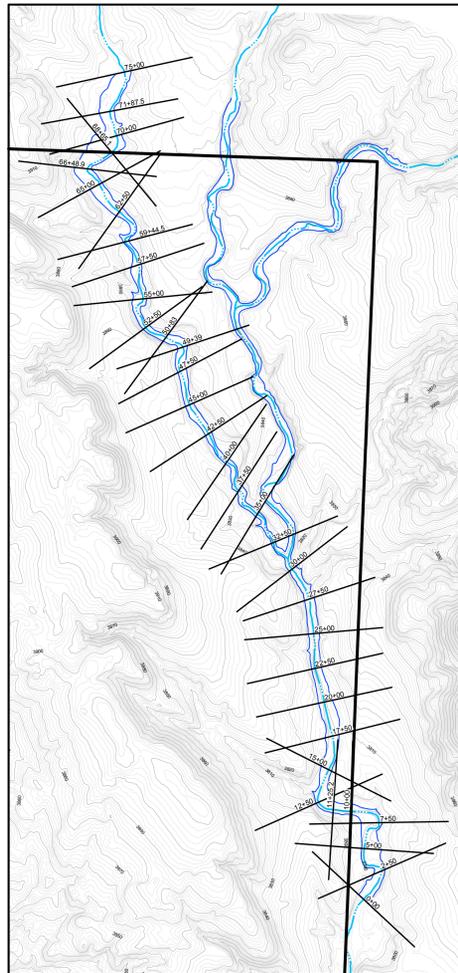
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SCALE: 1" = 500'
C.I. = 2'



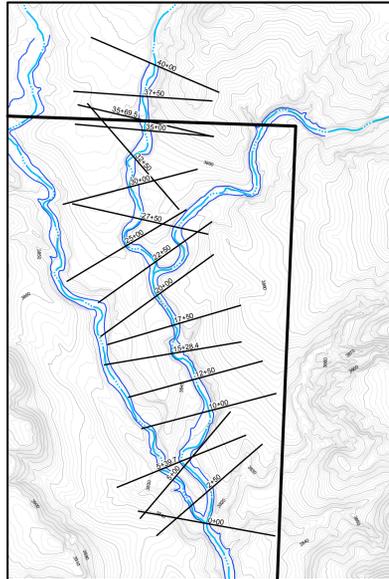
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SCALE: 1" = 500'
C.I. = 2'



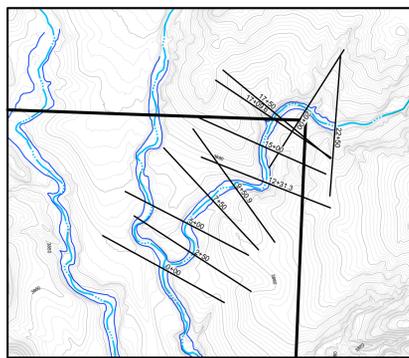
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SCALE: 1" = 500'
C.I. = 2'



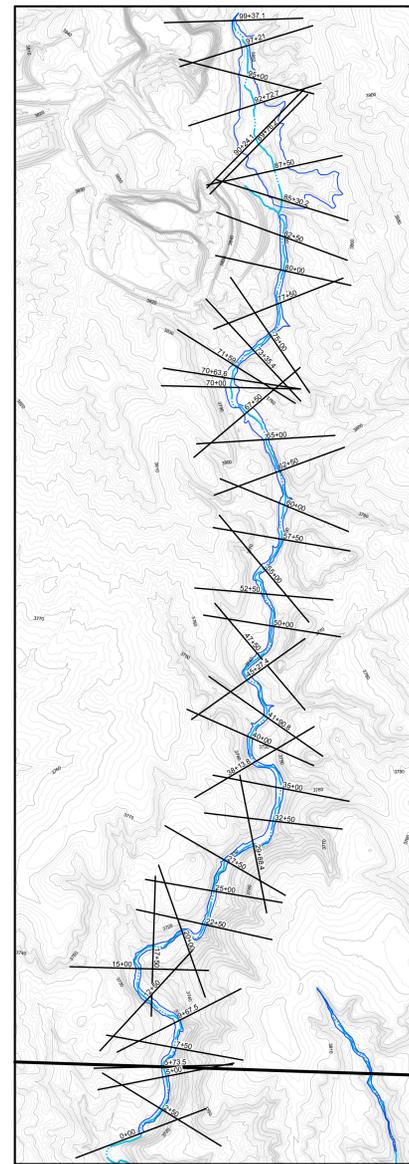
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SCALE: 1" = 500'
C.I. = 2'



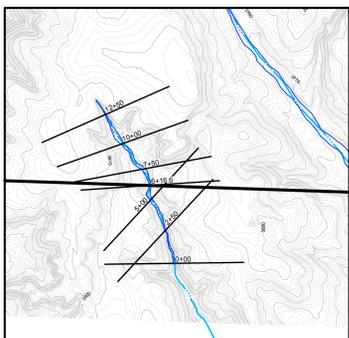
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SCALE: 1" = 500'
C.I. = 2'



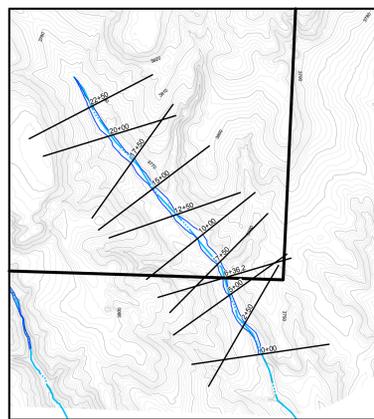
HEC-RAS CHANNEL 14B
SCALE: 1" = 500'
C.I. = 2'



HEC-RAS CHANNEL 15
SCALE: 1" = 500'
C.I. = 2'

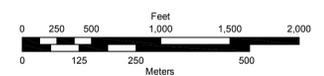


HEC-RAS CHANNEL 16
SCALE: 1" = 500'
C.I. = 2'



HEC-RAS CHANNEL 17
SCALE: 1" = 500'
C.I. = 2'

LEGEND
 PERMIT BOUNDARY
 100-YEAR INUNDATION BOUNDARY



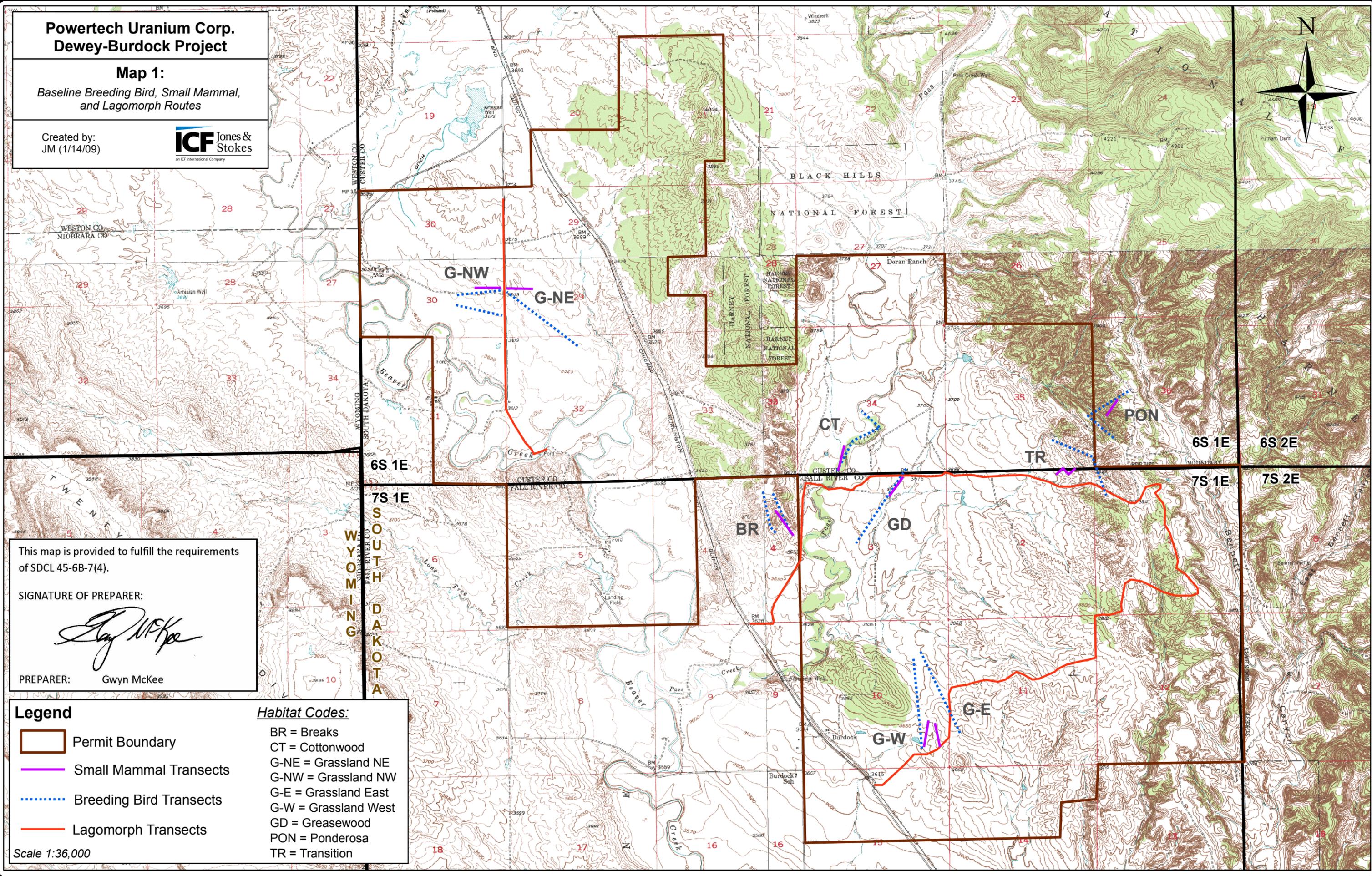
This exhibit is provided to fulfill the requirements of ARSD 74 29-02-11(3) and SDCI 45-6B-10(4).

	REVISIONS # DRAWN CHECKED APPROVED DATE				 Exhibit 3.5-A-3 Sheet 3 of 3
	SIGNATURE OF PREPARER 				
CHECK SCALES If this bar does not measure 1 inch the map is not at its original scale.	DRAWN: DAVE C. JOHNSON PREPARER: DALE E. BROWN	DATE: 13 November 2012 PDF FILE: K:\PowerTech\11270\PERMIT\Appendix\REPORT\QWS\HEC_RAS.dwg	Dewey-Burdock Project 100-Year Inundation Boundary NAD 27, South Dakota State Plane South (feet)		

**Powertech Uranium Corp.
Dewey-Burdock Project**

Map 1:
*Baseline Breeding Bird, Small Mammal,
and Lagomorph Routes*

Created by:
JM (1/14/09)



This map is provided to fulfill the requirements of SDCL 45-6B-7(4).

SIGNATURE OF PREPARER:

PREPARER: Gwyn McKee

Legend

- Permit Boundary
- Small Mammal Transects
- Breeding Bird Transects
- Lagomorph Transects

Habitat Codes:

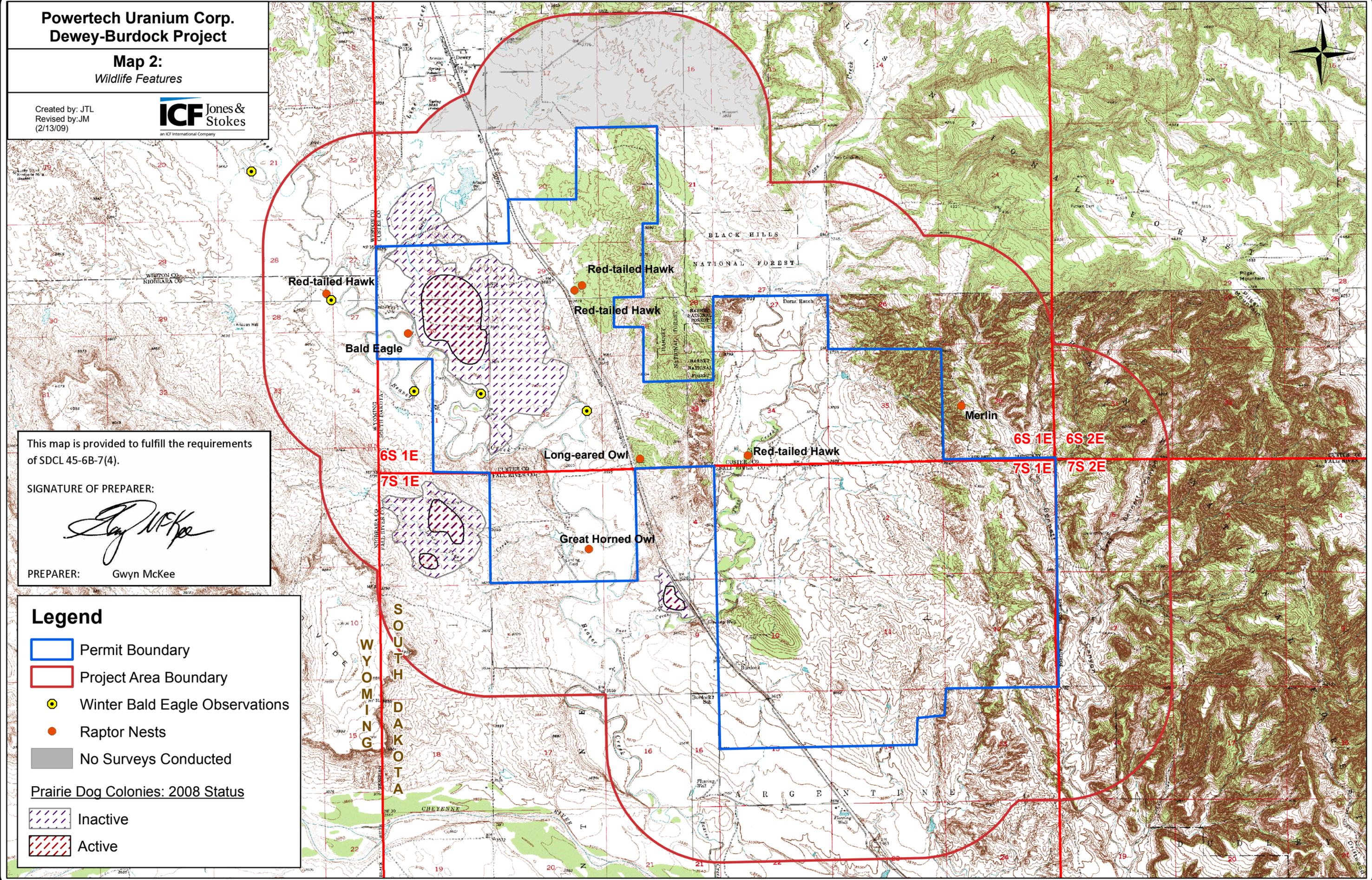
- BR = Breaks
- CT = Cottonwood
- G-NE = Grassland NE
- G-NW = Grassland NW
- G-E = Grassland East
- G-W = Grassland West
- GD = Greasewood
- PON = Ponderosa
- TR = Transition

Scale 1:36,000

**Powertech Uranium Corp.
Dewey-Burdock Project**

**Map 2:
Wildlife Features**

Created by: JTL
Revised by: JM
(2/13/09)



This map is provided to fulfill the requirements of SDCL 45-6B-7(4).

SIGNATURE OF PREPARER:

PREPARER: Gwyn McKee

Legend

- Permit Boundary
- Project Area Boundary
- Winter Bald Eagle Observations
- Raptor Nests
- No Surveys Conducted
- Prairie Dog Colonies: 2008 Status**
- Inactive
- Active

**Powertech Uranium Corp.
Dewey-Burdock Project**

**Map 3:
Baseline Aquatic Sampling Sites**

Created by:
JM (2/17/09)



BVC04



41N 61W

41N 60W

41N 60W

6S 1E

6S 1E

6S 2E

40N 61W

40N 60W

40N 60W

7S 1E

7S 1E

7S 2E

W
Y
O
M
I
N
G

S
O
U
T
H
D
A
K
O
T
A

BVC01



40N 61W

40N 60W

40N 60W

7S 1E

7S 1E

7S 2E

CHR05

39N 61W

39N 60W

39N 60W

8S 1E

8S 1E

8S 2E



This map is provided to fulfill the requirements of SDCL 45-6B-7(4).

SIGNATURE OF PREPARER:

PREPARER: Gwyn McKee

Legend

Permit Boundary

Aquatic Sampling Points

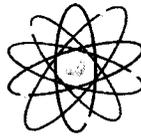
Scale 1:70,000

Note: Plate 315, Isopach of the Upper Confining Graneros Unit (Mowry and Skull Creek Shales) has been superseded by Plate 3.2-10, Isopach of the Graneros Group.

Note: Plate 335, Land Application Cross Sections - Burdock, has been superseded by Plates 3.2-25 through 3.2-27, Land Application Cross Sections M-M' through O-O'.

Note: Plate 337, Facilities Cross Section Index, has been superseded by Plates 3.2-23 through 3.2-27, Land Application Cross Sections K-K' through O-O'.

Note: Plate 338, Land Application Cross Sections - Dewey, has been superseded by Plates 3.2-23 through 3.2-24, Land Application Cross Sections K-K' through L-L'.



POWERTECH (USA) INC.

INSTRUMENT OF CONSULTATION (Page 1 of 2)

Part 1. LANDOWNER NAME, ADDRESS AND PROPERTY DESCRIPTION

Surface Owner:	BNSF Railway
Mailing Address:	
Legal Description of Property within Permit Boundary:	BNSF Railway right of way from the southeastern part of the Dewey-Burdock project to the northwestern part of the project.

Part 2. POST-MINING LAND USE

Proposed Post-Mining Land Use:	Rangeland and in accordance with an approved Environmental Access Agreement and/or Pipeline or Wire Line Crossing and/or Longitudinal Agreement
As the owner(s) of the property described, I/we have conferred with Powertech (USA) Inc. regarding the proposed post-mining land use and have determined that it is acceptable to me/us (ARSD 74:29:06:01).	
Signature(s):	<input checked="" type="checkbox"/> <i>Charles E. Olson RoadMaster BNSF</i>
Date:	

Part 3. RECLAMATION SEED MIXTURE

Proposed Seed Mix developed by the Natural Resource Conservation Service (NRCS) in Hot Springs, South Dakota March 7, 2012:	Species	Pounds (pure live seed per acre)*
	Western Wheatgrass	1.94
	Sideoats Grama	1.45
	Slender Wheatgrass	1.41
	Green Needlegrass	1.45
	Little Bluestem	0.91
	Total	7.16
*Seed mix is for "drill" seeding application. If mix is broadcasted, the seeding rate will be increased by 2.5 times.		
As the owner(s) of the property described, I/we have reviewed the proposed reclamation seed mix and find that it is acceptable to me/us (SDCL 45-6B-39).		
Signature(s):	<input checked="" type="checkbox"/> <i>Charles E. Olson RoadMaster BNSF</i>	

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NOXIOUS WEED CONTROL PLAN

Powertech (USA) will maintain an active weed control program based on a yearly inspection of the property to identify the locations of weed growth and on the treatment of weed infestations, with an emphasis on noxious weeds. An effective weed control program utilizes a number of management practices. The following plan outlines the various weed management techniques that could be implemented at the Dewey-Burdock Project. Consultation letters indicating that the plan has been reviewed and approved by the Custer and Fall River County Weed and Pest Boards are included with this appendix.

Noxious weeds will be controlled throughout the life of the Dewey-Burdock Project to reduce the seed source available to invade reclaimed areas. A list of the South Dakota state noxious weeds and the Custer and Fall River counties locally noxious weeds is provided in Table 1. It is anticipated that herbicides will be the primary method utilized to control weeds, but all weed control methods listed below will be considered.

Herbicides are important tools for controlling noxious weeds. Selective herbicides kill a specific type of plant and they perform best if conditions are favorable for plant growth (South Dakota State University, 2010). Since some of these herbicide treatments, especially those targeting broadleaf weeds, also remove all or many of the desirable forbs or legumes, Powertech (USA) will selectively use herbicides, thereby reducing the potential impacts to beneficial plant species. Combined with proper grazing management and other control tactics, proper use of herbicides can encourage the recovery of reseeded areas that have become infested with weeds. Powertech (USA) will use herbicides that are labeled for the target weed and registered for use on pasture and range and will follow recommended application rates to ensure control of undesirable forage while limiting potential desirable vegetative species impacts.

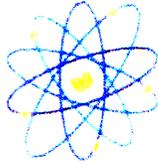
Prescribed grazing is the application of livestock grazing at a specified season, duration, and intensity to accomplish specific vegetation management goals. By itself, grazing will rarely, if ever, completely eradicate invasive plants. However, when grazing treatments are combined with other control techniques, such as herbicides or biological control, severe infestations can be reduced and small infestations may be eliminated (Frost and Launchbaugh, 2003). A successful grazing prescription should cause significant damage to the target plant, limit irreparable damage to the surrounding vegetation, be consistent with livestock production goals, and be integrated with other control methods as part of an overall weed management strategy. Prescribed grazing for weed control requires grazing when the weed is most palatable to livestock and most susceptible to defoliation (Frost and Launchbaugh, 2003).



Deferred grazing gives the grasses the opportunity to build up root reserves, develop more topgrowth and produce more herbage (South Dakota State University, 2010). In some pastures, desirable native species no longer abundant will become re-established during the rest period. Deferred grazing can be used in conjunction with other improvement practices to speed recovery.

Mowing, chopping, or clipping temporarily removes weed topgrowth (South Dakota State University, 2010). This system stops seed production but has different effects on the weeds. Annual forbs can be controlled by cutting below the lowest leaf early in the growing season. Undesirable annual grasses should be mowed after the seed stalk has elongated but prior to seed formation. Mowing perennial weeds one time usually reduces seed production; repeated mowing reduces vigor and slows spread. Clipping perennials like Canada thistle or leafy spurge in the spring works well as a set up for fall herbicides when moisture encourages new growth. Digging or chopping works well for scattered biennial thistle. Musk thistle rosettes can be stopped when the root is cut several inches below ground level. This technique requires more labor and is limited to small patches or scattered plants (South Dakota State University, 2010).

Biological control is another weed control tool, especially for noxious weeds. Biological control utilizes natural enemies as a means of weakening or killing the host plant. Insects have been the most common approach to biological control in South Dakota (South Dakota State University, 2010). Noxious weeds that have approved biological control agents (insects) in the state include leafy spurge, musk thistle, Canada thistle, toadflax, St. Johnswort, and biennial knapweeds. South Dakota currently has a collection and release program for leafy spurge flea beetles (*Aphthona* species), coordinated by the South Dakota Department of Agriculture (South Dakota State University, 2010). Powertech (USA) will consult with the Custer and Fall River County Weed and Pest Boards if the use of flea beetles on leafy spurge is considered.



POWERTECH (USA) INC.

Part 1. WEED AND PEST CONTROL BOARD NAME AND ADDRESS

Name:	Fall River County Weed and Pest Board
Address:	1029 N River St, Hot springs, SD 57747

Part 2. CONFIRMATION OF CONCURRENCE WITH THE NOXIOUS WEED CONTROL PLAN

As the representative of the Fall River County Weed and Pest Board, I confirm the Board's concurrence with Powertech (USA), Inc.'s Dewey-Burdock Project noxious weed control plan.

Name:	<i>Nina Steinmetz</i>
Title:	<i>Fall River Co. Weed & Pest Supervisor</i>
Signature:	<input checked="" type="checkbox"/> <i>Nina Steinmetz</i>
Date:	<i>8/7/12</i>



POWERTECH (USA) INC.

Part 1. WEED AND PEST CONTROL DEPARTMENT

Name:	Custer County
Mailing Address:	420 Mt. Rushmore Road, Custer, SD 57730

Part 2. CONFIRMATION OF CONCURRENCE WITH THE NOXIOUS WEED CONTROL PLAN

As the representative of the Custer County Weed and Pest Department, I confirm the Department's concurrence with Powertech (USA) Inc.'s Dewey-Burdock Project noxious weed control plan.

Name:	Mike Carter
Title:	Custer County Director of Emergency Service and Interim Director of Weed and Pest Department
Signature:	X 
Date:	11-02-12

APPENDIX 6.4-D

**Reclamation Performance
Criteria**

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DEWEY-BURDOCK PROJECT RECLAMATION PERFORMANCE CRITERIA

1.0 INTRODUCTION

The primary goal of the reclamation program is to rehabilitate the affected land to a condition that meets the selected postmining land uses (ARSD 74:29:07:01). The designated postmining land uses include rangeland (ARSD 74:29:07:20) and agricultural or horticultural crops (ARSD 74:29:07:21). This appendix presents the reclamation performance criteria to establish the success of revegetation for each of these postmining land uses. For agricultural and horticultural cropland, the final bond release criteria will be a demonstration that the productive capacity is equal to or exceeds that of similar crop production areas in the surrounding region for two consecutive crop years. For rangeland, four criteria will be used to establish successful revegetation: vegetative ground cover, usable forage production, species composition and reclamation sustainability. Each of these is briefly described in the following subsections. Section 2 describes the specific methodology to measure reclamation performance for rangeland, Section 3 describes the comparison process, and Section 4 provides references.

1.1 Vegetative Cover

To meet final bond release criteria for rangeland, the total vegetative cover (not including noxious weed) in a revegetated unit must equal or exceed the total vegetative cover on reference areas.

1.2 Usable Forage Production

To meet final bond release criteria, the reclaimed rangeland must support a livestock carrying capacity equivalent to reference areas (ARSD 74:29:07:20). The carrying capacity will be determined by measuring the usable forage production (biomass of usable forage) of the land. Usable forage is defined as the average palatability of individual plant taxa (for consumption by cattle) based on the U.S. Forest Service publication, "Check List, Palatability Table and Standard Symbol List of Colorado and Wyoming Range Plants (USFS, 1937). As indicated in the publication, the list is appropriate for plants of the Black Hills of South Dakota.

1.3 Species Composition

According to ARSD 74:29:07:06, postmine vegetative species and composition must be appropriate for the designated postmining land use. Species composition of the reclamation will be measured to document that species present are appropriate for the rangeland postmining land use.



1.4 Sustainability of the Reclamation

As stated in ARSD 74:29:07:20, rangeland reclamation will be complete when the reclaimed range is capable of withstanding proper stocking rates for 2 consecutive years prior to bond release.

2.0 SAMPLING METHODOLOGY

2.1 Vegetative Cover

The initial step in determining the success of the rangeland revegetation is to determine vegetative cover and production using line transect/point-intercept transects. Due to the two distinct configurations of reclamation (large area parcels associated with well fields and facilities) and linear parcels associated with corridor disturbance, transect locations will be determined based on the configuration of the reclamation unit. Linear reclamation units will be no wider than an average of 50 feet over the length of the unit.

Large Area Parcels: For each 10 acres of revegetated rangeland, one randomly located line transect/point-intercept transect will be used to collect percent absolute vegetative cover data. For parcels of revegetated rangeland smaller than 10 acres, one transect will be used. Transects will be located randomly in the field within each 10-acre unit using a computerized systematic grid (through AutoCAD or ArcGIS). These computer-generated random numbers will be uploaded to a hand-held GPS unit for actual location in the field. Random numbers between 1 and 360 will be generated to determine cover transect direction, and compasses will be used to orient transects to the nearest 1/8 of 360° in the field. Each 50-meter transect will represent a single sample point. Transects that exceeded the boundaries of the vegetation community being sampled will be redirected back into its vegetation community at a 90° angle from the original transect direction at the point of intercept. In instances where a 90° angle of reflection does not place the transect within the sampled community, a 45° angle of reflection will be used. Percent cover measurements will be taken from point-intercepts at 1-meter intervals along the 50-meter transect. Transect locations will be submitted to DENR for review and verification prior to sampling.

Linear Parcels: One 50-meter transect will be located for each 1,640 feet (500 meters) of linear rangeland reclamation unit. The initial transect of a linear unit will be randomly located in the field within the first 50 feet of the unit using a computerized systematic grid (through AutoCAD or ArcGIS). These computer-generated random numbers will be uploaded to a hand-held GPS unit for actual location in the field. Subsequent transects will start 1,640 feet from the end of the preceding transect until a transect no longer fits entirely within the linear unit. Percent cover



measurements will be taken from point-intercepts at 1-meter intervals along the 50-meter transect. Transect locations will be submitted to DENR for review and verification prior to sampling.

General: Percent cover measurements will record “first-hit” point-intercepts by live foliar vegetation species, litter, rock, or bare ground. Hits on lichen, moss, or fungi will be counted toward total ground cover only. Multiple hits on vegetation will be recorded, but used only for the purpose of constructing a plant species list for each plant community.

Reference Areas: Reference areas will be used that are representative of the rangeland postmining land use. Reference areas will be established in the upland grassland community, since the rangeland seed mixture is an upland grass mixture. At least four reference areas will be established for each of the Dewey and Burdock portions of the permit area. Reference areas are depicted on Plate 6.4-2. All reference areas are outside of the affected area boundary and therefore are not anticipated to be affected by future mining. 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 (USA) 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.

2.2 Usable Forage Production

Large Area Parcels: At each reclamation unit sample site, current annual production for forage will be collected from a 0.5 m² quadrat placed 90° to the right (clockwise) of the ground cover transect to allow avoidance of vegetation trampled by investigators during sample site location. All aboveground current annual growth of forage within the vertical boundaries of the frame will be clipped and bagged separately by species for each quadrat. Listed noxious weeds will not be included.



Methods used to evaluate forage production at the reference area sample sites will be similar to those described above for the reclamation sample sites.

Linear Parcels: At each reclamation unit sample site, current annual production for forage will be collected from two 0.5 m² quadrats: one at the beginning of the transect and one at the end of the transect. The quadrats will be placed 90° to the right (clockwise) of the ground cover transect to allow avoidance of vegetation trampled by investigators during sample site location. All aboveground current annual growth of forage within the vertical boundaries of the frame will be clipped and bagged separately by species for each quadrat. Listed noxious weeds will not be included.

Methods used to evaluate forage production at the reference area sample sites will be similar to those described above for the reclamation sample sites.

General: All forage production samples will be returned to the laboratory for oven drying and weighing (to the nearest 0.1 gram). Drying will occur at 105°C until a stable weight is achieved (usually after 24 hours). Samples then will be reweighed to determine the biomass of the forage. Usable forage will be calculated by multiplying the biomass of forage (by species) by the percent palatability (usability) for the species, as determined from USFS (1937).

2.3 Species Composition

The total number of plant species encountered during revegetation success monitoring will be summarized for all combined revegetated areas. The results will be expressed as a summary of species by lifeform (annual grass, cool season grass, warm season grass, annual forb, perennial forb, and perennial shrub). Plant names from *Rocky Mountain Vascular Plants of Wyoming*, 3rd Edition (Dorn, 2001) will be utilized. The overall appropriateness for the rangeland species composition of the reclamation will be evaluated by noting the palatability of species present (percent palatability), as determined from USFS (1937).

2.4 Sustainability of the Reclamation

Sustainability of the reclamation will be determined by visual inspections of reclaimed units by DENR personnel, following two years of grazing under proper stocking rates.

3.0 COMPARISON PROCESS

The comparison process for cover will begin by calculating the average ground cover values (excluding listed noxious weeds) for the revegetation unit. Revegetation will meet the criterion



for cover if the vegetative cover for the revegetation unit is within one standard deviation of the average vegetative cover in the associated reference areas (i.e., reference areas in the Dewey portion of the permit area for revegetation units in the Dewey portion of the permit area and reference areas in the Burdock portion of the permit area for revegetation units in the Burdock portion of the permit area).

Regarding usable forage production (biomass), the current annual production of the forage for each revegetation unit, converted to the amount of usable forage, will be compared with the usable forage production in the associated reference areas. Revegetation will meet the criterion for production if the sample amount of usable forage is within one standard deviation of the average usable forage production in the associated reference areas.

The overall appropriateness for the postmining species composition of the reclamation will be evaluated by noting the palatability of species present, as determined from USFS (1937). A majority of the species present must have a percent palatability greater than or equal to 50 percent to meet the criterion for adequate species composition.

The requirement for sustainability of the reclamation will be satisfied if DENR personnel determine that the reclaimed units have withstood two years of grazing under proper stocking rates, based on visual inspections of the units. Powertech (USA) will have the opportunity to request independent verification of DENR's findings on the sustainability of the reclamation.

4.0 REFERENCES

Dorn, R.D., 2001, *Vascular Plants of Wyoming*, 3rd Edition, Mountain West Publishing, Cheyenne, Wyoming, 289 p.

USFS (U.S. Department of Agriculture, U.S. Forest Service), 1937, Check List, Palatability Table, and Standard Symbol List of Colorado and Wyoming Range Plants.

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