

**POWERTECH (USA) INC.**

**Dewey-Burdock Project  
Application for NRC  
Uranium Recovery License  
Fall River and Custer Counties,  
South Dakota  
Technical Report**

**Plates  
Volume I  
Plates 1.5-1 – 2.6-8**

**December 2013**

*Prepared for*  
**U.S. Nuclear Regulatory Commission  
11545 Rockville Pike  
Rockville, MD 20852**

*Prepared by*  
**Powertech (USA) Inc.  
5575 DTC Parkway, Suite #140  
Greenwood Village, CO 80111  
Phone: 303-790-7528  
Facsimile: 303-790-3885**





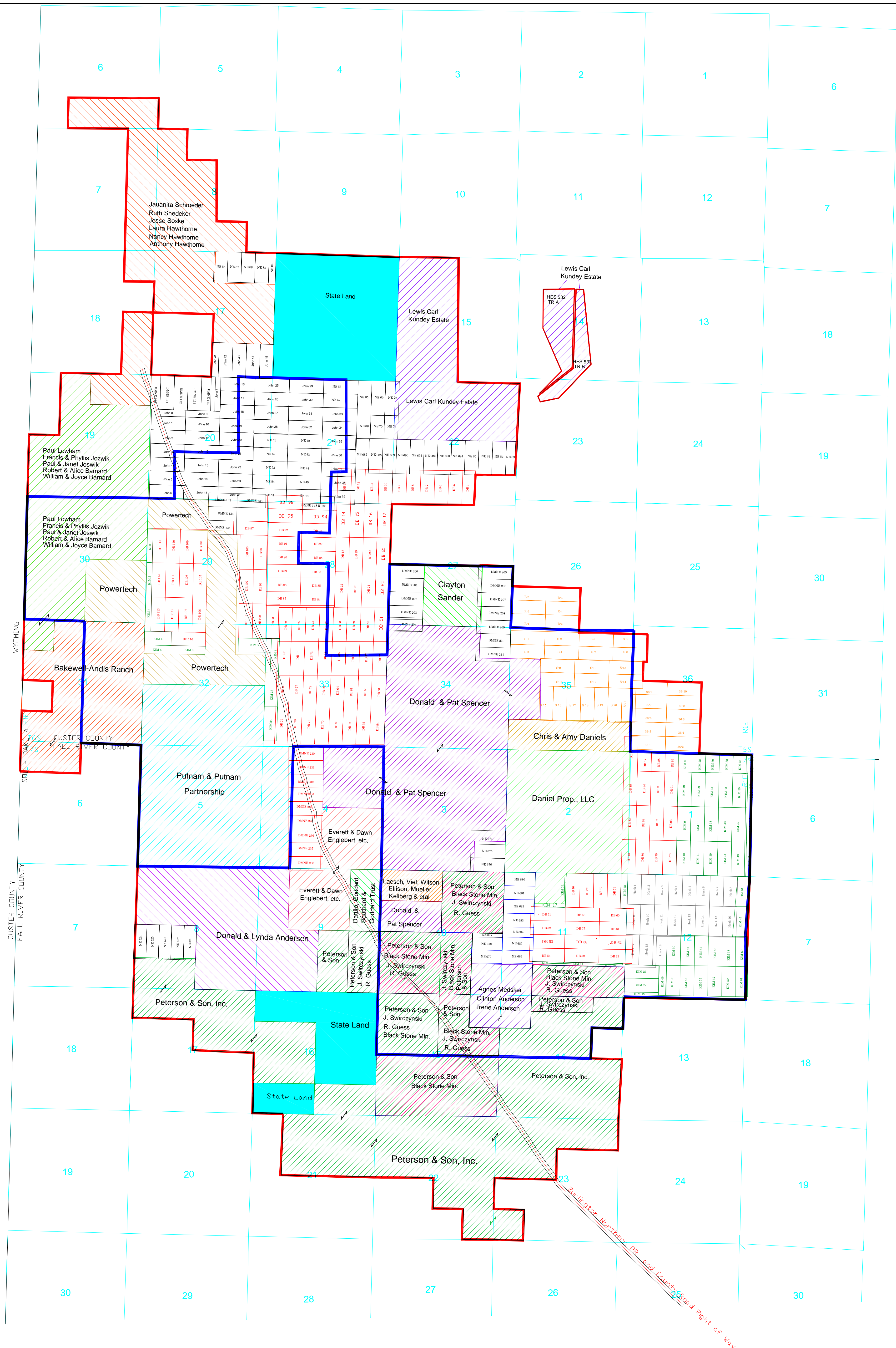
**Dewey-Burdock Project  
Application for NRC  
Uranium Recovery License  
Fall River and Custer Counties  
South Dakota  
Technical Report**

**LIST OF PLATES - VOLUME I**

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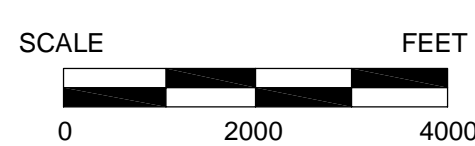
- 1.5-1 Mineral Ownership
- 1.5-2 Surface Use Agreements
- 2.5-1 Environmental Sampling Locations
- 2.6-1 Structure Map, Top of the Unkpapa
- 2.6-2 Structure on Top of Morrison
- 2.6-2a Structure to the Top of Morrison, Burdock Area
- 2.6-3 Structure Map - Top of the Chilson Member of the Lakota Formation
- 2.6-3a Structure Map - Top of the Chilson Member of the Lakota Formation, Dewey Well Field 1
- 2.6-3b Structure Map - Top of the Chilson Member of the Lakota Formation, Burdock Well Field 1
- 2.6-4 Structure Map - Top of the Fuson Shale
- 2.6-4a Top of Fuson, Structure Contour Map, Dewey Well Field 1
- 2.6-5 Structure Map - Top of the Fall River Formation
- 2.6-6 Isopach Map of the Morrison Formation
- 2.6-7 Isopach of the Chilson Member of the Lakota Formation
- 2.6-7a Isopach of the Chilson Member of the Lakota Formation, Burdock Well Field 1
- 2.6-8 Isopach of the Fuson Shale





LEGEND

- Powertech Mineral Holdings
- Proposed Permit Boundary

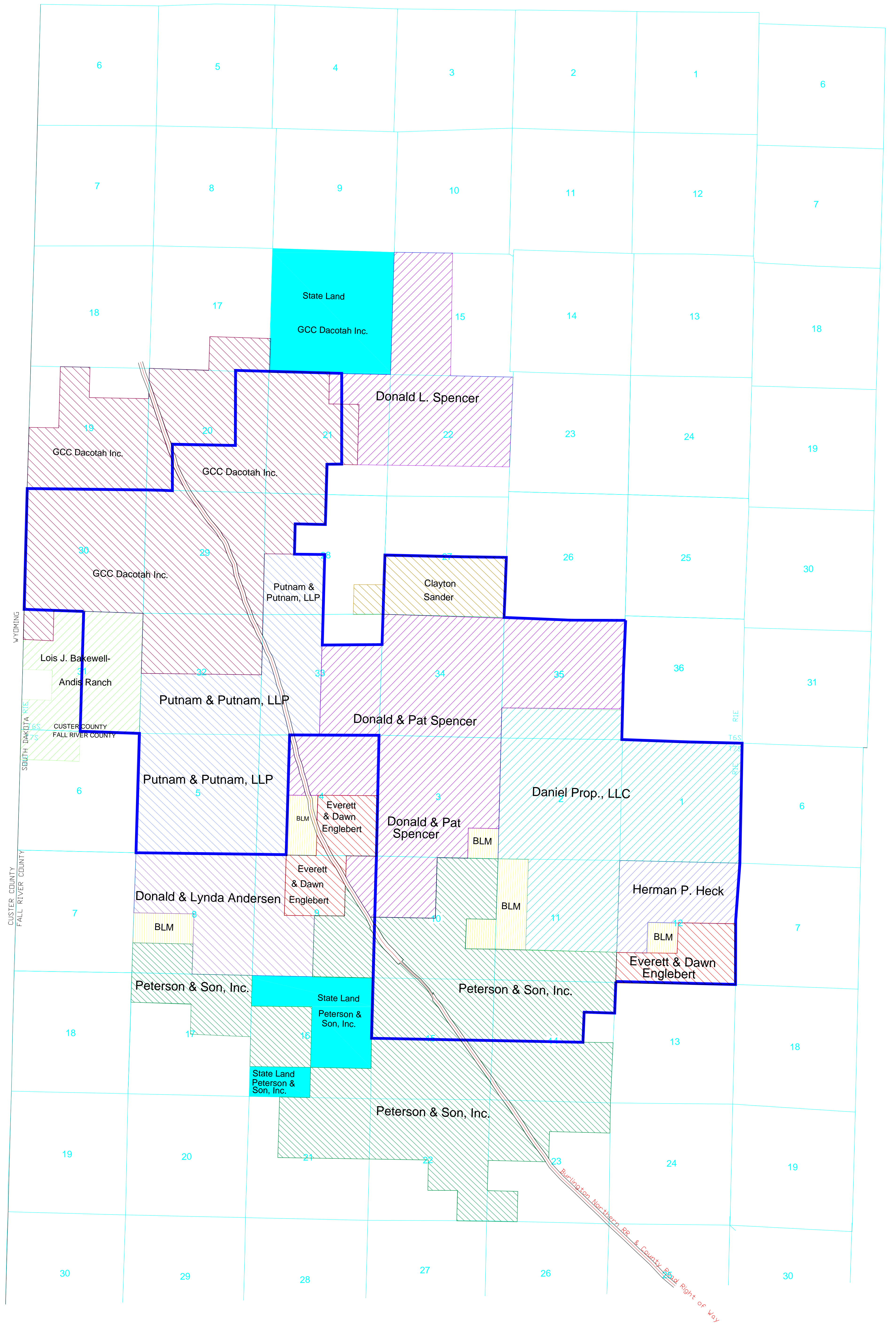


**POWERTECH (USA) INC.**

**Plate 1.5-1  
Mineral Ownership  
Fall River & Custer counties**

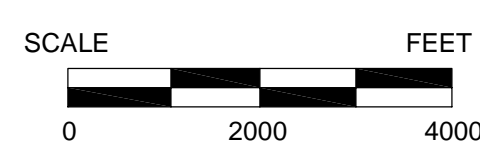
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 COORDS: NAD 27 South Dakota State Plane South  
 FILENAME: Dewey-Burdock\_Mineral\_map\_2-11-2009.dwg






LEGEND

 Proposed Permit Boundary



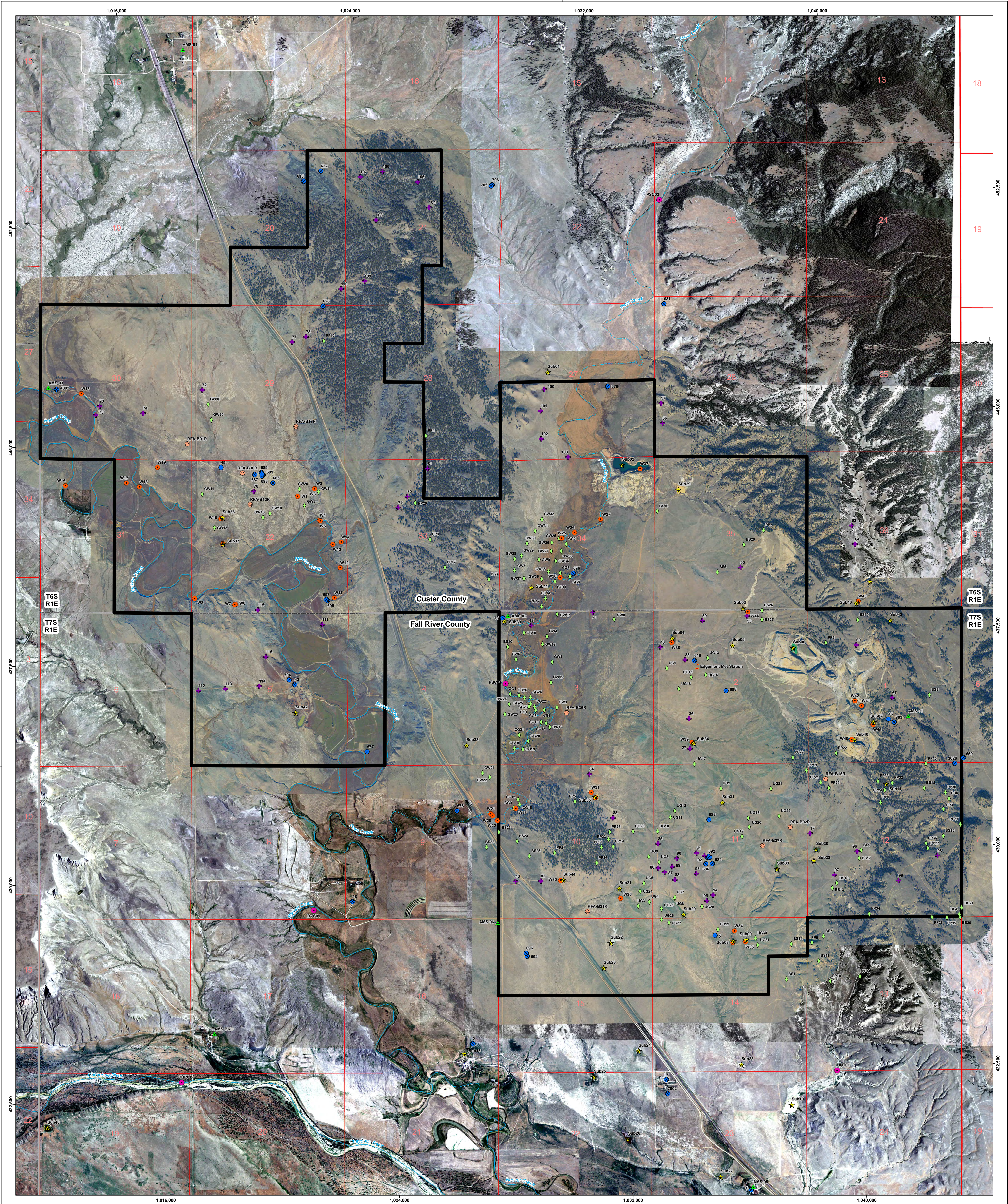


**POWERTECH (USA) INC.**

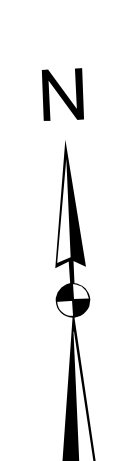
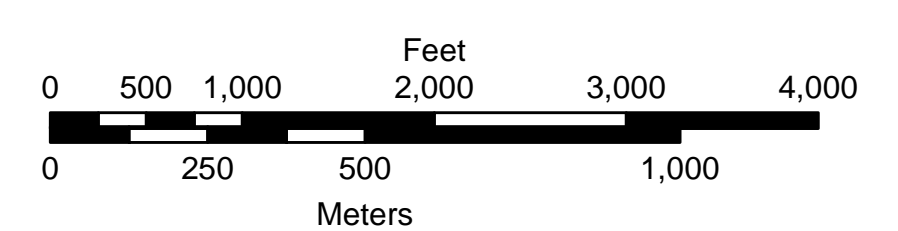
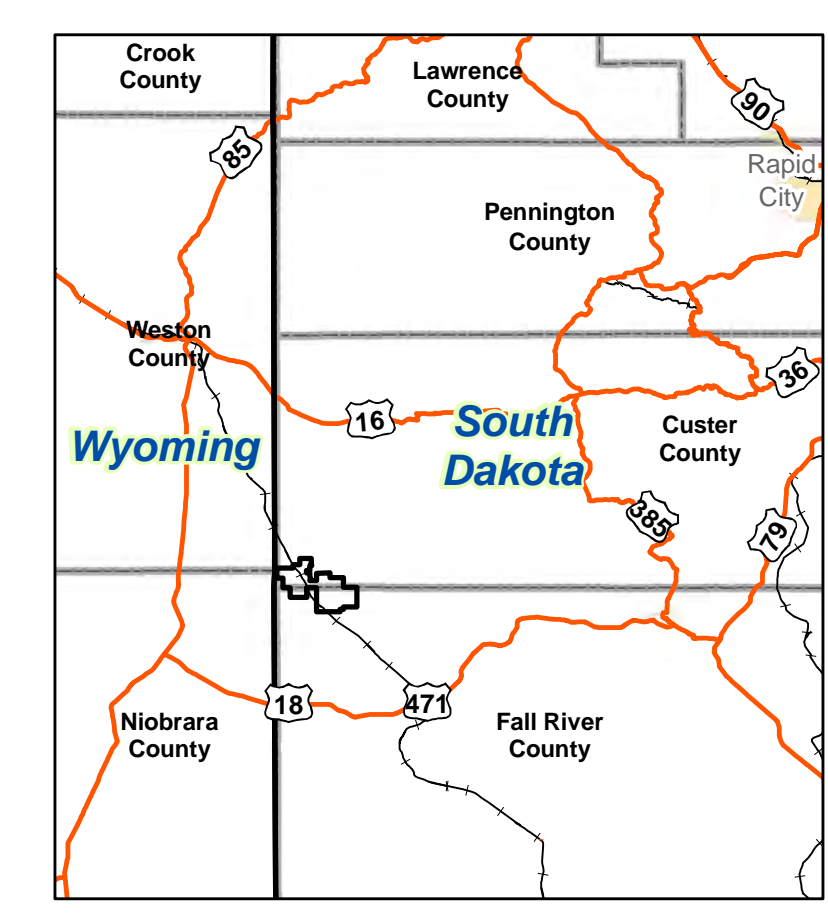
**Plate 1.5-2**  
**Surface Use Agreements**  
**Fall River & Custer counties**

PROJECT	Derey-Burdock Project
COORDS	NAD 27 South Dakota State Plane South
FILENAME	Dewey-Burdock_Surface_Use_Agreements_2-11-2009.dwg





- Legend**
- Project Boundary
  - Ephemeral Streams
  - Perennial Streams
  - Particulates, Radon 222, Soil, TLD (Env. Radiation)
  - Meteorological Station
  - Surface Subimpoundment
  - Ground Water
  - Soil
  - Vegetation
  - Wetlands
  - Radon Flux



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#	DRAWN	CHECKED	APPROVED	DATE

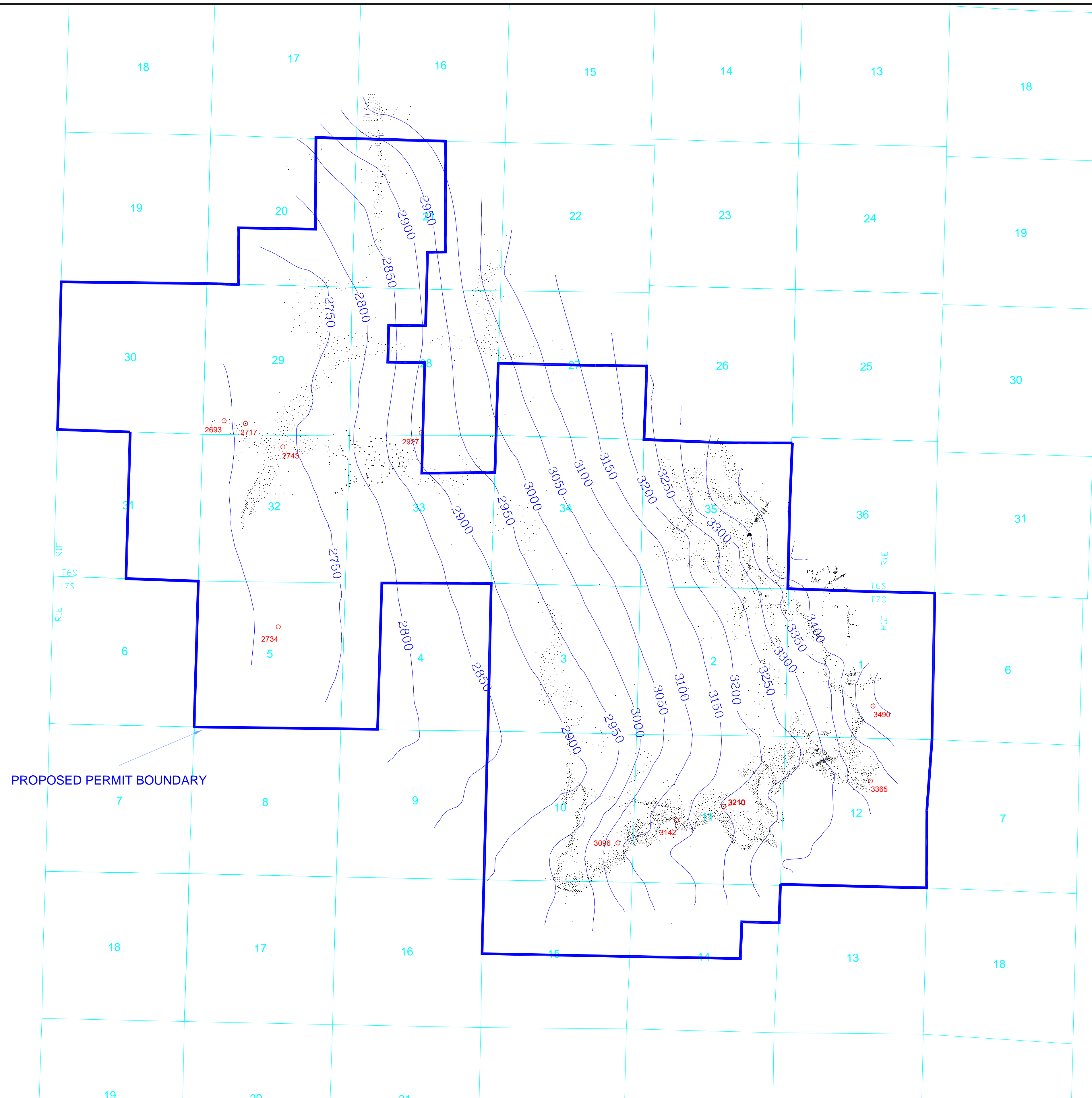
  

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DRAWN	S. Hancock	CHECKED	R. B. B. B.
PROJECT	Plate 2.5-1	FILE	R296_SamplingLocations.pdf
DESIGNED	John Mays	DATE	16-Dec-2013

**POWERTECH (USA) INC.**  
**Plate 2.5-1**  
**Environmental Sampling Locations**

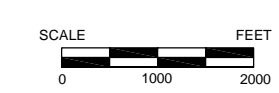
Dewey-Burdock Project  
[Project Address]






PROPOSED PERMIT BOUNDARY

This map is based on very few holes.  
Most holes were not drilled this deep.



CONSULTANT	REVISIONS				PROJECT Dewey-Burdock Project
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REF	R994				
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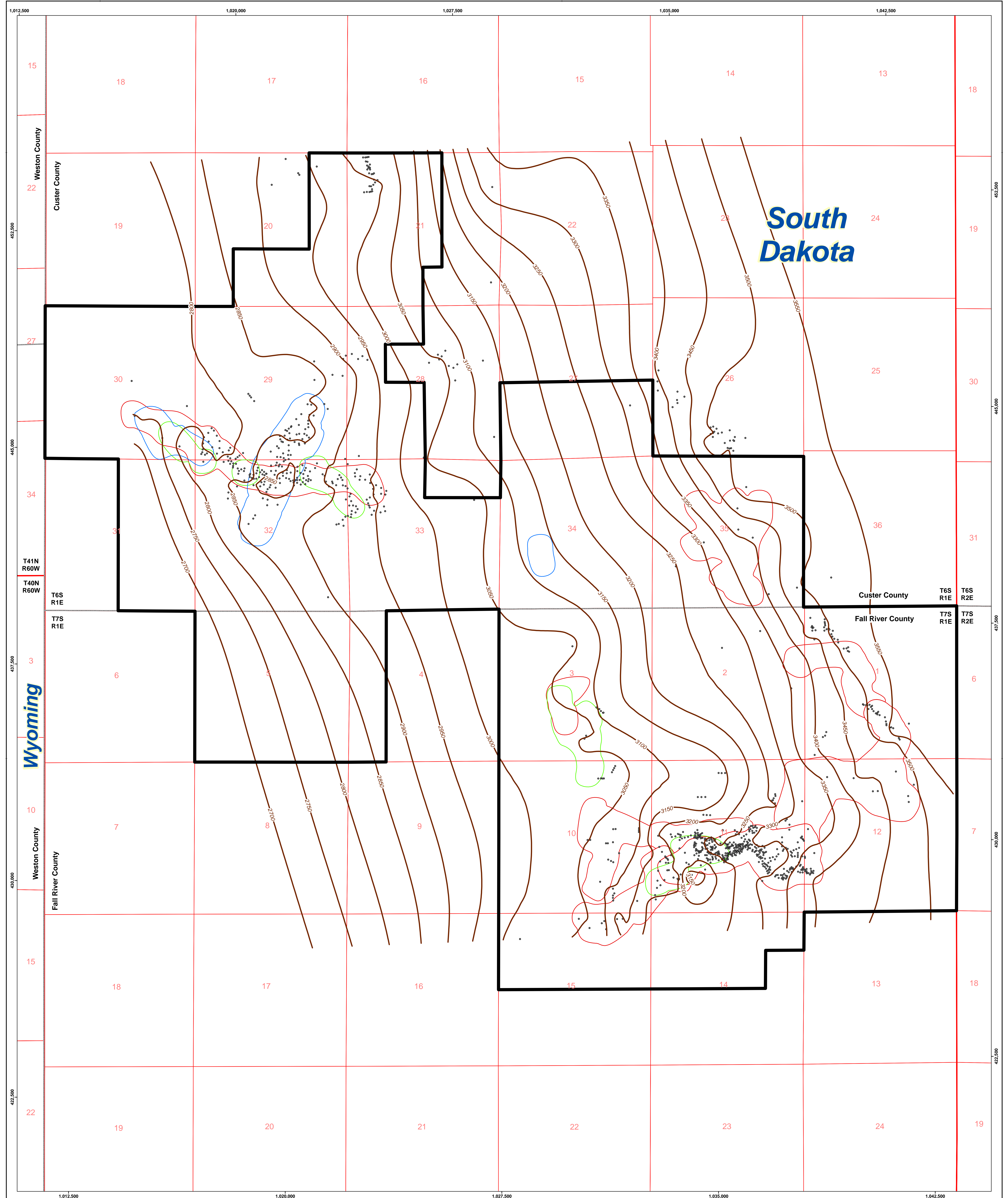
**POWERTECH (USA) INC.**

**Plate 2.6-1**

**Structure Map**

**Top of the Unkpapa**

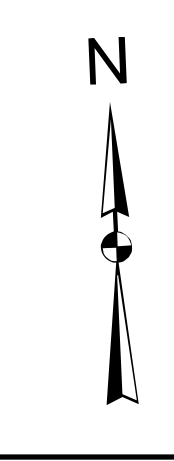
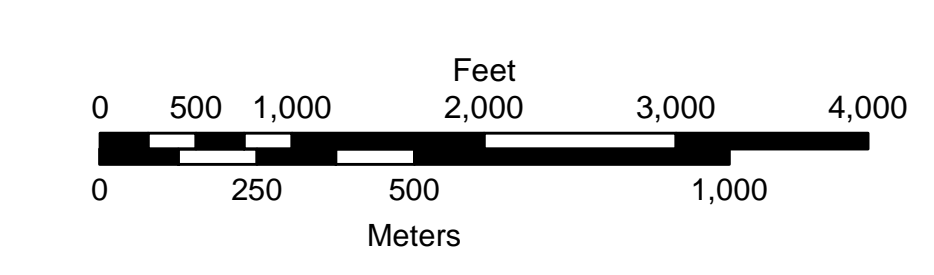
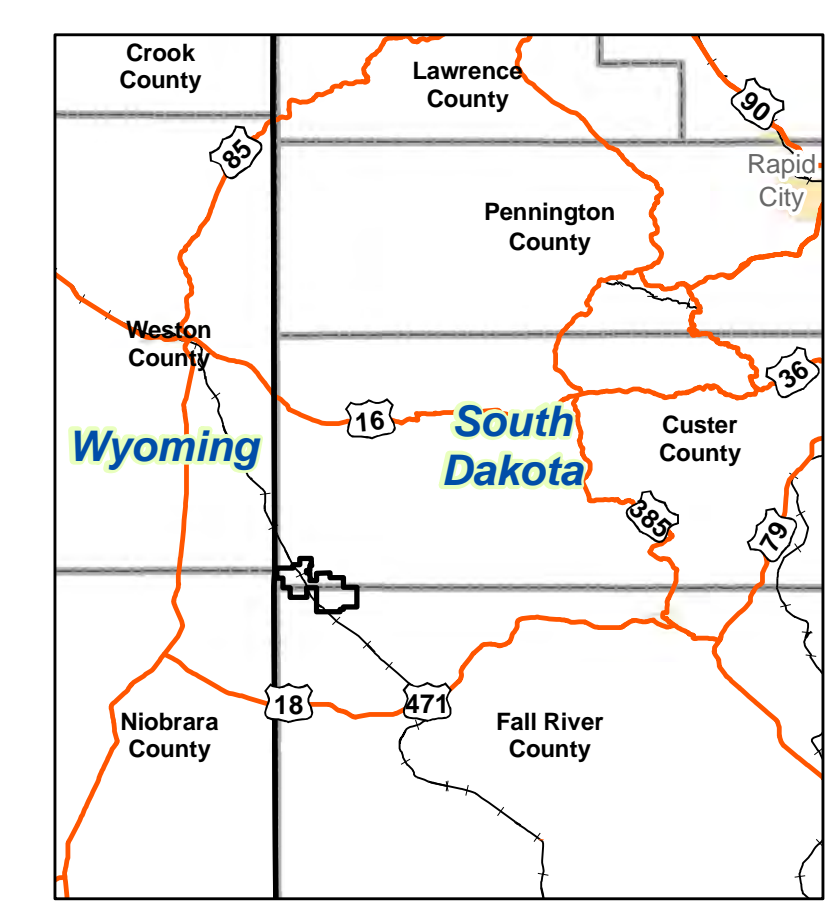




**South  
Dakota**

**Wyoming**

- Legend**
- Project Boundary
  - Structure Contour Line (feet above sea level)
  - Drill Hole Data Point Locations
- Potential Well Fields**
- Fall River
  - Upper Chilson
  - Middle/Lower Chilson



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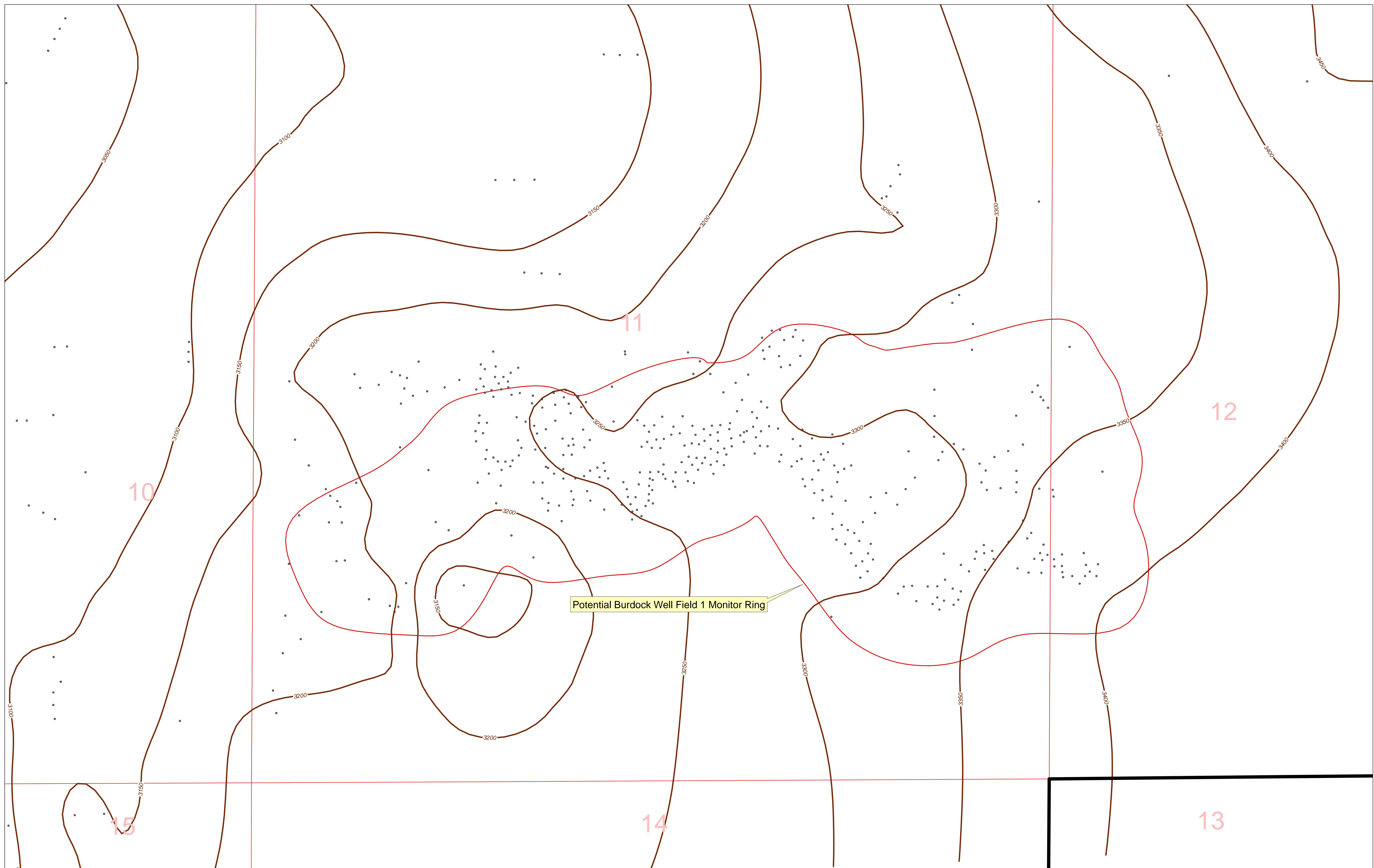
**POWERTECH (USA) INC.**  
**Plate 2.6-2**

**Structure on Top of Morrison  
Custer & Fall River Counties**  
Dewey-Burdock Project

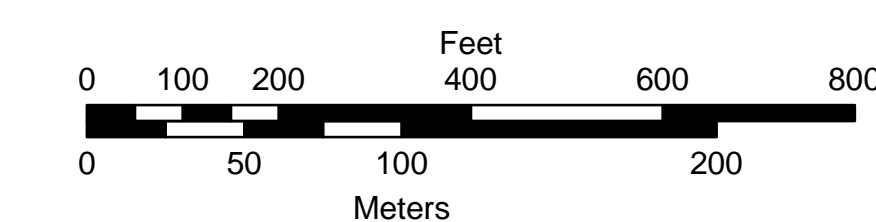
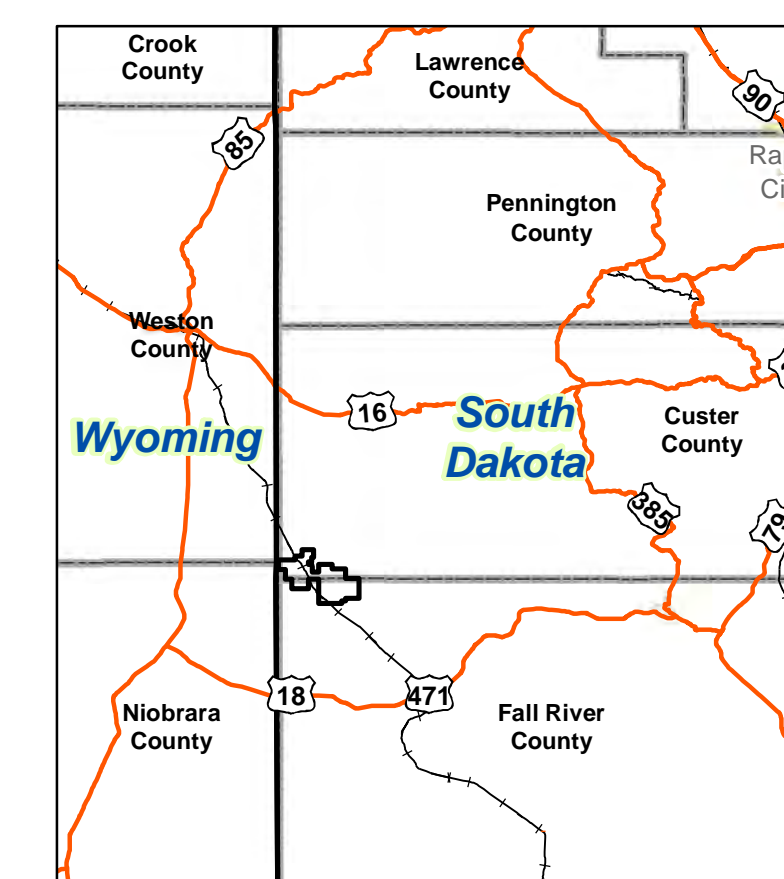
NAD 27 South Dakota State Plane South (feet)

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BY	R. Lichonovsky
FILE	R990_MorrisonStructure50.pdf
PROJECT	P:\Dewey-Burdock\Submittals\WVC NRC TR RAI June 2011\Exhibit 2.6-1.mxd



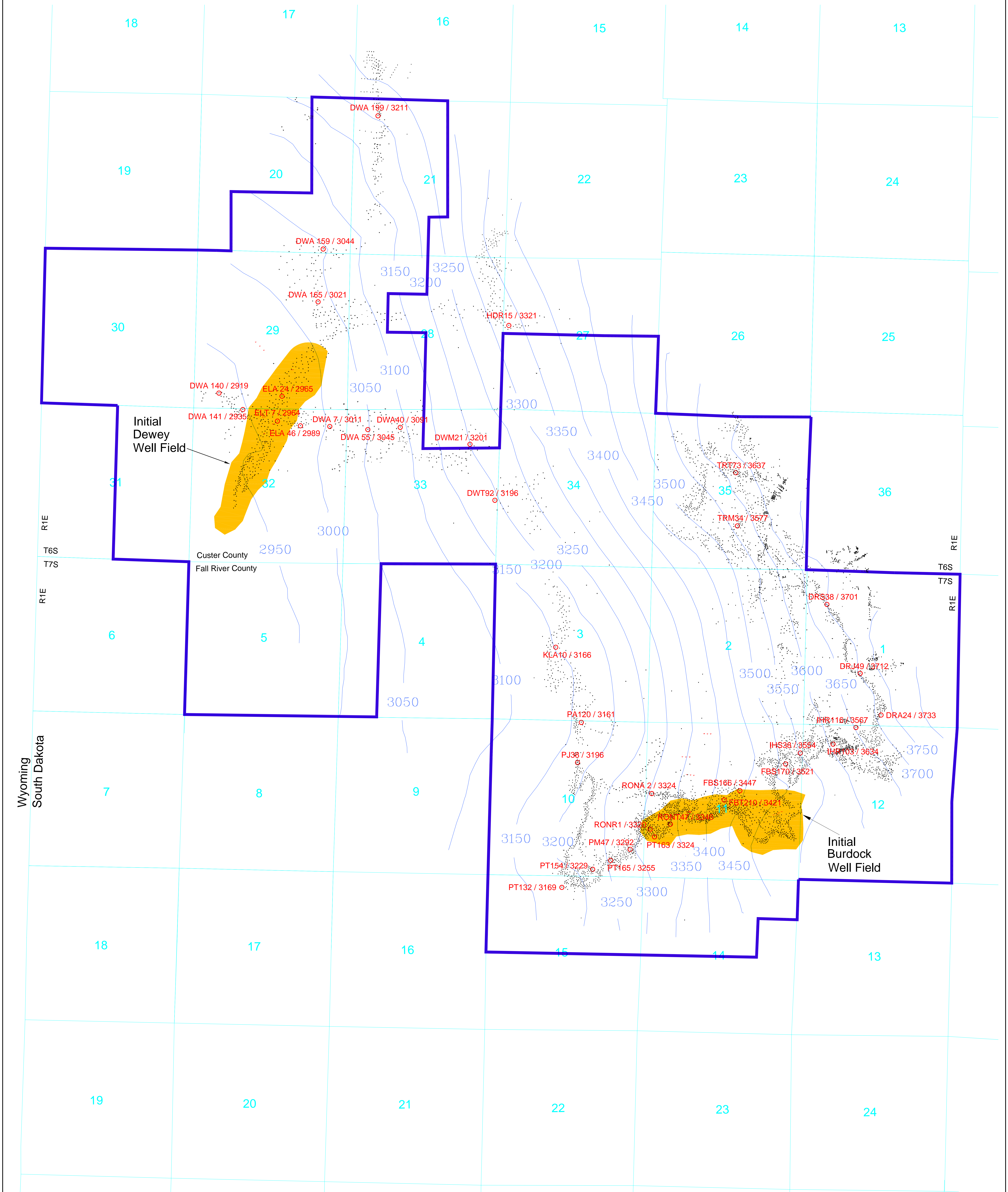


- Legend**
- Project Boundary
  - Structure Contour Line
  - Drill Hole Data Point Locations
  - Potential Burdock Well Field 1 Monitor Ring

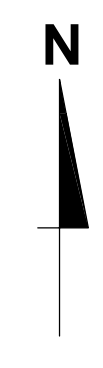
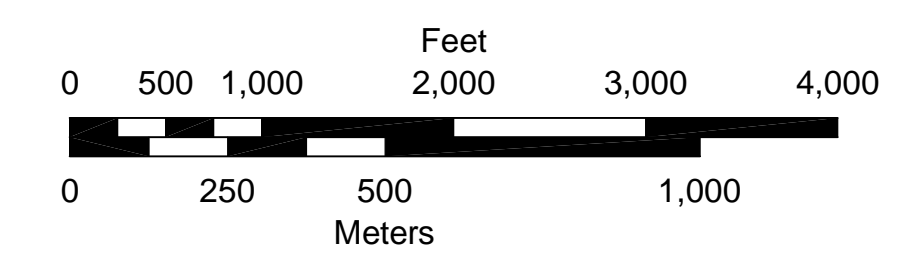
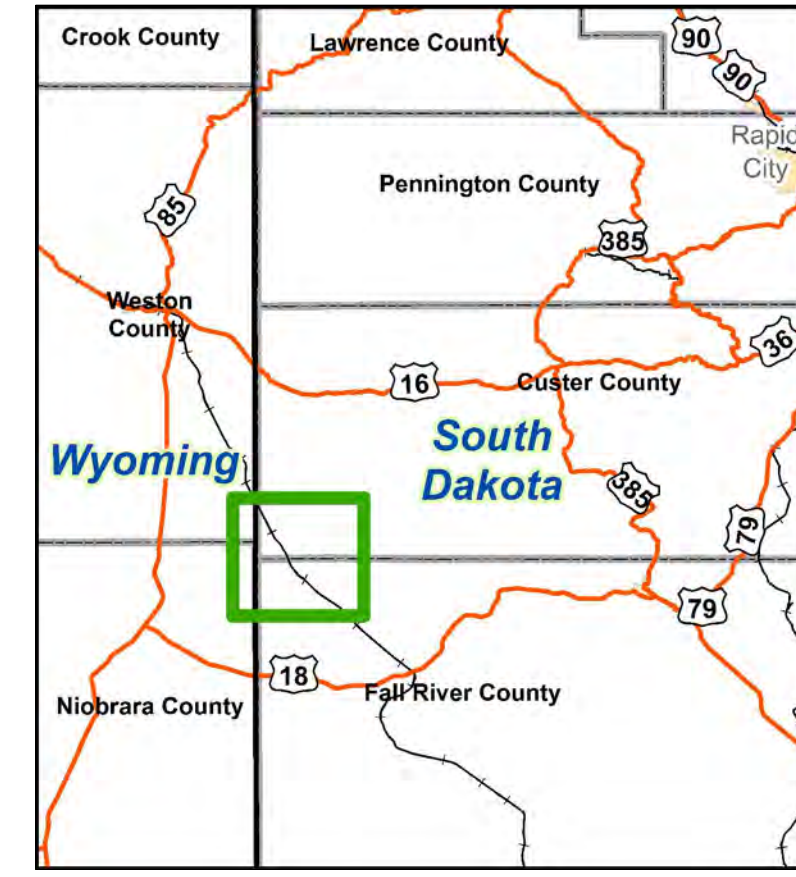


CONSULTANT		 <b>PowerTech (USA) Inc.</b>	
<b>REVISIONS</b> # DRAWN CHECKED APPROVED DATE		<b>Plate 2.6-2a</b> <b>Structure to the Top of Morrison</b> <b>Burdock Area</b> <b>Township 7S, Range 1E</b> Dewey-Burdock Project	
REF	999	DATE	14-Dec-2013
CHECK SCALES	PROJECT	DATE	14-Dec-2013
DATE	14-Dec-2013	DATE	14-Dec-2013
DRAWN	S. Hellick	PROJECT	13999_MorrisonStructureBurdock.pdf
CHECKED	F. Lichnovsky	PROJECT	13999_MorrisonStructureBurdock.pdf
DATE	14-Dec-2013	PROJECT	13999_MorrisonStructureBurdock.pdf
DATE	14-Dec-2013	PROJECT	13999_MorrisonStructureBurdock.pdf





- Legend**
- Initial Well Fields
  - Permit Boundary
  - Contour Intervals, Feet Above Mean Sea Level
  - TVA Borehole Locations
  - Powertech Exploration Borehole Locations
  - Elevation Measures at Borehole (Hole / Elevation)

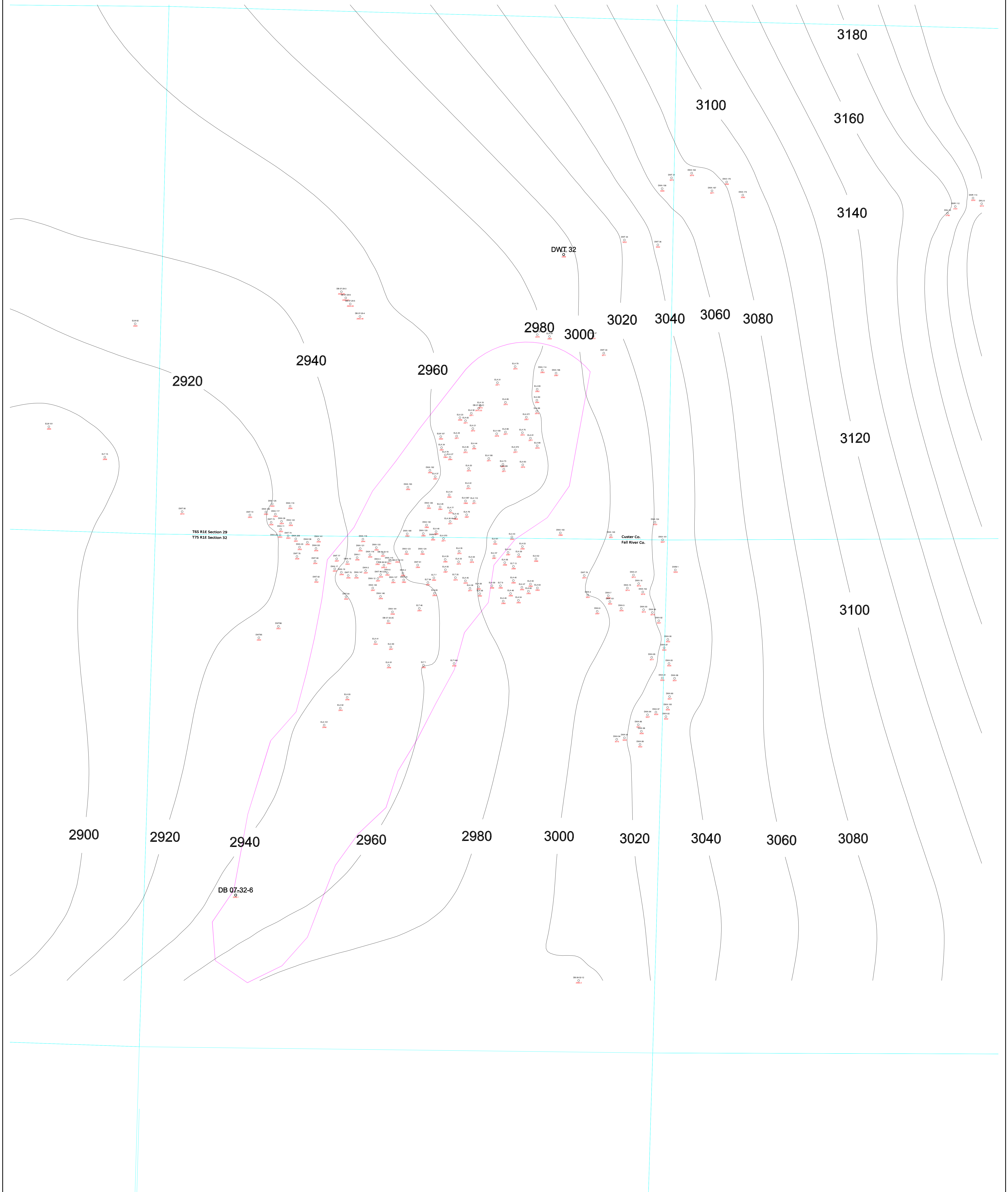


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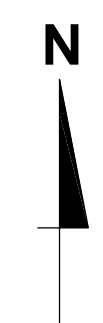
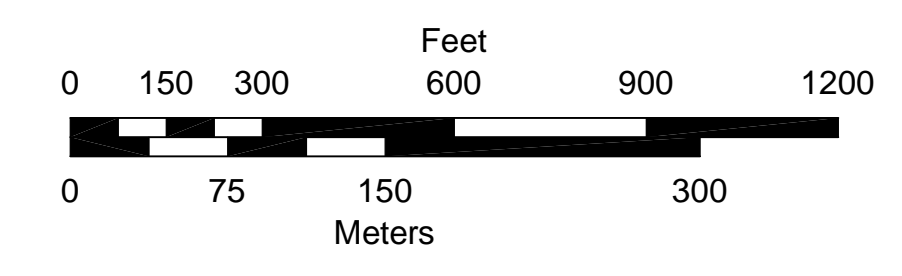
  

CHECK SCALES HORIZONTAL: 1" = 1000' VERTICAL: 1" = 100' DATE: 14-Dec-2013 DRAWN: Helrick, Lichpolsky SCALE: 30" x 30"	DATE: 13-Dec-2013 CHECKED: W. Mays DATE: NAD 1927, South Dakota State Plane South (feet) PROJECT: Dewey-Burdock Project DRAWING: k:\powertech\11185\accad\dwg\final_in\chilson member of lakota structure 7-7-2009.dwg	<p><b>Plate 2.6-3</b></p> <p><b>Structure Map - Top of the Chilson Member of the Lakota Formation</b></p>
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- Legend**
- Dewey Well Field Monitor Ring (Approx.)
  - Contour Intervals, Feet Above Mean Sea Level
  - Borehole Locations, Countour Intervals in Red



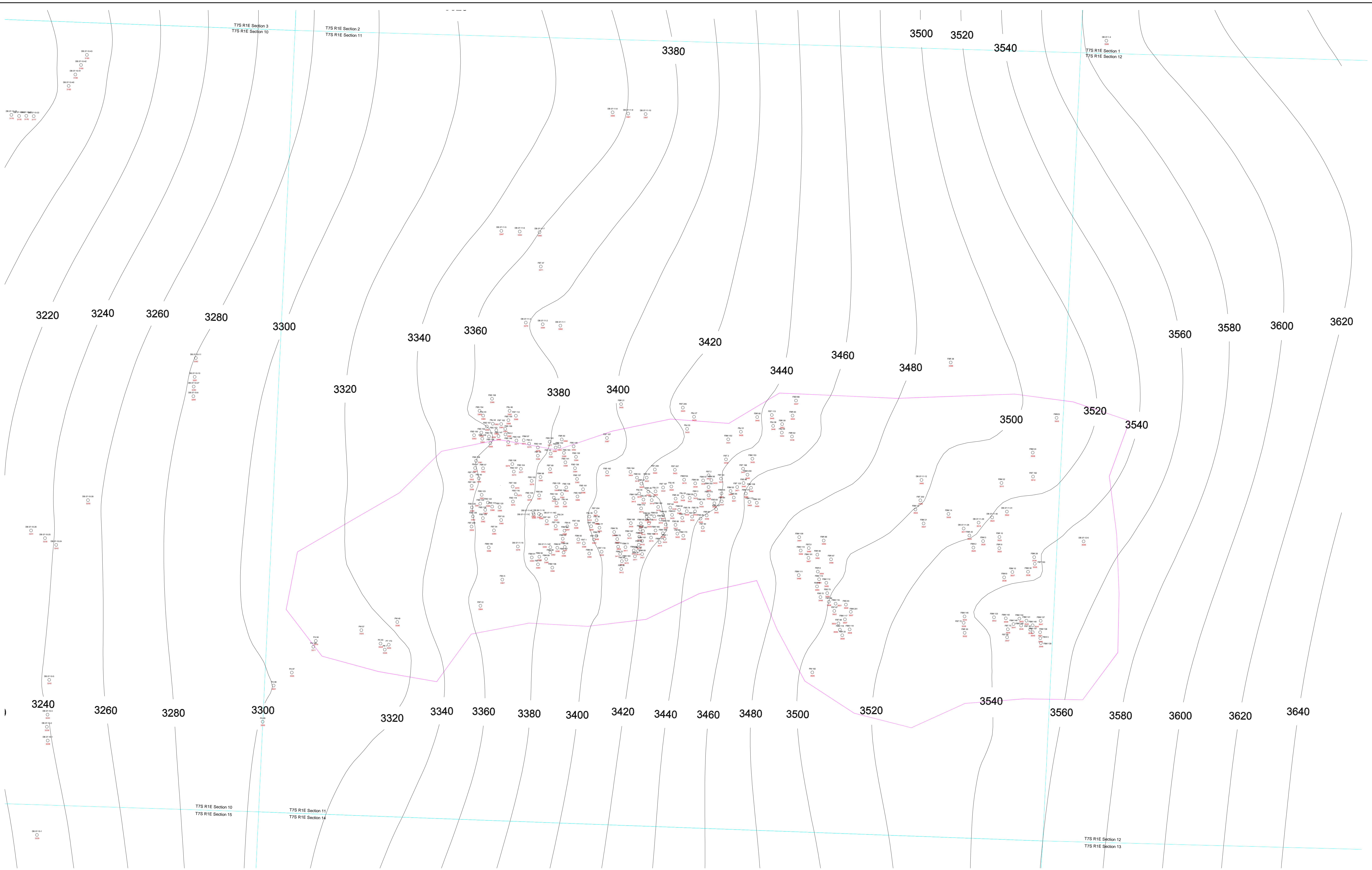
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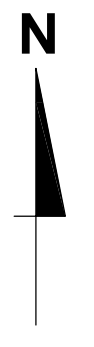
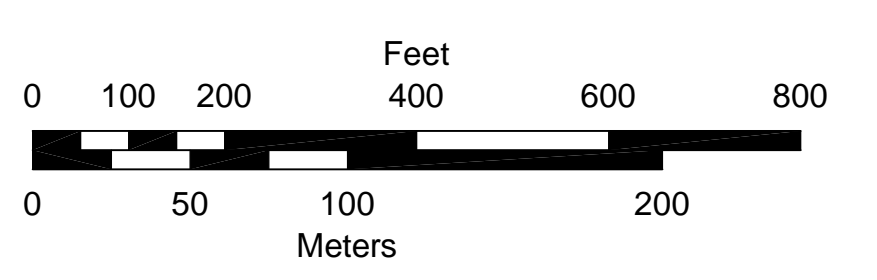
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DRAWN	F. Lichpolsky
CHECKED	W. Mays
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**POWERTECH (USA) INC.**  
**Plate 2.6-3a**  
**Structure Map - Top of the Chilson**  
**Member of the Lakota Formation**  
**Dewey Well Field 1**





- Legend**
- Burdock Well Field Monitor Ring (Approx.)
  - Contour Intervals, Feet Above Mean Sea Level
  - Borehole Locations, Contour Intervals in Red

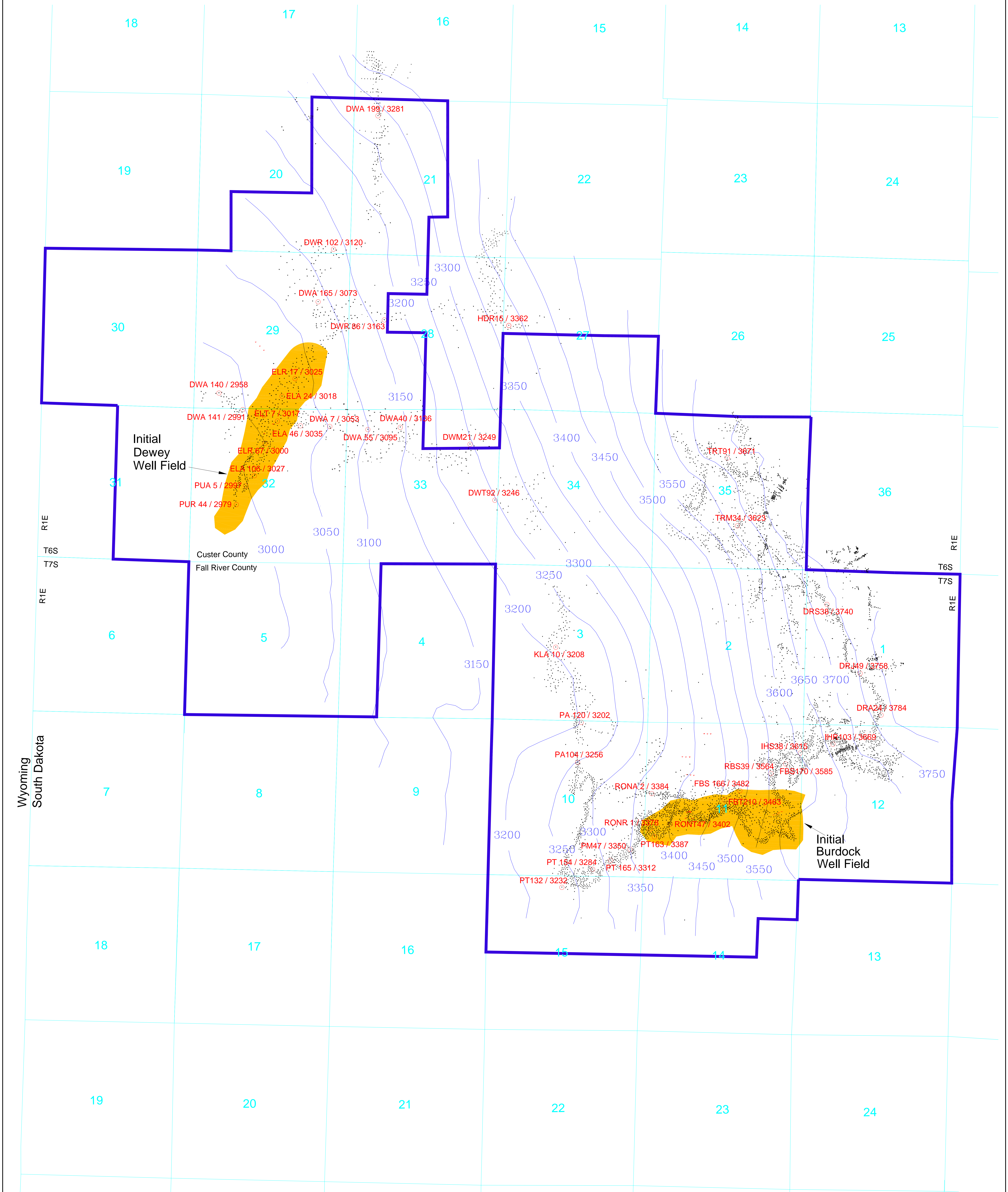


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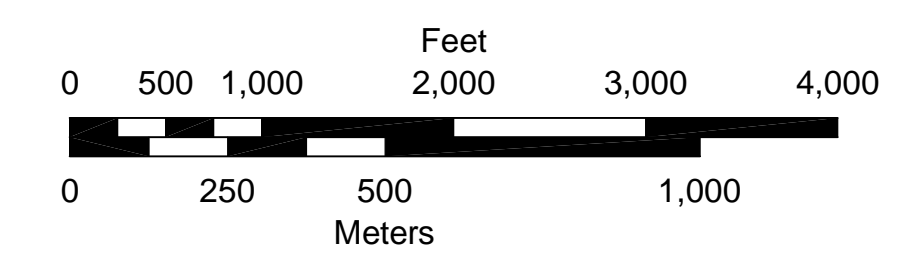
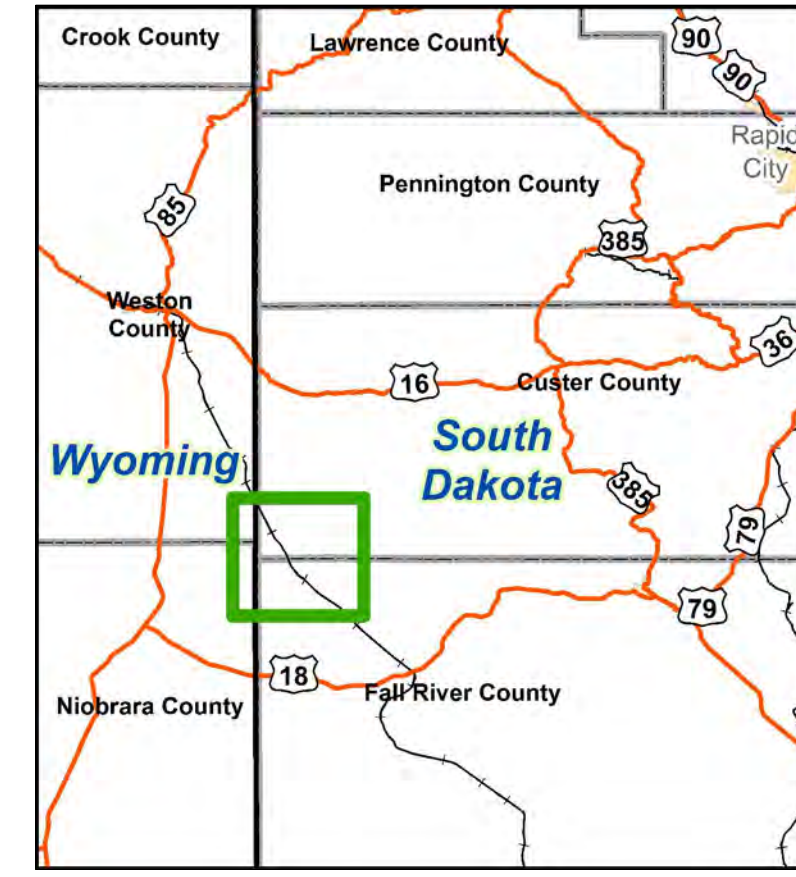
  

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- Legend**
- Initial Well Fields
  - Permit Boundary
  - Contour Intervals, Feet Above Mean Sea Level
  - Borehole Locations
  - Measured Thickness at Borehole (Hole / Thickness)

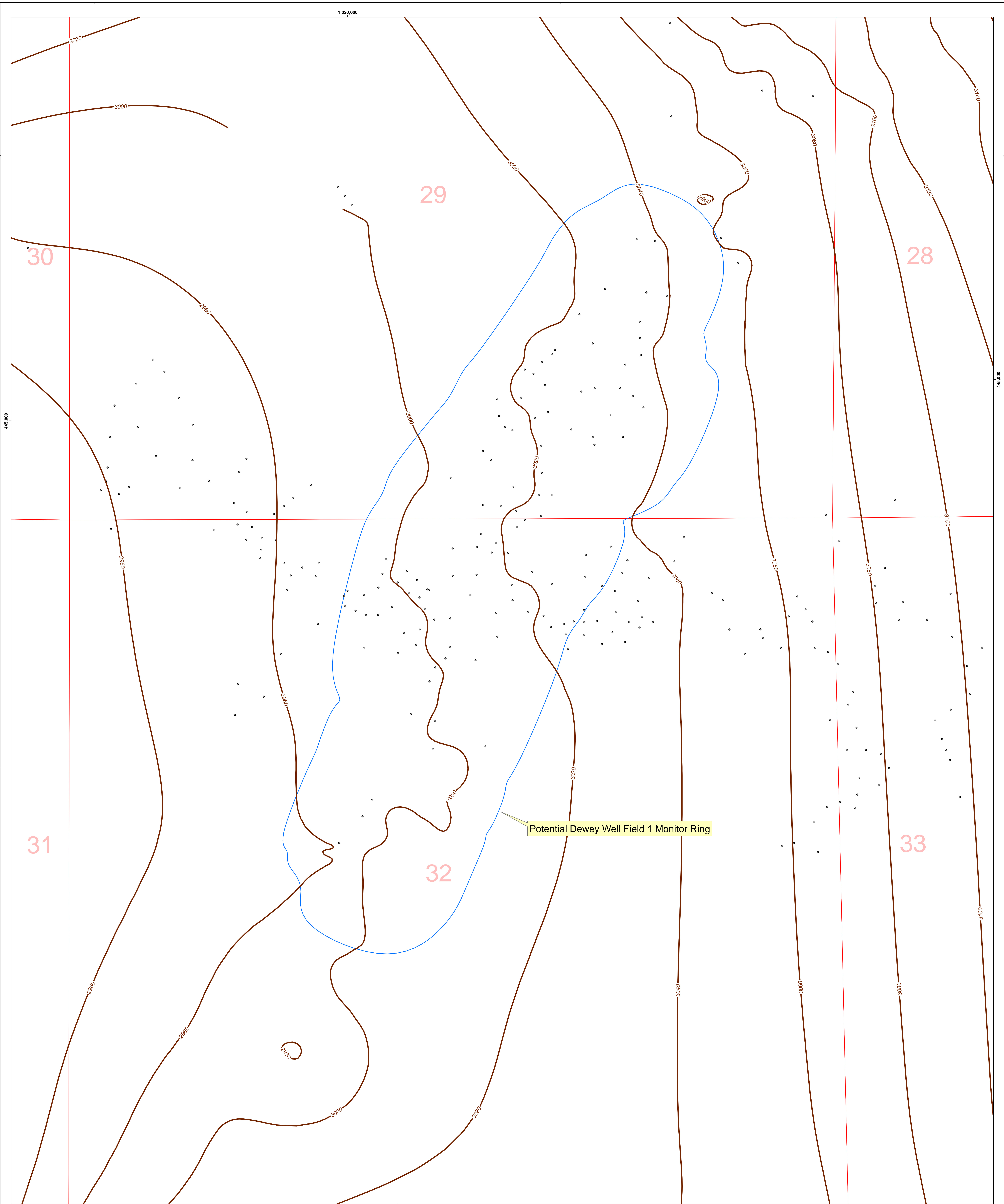


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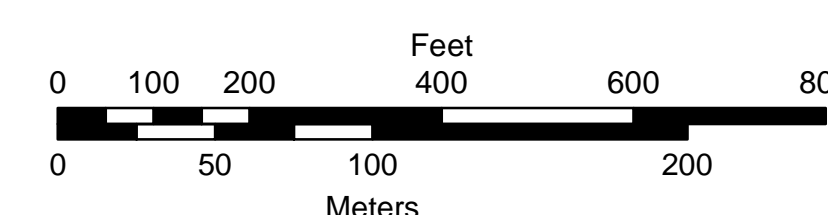
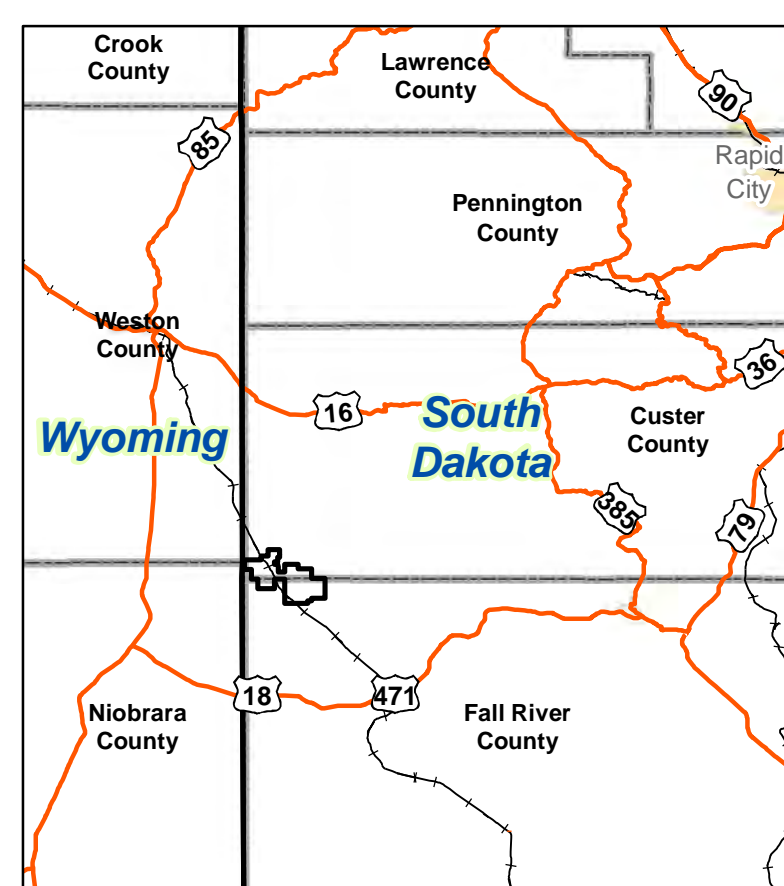
<p><b>POWERTECH (USA) INC.</b> <b>Plate 2.6-4</b></p> <p><b>Structure Map - Top of the Fuson Shale</b></p>	<p>PROJECT: Dewey-Burdock Project</p> <p>DRAWN: Helrick, Lichpovsky</p> <p>CHECKED: W. Mays</p> <p>DATE: 14-Dec-2013</p> <p>SCALE: 1" = 1000'</p>
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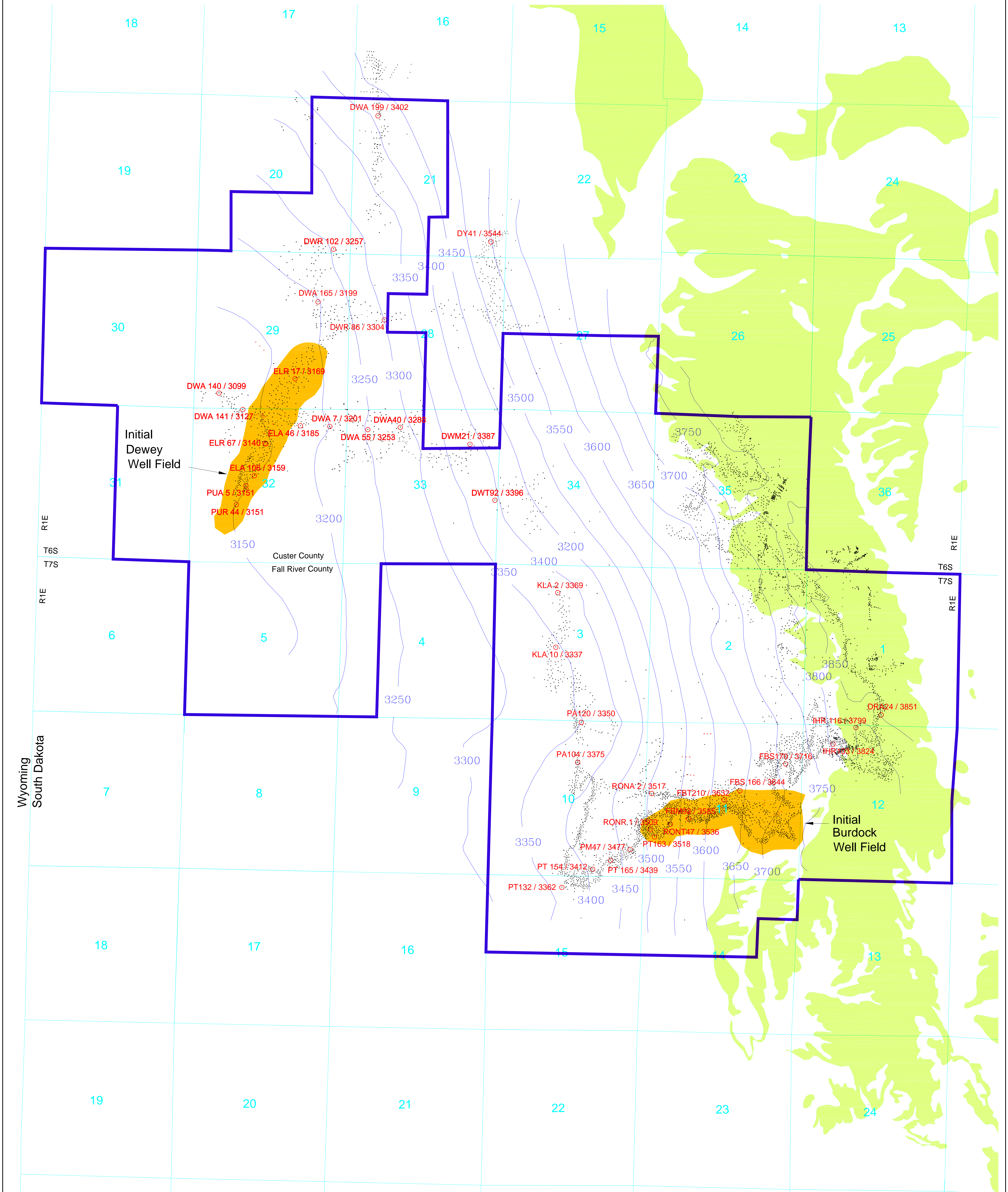
Potential Dewey Well Field 1 Monitor Ring

- Legend**
- Project Boundary
  - Structure Contour Line
  - Drill Hole Data Point Locations
  - Potential Dewey Well Field 1 Monitor Ring

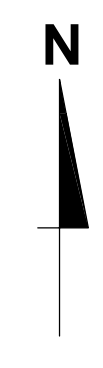
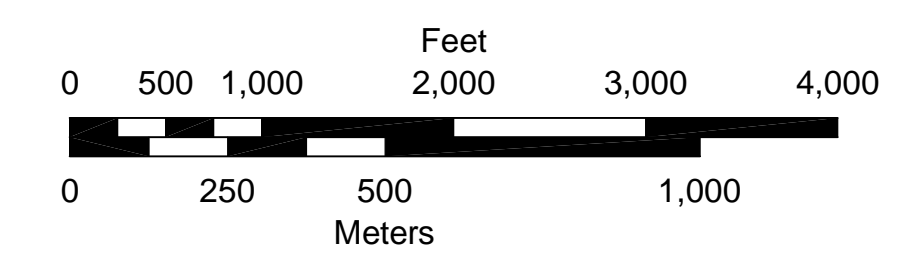
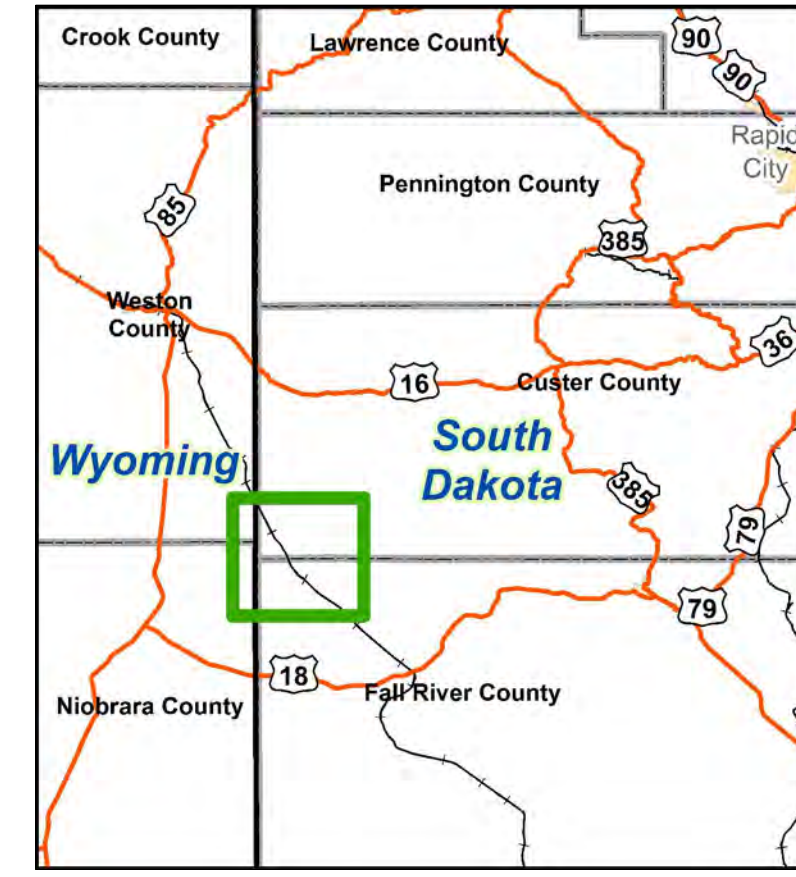


CONSULTANT		 <b>Powertech (USA) Inc.</b>																													
		<b>Plate 2.6-4a</b>																													
		<b>Top of Fuson, Structure Contour Map</b>																													
		<b>Dewey Well Field 1</b>																													
		<b>Township 6S, Range 1E</b>																													
		Dewey-Burdock Project																													
PROJECT: NAD 27, South Dakota State Plane South (feet)																															
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	F. Lichnovsky	DFE	P:\Dewey-Burdock\Submittals\WVC NRC TR RA1 June 2011\Plate 2.6-4a FusonStructure.mxd																												





- Legend**
- Fall River Outcrop
  - Initial Well Fields
  - Permit Boundary
  - Contour Intervals, Feet Above Mean Sea Level
  - TVA Borehole Locations
  - Powertech Exploration Borehole Locations
  - Elevation Measures at Borehole (Hole / Elevation)



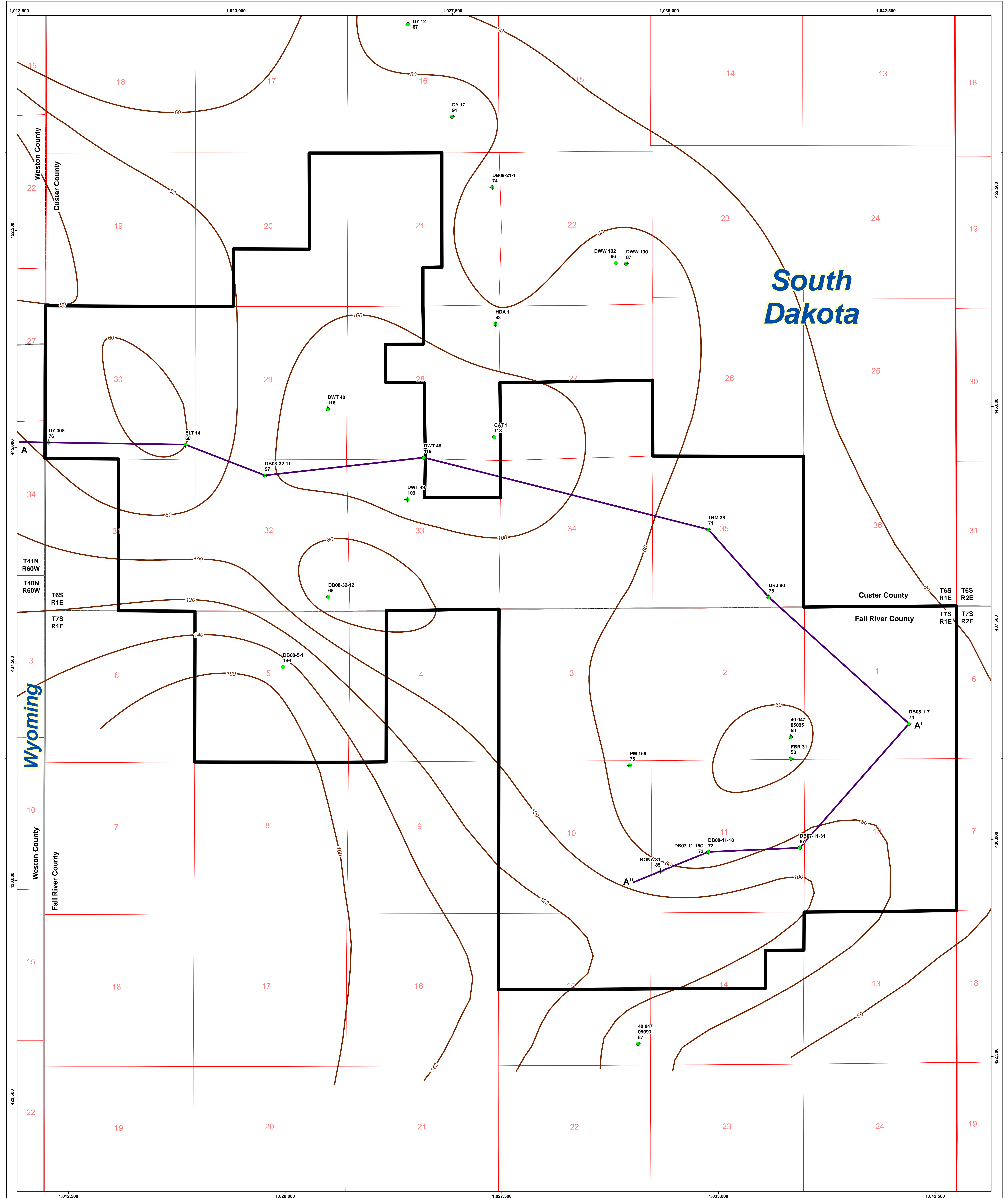
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**POWERTECH (USA) INC.**  
**Plate 2.6-5**  
**Structure Map - Top of the Fall River Formation**

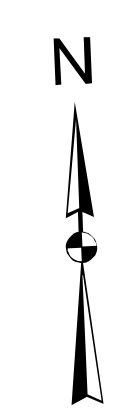
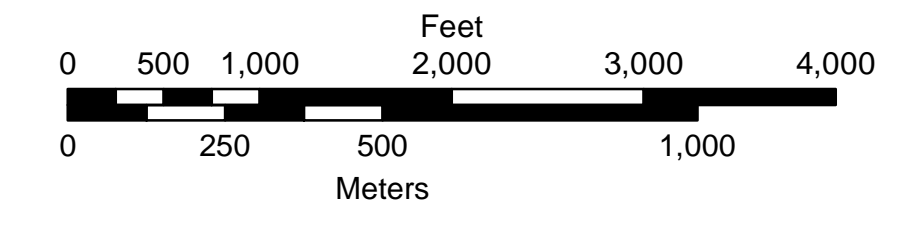
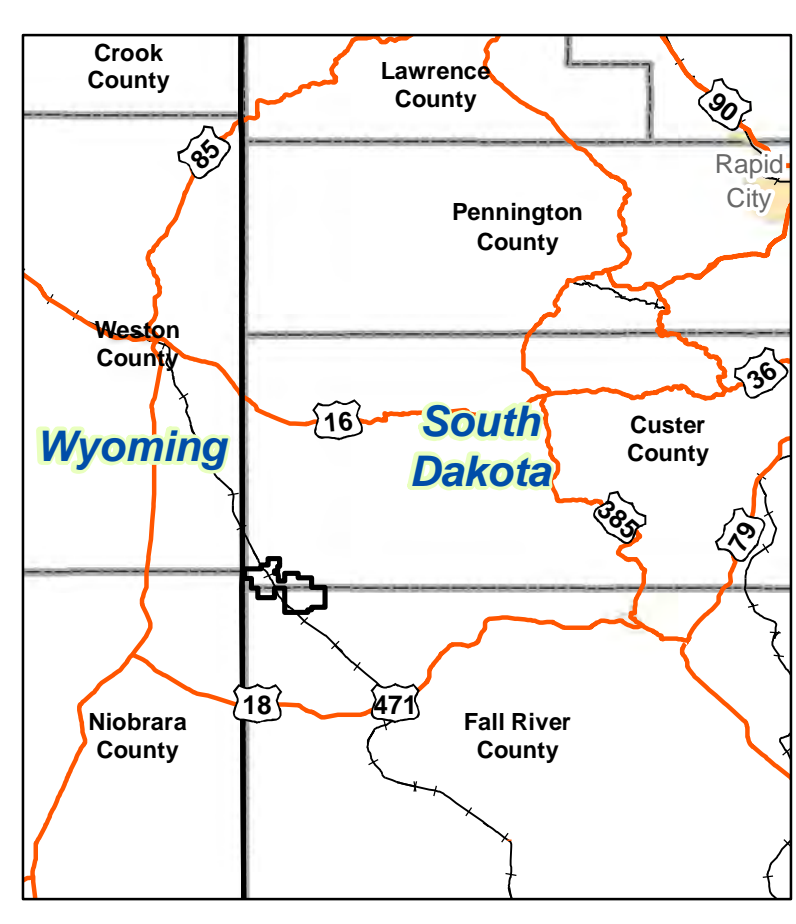




**South  
Dakota**

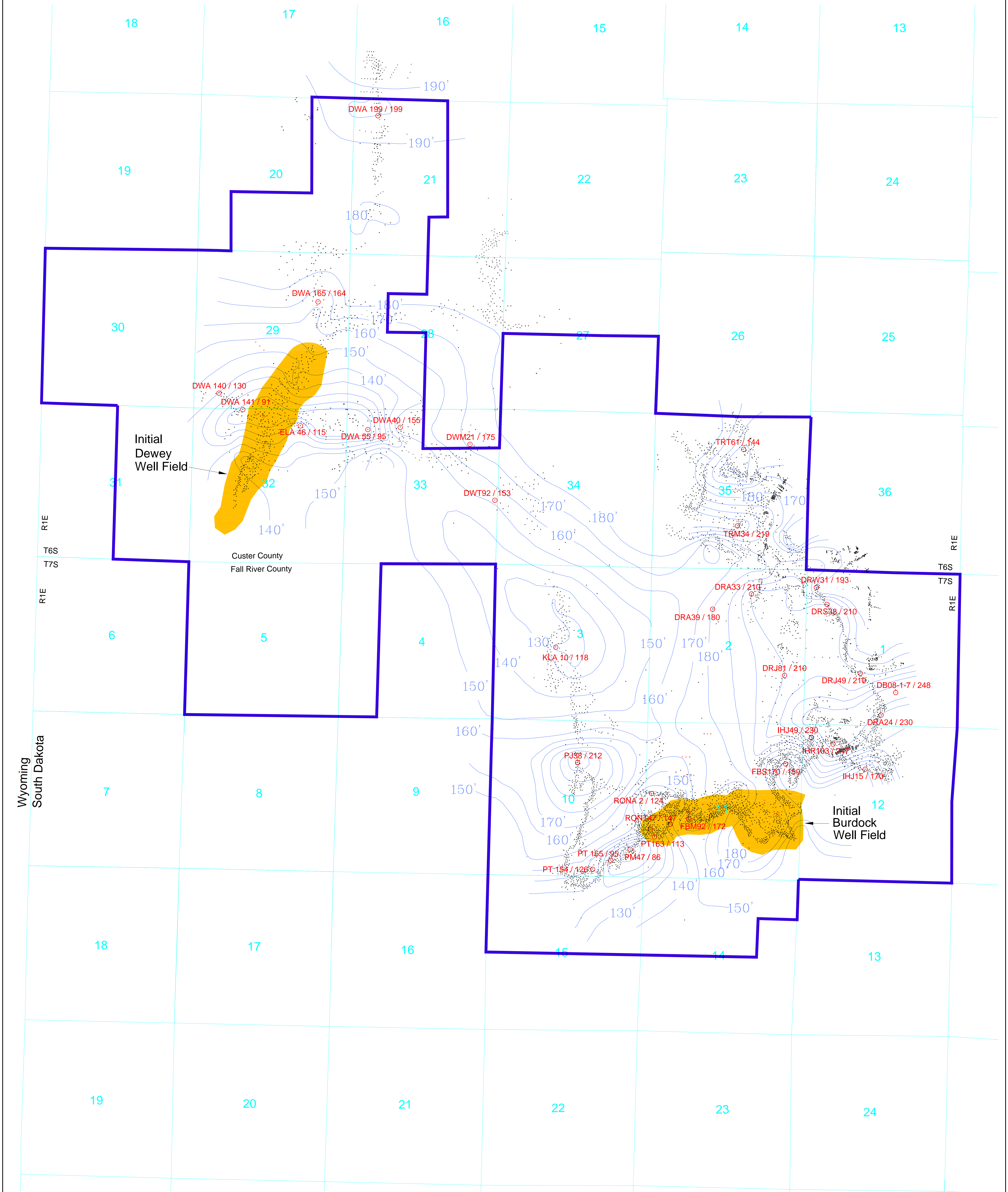
**Wyoming**

- Legend**
- Project Boundary
  - Isopach Contour Line (feet)
  - Cross Section Index Line
  - Drill Hole Location Showing Thickness (feet)



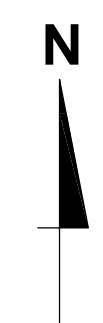
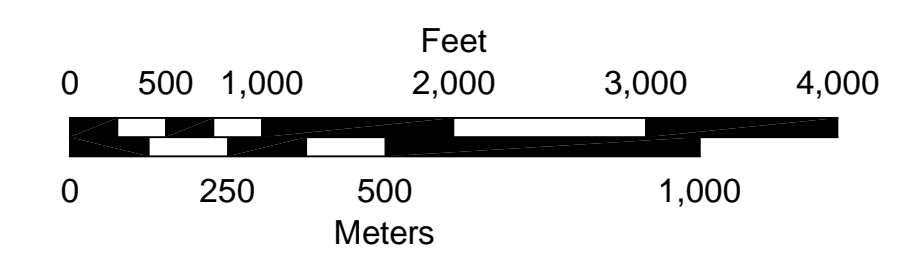
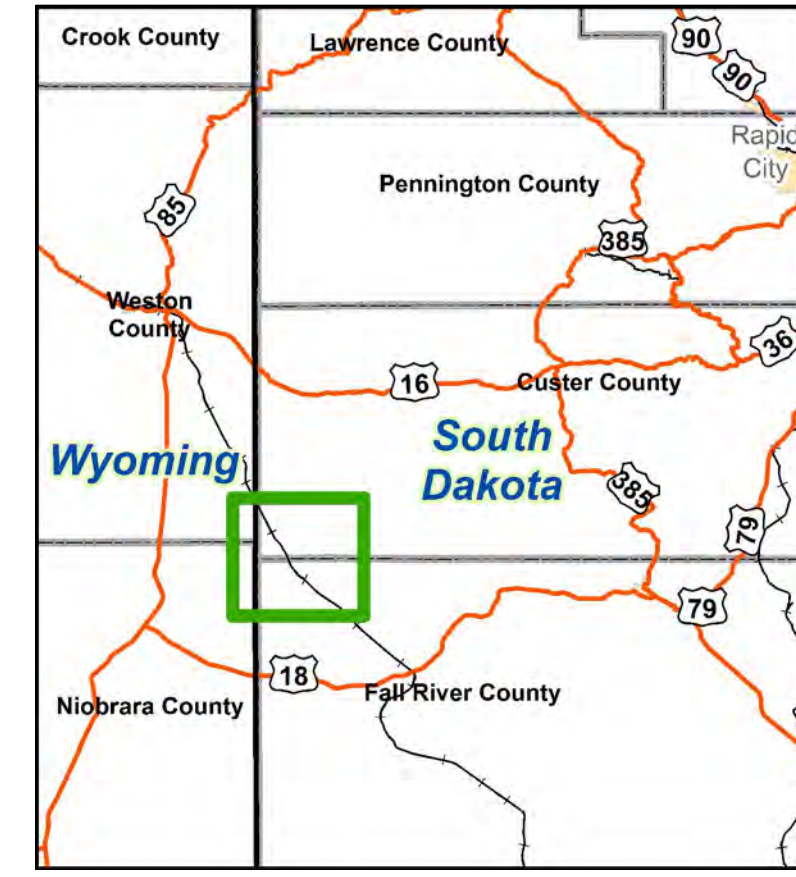
CONSULTANT		 <b>Powertech (USA) Inc.</b> <b>Plate 2.6-6</b>																	
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REVISIONS																			
#	DRAWN	CHECKED	APPROVED DATE																
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CHECK SCALES																			
DATE	BY	DATE	BY																
14-Dec-2013	F. Lichonovsky	14-Dec-2013	F. Lichonovsky																





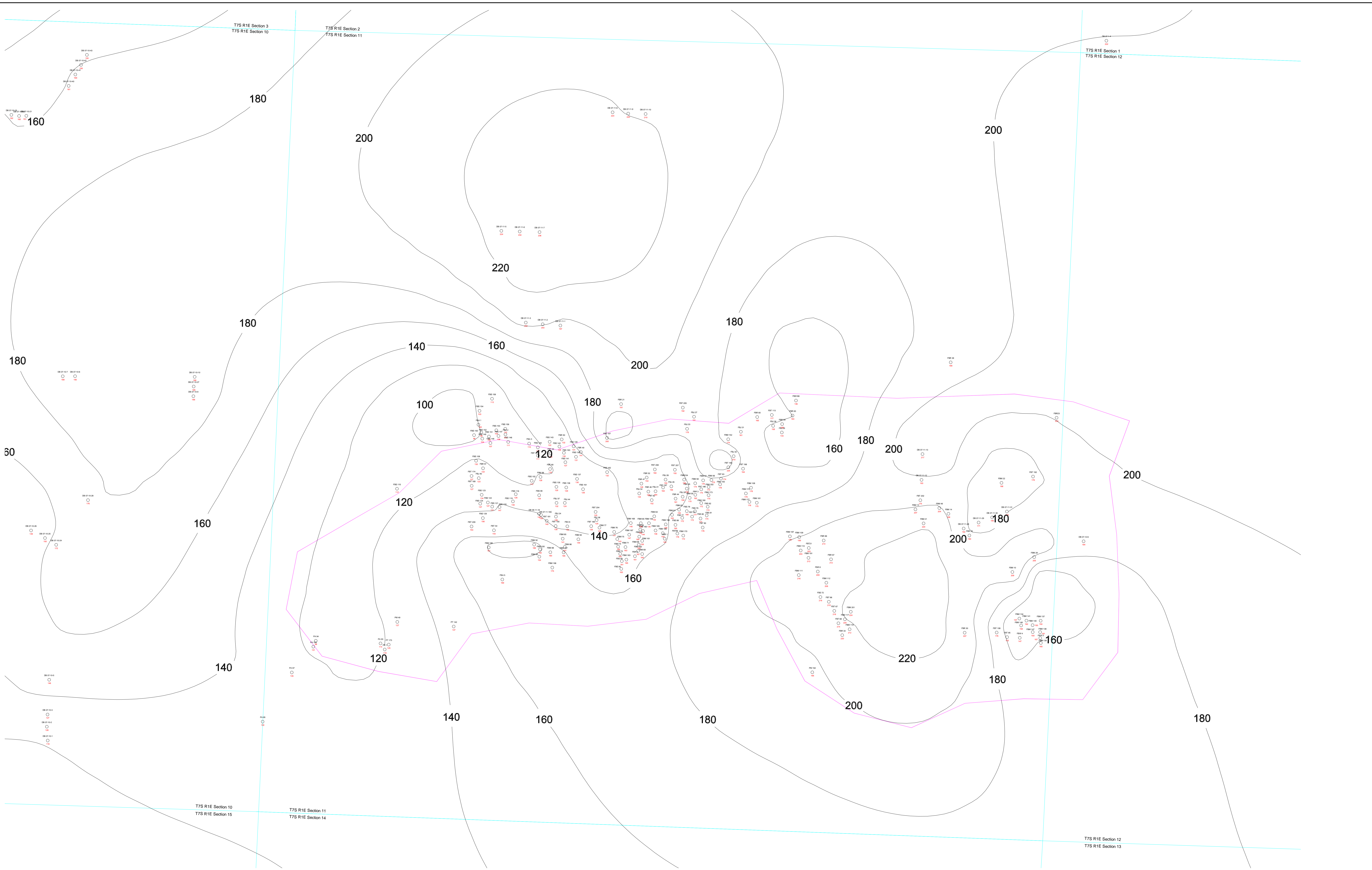
Wyoming  
South Dakota

- Legend**
- Initial Well Fields
  - Permit Boundary
  - Thickness
  - TVA Borehole Locations
  - Powertech Exploration Borehole Locations
  - Measured Thickness at Borehole (Hole / Thickness)

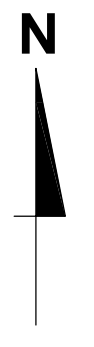
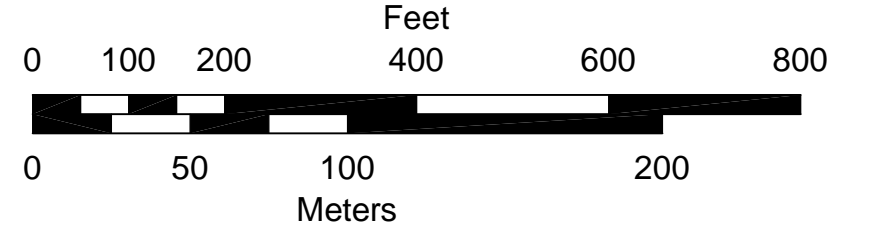
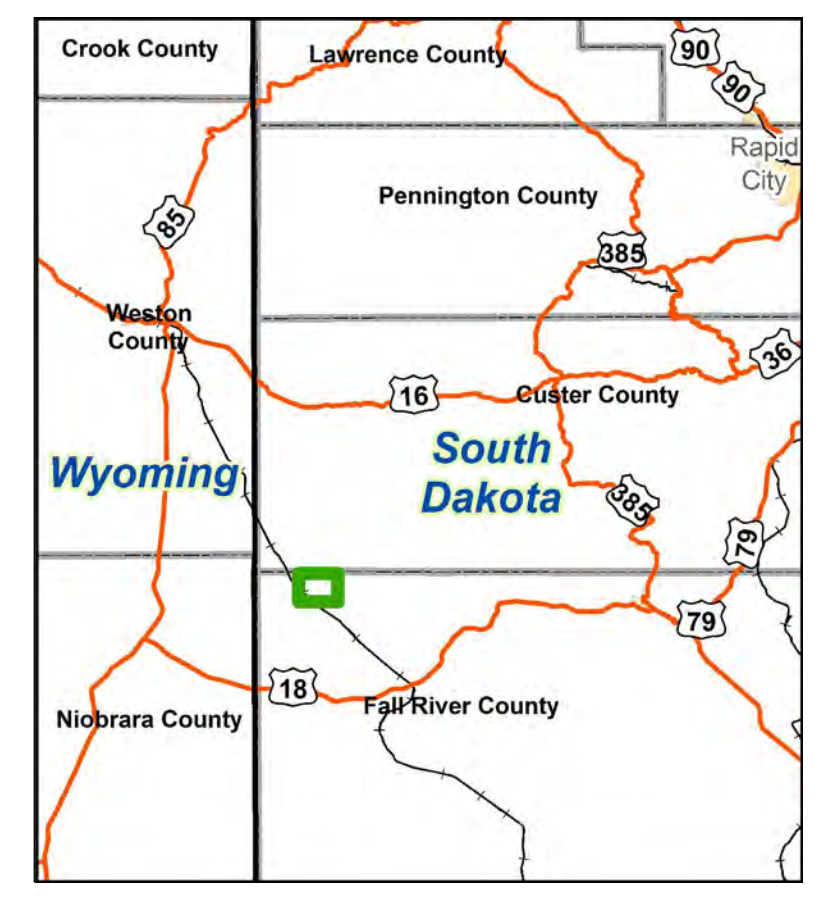


		<b>Plate 2.6-7</b> <b>Isopach of the Chilson Member of the Lakota Formation</b>																	
<table border="1"> <thead> <tr> <th colspan="4">REVISIONS</th> </tr> <tr> <th>#</th> <th>DRAWN</th> <th>CHECKED</th> <th>APPROVED DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>				REVISIONS				#	DRAWN	CHECKED	APPROVED DATE								
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DATE	BY	DATE	BY																
14-Dec-2013	W. Mays	13-Dec-2013	W. Mays																
PROJECT	Dewey-Burdock Project																		
CORR	NAD 1927, South Dakota State Plane South (feet)																		
SCALE	1" = 1000'																		





- Legend**
- Burdock Well Field Monitor Ring
  - 140 Thickness
  - Borehole Locations, Thickness in Red



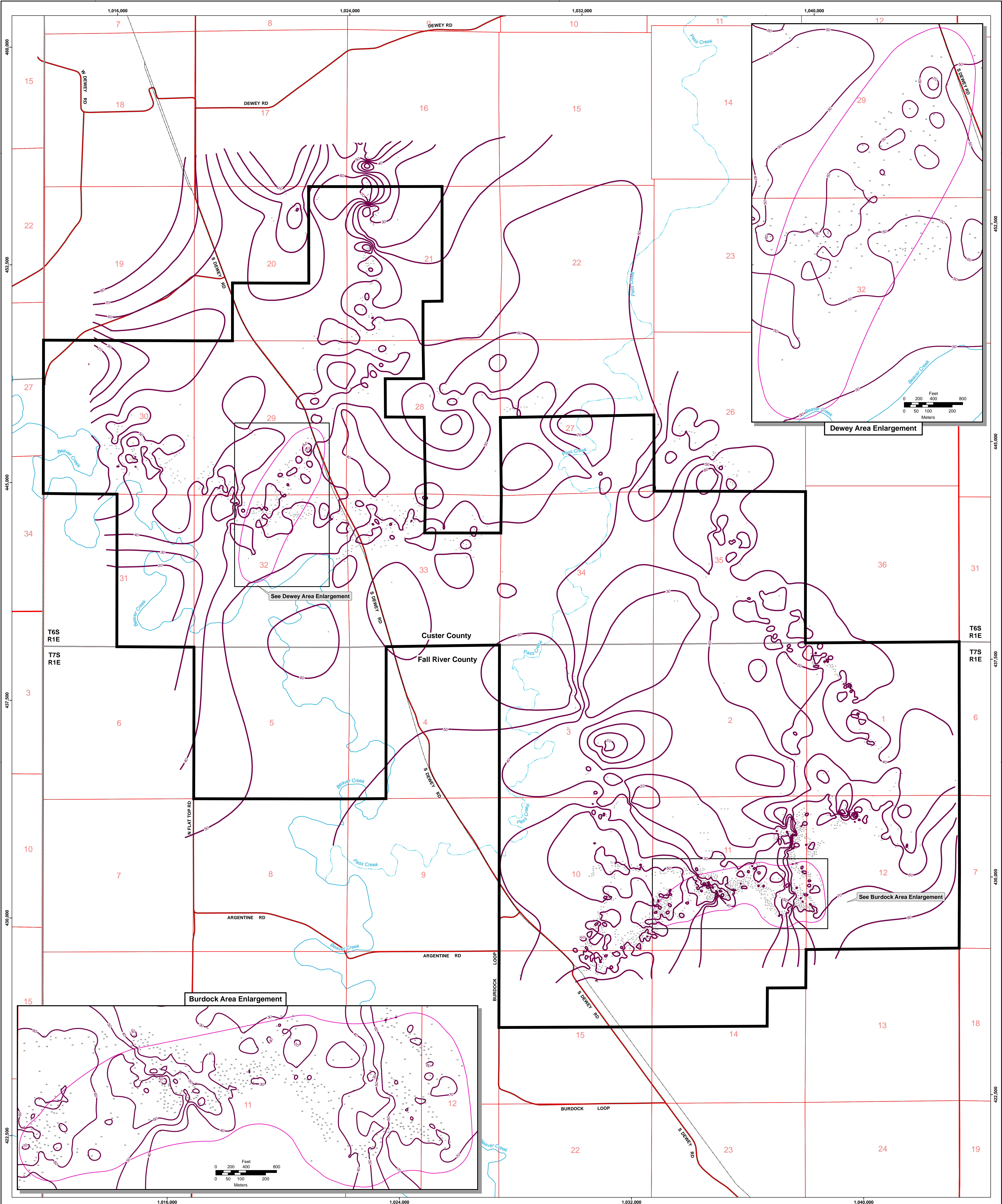
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#	DRAWN	CHECKED	APPROVED

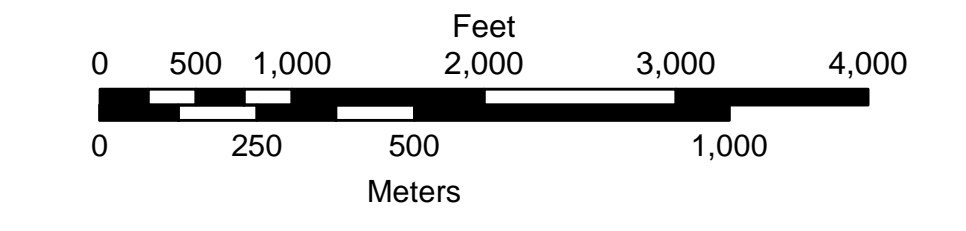
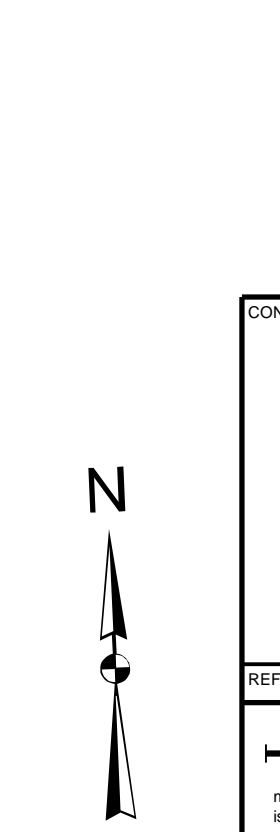
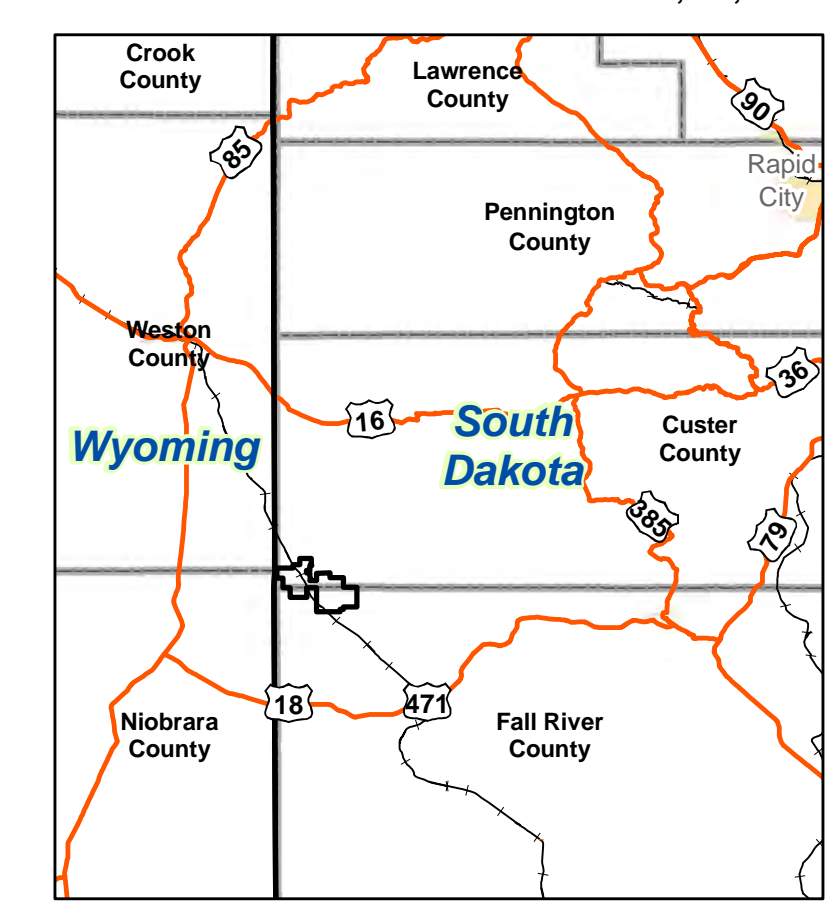
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	R. Lichnovsky	W. Mays	NAD 27, South Dakota State Plane South (feet)
			FILENAME: k:\power\tech\11185\acad\dwg\final_9\burdock_lakota_isopach_7-26-2009.dwg

**POWERTECH USA Inc.**  
**Plate 2.6-7a**  
**Isopach of the Chilson**  
**Member of the Lakota Formation**  
**Burdock Well Field 1**






- Legend**
- Project Boundary
  - BNSF Railroad
  - County Roads
  - Ephemeral Streams
  - Perennial Streams
  - Fuson Thickness (feet)
  - Initial Well Field Areas
  - Measured Thickness of Fuson Shale (drill hole location is the center of text label)



CONSULTANT		REVISIONS		DATE	
#	DRAWN	CHECKED	APPROVED	DATE	
CHECK SCALES		DATE	DATE		
If this has been used		26-Jun-2013	26-Jun-2013		
without a scale bar		HEBCK, Lichnovsky	HEBCK, Lichnovsky		
or at its original issue		PROJECT	R284_FusonIsopach.pdf		
		DESIGNER	F. L. Lichnovsky		
		PROJECT	P1Dewey-Burdock-Submittals/Technical Report (TR), June 2013 Revisions/FusonIsopach.mxd		

  
**Powertech (USA) Inc.**  
**Plate 2.6-8**  
**Isopach of the Fuson Shale**  
 Dewey-Burdock Project  
UTM NAD 27, South Dakota State Plane South (feet)