

REPORT TO THE CHIEF ENGINEER  
ON  
WATER PERMIT APPLICATION NO. 2685-2  
POWERTECH (USA) INC.  
November 2, 2012

Powertech (USA) proposes to recover uranium by a method known as in-situ recovery, or ISR, in which groundwater from the formation containing uranium (the Inyan Kara Group) is pumped to the surface from a field of wells, fortified with oxygen and carbon dioxide, and recirculated through the formation. The oxidized groundwater changes the uranium to a soluble form and is pumped to the surface, where uranium is removed from the solution. ISR circulates water through the uranium ore zone. Only a small fraction of the water is a net withdrawal because most water is recirculated back through the ore zone. A portion of the water extracted from the Inyan Kara Aquifer will be "bled off" to maintain a cone of depression so native groundwater continually flows toward the center of the production zone. Production bleed rates may vary in the range of 0.5 to 3 percent over the life of the project. If necessary, a bleed of up to 17 percent will be used briefly during aquifer restoration. The ISR process is repeated until the economic reserves of uranium are fully removed from that particular well field. The process moves to another well field, and the uranium depleted well field is restored by continuing to circulate clean water through the wells until the water is similar in quality to the water that existed in the formation prior to the ISR operations. Most of the water removed from the Inyan Kara Aquifer during the ISR process is recirculated and re-injected through the well field, resulting in the net consumptive use of water being a small portion of the gross withdrawal rate. Most of the water used in the ISR operations will be obtained from the Inyan Kara Group. However, Powertech (USA) plans to use water from the Madison Aquifer to make up for water that is not provided from the ISR process. The amount of "make-up" from the Madison Aquifer will depend upon the water disposal method which is either deep disposal well or land application. The use of water from these two formations necessitates obtaining water permits from each source. The eastern portion of the project area is known as the Burdock area. It will include a series of ISR well fields and a central processing plant. The western portion of the project areas is the Dewey area which will include ISR well fields and a satellite processing plant.

Water Permit Application No. 2685-2 proposes to appropriate up to 888.8 acre-feet of water annually at an instantaneous peak diversion rate of 1.228 cubic feet of water per second (cfs) (551 gallons per minute (gpm)), from two wells 2,700 – 3,400 feet deep, completed into the Madison aquifer. The wells are to be located in the NW $\frac{1}{4}$  NW $\frac{1}{4}$  Section 32, T6S, R1E and the NW $\frac{1}{4}$  NE $\frac{1}{4}$  Section 11, T7S, R1E. The water is to be used primarily for aquifer restoration following in-situ recovery (ISR) mining but may also be used to supply the facility including the central processing plant, satellite plant and for domestic and livestock use for area landowners inside and near the project area. The amount of water that will be diverted from the Madison aquifer for this project depends on the water disposal method that will be used as part of the ISR process. The disposal method has not been determined but will be either through deep disposal wells or land application. The use of land application disposal will require a diversion rate of 551 gpm, and using deep disposal wells will require a diversion rate of 160 gpm from the Madison aquifer.



## AQUIFER: MADISON (MDSN)

### GEOLOGY AND AQUIFER CHARACTERISTICS:

The Madison aquifer is a major regional aquifer that underlies parts of Montana, North Dakota, South Dakota, Wyoming and Canada. The aquifer underlies most of western South Dakota and a small part of Eastern South Dakota (Figure 1).

The Madison aquifer contains an estimated 644,827,200 acre-feet of recoverable water in storage in western South Dakota (Allen and others, 1985) and 51,512,300 acre-feet of recoverable water in storage in eastern South Dakota (Hedges and others, 1982).

The Madison aquifer occurs within the Mississippian aged Madison Limestone which is locally known as the Pahasapa Limestone. The Madison Limestone is a massive limestone and dolomite with relatively low primary permeability and porosity. Extensive secondary porosity and permeability occur within the Madison in the form of fractures and solution openings. The upper portion of the Madison Limestone in particular is karstic with caves, solution collapse features and enlarged conduits. A number of high yield wells have been developed in the Madison aquifer where these enhanced porosity and permeability features are favorable. The average porosity of the Madison is estimated to be 11% and the effective porosity from which recoverable water can be obtained by wells is assumed to be 5% (Rahn, 1979). The Madison Limestone is estimated to be between 300 feet thick (Carter and Redden, 1999a; and Carter and Redden, 1999b) and 400 feet in this area (Gries, 1981). The Madison dips to the southwest in this area at approximately 200 feet per mile (Carter and Redden, 1999a). The top of the Madison is estimated to be approximately 3,130 feet below ground surface at the "Dewey" well site and approximately 2,715 feet below grade at the "Burdock" well site (Carter and Redden, 1999a).

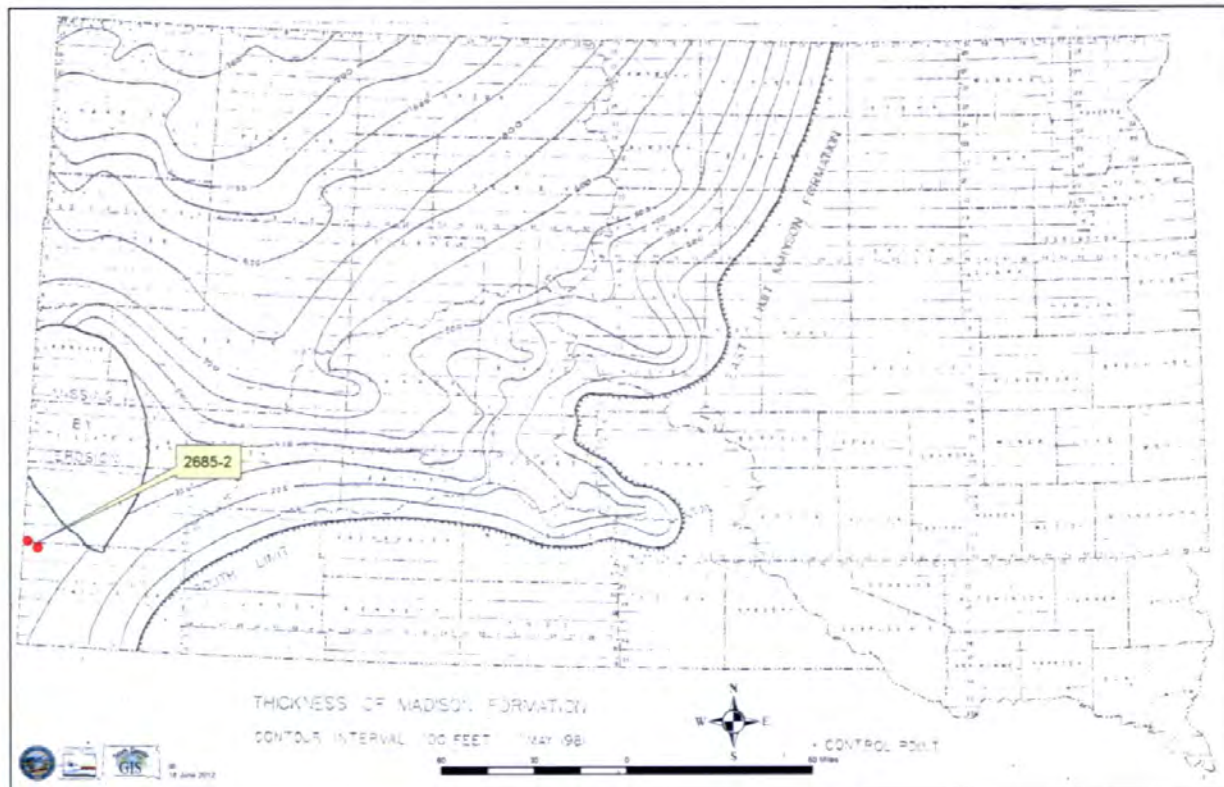


Figure 1. Areal Extent of the Madison Formation in South Dakota and the location of Water Permit Application No. 2685-2: (modified from Gries, 1981)

The well sites, “Dewey” and “Burdock” proposed by this application are located approximately two and one-half, and five and three-fourths miles south, respectively of the Dewey Fault and Structural Zone (DeWitt and others, 1989; and Brobst, 1961). Directly north of the proposed “Dewey” well, the Madison has been displaced approximately 300 feet vertically by the fault and north of the “Burdock” well site the vertical displacement at the fault is approximately 500 feet (Carter and Redden, 1999a). Southwest trending folding (an anticline and syncline) has been identified approximately five miles east-northeast of the proposed well sites and the north-south trending Sheep Canyon monocline is located approximately 11 miles east of “Burdock” well site (Strobel and others, 1999). A generalized stratigraphic column for this area is shown in Figure 2.

The Madison is generally considered an excellent aquifer in terms of its potential to supply good quality water to relatively productive wells, especially near the outcrop (recharge area). The well sites proposed by this application are located 18-20 miles southwest of the Madison outcrop (Strobel and others, 1999).



ABBREVIATION FOR STRATIGRAPHIC INTERVAL	GEOLOGIC UNIT	
Kds	GRANEROS	MOWRY SHALE
		MUDDY SANDSTONE
		NEWCASTLE SANDSTONE
		SKULL CREEK SHALE
Kk	NYAN KARA GROUP	FALL RIVER FORMATION
		LAKOTA FORMATION
Jj		MORRISON FORMATION
		SUNDANCE FORMATION
		GYPSUM SPRING FORMATION
RPs		SPEARFISH FORMATION
Pmk		MINNEKAHTA LIMESTONE
Po		OPECHE SHALE
PIPm		MINNELUSA FORMATION
MDme		MADISON (PAHASAPA) LIMESTONE
		ENGLEWOOD FORMATION
OGd		DEADWOOD FORMATION
pCu		UNDIFFERENTIATED IGNEOUS AND METAMORPHIC ROCKS

Figure 2. Generalized stratigraphic column for this area (modified from Carter and others, 2003)

The lower portion of the Madison and the underlying Englewood Formation form a lower confining zone (Strobel and others, 1999). The Minnelusa Formation unconformably overlies the Madison aquifer and generally serves as an upper confining layer. However, “The hydraulic connection between the Madison Limestone and Minnelusa Formation is spatially variable and may result from faults, fractures, and breccia pipes. Collapse features ... may be pathways for vertical movement of water between these two units.” (Putnam and Long, 2007). The water levels of DENR-Water Rights’ observation wells in the area indicate very distinct potentiometric surfaces in the Minnelusa and Madison, and suggest the aquifers are hydraulically separated.

**SDCL 46-2A-9**

Pursuant to SDCL 46-2A-9, a permit to appropriate water may be issued only if there is reasonable probability that there is unappropriated water available for the applicant's proposed use, that the proposed diversion can be developed without unlawful impairment of existing rights and that the proposed use is a beneficial use and in the public interest.

**WATER AVAILABILITY:**

The probability of unappropriated water available for appropriation can be evaluated by considering SDCL 46-6-3.1 which requires that:

“No application to appropriate groundwater may be approved if, according to the best information reasonably available, it is probable that the quantity of water withdrawn annually from a groundwater source will exceed the quantity of the average estimated annual recharge of water to the groundwater source.”

**Water Balance:**

Recharge to the Madison aquifer occurs through streamflow losses and direct infiltration of precipitation at the outcrop area. "Precipitation recharge [in the Black Hills] is consistently larger than streamflow recharge; however, the relative proportion of streamflow recharge increases as combined recharge decreases" (Carter and others, 2001a). Recharge to the Madison aquifer in South Dakota has been estimated to range from 140,000 to 400,000 acre-feet per year (Woodward-Clyde, 1981). Woodward-Clyde however, essentially defined the Madison aquifer as everything between the Precambrian and the Cretaceous shales. As part of the Black Hills Hydrology Study, the average annual recharge to the Madison aquifer from 1931-1998 was estimated to be approximately 137,000 ac-ft/yr (Carter and others, 2001a).

The high cost of Madison wells, except very near the outcrop, and the availability of groundwater from shallower sources, has limited domestic development from the aquifer. Carter and others, (2001b) estimate "Self-supply Domestic" and "Livestock Watering" only account for approximately 2.25% of the water use from the Madison aquifer. In general, well withdrawals from the Madison are for uses which require water rights/permits. The majority of the water rights/permits from the aquifer are from Butte, Lawrence, Meade, Pennington and Fall River Counties. The Madison supplies water for irrigation, geothermal, industrial, and commercial uses. However, by far the major use of the aquifer is for water distribution systems (suburban housing development and municipal use). The cities of Spearfish, Belle Fourche, Sturgis, Rapid City, Box Elder, and Edgemont all depend on water from wells completed into the Madison aquifer.

There have been a total of 213 applications made for appropriations from the Madison; the statuses of these applications are shown in table 1.

STATUS	NUMBER
Approved and licensed	94
Approved and not licensed	63
Future Use reservation	7
Incorporated into a license	28
Cancelled	17
Denied	1
Deferred	1
Withdrawn	2

Table 1. Water permit applications from the Madison aquifer in South Dakota

There are currently a total of 164 appropriations plus one deferred application from the Madison aquifer in South Dakota. Assuming that: (1) future use permits will be fully developed; (2) appropriations with a specified annual volume limitation will divert to their maximum limit; and (3) appropriations limited by diversion rate only, will be used at 60 percent of full time usage at their maximum diversion rate; the appropriations represent a potential maximum annual withdrawal from the Madison aquifer of approximately 55,000 ac-ft/yr. The assumptions used to estimate the potential maximum withdrawal from the aquifer are extremely conservative and represent a "worst case scenario."

Almost all of the water use from the Madison aquifer in South Dakota is from the Black Hills area. The withdrawals from all wells completed into the Madison aquifer in the Black Hills of



South Dakota and Wyoming, were estimated to average 12,310 acre-feet annually from 1987-1996 (Carter and others, 2001b). The “potential maximum annual withdrawal” from the aquifer for 1996, using the assumptions given above for the appropriations in 1996 is 35,831 ac-ft/yr. Applying the 1996 “potential maximum annual withdrawal” to the estimated average annual use ratio, the average annual withdrawal corresponding with a potential maximum annual withdrawal of 55,000 ac-ft/yr would be less than 20,000 ac-ft/yr.

The quantities of both the average annual recharge and the average annual use for the Madison aquifer are both small percentages of the amount of water stored in the Madison aquifer so the aquifer can actually withstand several years of drought conditions with only minimal impact to wells or springs. Comparison of average annual recharge and average annual withdrawal estimates for the Madison aquifer indicate that unappropriated water is available from the Madison aquifer. The simple water budget comparing the estimated average annual recharge and the potential withdrawal by existing wells and current appropriations is not intended to suggest that all of the water that is in storage in the Madison or that all of the recharge to the aquifer is available for this appropriation, merely to demonstrate that in general the Madison aquifer is an immense resource that is relatively untapped.

**Localized Hydrologic Budget:**

Carter and others (2001b) developed a hydrologic budget for the Madison and Minnelusa aquifers combined, for a subarea based on the hydrogeology, which includes this project area. The hydrologic budget for this subarea balanced from 1987-1996, by estimating that water enters the subarea through streamflow recharge, precipitation recharge and groundwater inflow from the northwest and from the west. Water was assumed to exit this subarea through groundwater outflow to the east, artesian springflow and well withdrawals (see table 2).

Stream-flow recharge	Precipitation recharge	Minnelusa ground-water inflow	Madison ground-water inflow	Minnelusa ground-water outflow	Madison ground-water outflow	Artesian spring-flow	Well withdrawals
4.4 cfs	6.1 cfs	24.5cfs	23.2cfs	8 cfs	4 cfs	44.3 cfs	1.8 cfs

Table 2. Hydrologic budget for the subarea that includes the project area proposed by Application No. 2685-2 for Water Years 1987-1996. Modified from (Carter and others, 2001b).

It is clear that in this subarea most of the recharge to the Madison aquifer is through groundwater inflow, and water leaves this subarea primarily through artesian springflow and groundwater outflow. There are only 27 wells on file with the DENR-Water Rights Program that appear to be completed into the Madison aquifer in the subarea that includes this proposed project (Water Rights, 2012c) and as shown in table 2, well withdrawals are a minor component. Springflow, groundwater inflow and groundwater outflow are all dependent on the groundwater gradient at the subarea boundaries or near the springs. As the aquifer is stressed by changing one or more of the variables in the hydrologic budget, the other interdependent variables adjust until the system equilibrates. Obviously, a new hydrologic budget can balance for this subarea (i.e. a new condition of dynamic equilibrium) with an increase of well withdrawals through a decrease of the natural discharge from the aquifer or an increase of groundwater inflow from adjacent subareas. It can be assumed that with a very subtle change in the hydraulic gradient at either the



inflow zone or the outflow zone, a new dynamic equilibrium would be established in this area with virtually immeasurable impacts to the amount of water in transient storage. Therefore, there is a reasonable probability that unappropriated water is available from this subarea for this proposed use.

**Observation Well Data:**

Administrative Rule of South Dakota Section 74:02:05:07 requires that “the Water Management Board shall rely upon the record of observation well measurements to determine that the quantity of water withdrawn annually from the aquifer does not exceed the estimated average annual recharge to the aquifer.”

The Water Rights Program monitors 26 observation wells completed into the Madison aquifer in the Black Hills area (Water Rights, 2012a). This project area is located within approximately 15 miles of two Water Rights’ Observations completed into the Madison aquifer. Hydrographs for the wells show the aquifer’s response to climatic conditions and clearly demonstrate the system is recharged, (see figures 3 and 4).

The analysis of the DENR-Water Rights Program observation well data provides a qualitative means of assessing the aquifer and provides the best information reasonably available to evaluate the hydrologic budget for the Madison aquifer. Observation well data showing a steady, continual decline of the aquifer’s water level or artesian pressure could indicate that withdrawals from the aquifer were exceeding recharge. In addition, water level fluctuations in an aquifer dominated by the influences of well withdrawals, or a change in the gradient of the potentiometric surface could indicate that well pumping is a significant component in the system relative to recharge and/or natural withdrawals.

Observation well data for the Madison aquifer documents: 1) upward trending water levels; 2) that at the current level of development, climatic conditions greatly mask any temporal effects of well withdrawals thus the combined recharge to and natural discharge from the Madison aquifer significantly exceeds long term well withdrawals; and 3) the potentiometric surface of the aquifer has been relatively unchanged over time. Therefore, the observation well data shows that unappropriated water is available from the Madison aquifer.

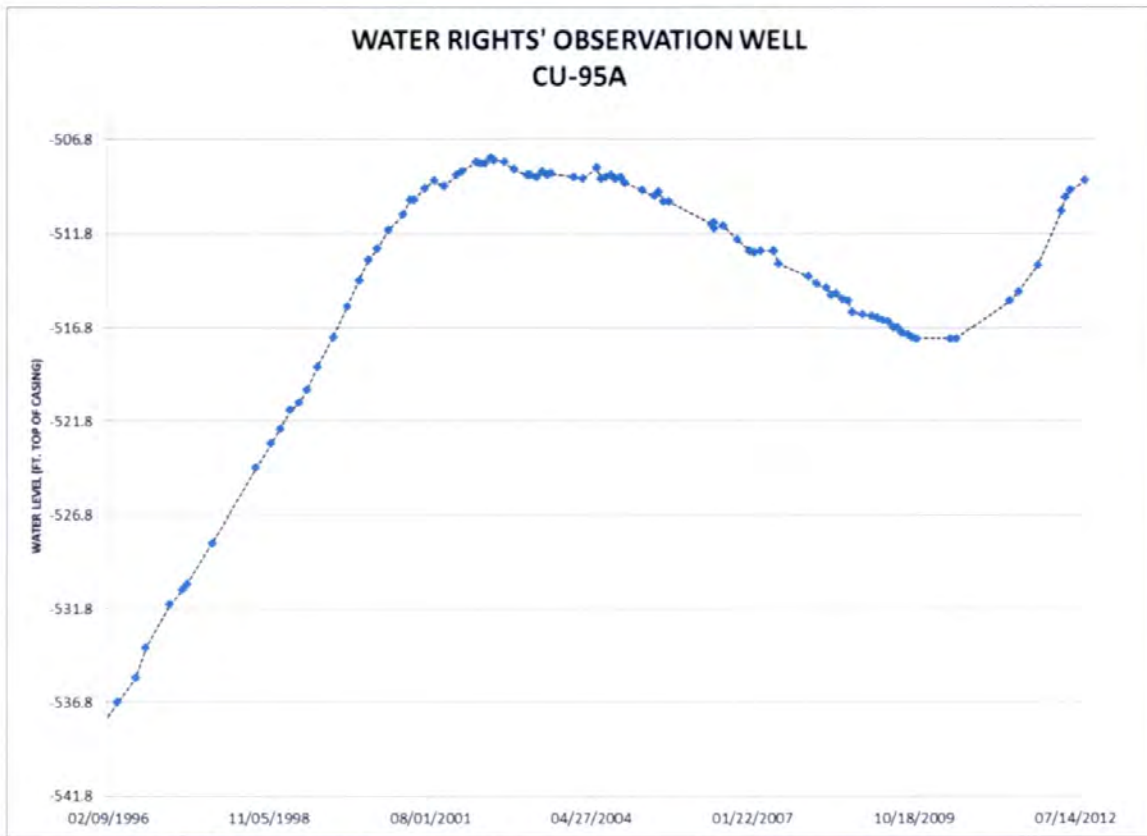


Figure 3. DENR-Water Rights observation well completed into the Madison aquifer located approximately 10 miles northeast of the project area proposed by Application No. 2685-2.



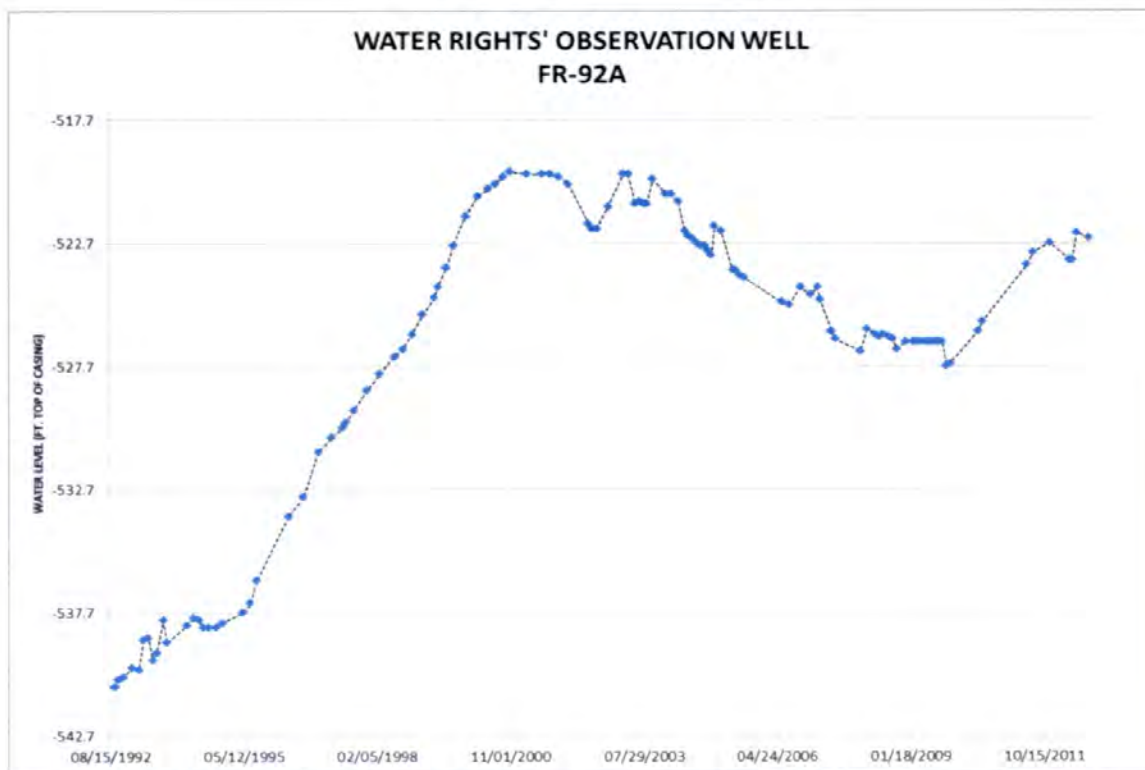


Figure 3. DENR-Water Rights observation well completed into the Madison aquifer located approximately 15 miles east of the project area proposed by Application No. 2685-2.

**AFFECTS ON EXISTING RIGHTS:**

Water Rights/Permits supplied by wells completed into aquifers that are stratigraphically above or below the Madison are not expected to be affected by Madison aquifer withdrawals since the lower Minnelusa Formation and the lower Madison Limestone generally serve as upper and lower confining units for the Madison aquifer. The displacement of the Madison Limestone caused by the Dewey Fault likely provides a north-south groundwater barrier for most of the length of the fault and drawdown from wells south of the fault is not expected to extend to the north of the fault.

It is difficult to precisely estimate the amount and extent of drawdown that will result from pumping a well completed into the Madison aquifer since the well conditions are site specific. The transmissivity of the aquifer is very heterogenous with values that range over several orders of magnitude (Putnam and Long, 2007). In addition the aquifer characteristics of the Madison can vary considerably within a short distance (Greene, 1993). The transmissivity of the Madison at flow zones into and out of this subarea was estimated at between 732 and 7,393 feet squared per day (ft<sup>2</sup>/d) (Carter and others, 2001b). The hydraulic gradient of the Madison aquifer in this area appears to be very low which generally indicates high transmissivity (Water Rights, 2012a; Water Rights, 2012b and Water Rights, 2012c). The transmissivity for this subarea is expected to be as high as 7,393 ft<sup>2</sup>/d in this area (Carter and others, 2001b) therefore drawdown could be even less than predicted by the Theis equation.

Applying the transmissivity and storage coefficient (i.e. T= 3,000 ft<sup>2</sup>/d; and S= 2x10<sup>-4</sup>) estimated for the Madison aquifer in this area (Woodward-Clyde Consultants, 1980), the drawdown 1,000 feet

from a well pumping 551 gpm would be less than 35 feet after twenty years of continuous pumping based on the Theis Equation (see Figure 4) (“Theis Equation Calculator”). Since the transmissivity for this area is likely higher than 3,000 ft<sup>2</sup>/d, drawdown would be less than predicted by the Theis Equation. The Theis equation requires a number of simplifying assumptions, some of which may not apply in this case however, the solution is still useful.

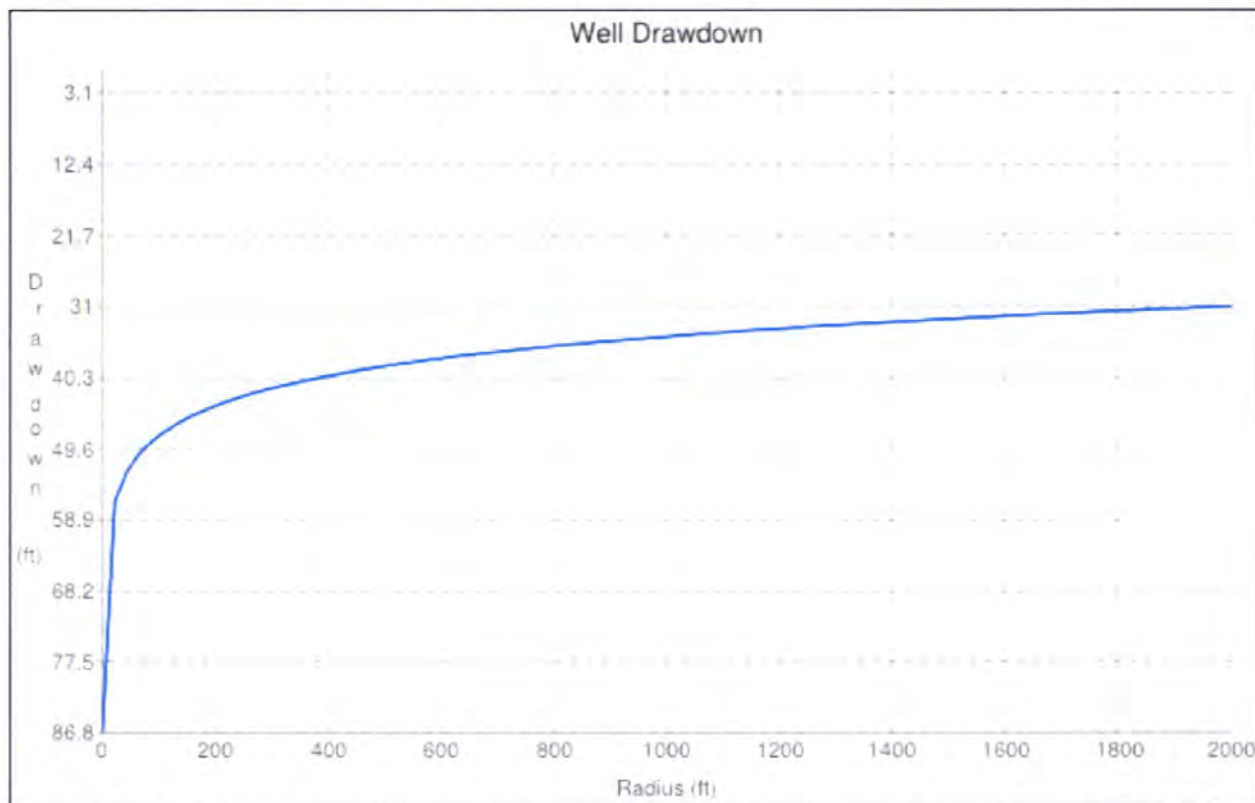


Figure 5. Drawdown predicted from a well pumping 551 gallons per minute from the Madison aquifer, continuously for one year, assuming  $T= 3,000 \text{ ft}^2/\text{d}$ ,  $S= 2 \times 10^{-4}$ ,  $t=20 \text{ yrs}$ . (modified from (“Theis Equation Calculator”))

There are only 16 wells on file with the DENR-Water Rights Program that appear to be completed into the Madison aquifer within approximately 16 miles of this project area. Only one of these wells, a domestic well for Steve Casters, located in the SE $\frac{1}{4}$  SW $\frac{1}{4}$  Section 14, T5S-R1E (i.e. approximately nine miles north-northeast of the “Dewey” well proposed by this application), is within 10 miles of this project area. If this application is approved, drawdown from either or both wells is not expected to be significant to existing wells. Well interference is not expected to be significant.

If this application is approved, the drawdown caused by pumping a well or wells at a rate of 551 gallons per minute is not expected to adversely impact domestic wells or wells supplying prior appropriation. This is especially the case when considering the Madison is under artesian conditions with several hundred feet of head pressure at the documented natural fluctuation in this area (see figure 3 and 4). Wells supplying existing Water Rights/Permits and domestic uses are protected from adverse impacts per Water Management Board rules 74:02:04 and 74:02:05, which were promulgated pursuant to SDCL 46-6-6.1. These rules provide for the regulation of



large capacity wells to the degree necessary to maintain an adequate depth of water for a prior appropriator in wells that have the ability to produce water **independent of artesian pressure**. Simply put, the pump placement in a prior appropriator's well is not necessarily protected.

If the water levels in the Madison aquifer were to decline, owners of existing wells bear the responsibility of lowering the pump inlet in the well to the top of the aquifer, if necessary. Increased lift would decrease the pump discharge; or require a larger pump or a different type of a pump to maintain the same output.

An increase in operating expenses that may result from interference between wells is not necessarily an adverse impact. The Water Management Board considered this situation in the matter of Water Permit Application 2313-2, Coca-Cola Bottling Company of the Black Hills (Water Rights, 1995). The Board adopted findings of fact and conclusions of law that basically state that if the increased cost or decreased production is considered an adverse impact, it could be in conflict with SDCL 46-1-4, which requires South Dakota's water resources to be put to beneficial use to the fullest extent of which they are capable.

It should be noted however, that well interference (drawdown) measured at Water Rights' observation wells located near high capacity municipal wells in Spearfish, Sturgis and Rapid City has never been significant (i.e. drawdown of only a few feet or tens of feet) (Water Rights, 2012a).

Given the distance between the well that is to supply this appropriation and existing Madison wells, well interference is not expected to be adverse.

#### **BENEFICIAL USE OF WATER:**

In the past, the Water Management Board has determined that the use of water for mining purposes is a beneficial use of water. The Water Management Board has not yet considered if in situ recovery is a beneficial use of water.

#### **PUBLIC INTEREST:**

Historically, "public interest issues" have been raised by the public during Water Management Board hearings. However, the Chief Engineer has raised the question of whether the Board should consider a large decrease in spring output as a public interest issue if such a decrease would occur. The Water Management Board accepted that SD Water Law does not protect artesian head pressure as a means of diversion and determined that well interference resulting in decreased discharge from these "artesian" springs likely could not be considered an adverse impact. The Board concluded that "The only protection South Dakota law provides when considering an application for an underground water permit for flow from an artesian spring is under the public interest criteria" (Water Management Board Findings dated 19 March 2007 (Paragraph 11)). Consequently, the Board has conditioned a number of recent water permits appropriating water from the Madison aquifer with a qualification such as:

"The Permit Holder shall control withdrawals from the well so there is not a significant adverse effect on the water flow from area springs or a significant adverse effect on the water quality and character in area springs."



Rahn and Gries, (1973) identify four springs in the subarea defined by Carter and others (2001b) in which this proposed project is to be located. The springs are shown in Table 3.

SPRING	DISCHARGE (cfs) *	APPROXIMATE DISTANCE FROM 2685-3 (miles)	LIKELY SOURCE
Cold Brook	0.66	≈23 miles	Partly evolved Minnelusa**
Hot Brook	1.98	≈24 miles	Distinct Madison**
Fall River	22.92	≈25 miles	Madison and Partly evolved Minnelusa**
Cascade	23.65	≈21 miles	Madison***

\* (Rahn and Gries,1973) \*\*(Whalen,1994) \*\*\* (Hayes,1999)

Table 3. Springs located within the subarea defined by Carter and Driscoll (2001) in which 2685-2 is located.

A fairly large change in the hydraulic gradient in the vicinity of the springs would be necessary to significantly affect the groundwater flow rates and consequently the spring's discharge. Given the distance involved and the relatively low diversion rate proposed by this application, (551 gpm maximum), it is unlikely that drawdown from this well would have a measurable impact on the spring discharge.

During the public hearing to consider Water Permit Application No. 2585-2, the National Park Service contended that the possibility of an impact on the park may exist if the water levels in the underground caves were lowered. Geochemical data indicates that water at Wind Cave sites has contributions from recharge that occurred on the western outcrop of the Madison aquifer (Long). Again, since a fairly large change in the hydraulic gradient in the vicinity of Wind Cave National Park would be required to affect the water levels in the park, it is unlikely that drawdown from this proposed appropriation would be measurable at Wind Cave National Park due to the distance involved.

**TERM LIMITATION:**

SDCL 46-2A-20 requires that "... no water permit for construction of works to withdraw water from the Madison formation in Butte, Fall River, Custer, Lawrence, Meade and Pennington counties may be issued for a term of more than twenty years, unless the water management board determines, based upon the evidence presented at the hearing that:

- (1) Sufficient information is available to determine whether any significant adverse hydrologic effects on the supply of water in the Madison formation would result if the proposed withdrawal were approved; and
- (2) The information, whether provided by the applicant or by other means, show that there is a reasonable probability that issuance of the proposed permit would not have a significant adverse effect on nearby Madison formation wells and springs."


Pursuant to SDCL 46-2A-21, "at the end of the twenty-year limitation, the board may cancel a permit or amend the permit with a new term limitation of up to twenty years, if the board is unable to make a finding after notice and hearing that sufficient information is available to delete the term limitation."



Although the criteria for approval of a water permit established by SDCL 46-2A-9 are met, (i.e., there is a reasonable probability that unappropriated water is available for the applicant's proposed use, and this proposed diversion can be developed without unlawful impairment of existing rights); evidence is not available to justify issuing this permit without a term limitation of 20 years.

**CONCLUSIONS:**

1. The Madison aquifer is a major regional aquifer and a viable source of water for this proposed appropriation.
2. This application proposes to appropriate 1.228 cubic feet of water per second. There is no limit to the annual volume of water that can be diverted other than the physical constraints of the maximum diversion rate.
3. There is a reasonable probability that unappropriated water is available in the Madison aquifer to supply this appropriation.
4. Approval of this application will not result in average annual withdrawals from the Madison aquifer to exceed the average annual recharge to the aquifer.
5. There is a reasonable probability this appropriation can be made without adversely impacting existing water rights including domestic users.
6. Information is not available to justify issuing these permits without a term limitation of 20 years.
7. Following notice and a public hearing, the Water Management Board may cancel this permit or amend it with a new term limitation after twenty years.



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**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

PMB 2020  
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**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT  
APPLICATION NO. 2685-2, Powertech (USA) Inc.**

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Program, Department of Environment and Natural Resources concerning Water Permit Application No. 2685-2, Powertech (USA) Inc., c/o Richard Blubaugh, 5575 DTC Parkway, Suite #140, Greenwood Village CO 80111.

The Chief Engineer is recommending Approval of Application No. 2685-2 for a 20 year term pursuant to SDCL 46-1-14 and 46-2A-20 because 1) although evidence is not available to justify issuing this permit without a 20 year term limitation, there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use, and 4) it is in the public interest with the following qualifications:

1. The permit holder shall report to the Chief Engineer annually, the amount of water withdrawn from the Madison Aquifer. This annual reporting shall report separately the amount of water use for the insitu mining operation and water supplied for domestic/livestock use in the area.
2. The wells approved under this Permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
3. The wells authorized by Permit No. 2685-2 shall be constructed by a licensed well driller and construction shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.
4. In accordance with SDCL 46-1-14 and 46-2A-20, Permit No. 2685-2 is issued for a twenty year term. Pursuant to SDCL 46-2A-21, the twenty year term may be deleted at any time during the twenty year period or following its expiration. If the twenty year term is not deleted at the end of the term, the permit may either be cancelled or amended with a new term limitation of up to twenty years. Permit No. 2685-2 may also be cancelled for nonconstruction, forfeiture, abandonment or three permit violations pursuant to SDCL 46-1-12, 46-5-37.1 and ARSD 74:02:01:37.
5. The Permit holder under this permit shall control withdrawals from the wells so there is not a significant adverse effect on the water flow from area springs or a significant adverse effect on the water quality and character in area springs.



See report on application for additional information.



Garland Erbele, Chief Engineer

November 6, 2012

NOTE: In addition to obtaining water right permits, Powertech (USA) is subject to compliance with all other state of South Dakota and federal government regulations relating to water use and insitu mining.

REPORT TO THE CHIEF ENGINEER  
ON  
WATER PERMIT APPLICATION NO. 2686-2  
POWERTECH (USA) INC.  
NOVEMBER 2, 2012

Powertech (USA) proposes to recover uranium by a method known as in-situ recovery, or ISR, in which groundwater from the formation containing uranium (the Inyan Kara Group) is pumped to the surface from a field of wells, fortified with oxygen and carbon dioxide, and recirculated through the formation. The oxidized groundwater changes the uranium to a soluble form and is pumped to the surface, where uranium is removed from the solution. ISR circulates water through the uranium ore zone. Only a small fraction of the water is a net withdrawal because most water is recirculated back through the ore zone. A portion of the water extracted from the Inyan Kara Aquifer will be "bled off" to maintain a cone of depression so native groundwater continually flows toward the center of the production zone. Production bleed rates may vary in the range of 0.5 to 3 percent over the life of the project. If necessary, a bleed of up to 17 percent of 500 gpm will be used briefly during aquifer restoration. The ISR process is repeated until the economic reserves of uranium are fully removed from that particular well field. The process moves to another well field, and the uranium depleted well field is restored by continuing to circulate clean water through the wells until the water is similar in quality to the water that existed in the formation prior to the ISR operations. Most of the water removed from the Inyan Kara Aquifer during the ISR process is recirculated and re-injected through the well field, resulting in the net consumptive use of water being a small portion of the gross withdrawal rate. Most of the water used in the ISR operations will be obtained from the Inyan Kara Group. However, Powertech (USA) plans to use water from the Madison Aquifer to make up for water that is not provided from the ISR process. The amount of "make-up" from the Madison Aquifer will depend upon the water disposal method which is either deep disposal well or land application. The use of water from these two formations necessitates obtaining water permits from each source. The eastern portion of the project area is known as the Burdock area. It will include a series of ISR well fields and a central processing plant. The western portion of the project areas is the Dewey areas which will include ISR well fields and a satellite processing plant.

Water Permit Application No. 2686-2 proposes to appropriate up to 274.2 acre feet of water annually (ac-ft/yr) from wells completed into the Inyan Kara aquifer at depths between 200 – 800 feet. The wells will be located within a project area that encompasses approximately 10,580 acres located in portions of Sections 1-5, 10-12, and 14-15 in T7S-R1E and Section 20-21, and 27-35 in T6S-R1E, Black Hills Meridian. This application proposes a gross withdrawal (flow) rate of 18.938 cubic feet of water per second (cfs) which is equivalent to approximately 8,500 gallons per minute (gpm). A "net" or consumptive use of water will be a small portion of the gross withdrawal rate. Approximately two percent of the water is "bled off" during the process in order to maintain flow gradients toward the center of the well field. The remaining approximate ninety eight percent of the water is recirculated and continuously re-injected into the Inyan Kara aquifer as part of the In-Situ Recovery (ISR) process. Approval of this permit would authorize a maximum net (consumptive) withdrawal rate from the Inyan Kara aquifer



limited to 0.38 cfs (170 gpm) and limit the net (consumptive) withdrawal volume from the Inyan Kara aquifer to 274.2 acre feet of water annually.

Uranium recovery operations will continue for approximately 7 to 20 years. A typical well field grid of Inyan Kara wells consists of a 100 by 100 foot grid with one production well in the center and four surrounding wells for injection into the ore body. The well pattern may differ from well field to well field and be modified as needed to fit the characteristics of each ore body. Well fields will be completed along the various uranium zones. Current development plans include the construction of approximately 600 ISR production wells in the "Dewey" portion of the project area and approximately 900 ISR production wells in the "Burdock" portion of the project area. The maximum number of production wells in operation at any one time within the entire project area during production and restoration is 1,000 wells. Based on the project life and number of production wells scheduled as the well fields are developed, Powertech (USA) anticipates requesting a permit amendment in the future for an extension of the five year construction period pursuant to SDCL 46-2A-8. Powertech (USA) will provide an annual diversion report to DENR describing the number and location of pumping production wells. This report will include a request for change in the number and designated locations of pumping wells pursuant to SDCL 46-5-13.1. This statute allows for the location of point of diversion or additional points of diversion to be approved without application or publication if the wells are completed into the same source, no additional water is appropriated and the Chief Engineer makes a finding that the change does not increase the potential for interference with existing diversions.

#### **AQUIFER: INYAN KARA (INKR)**

##### **GEOLOGY AND AQUIFER CHARACTERISTICS:**

The Inyan Kara aquifer is composed of the portions of the Lower Cretaceous aged Inyan Kara Group that contain sufficient saturated permeable material to yield quantities of groundwater to wells. The Inyan Kara Group was deposited in shallow waters along the eastern shore of the Skull Creek Sea (Merewether, 1975) and in general, consists of a sequence of interbedded sandstones, siltstones, and mudstones of fluvial, lacustrine, and possibly eolian origin (Schnabel, 1963). The Inyan Kara Group is made up of two geologic formations: the Fall River formation and the underlying Lakota formation. The Fall River formation, which is about 150 feet thick in the Burdock quadrangle (Schnabel, 1963) and has an average thickness of 125 feet in the Dewey quadrangle (Brobst, 1961), has been mapped as three units in this area: an upper unit composed of interlayered mudstones and fine to very fine-grained sandstones; a middle unit of interbedded sandstone and mudstone with massive, medium-grained sandstone; and a lower unit of siltstone and thin beds of sandstone (Brobst, 1961; and Schnabel, 1963)). The Lakota formation has been divided into three units that in descending order are: the Fuson member, which is a sequence of sandstone and mudstone; the Minnewaste member, which is a series of impure limestones; and the Chilson member, which consists of thick channel sandstone interbedded with sandstone and mudstone (see figure 1). The Lakota formation ranges in thickness from about 200 feet to about 350 feet in the Burdock quadrangle (Schnabel, 1963). In the Dewey quadrangle, the average thickness of the Lakota formation is estimated to be 225 feet (Brobst, 1961).



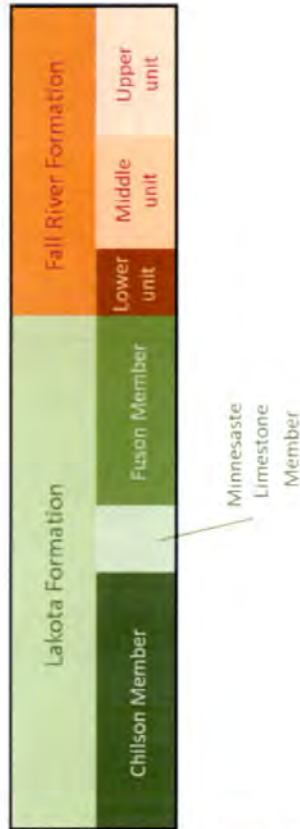


Figure 1. Generalized stratigraphic column for the Inyan Kara Group

The applicant contends that the Fuson member of the Lakota formation is an aquitard between a “Fall River aquifer” and a “Lakota aquifer” and data submitted with this permit application suggest distinct potentiometric surfaces with slightly different groundwater flow directions between the two “aquifers”. However, the Fuson member consists of a sequence of sandstone and mudstone and “Locally, the sandstone beds reach varying degrees of prominence, and in some places form the whole Fuson member” (Schnabel, 1963). Although it is possible that the Fuson member of the Lakota formation is an aquitard in the vicinity of this project, on a regional scale the degree to which the Fall River and Lakota formations are hydraulically connected or separated is unclear and the two formations are typically considered parts of a single Inyan Kara aquifer (e.g. Driscoll and others, 2002; Galloway, 1999; and Strobel, et. al., 2000). For the purpose of appropriations, the DENR-Water Rights Program and the Water Management Board consider the Inyan Kara a single aquifer.

The Inyan Kara aquifer occurs at a regional scale, extending into Wyoming, North Dakota and Nebraska as well as a major portion of South Dakota (see figure 2). The Inyan Kara underlies over 36,000 square miles and contains over 324 million acre-feet of recoverable water in storage in western South Dakota alone (Allen and others, 1985). Although the Inyan Kara is areally extensive, only a portion of the water it contains is fresh. More than one-half of the water in the Inyan Kara is moderately saline, and the water is saline to brine in parts (Driscoll and others, 2002). The Inyan Kara Group outcrops in the eastern portion of the project area proposed by this application and the top of the Inyan Kara is approximately 600 feet below grade at the western edge of the project area (Carter and Redden, 1999). The potentiometric surface of the Inyan



Kara aquifer ranges from around 3,800 feet mean sea level elevation (msl) to 3,600 feet msl in this area (Strobel and others, 2000). The aquifer is under unconfined conditions in the eastern portion of the proposed project area and under confined conditions in the western portion of the area. Water levels of wells in the project area reportedly range from approximately 140 feet below grade to over 74 feet above ground surface (i.e. flowing wells with up to 32 psi shut-in pressure).

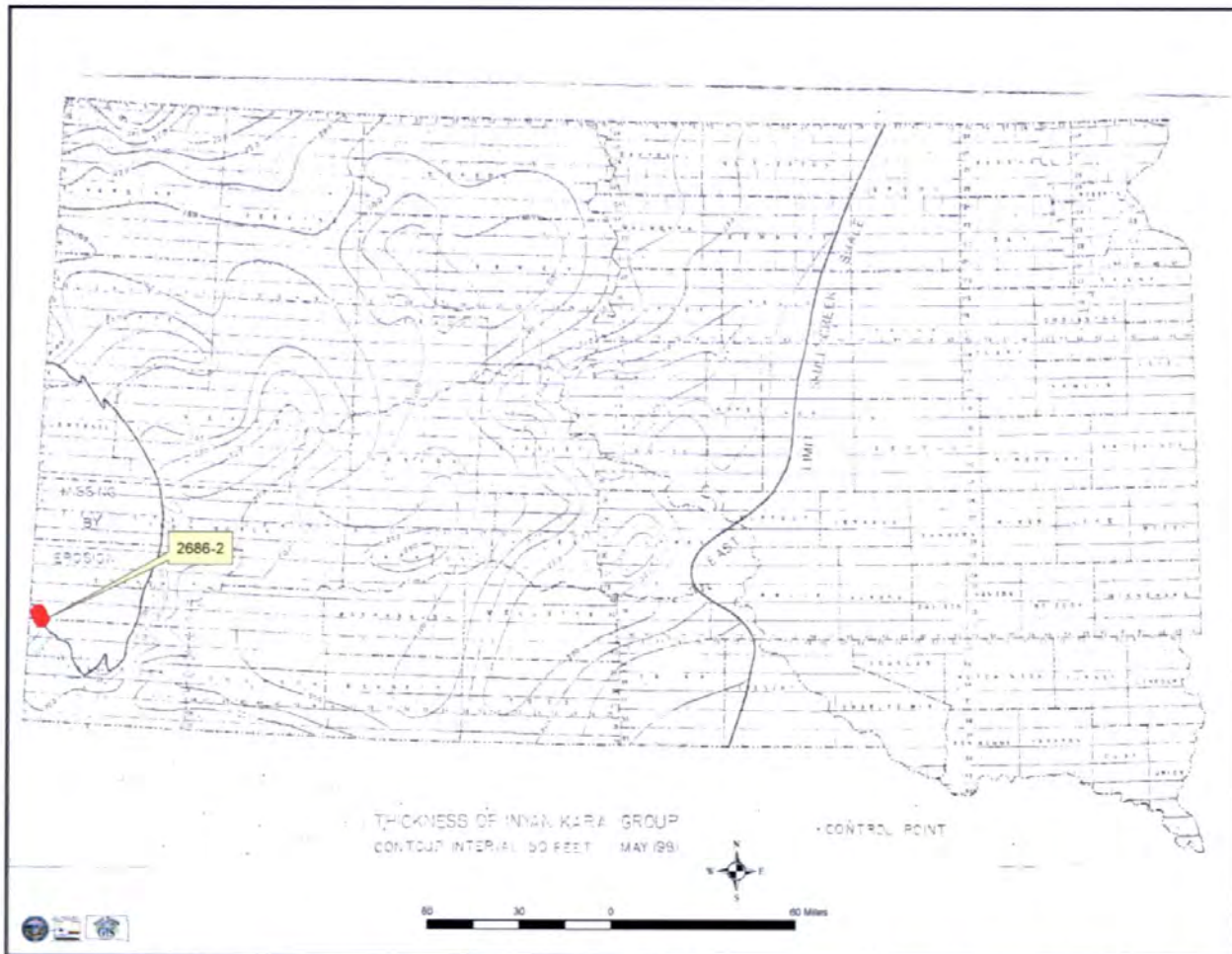


Figure 2. Areal extent of the Inyan Kara aquifer and the location of Water Permit Application No. 2686-2: (modified from Gries, 1981)

#### **SDCL 46-2A-9**

Pursuant to SDCL 46-2A-9, a permit to appropriate water may be issued only if there is reasonable probability that there is unappropriated water available for the applicant's proposed use, that the proposed diversion can be developed without unlawful impairment of existing rights and that the proposed use is a beneficial use and in the public interest.

#### **WATER AVAILABILITY:**

The probability of unappropriated water available for appropriation can be evaluated by considering SDCL 46-6-3.1 which requires that:



“No application to appropriate groundwater may be approved if, according to the best information reasonably available, it is probable that the quantity of water withdrawn annually from a groundwater source will exceed the quantity of the average estimated annual recharge of water to the groundwater source.”

### **Water Balance:**

#### Recharge:

Recharge to the Inyan Kara aquifer is through infiltration of precipitation at the outcrop and the aquifer also appears to be receiving water from the underlying Paleozoic aquifers (Schoon, 1971; Gott and others, 1974; Lobmeyer, 1985). An average annual recharge rate has not been quantified for the Inyan Kara aquifer. However, annual recharge to the portion of the Inyan Kara aquifer that outcrops in South Dakota alone, from the precipitation component only, was estimated for 1950-1998 to be 11,600 acre-feet per year (Driscoll and Carter, 2001).

#### Withdrawals:

There are a total of 185 Water Rights/Permits appropriating water from the Inyan Kara aquifer in South Dakota. In addition, Future Use Permit 1780-2, Town of New Underwood, reserves 142 ac-ft/yr from the Inyan Kara aquifer for future use. The estimated average annual withdrawal of appropriations is 10,700 ac-ft/yr. This estimate is based on: 1) annual water use reported in the latest public water system survey for municipal, suburban housing development and rural water system appropriations where applicable (DENR-Drinking Water Program, 2009-2012); 2) calculated annual use based permitted animals and rates of 20 gallons per day for beef cattle, 5 gallons per day for swine, 15 gallons per 100 turkeys, and 9 gallons per 100 chickens for large confinement operations permitted by DENR (Roth); 3) irrigation questionnaire reporting for irrigation permits when available (DENR-Water Rights Program, 2012a); 4) the most current water use reported for non-irrigation appropriations that are required to report (DENR-Water Rights Program, 2012b); 4) assuming unreported water rights/permits limited to an annual volume will be used to the maximum and water rights/permits limited by diversion rate will be used 60% of continuous pumping at the maximum diversion rate for their annual use period.

The estimated average annual withdrawal from the Inyan Kara (10,700 ac-ft/yr) is less than the precipitation recharge component alone for the aquifer (11,600 ac-ft/yr). Therefore, there is a reasonable probability that there is 274.2 acre-feet of unappropriated water available annually to supply this proposed appropriation. The quantities of both the average annual recharge and the average annual use for the Inyan Kara aquifer are both small percentages of the amount of water stored in the Inyan Kara aquifer so the aquifer can actually withstand several years of drought conditions with only minimal impact to wells.

The simple water budget comparing the estimated average annual recharge and the potential withdrawal by existing wells and current appropriations is not intended to suggest that all of the water that is in storage in the Inyan Kara aquifer or that all of the recharge to the aquifer is available for this appropriation, merely to demonstrate that in general the Inyan Kara aquifer is an immense resource that is relatively untapped.



### Localized Hydrologic Budget:

A separate hydrologic budget was developed for a subarea of the Inyan Kara aquifer that includes the project area proposed by this application. The subarea was identified based on the structural geology of the area with the Dewey Fault and Structural Zone considered the northern boundary, and the Cottonwood Anticline and/or the Sheep Canyon Monocline considered the southern boundary (see Figure 3). (Note: the Cottonwood Anticline is just southeast of the area shown in figure 3).

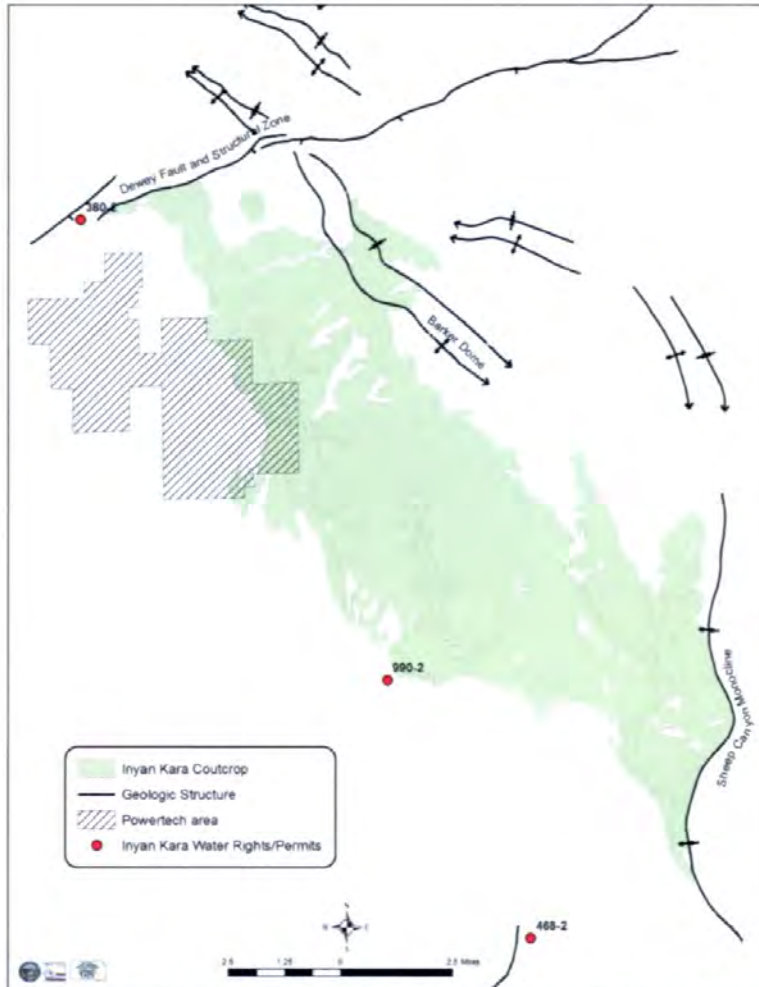


Figure 3. Subarea of the Inyan Kara aquifer including the Powertech project area and major structural features.

“The Dewey Fault begins in the Elk Mountains, about 2 ½ miles northeast of Dewey. The fault appears to be continuous for at least 6 ½ miles. Measurable vertical displacement on the fault is about 60 feet on the dip slope of the mountain but is at least 200 feet in Secs. 21, 22, and 28, T. 41 N., R. 60 W.” (Brobst, 1961). Although the entire thickness of the Inyan Kara aquifer is not offset by the displacement of the fault, assuming the fault is a hydrologic barrier produces a more restrictive area and consequently produces a more conservative subarea.

Likewise, assuming the Cottonwood Anticline and/or the Sheep Canyon Monocline, the first major structural feature southeast of this project area, as a southern hydrologic barrier produces a conservative subarea.

The Inyan Kara Group outcrops over approximately 41,800 acres of the subarea shown in Figure 2. Precipitation recharge to the subarea estimated using the yield-efficiency algorithm developed by Driscoll and Crater (2001) is approximately 1,400 acre-feet per year. There are three existing water rights appropriating water from the Inyan Kara in this area (see table 1).

PERMIT NO	NAME	STATUS	USE	CFS	ACRES	APPROPRIATION (AC-FT/YR)
380-2	HENRY C HOLLENBECK	LC	IRR	0.85	60	180
468-2	CITY OF EDGEMONT	LC	MUN	0.2	0	86.88
990-2	EFFIE M GOW	LC	IRR	0.13	20	60

LC= Water Right, IRR= Irrigation, Appropriation based on three acre-feet/acre per year for irrigation and 60% of full time pumping for municipal use

Table 1. Water Rights within the subarea of the Inyan Kara aquifer that includes the project proposed by Application No. 2686-2

The estimated annual withdrawal from the subarea of Inyan Kara aquifer (<326.88 ac-ft/yr ) is less than the precipitation recharge estimated for subarea (1,400 ac-ft/yr) and there is a reasonable probability that there is 274.2 acre-feet of unappropriated water available annually to supply this proposed appropriation. (Incidentally, even if only the portion of the Inyan Kara outcrop that is directly up dip of the project area is considered, the precipitation recharge to the area can be expected to be at least 564 acre-feet per year using the yield-efficiency algorithm.)

**OBSERVATION WELL DATA:**

Administrative Rule of South Dakota Section 74:02:05:07 requires that “the Water Management Board shall rely upon the record of observation well measurements to determine that the quantity of water withdrawn annually from the aquifer does not exceed the estimated average annual recharge to the aquifer.”

The DENR-Water Rights Program monitors nine observation wells completed into the Inyan Kara aquifer statewide. Eight of these wells are located near the perimeter of the Black Hills (see Figure 4). Hydrographs for the observation wells are shown in Figures 5-12.



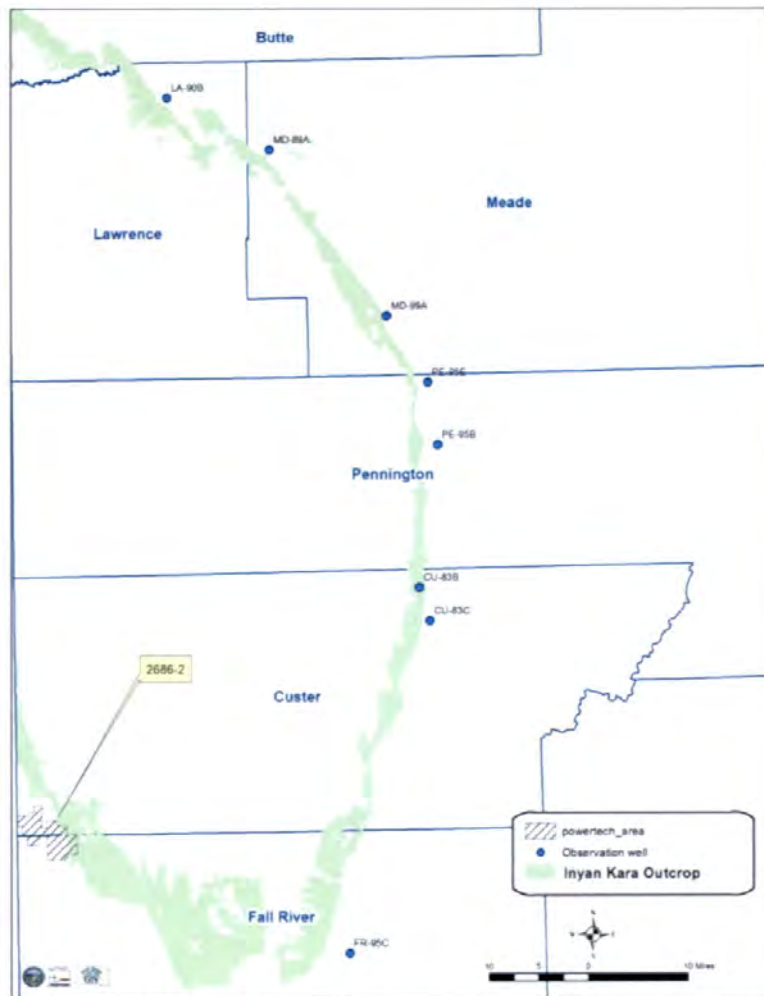


Figure 4. Location map of DENR-Water Rights' observation wells completed into the Inyan Kara aquifer



Figure 5. Hydrograph of Inyan Kara aquifer observation well, see figure 4 for location.



Figure 6. Hydrograph of Inyan Kara aquifer observation well, see figure 4 for location.

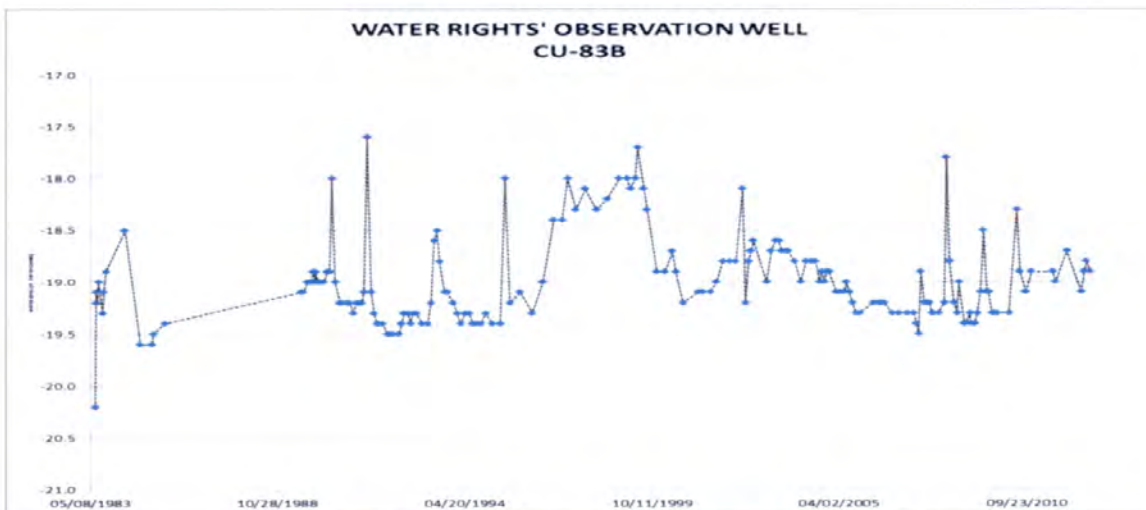


Figure 7. Hydrograph of Inyan Kara aquifer observation well, see figure 4 for location.



Figure 8. Hydrograph of Inyan Kara aquifer observation well, see figure 4 for location.





Figure 9. Hydrograph of Inyan Kara aquifer observation well, see figure 4 for location.



Figure 10. Hydrograph of Inyan Kara aquifer observation well, see figure 4 for location.

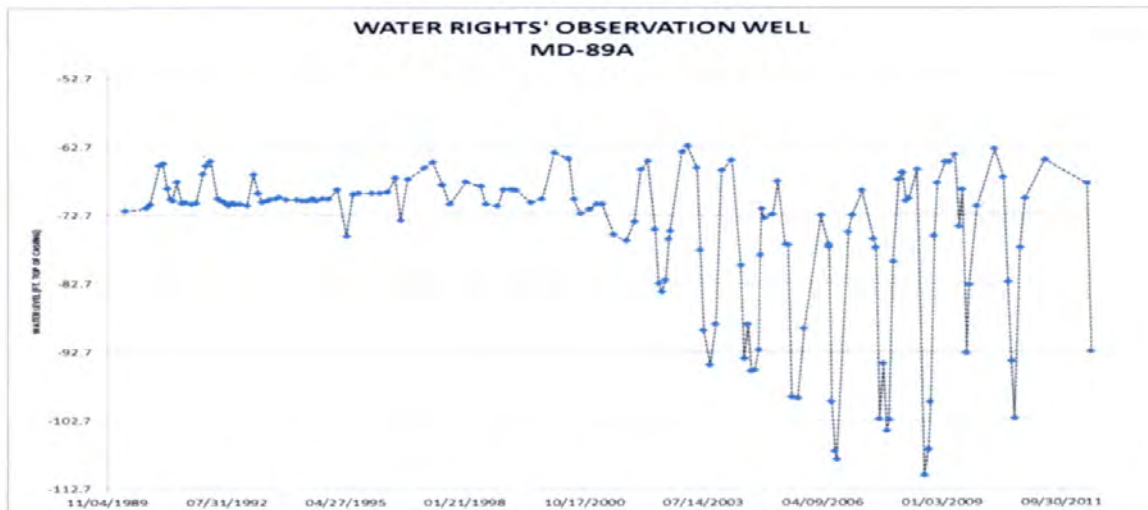


Figure 11. Hydrograph of Inyan Kara aquifer observation well, see figure 4 for location.



Figure 12. Hydrograph of Inyan Kara aquifer observation well, see figure 4 for location.

The observation well data for the Inyan Kara aquifer documents: 1) upward trending water levels; 2) that at the current level of development, climatic conditions greatly mask any temporal effects of well withdrawals thus the combined recharge to and natural discharge from the Inyan Kara aquifer significantly exceeds long term well withdrawals; and 3) the potentiometric surface of the aquifer has been relatively unchanged over time. Therefore, the observation well data shows that unappropriated water is available from the Inyan Kara aquifer.

**AFFECTS ON EXISTING WATER RIGHTS:**

Water rights/permits supplied by sources other than the Inyan Kara aquifer are not expected to be affected by Inyan Kara aquifer withdrawals since the aquifer is confined by the overlying Skull Creek shale and the underlying Morrison formation separates the aquifer from lower aquifers in this area.

The nearest water right to the project area proposed by this application that appropriates water from the Inyan Kara aquifer is Water Right No. 380-2 for Henry C. Hollenbeck. The water right authorizes the irrigation of 60 acres using a free flowing well located in the approximate center of the NW¼ of Section 17, T6S-R1E (i.e. approximately 0.6 miles north of the project area proposed by this application). Based on the Brobst (1961) delineation of the Dewey Fault and location of the well, the well that supplies Water Right No. 380-2 appears to be on the opposite side of the Dewey Fault from the Powertech project area. The displacement of this fault between the Hollenbeck well and the Powertech area is approximately 120 feet (Brobst, 1961). Since the fault does not completely offset the Inyan Kara Group in this area, the extent that the fault serves as a flow boundary is not clear. Earlier in this report, for the purpose of evaluating the availability of unappropriated water, the Dewey Fault was considered the northern extent of a subarea. Considering the fault as a flow barrier for the purpose of assessing water availability provided a “most conservative” analysis. For the purpose of considering the impairment of existing rights however, the most conservative analysis involves assuming the fault is not a flow boundary. Even by assuming the fault is not a flow boundary, and the entire 170 gallons per minute were withdrawn at the nearest possible point in the project area from the Hollenbeck well (an approach that over-predicts the maximum anticipated drawdown and produces a worst case scenario), drawdown at the Hollenbeck well is not expected to be significant based on the aquifer



characteristics for the Inyan Kara aquifer that were obtained from pump tests conducted in the Burdock area (Boggs and Jenkins, 1980). Since the pumping proposed by this application is to be spread over numerous wells, the maximum drawdown will be significantly less than for a single well. Any drawdown that would be measurable at the well that supplies Water Right No. 380-2 is not expected to be adverse. This is particularly true since the data on file with Water Right No. 380-2 indicates there is at least 40 feet of artesian pressure at the well and SDCL 46-6-6.1 does not require the protection of artesian head pressure as a means of diversion. The next closest South Dakota water right from the Inyan Kara aquifer is Water Right No. 990-2 for Effie M. Gow. Water Right No. 990-2 uses a free flowing well located approximately five miles southeast of this project area to flood irrigate 20 acres. Given the distance between Water Right No. 990-2 and the Powertech project area, adverse impacts are not likely.

The applicant has identified a water right (No. P183561W) located approximately 1.2 miles west of the project area in Wyoming. Since the drawdown caused by this proposed operation is not expected to be substantial, it is unlikely that the water right would be adversely impacted (at least by South Dakota standards).

The DENR-Water Rights Program has several completion reports on file for domestic wells in the vicinity of the proposed Powertech project area. Again, with the drawdown spread over a number of wells, the maximum drawdown at any point should not be significant. However, pursuant SDCL 46-6-24,

“The failure of a well to meet standards established pursuant to § 46-6-6.1 is not a defense in any action or proceeding regarding damage, loss of water production or quality, replacement cost, or increased operating expenses incurred by a municipal or domestic use well located in a formation older than or stratigraphically lower than the greenhorn formation caused by any person using or withdrawing groundwater for mine dewatering in a formation older than or stratigraphically lower than the greenhorn formation.”

This statute may provide protection to artesian pressure in domestic and municipal wells and to domestic or municipal wells that are not “adequate wells” pursuant to ARSD 74:02:04:20(6). Powertech has submitted a water permit application to appropriate water from the Madison aquifer for purposes including “for domestic and livestock use for area landowners inside and near the project area”. A mitigating action such as supplying water from an alternative source as proposed, could resolve impairment of domestic well issues.

#### **BENEFICIAL USE OF WATER AND PUBLIC INTEREST:**

In the past, the Water Management Board has determined that the use of water for mining purposes is a beneficial use of water. The Water Management Board has not yet considered if in situ recovery is a beneficial use of water.

#### **CONCLUSIONS:**

1. Water Permit Application No. 2686-2 proposes to appropriate 274.2 acre-feet per year from the Inyan Kara aquifer.



2. Water Permit Application No. 2686-2 proposes to divert water from as many as 1,000 wells at one time and re-inject all of the water back to the Inyan Kara aquifer except for a maximum of 170 gallons per minute.
3. The location of the wells that are to be used will change over the life of this project and construction will not be completed within the five year period provided by law.
4. An extension of the five year construction period may be necessary to completely build-out this project.
5. Approval of this application will not result in average annual withdrawals from the Inyan Kara aquifer to exceed the average annual recharge to the aquifer.
6. The Inyan Kara aquifer is an extensive aquifer and there is a reasonable probability that there is at least 274.2 acre-feet per year of unappropriated water is available from the aquifer.
7. SD DENR-Water Rights Program observation well data indicates that unappropriated water is available from the Inyan Kara aquifer.
8. There is a reasonable probability that the diversion proposed by this appropriation can be made without unlawful impairment of existing appropriative rights or domestic wells.



Ken Buhler  
SD DENR-Water Rights Program

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- Water Rights Program, 2012b, Non-Irrigation User's Annual Reports, DENR-Water Rights Program, Joe Foss Building, Pierre, SD 57501
- Water Rights Program, 2012c, Observation Well Files, DENR-Water Rights Program, Joe Foss Building, Pierre, SD 57501
- Water Rights Program, 2012d, Water Permit/Right Files, DENR-Water Rights Program, Joe Foss Building, Pierre, SD 57501
- Water Rights Program, 2012e, Well Completion Report Files, DENR-Water Rights Program, Joe Foss Building, Pierre, SD 57501



**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

PMB 2020  
JOE FOSS BUILDING  
523 EAST CAPITOL  
PIERRE, SOUTH DAKOTA 57501-3182  
denr.sd.gov

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT  
APPLICATION NO. 2686-2, Powertech (USA) Inc.**

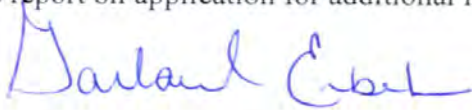
Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Program, Department of Environment and Natural Resources concerning Water Permit Application No. 2686-2, Powertech (USA) Inc., c/o Richard Blubaugh, 5575 DTC Parkway, Suite #140, Greenwood Village CO 80111.

The Chief Engineer is recommending APPROVAL of Application No. 2686-2 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) it is in the public interest with the following qualifications:

1. Water Permit No. 2686-2 appropriates and places to beneficial use up to 18.938 cfs with an annual consumptive use volume of 274.2 acre feet of water (equal to 0.38 cfs) from the Inyan Kara Aquifer for the specific purpose of the production of uranium through the insitu mining process at the legal location listed in the permit.
2. The wells authorized by Permit No. 2686-2 shall be constructed by a licensed well driller and construction shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28. Well completions report shall be submitted within one month of completing each production and/or injection well.
3. The Permit holder shall report to the Chief Engineer annually the amount of water withdrawn from the Inyan Kara Aquifer. This annual reporting shall report both the gross and net withdrawal from the Inyan Kara Aquifer.
4. The wells approved under this permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The Well owner under this permit shall control his withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.
5. The Permit holder shall submit a planned diversion report annually setting forth the number anticipated and location of pumping wells to be constructed and/or operated during the next upcoming year.



See report on application for additional information.



Garland Erbele, Chief Engineer  
November 6, 2012

NOTE: DENR recognizes that the number and location of production and injection wells completed into the Inyan Kara Aquifer will vary as well fields are constructed, insitu mining is conducted, restoration is conducted and decommissioning is completed. The application states that amendments for additional wells and changes in well locations as the project progresses will be requested subject to provisions of SDCL 46-5-13.1. As Chief Engineer, all requests for changes in well location and additional wells will be reviewed as set forth in SDCL 46-5-13.1.

In addition to obtaining water right permits, Powertech (USA) will be subject to compliance with all other state of South Dakota and federal government regulations relating to water use and insitu mining.

RECEIVED

NOV 26 2012

WATER RIGHTS PROGRAM

AFFIDAVIT OF PUBLICATION

State of South Dakota )
) ss.
County of Fall River )

Brett Nachtigall of Hot Springs, Fall River County, South Dakota, being duly sworn, upon oath says that he is the publisher of the Hot Springs Star, as a legal newspaper, as defined in SDCL 17-2-2.1 through 17-2-2.4 inclusive, and is published at Hot Springs, county and state aforesaid; that the advertisement headed -

#384 Notice

a true printed copy thereof is hereto annexed, was published in the said Hot Springs Star, in the regular and entire issue of said paper,

for one

successive issues, beginning with the

issue dated

Nov. 13, 2012

and ending with the issue dated

, 20

That the full amount of the fee charged for the publication of said notice is

\$ 129.44

and that no agreement or understanding, for the division thereof, has been made with any other person, and that no part thereof has been agreed to be paid to any person whomsoever, that the whole amount insures to the benefit of the publishers of said newspaper.

Subscribed and sworn to before me

this 20 day of Nov

2012

[Signature] Notary Public

My Commission Expires March 16, 2013

384

NOTICE OF HEARING on Water Permit Application Nos. 2685-2 and 2686-2 to Appropriate Water for Powertech (USA) Inc.

Notice is given that Powertech (USA) Inc., c/o Richard Blubaugh, 5575 DTC Parkway Suite #140, Greenwood Village CO 80111, has filed two applications for water permits for primarily industrial use in a uranium in-situ mining project called the Dewey-Burdock Project located in Custer and Fall River Counties. The Dewey-Burdock Project area (project area) encompasses approximately 10,580 acres including portions of Sections 1 through 5, 10 through 12, and 14 through 15 in T7S, R1E and Sections 20 through 21, and 27 through 35 in T6S, R1E, Black Hills Meridian.

Project Overview: Powertech (USA) proposes to recover uranium by a method known as in-situ recovery, or ISR, in which groundwater from the formation containing uranium (the Inyan Kara Group) is pumped to the surface from a field of wells, fortified with oxygen and carbon dioxide, and recirculated through the formation. The oxidized groundwater changes the uranium to a soluble form and is pumped to the surface, where uranium is removed from the solution. ISR circulates water through the uranium ore zone. Only a small fraction of the water is a net withdrawal because most water is recirculated back through the ore zone. A portion of the water extracted from the Inyan Kara Aquifer will be "bled off" to maintain a cone of depression so native groundwater continually flows toward the center of the production zone. Production bleed rates may vary in the range of 0.5 to 3 percent over the life of the project. Restoration bleed rates up to 17 percent may be used briefly but would be limited to well fields undergoing aquifer restoration. The ISR process is repeated until the economic reserves of uranium are fully removed from that particular well field. The process moves to another well field, and the uranium depleted well field is restored by continuing to circulate clean water through the wells until the water is similar in quality to the water that existed in the formation prior to the ISR operations. Most of the water removed from the Inyan Kara Aquifer during the ISR process is recirculated and re-injected through the well field, resulting in the net consumptive use of water being a small portion of the gross withdrawal rate. Most of the water used in the ISR operations will be obtained from the Inyan Kara

Group. However, Powertech (USA) plans to use water from the Madison Aquifer to make up for water that is not provided from the ISR process. The amount of "make-up" from the Madison Aquifer will depend upon the water disposal method which is either deep disposal well or land application. The use of water from these two formations necessitates obtaining water permits from each source. The applications listed below describe the proposed points of diversion, amount of water to be used, the maximum annual diversion rate and annual volume that may be diverted. The eastern portion of the project area is known as the Burdock area. It will include a series of ISR well fields and a central processing plant. The western portion of the project area is the Dewey area which will include ISR well fields and a satellite processing plant.

Each application, Water Rights Program staff report and Chief Engineer's recommendation may be viewed online at http://denr.sd.gov/Powertech.a.spx.

Water Permit Application No. 2685-2 proposes to appropriate and place to beneficial use up to 1.228 cubic feet of water per second (cfs) with an annual consumptive use up to 888.8 acre feet of water annually from up to two or more wells completed into the Madison Aquifer at an approximate depth between 2,700 to 3,400 feet. The instantaneous peak diversion rate of 1.228 cubic feet of water per second (cfs) equates to 551 gallons per minute (gpm). The wells are to be located in the NW 1/4 NW 1/4 Section 32, T6S, R1E and the NW 1/4 NE 1/4 Section 11, T7S, R1E. Madison Aquifer water is primarily proposed for aquifer restoration following in-situ recovery but also may serve as the general facility water supply including the central processing plant, satellite plant and for domestic and livestock use for area landowners inside and near the project area.

The required yield may be obtained from one Madison well or several wells dependent on a number of factors. Powertech (USA) listed two potential well locations on this water permit application, one in the Dewey portion of the project and one in the Burdock portion. The final decision as to number and location of wells will depend upon water requirements, well yield, water quality and economic factors.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 2685-2 subject to a 20-year term limitation because 1) although evidence is not available to justify issuing the permit without a 20-year term limitation, there is reasonable probability that there is unappropriated water available, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) it is in the public interest.

Water Permit Application No. 2686-2 proposes to appropriate and place to beneficial use up to 18,938 cfs limited to an annual consumptive use volume up to 274.2 acre feet of water (equivalent to 0.38 cfs or 170 gpm) from multiple wells completed into the Inyan Kara aquifer at a depth between 200 to 800 feet. The wells will be located within the project area as defined in the first paragraph of this notice of hearing. The application is for a gross withdrawal (flow) rate of 18,938 cfs which equates to 8,500 gpm. The net consumptive use of water is a small portion of the gross withdrawal rate. Approximately two percent of the water is "bled off" during the process in order to maintain flow gradients toward the center of the well field. The remaining approximately ninety eight percent of the water is recirculated and continuously re-injected as part of the ISR process. The maximum net withdrawal rate equates to 0.38 cfs (170 gpm) from the Inyan Aquifer for an annual volume of up to 274.2 acre feet of water annually consumptively removed from the aquifer during the project.

Uranium recovery operations will continue for approximately 7 to 20 years. A typical well field grid of Inyan Kara wells consists of a 100 by 100 foot grid with one production well in the center and four surrounding wells for injection into the ore body. The well pattern may differ from well field to well field and be modified as needed to fit the characteristics of each ore body. Well fields will be completed along the various uranium zones. Current development plans include construction of approximately 600 ISR production wells in the Dewey portion of the project area and 900 ISR production wells in the Burdock portion of the project area. The maximum number of production wells in operation at any one time within the entire



project area including production and restoration is 1,000 wells. Based on the project life and number of production wells scheduled as the well fields are developed, Powertech (USA) anticipates requesting a future permit amendment for an extension of the five year construction period pursuant to SDCL 46-2A-8. Powertech (USA) will provide an annual diversion report to DENR describing the number and location of pumping production wells. This report will include request for change in the number and designated locations of pumping wells pursuant to SDCL 46-5-13.1. This statute allows for the location of point of diversion or additional points of diversion to be approved without application or publication if the wells are completed into the same source, no additional water is appropriated and the Chief Engineer makes a finding that the change does not increase the potential for interference with existing diversions.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends Approval of Application No. 2686-2 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest.

SDCL 46-2A-4(10) provides that "if the applicant does not contest the recommendation of the Chief Engineer and no petition to oppose the application is received, the Chief Engineer shall act on the application pursuant to the Chief Engineer's recommendation and no hearing may be held before the board, unless the Chief Engineer makes a finding that an application, even if uncontested, presents important issues of public policy or public interest that should be heard by the board." In this case, the Chief Engineer finds that these applications present important issues of public interest that should be heard by the Water Management Board.

The Water Management Board will consider these applications at 8:30 AM on December 5, 2012 in the Matthew Training Center, 523 E. Capitol Ave. Pierre SD. The Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny these applications based on the facts presented at the public hearing.

Any interested person who intends to participate in the hearing shall file a petition to oppose or support the applications and the petition shall be filed with BOTH the applicant and Chief Engineer. The appli-

cant must also file a petition if opposed to the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by November 26, 2012. The petition may be informal, but shall be in writing and shall include a statement describing the petitioner's interest in either application, the petitioner's reasons for opposing or supporting either application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. The hearing is an adversary proceeding and any party has the right to be present at the hearing and to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised at the hearing and decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

The December 5, 2012 hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any person who has

filed a petition to oppose or support either application. The request for an automatic delay must be filed by November 26, 2012. If an automatic delay is requested, the hearing will be rescheduled for a future Board meeting and personal notice will be provided to all petitioners regarding the time, date and location.

Contact Eric Gronlund by November 26, 2012, at the above Chief Engineer's address to request copies of the staff reports, recommendations, applications or other information. Additionally each application, Water Rights Program staff report and Chief Engineer's recommendation may be viewed on-line at <http://denr.sd.gov/Powertech.aspx>. Notice is given to individuals with disabilities that this hearing is being held in a physically accessible place. Please notify the Department of Environment and Natural Resources at least 48 hours before the hearing if you have a disability for which special arrangements must be made at the hearing. The telephone number for making arrangements is (605) 773-3352.

Under SDCL 1-26-17(7) notices must state that "if the amount in controversy exceeds \$2,500.00 or if a property right may be terminated, any party to the contested case may require the agency to use the Office of Hearing Examiners by giving notice of the request to the agency no later than ten days after service of a notice of hearing issued pursuant to SDCL 1-26-17." This is a Notice of Hearing, service is being provided by publication, and the applicable date to give notice to the Chief Engineer is November 26, 2012. However, since this particular matter involves water permit applications and not a monetary controversy in excess of \$2,500.00 or termination of a property right the Chief Engineer disputes the applicability of this provision and maintains that the hearing must be conducted by the Board.

The legal authority and jurisdiction under which the hearing is to be held are the following as applicable: SDCL 1-26-16 thru 1-26-28; SDCL 46-1-1 thru 46-1-9, 46-1-14 thru 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-17; 46-2A-1 thru 46-2A-10, 46-2A-14, 46-2A-15; 46-5-6.11, 46-5-10 thru 46-5-13, 46-5-30 thru 46-5-30.3, 46-5-32; 46-6-3, 46-6-3.1, 46-6-6.1, 46-6-10, 46-6-26; and Board rules ARSD 74:02:01:01 thru 74:02:01:15.

The particular section of statutes and rules pertaining to these permit applications are, in addition to the above, the following: SDCL 46-2A-9, 46-6-3.1, 46-2A-15, 46-2A-20, 46-2A-21 46-5-10 thru 46-5-13.1, 46-5-26, 46-6-10, 46-6-26; the above listed administrative rules and the following rules pertaining to qualifications recommended by the Chief Engineer: ARSD Chapter 74:02:01 and 74:02:04.

Steven M. Pirner, Secretary  
Department of Environment  
and Natural Resources.

Published once at the total  
approximate cost of \$129.44.

Nov. 13

RECEIVED

NOV 19 2012

WATER RIGHTS PROGRAM

# Affidavit of Publication

STATE OF SOUTH DAKOTA:  
COUNTY OF LAWRENCE:

Letitia Lister of said County and State being first duly sworn, on her oath says: That the BLACK HILLS PIONEER is a legal daily newspaper of general circulation, printed and published in the City of Spearfish, in said County and State by Letitia Lister, and has been such a newspaper during the times hereinafter mentioned; and that said newspaper has a bonafide circulation of at least 200 copies weekly, and has been published within said County in the English language for at least one year prior to the first publication of the notice herein mentioned, and is printed in whole or in part in an office maintained at the place of publication; and that I, Letitia Lister, the undersigned, am the Publisher of said newspaper and have personal knowledge of all the facts stated in this affidavit; and that the advertisement headed:

Notice Of Hearing on Water Permit Application Nos. 2685-2 and 2686-2

a printed copy of which is hereto attached, was printed and published in said newspaper for 1 successive and consecutive weeks, the first publication being made on the 14<sup>th</sup> day of Nov, 2012, and the last publication on the \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, that the full amount of fees charged for publishing same, to-wit: The sum of \$ 124.35, insures solely to the benefit of the publisher of the BLACK HILLS PIONEER, that no agreement or understanding for a division thereof has been made with any person and that no part thereof has been agreed to be paid to any other person whomsoever.

[Signature]  
Subscribed and sworn to before me this 16<sup>th</sup> day of Nov, 2012

[Signature]  
Notary Public, Lawrence County, South Dakota  
My commission expires: 10-24-2016

**NOTICE OF HEARING on Water Permit Application Nos. 2685-2 and 2686-2 to Appropriate Water for Powertech (USA) Inc.**

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Any interested person who intends to participate in the hearing shall file a petition to oppose or support the applications and the petition shall be filed with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by November 26, 2012. The petition may be informal, but shall be in writing and shall include a statement describing the petitioner's interest in either application, the petitioner's reasons for opposing or supporting either application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. The hearing is an adversary proceeding and any party has the right to be present at the hearing and to be represented by

a lawyer. The hearing will be conducted if they are not exercised at the hearing and decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

The December 5, 2012 hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any person who has filed a petition to oppose or support either application. The request for an automatic delay must be filed by November 26, 2012. If an automatic delay is requested, the hearing will be rescheduled for a future Board meeting and personal notice will be provided to all petitioners regarding the time, date and location.

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tary controversy in excess of \$2,500.00 or termination of a property right the Chief Engineer disputes the applicability of this provision and maintains that the hearing must be conducted by the Board.

The legal authority and jurisdiction under which the hearing is to be held are the following as applicable: SDCL 1-26-16 thru 1-26-28; SDCL 46-1-1 thru 46-1-9, 46-1-14 thru 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-17; 46-2A-1 thru 46-2A-10, 46-2A-14, 46-2A-15; 46-5-6.11, 46-5-10 thru 46-5-13, 46-5-30 thru 46-5-30.3, 46-5-32; 46-6-3, 46-6-3.1, 46-6-6.1, 46-6-10, 46-6-26; and Board rules ARSD 74:02:01:01 thru 74:02:01:15.

The particular section of statutes and rules pertaining to these permit applications are, in addition to the above, the following: SDCL 46-2A-9, 46-6-3.1, 46-2A-15, 46-2A-20, 46-2A-21 46-5-10 thru 46-5-13.1, 46-5-26, 46-6-10, 46-6-26; the above listed administrative rules and the following rules pertaining to qualifications recommended by the Chief Engineer: ARSD Chapter 74:02:01 and 74:02:04.

Steven M. Pirmer, Secretary, Department of Environment and Natural Resources.

Published once at the total approximate cost of \$122.99.

#228  
Nov. 14

November 19, 2012

PAYMENT REQUEST FORM

PAYEE: Black Hills Pioneer  
PO Box 7  
Spearfish SD 57783

FROM: DENR Water Rights Program  
523 E. Capitol Ave  
Pierre, SD 57501-3181

DESCRIPTION OF SERVICE, PRODUCE OR TRANSFER

Pub notice on 2685-2 & 2686-2 Powertech

AMOUNT: \$124.35

FUNDING SOURCE:

GENERAL: X

FEDERAL:

COMMENTS:

AUTHORIZATION:

*Paul Jackson 11/19/12*

I declare and affirm under the penalties of perjury that this claim is in all things, true and correct. I further agree to comply with the provisions of the Civil Rights Act of 1964 and regulations issued thereunder relating to nondiscrimination in federal assisted programs.





Form 8

RECEIVED

DEC - 3 2012

WATER RIGHTS PROGRAM

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA )  
County of Fall River ) SS

I, Anne Cassens

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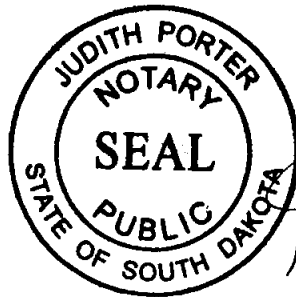
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Anne Cassens  
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Judith Porter  
Notary Public  
My Commission Expires: 07-12-2013



Public Notices

Notice:2012-172 FR Weed & Pest Minutes 11-1-12

FALL RIVER COUNTY WEED & PEST BOARD MEETING

November 1, 2012 Minutes

The Fall River County Weed and Pest Board meeting was called to order by President Jerry Wyatt at 1:00 p.m., November 1, 2012 at the Fall River County jury meeting room. Attending members were Jerry Wyatt, John Sides, Wade Wilkins, Wade Wilkins, Nina Steinmetz and guest Wayne Childers. All motions unanimous unless otherwise stated. Motion to approve the agenda and minutes of the last meeting was made by Joe Falkenberg and seconded by John Sides.

Old Business: Nina Steinmetz forwarded three new trailer quotes from businesses to board members earlier in the week. John Sides made a motion that the Board recommend to the County Commissioners to purchase the larger trailer with the warranty and a trailer for the old trailer from Goldie's Auto and Trailer Sales. Old Springs, SD. Seconded by Wade Wilkins.

There were about 500 news-letters sent out on October 29, 2012 in cooperation with the NRCS tree order form.

New Business: Jerry Wyatt and Nina Steinmetz conducted interviews for part-time spray help last week. Of the three applicants interviewed, Mike Heller will be our suggested hire for the county commissioners at their next meeting November 8, 2012.

The supervisor is planning a stipend raise to be able to survey the amount of Salt Cedar that is growing in areas along the Cheyenne River that are very difficult to get to. Site is also working with Pennington Co. to write a grant for application and spray along the Cheyenne River for next spring.

November 7, 2012 - District 4 meeting - Rapid City, SD - Jerry Wyatt and Nina Steinmetz will attend.

November 8, 2012 - RH Regional MPJ Legislators and community leader briefing - Rapid City.

December 5, 2012 - OH Digital Mapping Assoc. Conference - Edgemont. Planning on attending with FRC GIS department.

Wayne Childers asked the Board what they could do to help with the issue of prairie dogs encroaching on BLM land on to his lease ground. After listening to Mr. Childers' circumstances the supervisor will GPS the dog town to help determine the size and location of the town and then draft a letter of support from the landowner to the BLM and see what can be done this year to help with control of prairie dogs.

The next scheduled Weed & Pest Board Meeting is set for Thursday, December 6, 2012 - 2:00 p.m. - at the Fall River County jury room. Motion for adjourn made by Wade Wilkins and seconded by John Sides.

UNAPPROVED MINUTES Nina Steinmetz, Secretary Published once at the total approximate cost of \$22.52 Published 11-14-2012 in the Edgemont Herald Tribune

Notice:2012-173 Notice of Hearing Powertech

NOTICE OF HEARING on Water Permit Application Nos. 2685-2 and 2686-2 to Appropriate Water for Powertech (USA) Inc. Notice is given that Powertech (USA) Inc., c/o Richard Blough, 5575 DTC Parkway Suite #140 Greenwood Village CO 80111 has filed two applications for water permits for primarily industrial use in a uranium in-situ leaching project located in Custer and Fall River Counties. The Dewey-Burdock Project area (project area) encompasses approximately 10,580 acres including portions of Sections 1 through 5, 10 through 12, and 14 through 15 in T7S, R1E and Sections 20 through 31, and 27 through 35 in T6S, R1E, Black Hills Meridian.

Project Overview: Powertech (USA) proposes to recover uranium by a method known as in-situ recovery, or ISR, in which groundwater from the formation containing uranium (the Inyan Kara Group) is pumped to the surface from a field of wells, fortified with oxygen and carbon dioxide, and recirculated through the formation. The oxidized groundwater changes the uranium to a soluble form and is pumped to the surface, where uranium is removed from the solution. ISR circulates water through the uranium ore zone. Only a small fraction of the water is a net withdrawal because most water is recirculated back through the ore zone. A portion of the water extracted from the Inyan Kara Aquifer will be "blow off" to maintain a cone of depression so native groundwater continually flows toward the center of the production zone. Production bleed rates may vary in the range of 0.5 to 1 percent over the life of the project. Restoration bleed rates up to 17 percent may be used briefly but would be limited to well fields undergoing aquifer restoration. The ISR process is reserved until the economic reserves of uranium are fully removed from that particular well field. The process moves to another well field, and the uranium depleted well field

is restored by continuing to circulate clean water through the wells until the water is similar in quality to the water that existed in the formation prior to the ISR operations. Most of the water removed from the Inyan Kara Aquifer during the ISR process is recirculated and re-injected through the well field resulting in the net consumptive use of water being a small portion of the gross withdrawal rate. Most of the water used in the ISR operations will be obtained from the Inyan Kara Group. However, Powertech (USA) plans to use water from the Madison Aquifer to make up for water that is not provided for in the ISR process. The amount of "make-up" from the Madison Aquifer will depend upon the water disposal method which is either deep disposal well or land application. The use of water from these two formations necessitates obtaining water permits from each source. The applications listed below describe the proposed points of diversion amount of water to be used, the maximum annual diversion rate and annual volume that may be diverted. The eastern portion of the project area is known as the Burdock area. It will include a series of ISR well fields and a central processing plant. The western portion of the project area is the Dewey area which will include ISR well fields and a satellite processing plant.

Each application, Water Rights Program staff report and Chief Engineer's recommendation may be viewed on-line at http://denr.sd.gov/Powertech.aspx. Water Permit Application No. 2685-2 proposes to appropriate and place to beneficial use up to 1,228 cubic feet of water per second (cfs) with annual consumptive use up to 888.8 acre feet of water annually from up to two or more wells completed into the Madison Aquifer at an appropriate depth between 2,700 to 3,400 feet. The instantaneous peak diversion rate of 1,228 cubic feet of water per second (cfs) is equal to 531 gallons per minute (gpm). The wells are to be located in the NW 1/4 NW 1/4 Section 32, T6S, R1E and the NW 1/4 NE 1/4 Section 17T5, R1E. Madison Aquifer water is primarily support the applications and the petition shall be filed with BOTH the applicant and Chief Engineer. The Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny these applications based on the information as presented at the public hearing.

Any interested person who intends to participate in the hearing shall file a petition to oppose or support the applications and the petition shall be filed with BOTH the applicant and Chief Engineer. The applicant must file a petition if opposed to the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program Building, 523 Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by November 26, 2012. The petition may be informal, but shall be in writing and shall include a statement describing the petitioner's interest in either application, the petitioner's reasons for opposing or supporting either application, and the petitioner's mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. The hearing is an adversary proceeding and any party has the right to be present at the hearing and to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised at the hearing and decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

The December 5, 2012 hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any person who has filed a petition to oppose or support either application. The request for an automatic delay must be filed by November 26, 2012. If an automatic delay is requested, the hearing will be rescheduled for a future Board meeting and the personal notice will be provided to all petitioners regarding the time, date, and location.

Contact Eric Gronlund by November 26, 2012, at the above Chief Engineer's address to request copies of the staff reports, recommendations, applications or other information. Additionally each application, Water Rights Program staff report and Chief Engineer's recommendation may be viewed on-line at http://denr.sd.gov/Powertech.aspx. Notice is given to this hearing is being held in a physically accessible place. Please notify the Department of Environment and Natural Resources at least 48 hours before the hearing if you have a disability which would prevent your attendance at the hearing. The telephone number for making arrangements is (605) 773-3352.

Under SDCL 1-26-177 (notices) notices state that "if the amount of controversy exceeds \$2,500.00 or if a property right may be terminated, any party to the contested case may require the agency to use the Office of Hearing Examiners by giving notice to the agency no later than ten days after service of a notice of hearing issued pursuant to SDCL 1-26-177." This is a Notice of Hearing service is being provided by publication, and the applicable date to give notice to the Chief Engineer is November 26, 2012. However, since this petition matter involves water permit applications and not a monetary controversy in excess of \$2,500.00 the Board retains jurisdiction over the Chief Engineer's decision and the applicability of this provision and maintains that the hearing must be conducted by the Board.

The legal authority and jurisdiction under which the hearing is to be held is the following as applicable: SDCL 1-26-16 thru 1-26-17, SDCL 46-1-16, 46-1-31, 46-2-9, 46-2-11, 46-2-17, 46-2A-1 thru 46-2A-10, 46-2A-14, 46-2A-15, 46-5-1, 46-5-11, 46-5-10 thru 46-5-13, 46-6-3, 46-6-3-1, 46-6-3-1, 46-6-10, 46-6-26, and Board Rules ARSD 74:02-01 thru 74:02-24.

The particular section of statutes and rules pertaining to these permit applications are, in addition to those cited in the following: DENR 46-2A-9, 46-6-3-1, 46-2A-15, 46-2A-20, 46-2A-21 46-5-10 thru 46-5-13, 46-5-26, 46-6-10, 46-6-11, 46-6-12, 46-6-13, 46-6-14, 46-6-15, 46-6-16, 46-6-17, 46-6-18, 46-6-19, 46-6-20, 46-6-21, 46-6-22, 46-6-23, 46-6-24, 46-6-25, 46-6-26, 46-6-27, 46-6-28, 46-6-29, 46-6-30, 46-6-31, 46-6-32, 46-6-33, 46-6-34, 46-6-35, 46-6-36, 46-6-37, 46-6-38, 46-6-39, 46-6-40, 46-6-41, 46-6-42, 46-6-43, 46-6-44, 46-6-45, 46-6-46, 46-6-47, 46-6-48, 46-6-49, 46-6-50, 46-6-51, 46-6-52, 46-6-53, 46-6-54, 46-6-55, 46-6-56, 46-6-57, 46-6-58, 46-6-59, 46-6-60, 46-6-61, 46-6-62, 46-6-63, 46-6-64, 46-6-65, 46-6-66, 46-6-67, 46-6-68, 46-6-69, 46-6-70, 46-6-71, 46-6-72, 46-6-73, 46-6-74, 46-6-75, 46-6-76, 46-6-77, 46-6-78, 46-6-79, 46-6-80, 46-6-81, 46-6-82, 46-6-83, 46-6-84, 46-6-85, 46-6-86, 46-6-87, 46-6-88, 46-6-89, 46-6-90, 46-6-91, 46-6-92, 46-6-93, 46-6-94, 46-6-95, 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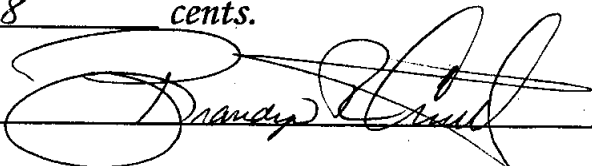
WATER RIGHTS PROGRAM

# Affidavit of Publication

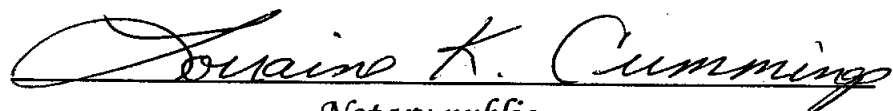
STATE OF SOUTH DAKOTA

County of Pennington                      SS:

Brandyn Crawford being first duly sworn, upon his/her oath says: That he/she is now and was at all time hereinafter mentioned, an employee of the RAPID CITY JOURNAL, a corporation of Rapid City, South Dakota, the owner and publisher of the RAPID CITY JOURNAL, a legal and daily newspaper printed and published in Rapid City, in said County of Pennington, and has full and personal knowledge of all the facts herein stated as follows: that said newspaper is and at all of the times herein mentioned has been a legal and daily newspaper with a bonafide paid circulation of at least Two Hundred copies daily, and has been printed and published in the English language, at and within an office maintained by the owner and publisher thereof, at Rapid City, in said Pennington County, and has been admitted to the United States mail under the second class mailing privilege for at least one year prior to the publication herein mentioned; that the advertisement, a printed copy of which, taken from said Rapid City Journal, the paper in which the same was published, is attached to this sheet and made a part of this affidavit, was published in said paper once each week for one successive week, the first publication there of being on the fourth day of November that the fees charged for the publication there of are 267 dollars and 38 cents.

  
 \_\_\_\_\_

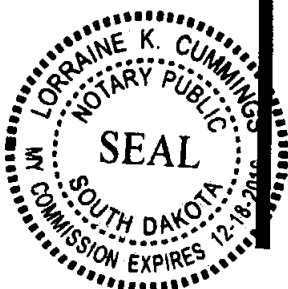
Subscribed and sworn to before me this 30<sup>th</sup> day of November, \_\_\_\_\_.

  
 \_\_\_\_\_

Notary public

Dec. 18, 2016

My commission expires





**NOTICE OF HEARING**  
on Water Permit Application Nos.  
2685-2 and 2686-2 to Appropriate  
Water for Powertech (USA) Inc.

Notice is given that Powertech (USA) Inc., c/o Richard Blubaugh, 5575 DTC Parkway Suite #140, Greenwood Village CO 80111 has filed two applications for water permits for primarily industrial use in a uranium in-situ mining project called the Dewey-Burdock Project located in Custer and Fall River Counties. The Dewey-Burdock Project area (project area) encompasses approximately 10,590 acres including portions of Sections 1 through 5, 10 through 12, and 14 through 15 in T7S, R1E and Sections 20 through 21, and 27 through 35 in T6S, R1E, Black Hills Meridian.

**Project Overview:** Powertech (USA) proposes to recover uranium by a method known as in-situ recovery, or ISR, in which groundwater from the formation containing uranium (the Inyan Kara Group) is pumped to the surface from a field of wells, fortified with oxygen and carbon dioxide, and recirculated through the formation. The oxidized groundwater changes the uranium to a soluble form and is pumped to the surface, where uranium is removed from the solution. ISR circulates water through the uranium ore zone. Only a small fraction of the water is a net withdrawal because most water is recirculated back through the ore zone.

A portion of the water extracted from the Inyan Kara Aquifer will be "bled off" to maintain a cone of depression so native groundwater continually flows toward the center of the production zone. Production bleed rates may vary in the range of 0.5 to 3 percent over the life of the project. Restoration bleed rates up to 17 percent may be used briefly but would be limited to well fields undergoing aquifer restoration. The ISR process is repeated until the economic reserves of uranium are fully removed from that particular well field. The process moves to another well field, and the uranium depleted well field is restored by continuing to circulate clean water through the wells until the water is similar in

quality to the water that existed in the formation prior to the ISR operations.

Most of the water removed from the Inyan Kara Aquifer during the ISR process is recirculated and re-injected through the well field, resulting in the net consumptive use of water being a small portion of the gross withdrawal rate. Most of the water used in the ISR operations will be obtained from the Inyan Kara Group. However, Powertech (USA) plans to use water from the Madison Aquifer to make up for water that is not provided from the ISR process. The amount of "make-up" from the Madison Aquifer will depend upon the water disposal method which is either deep disposal well or land application.

The use of water from these two formations necessitates obtaining water permits from each source. The applications listed below describe the proposed points of diversion, amount of water to be used, the maximum annual diversion rate and annual volume that may be diverted. The eastern portion of the project area is known as the Burdock area. It will include a series of ISR well fields and a central processing plant. The western portion of the project area is the Dewey area which will include ISR well fields and a satellite processing plant.

Each application, Water Rights Program staff report and Chief Engineer's recommendation may be viewed on-line at <http://denr.sd.gov/Powertech.aspx>.

Water Permit Application No. 2685-2 proposes to appropriate and place to beneficial use up to 1,228 cubic feet of water per second (cfs) with an annual consumptive use up to 888.8 acre feet of water annually from up to two or more wells completed into the Madison Aquifer at an approximate depth between 2,700 to 3,400 feet. The instantaneous peak diversion rate of 1,228 cubic feet of water per second (cfs) equates to 551 gallons per minute (gpm). The wells are located in the NW 1/4 NW 1/4 Sec 32, T6S, R1E and NW 1/4 NE 1/4 Sec 11, T7S, R1E. Madison Aquifer water is primarily proposed for aquifer restoration following in-situ recovery but also may serve as the general facility water supply including the central processing plant, satellite plant and for domestic and livestock use for area landowners inside and near the project area.

The required yield may be obtained from one Madison well or several wells dependent on a number of factors. Powertech (USA) listed two potential well locations on this water permit application, one in the Dewey portion of the project and one in the Burdock portion. The final decision as to number and location of wells will depend upon water requirements, well yield, water quality and economic factors.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 2685-2 subject to a 20-year term limitation because 1) although evidence is not available to justify issuing the permit without a 20-year term limitation, there is reasonable probability that there is unappropriated water available, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) it is in the public interest.

Water Permit Application No. 2686-2 proposes to appropriate and place to beneficial use up to 18,938 cfs limited to an annual consumptive use volume up to 274.2 acre feet of water (equivalent to 0.38 cfs or 170 gpm) from multiple wells completed into the Inyan Kara aquifer at a depth between 200 to 800 feet. The wells will be located within the project area as defined in the first paragraph of this notice of hearing. The application is for a gross withdrawal (flow) rate of 18,938 cfs which equates to 8,500 gpm. The net consumptive use of water is a small portion of the gross withdrawal rate. Approximately two percent of the water is "bled off" during the process in order to maintain flow gradients toward the center of the well field. The remaining approximately ninety eight percent of the water is recirculated and continuously re-injected as part of the ISR process. The maximum net withdrawal rate equates to 0.38 cfs (170 gpm) from the Inyan Aquifer for an annual volume of up to 274.2 acre feet of water annually consumptively removed from the aquifer during the project.

Uranium recovery operations will continue for approximately 7 to 20 years. A typical well field grid of Inyan Kara wells consists of a 100 by 100 foot grid with one production well in the center and four surrounding wells for injection into the ore body. The well pattern may differ from well field to well field and be modified as needed to fit the characteristics of each ore body. Well fields will be completed along the various uranium

zones. Current development plans include construction of approximately 600 ISR production wells in the Dewey portion of the project area and 900 ISR production wells in the Burdock portion of the project area. The maximum number of production wells in operation at any one time within the entire project area including production and restoration is 1,000 wells. Based on the project life and number of production wells scheduled as the well fields are developed, Powertech (USA) anticipates requesting a future permit amendment for an extension of the five year construction period pursuant to SDCL 46-2A-8. Powertech (USA) will provide an annual diversion report to DENR describing the number and location of pumping production wells. This report will include request for change in the number and designated locations of pumping wells pursuant to SDCL 46-5-13.1. This statute allows for the location of point of diversion or additional points of diversion to be approved without application or publication if the wells are completed into the same source, no additional water is appropriated and the Chief Engineer makes a finding that the change does not increase the potential for interference with existing diversions.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends Approval of Application No. 2686-2 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest.

SDCL 46-2A-4(10) provides that "if the applicant does not contest the recommendation of the Chief Engineer and no petition to oppose the application is received, the Chief Engineer shall act on the application pursuant to the Chief Engineer's recommendation and no hearing may be held before the board, unless the Chief Engineer makes a finding that an application, even if uncontested, presents important issues of public policy or public interest that should be heard by the board." In this case, the Chief Engineer finds that these applications present important issues of public interest that should be heard by the Water Management Board.

The Water Management Board will consider these applications at 8:30 AM on December 5, 2012 in the Matthew Training Center, 523 E. Capitol Ave. Pierre SD. The Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny these applications based on the facts presented at the public hearings.

Any interested person who intends to participate in the hearing shall file a petition to oppose or support the applications and the petition shall be filed with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by November 26, 2012. The petition may be informal, but shall be in writing and shall include a statement describing the petitioner's interest in either application, the petitioner's reasons for opposing or supporting either application, and the signature and mail-

ing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. The hearing is an adversary proceeding and any party has the right to be present at the hearing and to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised at the hearing and decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

The December 5, 2012 hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any person who has filed a petition to oppose or support either application. The request for an automatic delay must be filed by November 26, 2012. If an automatic delay is requested, the hearing will be rescheduled for a future Board meeting and personal notice will be provided to all petitioners regarding the time, date and location.

Contact Eric Gronlund by November 26, 2012, at the above Chief Engineer's address to request copies of the staff reports, recommendations, applications or other information. Additionally each application, Water Rights Program staff report and Chief Engineer's recommendation may be viewed on-line at <http://denr.sd.gov/Powertech.aspx>. Notice is given to individuals with disabilities that this hearing is being held in a physically accessible place. Please notify the Department of Environment and Natural Resources at least 48 hours before the hearing if you have a disability for which special arrangements must be made at the hearing. The telephone number for making arrangements is (605) 773-3352.

Under SDCL 1-26-17(7) notices must state that "if the amount in controversy exceeds \$2,500.00 or if a property right may be terminated, any party to the contested case may require the agency to use the Office of Hearing Examiners by giving notice of the request to the agency no later than ten days after service of a notice of hearing issued pursuant to SDCL 1-26-17." This is a Notice of Hearing, service is being provided by publication, and the applicable date to give notice to the Chief Engineer is November 26, 2012. However, since this particular matter involves water permit applications and not a monetary controversy in excess of \$2,500.00 or termination of a property right the Chief Engineer disputes the applicability of this provision and maintains that the hearing must be conducted by the Board.

The legal authority and jurisdiction under which the hearing is to be held are the following as applicable: SDCL 1-26-16 thru 1-26-28; SDCL 46-1-1 thru 46-1-9, 46-1-14 thru 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-17; 46-2A-1 thru 46-2A-10, 46-2A-14, 46-2A-15; 46-5-6.11, 46-5-10 thru 46-5-13, 46-5-30 thru 46-5-30.3, 46-5-32; 46-6-3, 46-6-3.1, 46-6-6.1, 46-6-10, 46-6-26; and Board rules ARSD 74:02:01:01 thru 74:02:01:15.

The particular section of statutes and rules pertaining to these permit applications are, in addition to the above, the following: SDCL 46-2A-9, 46-4-3.1, 46-2A-15, 46-2A-20, 46-2A-21 46-5-10 thru 46-5-13.1, 46-5-26, 46-6-10, 46-6-26; the above listed administrative rules and the following rules pertaining to qualifications recommended by the Chief Engineer: ARSD Chapter 74:02:01 and 74:02:04. /s/ Steven M. Pirner, Secretary, Department of Environment and Natural Resources.

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DEC - 3 2012

Affidavit of Publication

WATER RIGHTS PROGRAM

State of South Dakota

) ss.

County of Custer

Charles W. Najacht of said county, being duly sworn, on oath says that he is publisher of the Custer County Chronicle, a weekly newspaper printed and published in Custer City, said County of Custer and has full and personal knowledge of all the facts herein stated; that said newspaper is a legal newspaper and has a bona-fide circulation of at least two hundred copies weekly, and has been published within said County for fifty-two successive weeks next prior to the publication of the notice herein, mentioned, and was and is printed wholly or in part in an office maintained at said place of publication: that the

PowerTech (USA) Inc.

Notice of Hearing

a printed copy of which, taken from the paper in which the same was published, is attached to this sheet, and is made a part of this Affidavit, was published in said newspaper at least once each week for 1 successive week(s), on which said newspaper was regularly published, to wit:

Nov 14, 2012

the full amount of the fees for the publication of the annexed notice is \$ 118.23

Charles W. Najacht

Subscribed and sworn to me before this 14

of November, 2012

Norma Najacht

NOTARY PUBLIC

MY COMMISSION EXPIRES: May 5, 2014

NOTICE OF HEARING ON WATER PERMIT APPLICATION NOS. 2685-2 AND 2686-2 TO APPROPRIATE WATER FOR POWERTECH (USA) INC.

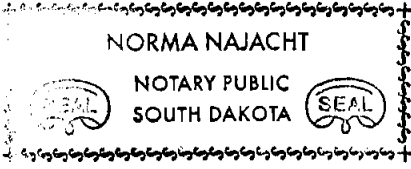
Notice is given that Powertech (USA) Inc., c/o Richard Blubaugh, 5575 DTC Parkway Suite #140, Greenwood Village CO 80111 has filed two applications for water permits for primarily industrial use in a uranium in-situ mining project called the Dewey-Burdock Project located in Custer and Fall River Counties. The Dewey-Burdock Project area (project area) encompasses approximately 10,580 acres including portions of Sections 1 through 5, 10 through 12, and 14 through 15 in T7S, R1E and Sections 20 through 21, and 27 through 35 in T6S, R1E, Black Hills Meridian.

Project Overview: Powertech (USA) proposes to recover uranium by a method known as in-situ recovery, or ISR, in which groundwater from the formation containing uranium (the Inyan Kara Group) is pumped to the surface from a field of wells, fortified with oxygen and carbon dioxide, and recirculated through the formation. The oxidized groundwater changes the uranium to a soluble form and is pumped to the surface, where uranium is removed from the solution. ISR circulates water through the uranium ore zone. Only a small fraction of the water is a net withdrawal because most water is recirculated back through the ore zone. A portion of the water extracted from the Inyan Kara Aquifer will be "bled off" to maintain a cone of depression so native groundwater continually flows toward the center of the production zone. Production bleed rates may vary in the range of 0.5 to 3 percent over the life of the project. Restoration bleed rates up to 17 percent may be used briefly but would be limited to well fields undergoing aquifer restoration. The ISR process is repeated until

the economic reserves of uranium are fully removed from that particular well field. The process moves to another well field, and the uranium depleted well field is restored by continuing to circulate clean water through the wells until the water is similar in quality to the water that existed in the formation prior to the ISR operations. Most of the water removed from the Inyan Kara Aquifer during the ISR process is recirculated and re-injected through the well field, resulting in the net consumptive use of water being a small portion of the gross withdrawal rate. Most of the water used in the ISR operations will be obtained from the Inyan Kara Group. However, Powertech (USA) plans to use water from the Madison Aquifer to make up for water that is not provided from the ISR process. The amount of "make-up" from the Madison Aquifer will depend upon the water disposal method which is either deep disposal well or land application. The use of water from these two formations necessitates obtaining water permits from each source. The applications listed below describe the proposed points of diversion, amount of water to be used, the maximum annual diversion rate and annual volume that may be diverted. The eastern portion of the project area is known as the Burdock area. It will include a series of ISR well fields and a central processing plant. The western portion of the project area is the Dewey area which will include ISR well fields and a satellite processing plant.

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The required yield may be obtained from one Madison well or several wells dependent on a num-





ber of factors. Powertech (USA) listed two potential well locations on the water permit application, one in the Dewey portion of the project and one in the Burdock portion. The final decision as to number and location of wells will depend upon water requirements, well yield, water quality and economic factors.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 2685-2 subject to a 20-year term limitation because 1) although evidence is not available to justify issuing the permit without a 20-year term limitation, there is reasonable probability that there is unappropriated water available, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) it is in the public interest.

Water Permit Application No. 2686-2 proposes to appropriate and place to beneficial use up to 18,938 cfs limited to an annual consumptive use volume up to 274.2 acre feet of water (equivalent to 0.38 cfs or 170 gpm) from multiple wells completed into the Inyan Kara aquifer at a depth between 200 to 800 feet. The wells will be located within the project area as defined in the first paragraph of this notice of hearing. The application is for a gross withdrawal (flow) rate of 18,938 cfs which equates to 8,500 gpm. The net consumptive use of water is a small portion of the gross withdrawal rate. Approximately two percent of the water is "bled off" during the process in order to maintain flow gradients toward the center of the well field. The remaining approximately ninety eight percent of the water is recirculated and continuously re-injected as part of the ISR process. The maximum net withdrawal rate equates to 0.38 cfs (170 gpm) from the Inyan Aquifer for an annual volume of up to 274.2 acre feet of water annually consumptively removed from the aquifer during the project.

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operation at any one time within the entire project area including production and restoration is 1,000 wells. Based on the project life and number of production wells scheduled as the well fields are developed, Powertech (USA) anticipates requesting a future permit amendment for an extension of the five year construction period pursuant to SDCL 46-2A-8. Powertech (USA) will provide an annual diversion report to DENR describing the number and location of pumping production wells. This report will include request for change in the number and designated locations of pumping wells pursuant to SDCL 46-5-13.1. This statute allows for the location of point of diversion or additional points of diversion to be approved without application or publication if the wells are completed into the same source, no additional water is appropriated and the Chief Engineer makes a finding that the change does not increase the potential for interference with existing diversions.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends Approval of Application No. 2686-2 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest.

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*Continued on next page -*

Engineer's recommendation. The Chief Engineer's address is, Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352) and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by November 26, 2012. The petition may be informal, but shall be in writing and shall include a statement describing the petitioner's interest in either application, the petitioner's reasons for opposing or supporting either application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. The hearing is an adversary proceeding and any party has the right to be present at the hearing and to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised at the hearing and decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

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The particular section of statutes and rules pertaining to these permit applications are, in addition to the above, the following: SDCL 46-2A-9, 46-6-3.1, 46-2A-15; 46-2A-20, 46-2A-21 46-5-10 thru 46-5-13.1, 46-5-26, 46-6-10, 46-6-26; the above listed administrative rules and the following rules pertaining to qualifications recommended by the Chief Engineer: ARSD Chapter 74:02:01 and 74:02:04.

Steven M. Pimer, Secretary, Department of Environment and Natural Resources.

Published once at an approximate cost of \$118.23.

Form 8

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DEC 12 2012

WATER RIGHTS PROGRAM

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA )  
County of Bennett ) SS

I, Cora White Horse

certify that the attached printed Notice was taken

from the Lakota Country Times

printed and published in \_\_\_\_\_

County of Bennett and

state of South Dakota. The notice was published

in the newspaper on the following date:

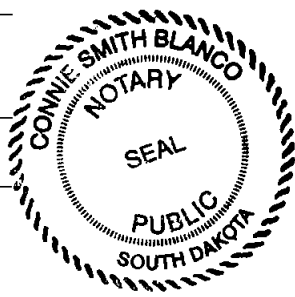
Nov. 14, 2012

Cost of Printing 217.60

Connie Smith  
(Signature)

owner  
(Title)

Dec. 1, 2012  
(Date Signed)



NOTICE OF HEARING

Department of Environment and Natural Resources

NOTICE OF HEARING  
on Water Permit Application Nos.  
2685-2 and 2686-2 to Appropriate  
Water for Powertech (USA) Inc.

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Project Overview: Powertech (USA) proposes to recover uranium by a method known as in-situ recovery, or ISR, in which groundwater from the formation containing uranium (the Inyan Kara Group) is pumped to the surface from a field of wells, fortified with oxygen and carbon dioxide, and recirculated through the formation. The oxidized groundwater changes the uranium to a soluble form and is pumped to the surface, where uranium is removed from the solution. ISR circulates water through the uranium ore zone. Only a small fraction of the water is a net withdrawal because most water is recirculated back through the ore zone. A portion of the water extracted from the Inyan Kara Aquifer will be "bled off" to maintain a cone of depression so native groundwater continually flows toward the center of the production zone. Production bleed rates may vary in the range of 0.5 to 3 percent over the life of the project. Restoration bleed rates up to 17 percent may be used briefly but would be limited to well fields undergoing aquifer restoration. The ISR process is repeated until the economic reserves of uranium are fully removed from that particular well field. The process moves to another well field, and the uranium depleted well field is restored by continuing to circulate clean water through the wells until the water is similar in quality to the water that existed in the formation prior to the ISR operations. Most of the water removed from the Inyan Kara Aquifer during the ISR process is recirculated and re-injected through the well field, resulting in the net consumptive use of water being a small portion of the gross withdrawal rate. Most of the water used in the ISR operations will be obtained from the Inyan Kara Group. However, Powertech (USA) plans to use water from the Madison Aquifer to make up for water that is not provided from the ISR process. The amount of "make-up" from the Madison Aquifer will depend upon the water disposal method which is either deep disposal well or land application. The use of water from these two formations necessitates obtaining water permits from each source. The applications listed below describe the proposed points of diversion, amount of water to be used, the maximum annual diversion rate and annual volume that may be diverted. The eastern portion of the project area is known as the Burdock area. It will include a series of ISR well fields and a central processing plant. The western portion of the project area is the Dewey area which will include ISR well fields and a satellite processing plant.



Each application, Water Rights Program staff report and Chief Engineer's recommendation may be viewed on-line at <http://denr.sd.gov/Powertech.aspx>.

Water Permit Application No. 2685-2 proposes to appropriate and place to beneficial use up to 1.228 cubic feet of water per second (cfs) with an annual consumptive use up to 888.8 acre feet of water annually from up to two or more wells completed into the Madison Aquifer at an approximate depth between 2,700 to 3,400 feet. The instantaneous peak diversion rate of 1.228 cubic feet of water per second (cfs) equates to 551 gallons per minute (gpm). The wells are to be located in the NW 1/4 NW 1/4 Section 32, T6S, R1E and the NW 1/4 NE 1/4 Section 11, T7S, R1E. Madison Aquifer water is primarily proposed for aquifer restoration following in-situ recovery but also may serve as the general facility water supply including the central processing plant, satellite plant and for domestic and livestock use for area landowners inside and near the project area.

The required yield may be obtained from one Madison well or several wells dependent on a number of factors. Powertech (USA) listed two potential well locations on this water permit application, one in the Dewey portion of the project and one in the Burdock portion. The final decision as to number and location of wells will depend upon water requirements, well yield, water quality and economic factors.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 2685-2 subject to a 20-year term limitation because 1) although evidence is not available to justify issuing the permit without a 20-year term limitation, there is reasonable probability that there is unappropriated water available, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) it is in the public interest.

Water Permit Application No. 2686-2 proposes to appropriate and place to beneficial use up to 18.938 cfs limited to an annual consumptive use volume up to 274.2 acre feet of water (equivalent to 0.38 cfs or 170 gpm) from multiple wells completed into the Inyan Kara aquifer at a depth between 200 to 800 feet. The wells will be located within the project area as defined in the first paragraph of this notice of hearing. The application is for a gross withdrawal (flow) rate of 18.938 cfs which equates to 8,500 gpm. The net consumptive use of water is a small portion of the gross withdrawal rate. Approximately two percent of the water is "bled off" during the process in order to maintain flow gradients toward the center of the well field. The remaining approximately ninety eight percent of the water is recirculated and continuously re-injected as part of the ISR process. The maximum net withdrawal rate equates to 0.38 cfs (170 gpm) from the Inyan Aquifer for an annual volume of up to 274.2 acre feet of water annually consumptively removed from the aquifer during the project.

Uranium recovery operations will continue for approximately 7 to 20 years. A typical well

## C6 WEDNESDAY, NOVEMBER 14, 2012

field grid of Inyan Kara wells consists of a 100 by 100 foot grid with one production well in the center and four surrounding wells for injection into the ore body. The well pattern may differ from well field to well field and be modified as needed to fit the characteristics of each ore body. Well fields will be completed along the various uranium zones. Current development plans include construction of approximately 600 ISR production wells in the Dewey portion of the project area and 900 ISR production wells in the Burdock portion of the project area. The maximum number of production wells in operation at any one time within the entire project area including production and restoration is 1,000 wells. Based on the project life and number of production wells scheduled as the well fields are developed, Powertech (USA) anticipates requesting a future permit amendment for an extension of the five year construction period pursuant to SDCL 46-2A-8. Powertech (USA) will provide an annual diversion report to DENR describing the number and location of pumping production wells. This report will include request for change in the number and designated locations of pumping wells pursuant to SDCL 46-5-13.1. This statute allows for the location of point of diversion or additional points of diversion to be approved without application or publication if the wells are completed into the same source, no additional water is appropriated and the Chief Engineer makes a finding that the change does not increase the potential for interference with existing diversions.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends Approval of Application No. 2686-2 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest.

SDCL 46-2A-4(10) provides that "if the applicant does not contest the recommendation of the Chief Engineer and no petition to oppose the application is received, the Chief Engineer shall act on the application pursuant to the Chief Engineer's recommendation and no hearing may be held before the board, unless the Chief Engineer makes a finding that an application, even if uncontested, presents important issues of public policy or public interest that should be heard by the board." In this case, the Chief Engineer finds that these applications present important issues of public interest that should be heard by the Water Management Board.

The Water Management Board will consider these applications at 8:30 AM on December 5, 2012 in the Matthew Training Center, 523 E. Capitol Ave. Pierre SD. The Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny these applications based on the facts presented at the public hearing.

Any interested person who intends to participate in the hearing shall file a petition to oppose or support the applications and the petition shall be filed with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E. Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by November 26, 2012. The petition may be informal, but shall be in writing and shall include a statement describing the petitioner's interest in either application, the

petitioner's reasons for opposing or supporting either application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. The hearing is an adversary proceeding and any party has the right to be present at the hearing and to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised at the hearing and decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

The December 5, 2012 hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any person who has filed a petition to oppose or support either application. The request for an automatic delay must be filed by November 26, 2012. If an automatic delay is requested, the hearing will be rescheduled for a future Board meeting and personal notice will be provided to all petitioners regarding the time, date and location.

Contact Eric Gronlund by November 26, 2012, at the above Chief Engineer's address to request copies of the staff reports, recommendations, applications or other information. Additionally each application, Water Rights Program staff report and Chief Engineer's recommendation may be viewed on-line at <http://denr.sd.gov/Powertech.aspx>. Notice is given to individuals with disabilities that this hearing is being held in a physically accessible place. Please notify the Department of Environment and Natural Resources at least 48 hours before the hearing if you have a disability for which special arrangements must be made at the hearing. The telephone number for making arrangements is (605) 773-3352.

Under SDCL 1-26-17(7) notices must state that "if the amount in controversy exceeds \$2,500.00 or if a property right may be terminated, any party to the contested case may require the agency to use the Office of Hearing Examiners by giving notice of the request to the agency no later than ten days after service of a notice of hearing issued pursuant to SDCL 1-26-17." This is a Notice of Hearing, service is being provided by publication, and the applicable date to give notice to the Chief Engineer is November 26, 2012. However, since this particular matter involves water permit applications and not a monetary controversy in excess of \$2,500.00 or termination of a property right the Chief Engineer disputes the applicability of this provision and maintains that the hearing must be conducted by the Board.

The legal authority and jurisdiction under which the hearing is to be held are the following as applicable: SDCL 1-26-16 thru 1-26-28; SDCL 46-1-1 thru 46-1-9, 46-1-14 thru 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-17; 46-2A-1 thru 46-2A-10, 46-2A-14, 46-2A-15; 46-5-6.11, 46-5-10 thru 46-5-13, 46-5-30 thru 46-5-30.3, 46-5-32; 46-6-3, 46-6-3.1, 46-6-6.1, 46-6-10, 46-6-26; and Board rules ARSD 74:02:01:01 thru 74:02:01:15.

The particular section of statutes and rules pertaining to these permit applications are, in addition to the above, the following: SDCL 46-2A-9, 46-6-3.1, 46-2A-15, 46-2A-20, 46-2A-21, 46-5-10 thru 46-5-13.1, 46-5-26, 46-6-10, 46-6-26; the above listed administrative rules and the following rules pertaining to qualifications recommended by the Chief Engineer: ARSD Chapter 74:02:01 and 74:02:04.

Steven M. Pirner, Secretary, Department of Environment and Natural Resources.

Published once at an approximate cost of \$217.60

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X

Susan R. Henderson  
11507 Hwy 471  
Edgemont, SD 57735  
November 19, 2012

Mr. Eric Gronlund  
Waters Program, DENR  
State of South Dakota  
Foss Building, 523 E. Capitol  
Pierre, SD 57501

Dear Mr. Gronlund:

Re: Petition in Opposition to Powertech (USA), Inc.  
Applications 2685-2 and 2686-2 to Appropriate Water  
For In Situ Leach Uranium Mining in Custer and Fall River  
Counties SD called the Dewey-Burdock Project

By this letter, I wish to request the automatic delay of at least 20 days to allow me to better prepare and opposition response to Permit Applications 2685-2 and 2686-2.

**Drought and Water Volumes:**

I am a cattle rancher in Fall River County. My ranch has been in the Henderson Family since 1902. The general area is prone to periods of extreme drought, balanced only partially by better rainfall years. Over the years our family has spent thousands of dollars building dams and dugouts, drilling two deep water wells (1710 feet deep) and developing a natural spring to water the south end of our property. We also spent thousands building pipelines to the Igloo area where we can buy water from the Provo Township Water System which uses a Madison well drilled by the US Army when the Black Hills Army Depot was in operation.

The year 2012 was marked by extreme drought and not one of the many dams and dugouts on the ranch had water for livestock use. Without the spring and the deep water well and the pipeline system we could not have run any cattle at all on this 16 square mile ranch.

Powertech plans to appropriate billions of gallons from the Inyan Kara and the Madison aquifers where the ranch gets its water. I am greatly concerned that this will draw down the water in the wells and the spring thereby irrevocably damaging our water system. Without sufficient volumes of water I could not run cattle operations on this ranch.

**Water Quality Issues:**

Powertech plans to use caustic chemicals to dissolve the ground around the wells, dissolve the ore containing uranium in water then force it to the surface under considerable pressure. In my opinion, this will also cause normally inert contaminants to dissolve in the water. These include, Arsenic, Selenium, heavy metals, sulfates, phosphates, and potentially other contaminants plus the radioactive ore itself. When they put this back into the wells under pressure, they will surely contaminate the water with these items. Given the huge volumes of these water wells and the



scope and duration of this project, I believe that over time this will cause these contaminants to appear in the water tables and contaminate our water sources. This would be catastrophic for my ranch.

**Potential Contamination from the Black Hills Army Depot:**

The Black Hills Army Depot (BHAD) was a US Army 21,000 acre site which operated as a munitions dumping ground from 1941 to 1968. The Army blew up millions of tons of munitions in open pits and dumped thousands of tons of nerve agents, blood agents, mustard gas, Lewisite, white phosphorous, phosgene, and other contaminants in some 200 miles of trenches. These terribly toxic chemical warfare agents have percolated down into the ground. They are soluble in water and oil, never decompose, and when burned at temperatures greater than those to melt steel merely produce a toxic gas also just as lethal.

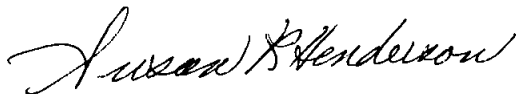
I served as the Restoration Advisory Board Chairman for 10 years beginning in 1991 and reviewed thousands of pages of documents about the military's activities at the BHAD. The site has been designated as a Super Fund Site but no clean-up has begun due to funding issues and the severe problem of how to dig up the buried agents for remediation. To date no viable or feasible means of destroying these kinds of contaminants has been designed.

I believe that if we begin to damage the underground structures in a way such as large scale in situ leach mining will do, we will ultimately cause these buried chemical warfare agents to infiltrate the water tables causing incalculable damage. We must not take this risk.

**Other Issues:**

I have other concerns about this project and reserve the right to bring these forward once I have had more time to review the water permit filings and the mineral permit filings.

Very truly yours,



Susan R. Henderson  
Owner, Henderson Ranch

Cc: Richard Blubaugh  
Powertech ( USA), Inc.  
5575 DTC Parkway Suite 140  
Greenwood Village, Colorado, 80111

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*duplicate*

Susan R. Henderson  
11507 Hwy 471  
Edgemont, SD 57735  
November 19, 2012

Mr. Eric Gronlund  
Waters Program, DENR  
State of South Dakota  
Foss Building, 523 E. Capitol  
Pierre, SD 57501

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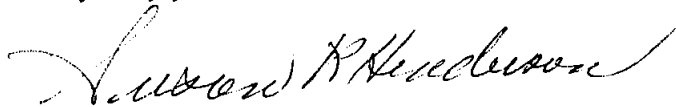
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Very truly yours,



Susan R. Henderson  
Owner, Henderson Ranch

Cc: Richard Blubaugh  
Powertech ( USA), Inc.  
5575 DTC Parkway Suite 140  
Greenwood Village, Colorado, 80111



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STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF POWERTECH,	)	
	)	<b>OBJECTION</b>
APPLICATION NOS. 2786-2	)	
2686-2	)	

The Clean Water Alliance, an organization of South Dakota and Lakota citizens, by and through its undersigned counsel, hereby objects to the above-described application to appropriate water filed on behalf of Powertech. This objection is based upon the grounds and for the reason that the granting of such permits will adversely effect the future surface and subsurface water rights of South Dakota and Lakota citizens and their ability to use our water resources for domestic, commercial, and other uses.

Some of the issues of concern raised by these permits include:


1. The proposal for a uranium mine northwest of Edgemont would use huge amounts of water.
2. Powertech Uranium has asked the state for a permit to extract 551 gallons per minute from the Madison aquifer.
3. They have also applied for a permit to extract 8,500 gallons per minute from the Inyan Kara formation. 9,000 gallons per minute equals 12,960,000 gallons per day. Multiply that by 365 days and then by a ten years, and this equals 47 billion gallons of our water.
4. According to the company, the project may last as long as 20 years. The company plans to drill two or more wells into the Madison aquifer and a total of 1500 wells into the Inyan

Kara.

5. "Only" 1000 wells would operate at any one time. According to the company, the project would consume (use up) 2.76 billion gallons of the water. This water would no longer be available to communities, ranches, and families.
6. After it is used for mining, the water that is not consumed or left in the aquifer would be treated in one of two ways: The company prefers to pump it underground -- below drinking water sources - where it would no longer be available to communities, ranches, and families. It could be sprayed on the ground, which has created a build-up of toxic materials, including selenium, at other sites.
7. Much of the water would be used repeatedly, but it would be contaminated and would not be available for other uses. Our aquifer will never be the same.
8. The federal government wants South Dakotans to pay for water from the Missouri River. We live in a semi-arid area, and droughts are a regular occurrence. If this project goes through, we will lose access to critical groundwater resources.

The CWA further objects to these applications for our water on the grounds that any well allowed by this application will interfere with and adversely affect existing water rights and is not in the public interest.

Dated this 22 day of November, 2012.

  
BRUCE ELLISON  
P.O. Box 2508  
Rapid City, SD 57709  
Attorney for Clean Water Alliance

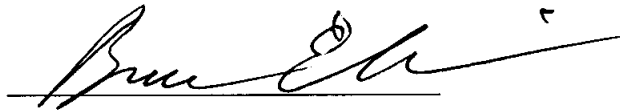
**CERTIFICATE OF SERVICE**

It is hereby certified that a true and correct copy of the Clean Water Alliance's Objections were mailed this date to:

CHIEF ENGINEER  
Water Rights Program  
Foss Building  
523 E. Capitol  
Pierre, SD 57501

POWERTECH  
C/o Richard Blubaugh  
5575 DTC Parkway, Suite 140  
Greenwood Village, CO 80111

Dated this 23<sup>rd</sup> day of November, 2012.

A handwritten signature in black ink, appearing to read "Bruce", is written over a horizontal line. The signature is cursive and includes a small flourish at the end.





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Jennifer Belitz  
28233 Cascade Rd  
Hot Springs, SD 57747

11/24/2012

Attn: Eric Gronlund  
DENR

As a proud citizen, landowner, and mother in SD. I fervently oppose permitting Powertech Inc. any aquifer water for it's in-situ leach mining operations.

This company operated in TX where they relaxed water protection regulations.

In CO, when the state introduced legislation that would require the company to return water back to it's original condition, Powertech Inc. attempted to sue the state, then gave up and is focusing on mining operations here. (Where citizens and legislators care less about their water?)

I am originally from a small town in ND recently overrun by another dirty energy industry (OIL). I am in shock at how fast a peaceful, beautiful, healthy place can be turned upside down with seemingly little resistance by the state and no rights given landowners. Basically, if you value the beauty of your surroundings, the clean air, and water you've been accustomed to, you will LEAVE to find it again elsewhere.....please look into how many ND residents have recently move to SD (many are the "core" citizens that built the churches and schools there).

These types of mining operations should not have any priority in this state which thrives on agriculture, tourism, and a population of residents that are here because of the beauty, culture, and healthy environment SD offers.

CLEAN WATER IN AN AQUIFER .....consider our semi-arid climate, recent droughts, population growth, the amount of the earths water already polluted.....CLEAN WATER IN AQUIFERS is the last thing we should be permitting for a Candadian energy company already denied by our neighbors in CO.

How will the state of SD protect those of us who have wells in these aquifers for domestic and livestock use? How will SD ensure us our children (who absorb chemicals at a higher rate than adults) are not being poisoned and will not have a dry or polluted well in the future??

Powertech Inc. prefers to pump it's polluted water into the ground below current wells used for water. I'd like to make the point that our shallower wells have recently been found to be contaminated with farm and other chemicals. In the future we may have to go deeper for clean uncontaminated water. This out of site/ out of mind approach is nearly passing on the pollution to our children.

This water is too precious to all of us....

Thankyou for protecting your fellow South Dakota families from radioactive pollution, destruction of cultural sites, and most of all polluted water.

Jennifer Belitz



*Weld County land owner Robin Davis, a co-founder of C.A.R.D. whose ranch is adjacent to Powertech's proposed mine site, praised the ruling. "Powertech had told us from day one that they could and would restore our water. Instead of making good on that promise, the company instead sought through the courts to eliminate ground water protections and exclude the public from the process. If it can't fulfill its promises of protecting our precious water supplies, Powertech should formally abandon this risky project."*

"In-situ mining remediation not as reliable as you think" by Howard Williams, Greeley Tribune - May 21, 2009 Note: Mr. Williams gives an overview of the 2008 report by hydrogeologist Bruce Darling on 27 Texas in-situ leach uranium mines where groundwater restoration standards were relaxed by Texas environmental officials after mine operators were unable to return elevated levels of uranium and other heavy metals back to baseline pre-mining levels. As Williams points out, five of these mines are cited on Powertech's website as examples of ISL operations that successfully cleaned up the aquifers. For a posting on Dr. Darling's report and Powertech's claims, go [here](#).

## POWERTECH FOLDS

*Canadian company doesn't appeal the dismissal of its lawsuit against new Colorado uranium mining rules; is the Centennial project dead?*

Posted August 29, 2012

Powertech Uranium Corp. has apparently decided to not appeal the July 13 dismissal of its lawsuit challenging new Colorado rules regulating in-situ leach uranium mining. Soon after announcing the proposed Centennial ISL uranium project in 2007, Powertech assured local Weld County, Colorado landowners that it could conduct ISL uranium mining and restore groundwater aquifers to pre-mining water quality.

But when northern Colorado residents and legislators sought to incorporate this concept into state law, Powertech sang another tune. The Canadian company vigorously opposed the 2008 legislation that eventually passed by overwhelming bipartisan majorities, and fought subsequent regulations drafted by the Colorado Mined Land Reclamation Board. After the MLRB unanimously adopted the rules on August 12, 2010, Powertech filed a lawsuit seeking to overturn them. After delays by Powertech, the case was finally dismissed on July 13 of this year.

The deadline for filing a notice of appeal with the district court was Monday, August 27. A second deadline for filing a notice of appeal with the appellate court is Friday, August 31. Since both filings are required in this case, one can assume that Powertech has missed the Monday deadline and therefore is not appealing the judge's dismissal order.

The decision to not appeal is one more indication that Powertech has given up on the controversial Centennial project. In the last year, Powertech has directed federal and state regulators to cease all permitting activities, closed its Wellington, Colorado project office, transferred or laid off the project manager and support staff, allowed key land options to expire, listed project real estate for sale, and announced that it is shifting its attention and resources to the proposed Dewey-Burdock project in South Dakota.

However, Powertech is unlikely to publicly admit that it has terminated the project since it wants investors, Canadian broker-dealers and hedge fund managers, and potential acquirers and "strategic partners" to think the Centennial project is still an economically-viable uranium project. JW

X

11-23-12

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Dear Chief Engineer

I'm filing a petition to oppose issuing water permits to Powertech out of the Madison and Inyan Aquifer. Our ranch is supplied by both of these aquifers. The vast amounts taken from Inyan Karo could the levels to a point our well could be useless. We have multiple dams on our ranch but are empty due to the reoccurring drought. Experts project more drought in 2013. If the water recedes due to water use by Powertech who would be responsible for all the ranchland that would be useless without water. If contamination would occur the research shows you have to obtain another water source. In this area there are no other sources. The Madison aquifer supplies all our rural water systems and towns.

Agriculture is our leading industry and the strongest economy, why would anyone leave to chance our water supply to a foreign company. This company wants to use South Dakota water to mine uranium due to the fact it is the cheapest way to mine. The risk could result to South Dakota water shortages and contamination that might not be realized until it is irreversible.

Sincerely  
Cindy Brunson  
11172 Fort Sisco Rd  
Edgemont,  
SD 57735



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WATER RIGHTS  
PROGRAM

11-23-12

Dear DENR

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Sincerely  
Cindy Brunson  
11122 Fort Dodge Rd  
Edgemont,  
SD 57735

Could you please provide me with information on this application.

Chief Engineer  
Water Rights Program  
Foss Building  
523 E. Capitol  
Pierre, SD 57501

Mr. Richard Blubaugh  
Powertech (USA) Inc.  
5575 DTC Parkway, Suite 140  
Greenwood Village, CO. 80111

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NOV 26 2012  
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RE: Water Permit Applications No. 2685-2 and 2686-2

Dear Mr. Erbele and Mr. Blubaugh:

I am requesting to be an intervenor in the above water permit applications. This is also my request for a reasonable extension of time on the upcoming hearing.

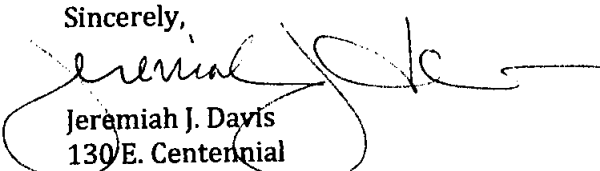
The decision to resume uranium exploration and mining in the southern Black Hills is not one that should be taken lightly. Our water resources, including the Madison Formation, are crucial to the survival of our region, including the timber, ranching, and tourism industries. The southern Black Hills have cultural resources, including the prehistoric rock art at Craven Canyon, which should be preserved for future generations. The increasing grip of drought and the on-going pine beetle epidemic are a reminder that the natural environment of the Black Hills is fragile.

Decades after the earlier uranium mining in the Black Hills, there are still unsightly pits and other disturbances, particularly in Fall River County. The negative health consequences of long-term exposure to even low level radiation is well-documented. It is not clear that the applicant has the financial wherewithal to cover the costs of the destruction of forest and water resources which may be a direct consequence of uranium mining in our region.

Please keep me informed of all proceedings and documents related to these applications.

Thank you.

Sincerely,



Jeremiah J. Davis  
130 E. Centennial  
Rapid City, SD 57701  
(605) 348.5867



Defenders of the Black Hills X  
He Sapa O'nakijin

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NOV 26 2012

WATER RIGHTS  
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P. O. Box 2003, Rapid City, SD 57709

Phone: (605) 399-1868

Nov. 23, 2012

Chief Engineer Erbele  
Water Rights Program  
Foss Building  
523 E. Capitol  
Pierre, SD 57501

Powertech (USA) Inc.  
c/o Richard Blubaugh  
5575 DTC Parkway, Suite 140  
Greenwood Village, CO 80111

Re: Water Permit Applications No. 2685-2 and 2686-2

Dear Mr. Erbele and Mr. Blubaugh:

Regarding Water Permit Applications No. 2685-2 and 2686-2, on behalf of the Defenders of the Black Hills, we will be presenting testimony at the Hearing scheduled for Dec. 5, 2012. However, we are always requesting a delay of the Hearing so that more input may be made available to the South Dakota Water Board on this very serious application.

Our interest in this application is our concerns for the amount of water that will be taken out of the aquifer system; the pollution of the water, both at the surface and underground; and the far-reaching effects this project will have on the entire state of South Dakota.

Please keep us informed of all actions and documents regarding this Application.

Thank you.

Sincerely,



Charmaine White Face, Coordinator

X

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Water Rights Program  
Chief Engineer  
Foss Building  
523 E Capital  
Pierre, SD 57501

Dear Sir,

I am opposed, at this time, to Application no. 2685-2.

I ranch south of the proposed uranium project. Some of the land is within one mile of the project. I operate a 600 head cow/calf ranch operation on 16000 ac.

I have 10 domestic wells producing water in the Inya Kara formation. My cattle rely almost entirely on well water to supply their needs. The wells are from 240ft. to 800ft. deep. I have 2 wells that have submersibles which supply water to 22 miles of pipeline with tanks. I have pumpjacks and windmills on some wells that flow and some that don't flow.

Five wells flow water from 8gpm to 1/2 gpm. The well that flows 8gpm has produced water since it was drilled in 1923 for an oil well test. This well is sufficient to water a large # of cattle in the winter at 30 below zero while staying open. Wildlife use this small pond, especially when it is so dry.

I have not been assured by this application that the availability of the water I am using will be the same as it has been in the past. It will take a large expenditure of money and labor on my part to sufficiently water my livestock and keep the water open.

Quality and quantity of water needs to be addressed, so that after mining the water is as good or better than the baseline monitoring.

The future of ranching for this generation and the next ones needs to be protected, by making sure the water resource is protected by monitoring, management, and bonding.

I request to speak at your application hearing for no. 2685-2. Thank You,

Mark Tubbs  
  
10891 River Road

Edgemont, South Dakota

57735

6056627302

X

Jerri Baker  
705 North River Street  
Hot Springs, SD 57747

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**Statement of Interest**

I am writing to be put on the agenda concerning Power Tech, and the Large Scale Mining Permit, including water permits, before the State of South Dakota and the boards to that over see these. I am interested in speaking on these topics, on December 5<sup>th</sup> 2012.

Please note my email to send me information or if you have any questions concerning this statement.

Jerri Baker

11-21-12



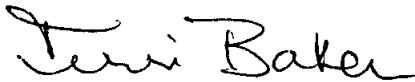
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Jerri Baker  
705 North River Street  
Hot Springs, SD 57747

Reason for Opposition

To Whom This May Concern,

I worked at an UMTRA clean-up site in Colorado. I strongly oppose Power Tech mining uranium outside Edgemont, South Dakota. I am concerned about the quality of air and water that will be present if you decide to allow them to mine. I would like the opportunity to voice my opinion.



Jerri Baker

11-21-2012

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X

**City of  
Hot Springs**

303 North River Street

Hot Springs, South Dakota 57747

Don De Vries  
Mayor

Phone (605) 745-3135

November 20, 2012

DENR  
Water Rights Program  
Foss Building  
523 East Capital  
Pierre, SD 57501

Re: Water application for permits: 2685-2, and 2686-2

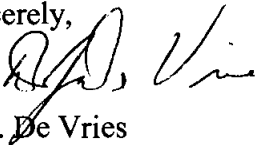
Dear Sirs:

The Hot Springs City Council has asked me to write this letter because of our concern of the groundwater in our region. The water consumption of PowerTech could cause irreparable damage to our quality or perhaps availability of water for our region. We would like to see economic growth in the area, but we are asking your consideration to be cautious in water permits, keeping our present and future needs in mind.

To proceed this project must be done with assurance that our groundwater will remain available, and the quality of our water would not be diminished. We would like to be informed of the future activities so we can inform our community if problems maybe forth coming. We feel we need to be prepared to make educated decisions.

We are planning for a representative from the City of Hot Springs to be at the meeting December 5, in Pierre. A special meeting is being held at the Fall River Court house on Monday the 26<sup>th</sup> of November and we plan to learn more about this project at that meeting. We will be better informed after this meeting, and will also be aware of our county's decisions. Thank you for lettings us express our concerns.

Sincerely,



D. J. De Vries  
Mayor

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November 19, 2012

Eric Gronlund  
Water Rights Program, DENR  
Joe Foss Building  
523 East Capitol  
Pierre, SD 57501-3182

Mr. Richard Blubaugh  
Powertech Inc.  
5575 DTC Parkway  
Suite 140  
Greenwood Village, CO 80111

Dear Mr. Gronlund and Mr. Blubaugh,

I received the DENR notice of November 9, 2012 and am writing to request to be a citizen intervenor in Water Right Permit Application Nos. 2685-2 and 2686-2 filed by Powertech. As a health professional specializing in disease prevention and wellness spanning a career of forty years, I strongly object to the extraordinary usage of water proposed and the public health, wildlife and agricultural risks it presents for an arid climate like western South Dakota. Additionally, the EPA has not accepted ISL as an acceptable and safe technology and data on mines in many other states show failure at aquifer restoration with none having fully restored an aquifer to pre-mining water quality. Fall River County and Custer County have suffered from extreme drought and the irresponsible usage of water proposed and potential ruination of water resources for the area is a risk viewed as extremely unwise.

Lastly, due to the incredible amount of data in the scientific literature and the exponential water losses occurring nationwide due to the extraction industry, it would seem prudent to delay this hearing. I thus request that DENR postpone the December 5<sup>th</sup> hearing and that EPA experts be invited for input, that the public be given more information from scientific independent evaluators and that more intensive study be given to this very potentially toxic operation.

In Health,



Rebecca R. Leas, Ph.D.  
Professor Emeritus  
6509 Seminole Lane, Rapid City, SD 57702



X

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Chief Engineer  
Water Rights Program  
Foss Building  
523 E. Capitol  
Pierre, SD 57501

Powertech (USA) Inc.  
c/o Richard Blubaugh  
5575 DTC Parkway, Suite 140  
Greenwood Village, CO. 80111

RE: Water Permit Applications No. 2685-2 and 2686-2

Dear Mr. Erbele and Mr. Blubaugh:

I am requesting to be an intervenor in the above water permit applications.

Please regard this letter as my request for an extension of time on the hearing.

I am a member of the Black Hills Chapter of Dakota Rural Action. I am very concerned about the negative impact that uranium mining in the Black Hills will have on our water supply. Water is a critical resource that we must protect. An ample supply of clean water is critical to the economy of the Black Hills and should not be risked for short-term gain. For these reasons, I urge you to delay this hearing.

Please keep me informed of all proceedings and documents related to these applications.

Thank you.

Sincerely,

*Barbara Cromwell*

Barbara Cromwell  
2313 Cruz Drive  
Rapid City, SD 57702

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Chief Engineer  
Water Rights Program

Foss Building  
523 E. Capitol  
Pierre, SD 57501

Nov. 21, 2012

Re: Water Permit Applications No. 2685-2 and  
2686-2

Dear Mr. Ebele,

I am requesting to be an intervenor in the above water permit applications.

As a concerned physician and as a member of Dakota Rural Action, I believe the use to which these applications would be put constitutes a threat to both our local populace and our environment, endangering the health of both.

I urge you to delay this hearing in order that more complete exposition and assembly of relevant data can be achieved.

Please regard this letter as my request for an extension of the hearing, and please keep me informed of all proceedings. Thank you.

Sincerely,

Donald A. Kelley MD  
12637 Merritt Hill Estes Rd.  
Deadwood, SD 57732

Chief Engineer  
Water Rights Program  
Foss Building  
523 E. Capitol  
Pierre, S.D. 57501

X  
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Dear Mr Erbele:

I Am requesting to be an intervenor  
in the ~~below~~<sup>below</sup> water Permit Applications.

RE: Water Permit Applications

NO. 2685-2 and 2686-2

AS A lifelong resident + Rancher  
of western So. DAK. I Am opped to such  
questionable water uses-

Please Keep me informed of  
all Proceedings and documents  
related to these Applications.

Thank you sincerely,

Marvin Kammerer

Marvin Kammerer

22198 Elk Vale Rd.

Rapid City, So. DAK.

57701

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X.

12747 Oak Road  
Hot Springs, SD 57747  
November 21, 2012

Dear Sus:

I contest the permit of  
Powertech for it would  
contaminate this area's water.

Our water is supplied by  
the source they will deplete.

Yours truly,  
Doris Belytz



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To Eric Gronlund,

We have a ranch about a mile of the proposed  
leach uranium mining. We oppose it due to  
health hazards and loss of water.

Respectfully,

Terry Belity  
12747 Oak Road  
Hot Springs, SD 57747

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November 21, 2012

✓ Chief Engineer (Mr. Erbele)  
Water Rights Program  
Foss Building  
523 E. Capitol  
Pierre, SD 57501

Powertech (USA) Inc.  
c/o Richard Blubaugh  
5575 DTC Parkway, Suite 140  
Greenwood Village, CO. 80111

RE: Water Permit Applications No. 2685-2 and 2686-2

Dear Mr. Erbele and Mr. Blubaugh:

I am requesting to be an intervenor in the above water permit applications.

Please regard this letter as my request for an extension of time on the hearing.

I am a member of Dakota Rural Action, Black Hills. As a citizen concerned about the harmful effects of uranium mining in the Black Hills who recognizes our water as a precious resource that needs to be preserved and protected from this dangerous contamination, I urge you to **delay** this hearing.

Please keep me informed of all proceedings and documents related to these applications.

Thank you.

Sincerely,



Gena M. Parkhurst  
PO Box 1914  
Rapid City SD 57709

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↑

418 N. 44th Street  
Rapid City, SD 57702  
November 20, 2012

Chief Engineer  
Water Rights Program  
Foss Building  
523 E. Capitol  
Pierre, SD 57501

Powertech (USA) Inc.  
c/o Richard Blubaugh  
5575 DTC Parkway, Suite 140  
Greenwood Village, CO. 80111

RE: Water Permit Applications No. 2685-2 and 2686-2

Dear Mr. Erbele and Mr. Blubaugh:

I am requesting to be an intervenor in the above water permit applications. I am interested in this application because I am interested in water allocation in western South Dakota. I oppose this application, because it is not in the public interest, the requested water use would negatively impact other water users, and the proposed use is not a beneficial use.

I request that the hearing on this matter, currently scheduled for December 5, 2012, be delayed.

Please keep me informed of all proceedings and documents related to these applications.

Thank you.

Sincerely,



Liliias Jarding, Ph.D.

X  
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Chief Engineer  
Water Rights Program  
Foss Building  
523 E. Capitol  
Pierre, SD 57501

Powertech (USA) Inc.  
c/o Richard Blubaugh  
5575 DTC Parkway, Suite 140  
Greenwood Village, CO. 80111

RE: Water Permit Applications No. 2685-2 and 2686-2

Dear Mr. Erbele and Mr. Blubaugh:

I am requesting to be an intervenor in the above water permit applications. Please regard this letter as my request for an extension of time on the hearing.

I am a member of Dakota Rural Action, Black Hills. As a citizen concerned about the harmful effects of uranium mining in the Black Hills who recognizes our water as a precious resource that needs to be preserved and protected from this dangerous contamination, I urge you to delay this hearing.

Please keep me informed of all proceedings and documents related to these applications.

Thank you.

Sincerely,



Jillian Anawaty  
2804 Willow Ave  
Rapid City, SD 57701

, November 19, 2012



X

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19 November 2012

Dear Mr. Erbele and Mr. Blubaugh:

RE: Water Permit Applications No. 2685-2 and 2686-2

I am requesting to be an intervenor in the above water permit applications.

I am requesting to be an intervenor as a resident of the Black Hills, as I will be directly impacted by the water usage the mine permits request.

I am also requesting that the permit hearing be pushed back from the Dec. 5, 2012.

Please keep me informed of all proceedings and documents related to these applications.

Thank you.

Sincerely,

Sabrina King  
14705 Halter Ct.  
Piedmont, SD 57767

X

**SAMPLE INTERVENOR LETTER - MUST BE RECEIVED IN PIERRE BY NOVEMBER 26, 2012**

**This letter must be completed if you want to testify at the hearing on the water permits in Pierre.**

**RECEIVED  
NOV 26 2012  
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ADDRESS TO (must send to both):

Chief Engineer  
Water Rights Program  
Foss Building  
523 E. Capitol  
Pierre, SD 57501

Powertech (USA) Inc.  
c/o Richard Blubaugh  
5575 DTC Parkway, Suite 140  
Greenwood Village, CO. 80111

RE: Water Permit Applications No. 2685-2 and 2686-2

Dear Mr. Erbele and Mr. Blubaugh:

I am requesting to be an intervenor in the above water permit applications.

*Here -- insert your interest in the applications and your reason(s) for opposing the applications.*

*Contamination of water, and the volume of water used*

Please keep me informed of all proceedings and documents related to these applications.

Thank you.

Sincerely,

*Gary Heckenlible*

*GARY HECKENLIBLE  
P.O. Box 422  
Rapid City, S.D. 57709*

*Here -- insert your signature, name and mailing address. Insert the name and mailing address of your attorney, if you have one.*

*For more information on the Clean Water Alliance's position, see [www.bhcleanwateralliance.org](http://www.bhcleanwateralliance.org)  
For more information on the state's position, see [http://denr.sd.gov/wrimage/pub/2685-2\\_app.pdf](http://denr.sd.gov/wrimage/pub/2685-2_app.pdf),  
which is Powertech's version of the applications.*



**DEPARTMENT OF GAME, FISH, AND PARKS**

Foss Building  
523 East Capitol  
Pierre, South Dakota 57501-3182

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November 26, 2012

Mr. Eric Gronlund  
Water Rights Program  
Foss Building  
523 East Capitol Ave  
Pierre, SD 57501

**Re: Water Right Application No. 2685-2 and No. 2686-2  
Powertech USA, Inc.  
Custer and Fall River Counties**

Dear Mr. Gronlund:

This letter is to inform you of the South Dakota Department of Game, Fish, and Parks intent to request party status in the above referenced water right applications. At this time, we are neither in support nor opposition to these applications, but are requesting party status due to the Department's interest in large-scale mining operations and their potential impacts on fish and wildlife resources.

If you have any questions, please contact me at (605) 773-6208.

Sincerely,

Leslie Murphy  
Senior Biologist



## United States Department of the Interior

NATIONAL PARK SERVICE  
Water Resources Division  
1201 Oakridge Drive, Suite 250  
Fort Collins, Colorado 80525-5596



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IN REPLY REFER TO:

November 20, 2012

L54(2380)  
WICA/Water Rights

Mr. Garland Eberle  
Chief Engineer  
Water Rights Program, Foss Building  
523 E. Capitol  
Pierre, SD 57501

Mr. Richard Blubaugh  
Powertech (USA) Inc.  
5575 DTC Parkway, Suite 140  
Greenwood Village, CO 80111

Re: Letter of Intervention concerning Power Tech (USA) Inc. South Dakota Water Permit Application No. 2685-2 for 888.8 acre-feet annually of groundwater from the Madison aquifer for uranium mining purposes

Dear Mr. Eberle and Mr. Blubaugh,

The National Park Service (NPS) received notice of South Dakota Water Permit Application No. 2685-2 by Powertech (USA) Inc. to withdraw up to 888.8 acre-feet of groundwater per year from the Madison aquifer for uranium mining purposes. The proposed points of diversion are located in the Dewey – Burdock area of South Dakota and are situated approximately 25 – 30 miles west southwest of Wind Cave National Park (Wind Cave NP) and 20 miles south southwest of Jewel Cave National Monument.

Since the water level in the Madison aquifer is below the cave formations in Jewel Cave, the NPS is primarily concerned about the impacts of the proposed withdrawals and the associated mining operation on groundwater within Wind Cave. As you are aware, groundwater within the Madison aquifer is found within the cave system and naturally fluctuates depending on aquifer recharge and discharge. Groundwater fills depressions and passages within the cave resulting in water bodies of various sizes commonly referred to as the park's underground lakes. Current scientific studies indicate that Madison aquifer groundwater is integral to ongoing cave evolution and the NPS is required by law to protect the existing groundwater quantity and quality for the continuation of cave forming processes within Wind Cave NP.

The South Dakota Department of Environment and Natural Resources (DENR) issued a report to the Chief Engineer, dated November 2, 2012, evaluating the potential impacts of the proposed withdrawals as required by state law. The DENR report concluded that drawdown from the



proposed withdrawals are unlikely to be measured at Wind Cave NP due to the distance between the proposed points of diversion and the park's underground lakes. The NPS appreciates the DENR's inclusion of an analysis of potential impacts to water levels within Wind Cave NP from the proposed withdrawals.

The maintenance of naturally occurring water levels is of critical importance to the NPS. Due to a lack of sufficient hydrologic and geologic information for the area of concern, which precluded a robust scientific analysis, DENR necessarily used its professional judgment to conclude that the proposed withdrawals are unlikely to make a measureable impact to water levels within Wind Cave NP.

Therefore, the NPS supports the proposed Qualification 5 in the recommendation of the Chief Engineer for Water Permit Application No. 2685-2: "The permit holder under this permit shall control withdrawals from the wells so there is not a significant adverse effect on the water flow from area springs or a significant adverse effect on the water quality and character in area springs." Assuming this qualification is included in the Permit, monitoring of spring flow and groundwater levels will be necessary to determine if these protections are achieved. Data derived from monitoring will increase our knowledge on how the Madison aquifer responds to existing and future withdrawals.

Additionally, the NPS recommends that the applicant contribute funding to the groundwater model currently being constructed by the U.S. Geological Survey for the Madison and Minnelusa aquifers for the entire Black Hills region. When completed this groundwater model will become a valuable tool in estimating aquifer and spring flow response to existing and proposed groundwater withdrawals. For more information about this groundwater model, please contact Dr. Andrew Long of the U.S. Geological Survey, South Dakota Water Science Center in Rapid City at (605) 394-3237.

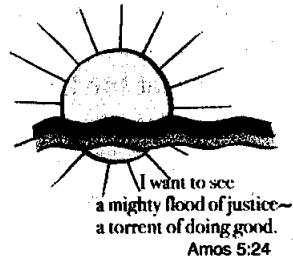
If you have any questions concerning this letter, please contact Jeff Hughes of my staff at (970) 225-3527.

Sincerely



*So* William R. Hansen  
Chief, Water Rights Branch

cc: WICA - Superintendent



# SOUTH DAKOTA PEACE & JUSTICE CENTER

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19 N Pine St. Vermillion, SD 57069  
605-920-8945

[www.sodakpjic.org](http://www.sodakpjic.org)

19 November 2012

Chief Engineer  
Water Rights Program  
Foss Building  
523 E. Capitol  
Pierre, SD 57501

Powertech (USA) Inc.  
c/o Richard Blubaugh  
5575 DTC Parkway, Suite 140  
Greenwood Village, CO. 80111

RE: Water Permit Applications No. 2685-2 and 2686-2

Dear Mr. Erbele and Mr. Blubaugh:

On behalf of the South Dakota Peace & Justice Center (SDPJC), I am requesting to be an intervenor in the above water permit applications.

The SDPJC is committed to environmental stewardship and the economic security of South Dakota's most vulnerable citizens. We have worked in past with Owe Aku (Bring Back the Way), the South Dakota Sierra Club, and Dakota Rural Action on environmental issues such as the proposed Hyperion oil refinery in Union County. Likewise, we joined in coalition in opposition against Black Hills Power rate hikes in 2010. A dual commitment to responsible stewardship of our common resources and natural heritage is absolutely integral to the Center's mission of advancing peace and justice for all South Dakotans.

It is on account of our concern for economic and environmental justice that the SDPJC opposes Powertech's water use applications for the proposed Dewey Burdock Project in Fall River and Custer Counties.

Our opposition stems chiefly from two circumstances. Firstly, in situ leaching (ISL) is an extremely water-intensive process, such that Powertech is asking to draw 551 gallons per minute from the Madison aquifer and 8,500 gallons per minute from the Inyan Kara aquifer. To put this in perspective, the entirety of Rapid City only draws 4,800 gallons per minute. After it is used for mining, the water that is not directly consumed (by Powertech's own estimates up to 2.76 billion gallons) or left in the aquifer would essentially be removed from use for communities, ranches, and families.

South Dakota farmers are struggling through of the worst draughts in recent memory, and the aquifers on which they and the rest of the Black Hills depend for water are depleted as it is. To give away such massive amounts of water would place an inordinate resource strain on the inhabitants of West River, raising utility costs drastically and threatening lower income South Dakotans especially.

Secondly, despite claims that ISL is environmentally friendly (in comparison to other forms of uranium mining at any rate), it is all too common to see water used in the mining process, water bearing radioactive materials and heavy minerals, contaminate surrounding groundwater sources. This was certainly the case at the ISL mines at Stráz pod Ralskem mine in the Czech Republic as well as Königstein in Germany. Moreover, groundwater has *never* been returned to its original condition at any ISL uranium mine in the United States. Especially after the passage of SB 158 last year, which stripped the South Dakota DENR (Department of Environment and Natural Resources) of its regulatory capacities pertaining to ISL uranium mining, the threat posed by contaminated water to families and ranchers throughout western SD is simply too great to allow Powertech—a company that has *never mined uranium or any other natural resource*, a company with *no experience* with ISL or any other kind of uranium mining—to go forward with its water use applications.

On behalf of SDPJC, then, please keep me informed of all proceedings and documents related to these applications.

Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read "Tom Emanuel", with a large, stylized flourish at the end.

Tom Emanuel  
Executive Director, South Dakota Peace & Justice Center  
19 N Pine St.  
Vermillion, SD 57069  
[sodakpjc@gmail.com](mailto:sodakpjc@gmail.com)

Eric Gronlund, Chief Engineer  
Water Rights Program  
PMB 2020  
Joe Foss Building  
523 E. Capitol  
Pierre, SD 57501-3182

X  
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November 19, 2012

Re: Water permits Application #s 2685-2 and 2686-2  
To appropriate Water for Powertech Inc.

Dear Board Members,

Our ranch land is located 6-10 miles south and southeast of Edgemont. Our privately owned wells at 1300 feet supply water from the Inyan Kara and Lakota aquifers. We feel that because this project gives Powertech the right to pump a tremendous amount of water from these formations there is a real possibility that even though much of the water is returned, things could go wrong and our ground water supply could be adversely impacted.

If this in-situ uranium project does move forward, we would like to have written assurances in the agreement that our ground water supply would not be compromised and written assurances of what recourses are available to us, should this happen.

Respectfully submitted  
Dewane Stearns  
11500 Indian Canyon Road  
Edgemont, SD 57735



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NOV 28 2012

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November 26, 2012

From: Edward H. Binns  
408 N 17<sup>th</sup> Street  
Hot Springs, South Dakota 57747

To: Mr. Eric Gronlund  
Waters Program, DENR  
State of South Dakota  
Foss Building  
523 East Capitol  
Pierre, South Dakota 57501

Re: This serves as a petition in opposition to Powertech (USA) Applications 2685-2 and 2686-2, which serve to appropriate water for in situ uranium leach mining for the "Dewey-Burdock" project in Fall River and Custer Counties, South Dakota

Through this correspondence, I seek a delay in the proceedings of the water hearing on these two applications and an opportunity to speak against them.

### **Risk Management**

I am a retired certified public accountant who served on the staff of the State Auditor of the Commonwealth of Virginia. At the end of my working career I was a senior internal auditor working directly for the Internal Auditor of Virginia, or in simpler terms, a state fraud examiner.

In addition to being a CPA, I have a master's degree in business administration. I am familiar with the concepts and standards of risk management, particularly since I worked literally right next to the risk management section of Red Cross headquarters for nearly twelve years from early 1990 to late 2001. There are serious financial risks and cautions involved in the Dewey-Burdock Project. These have a distinct possibility of impacting the safety of the project itself as well as the financial health of Fall River County, the town of Edgemont and the city of Hot Springs.

### **Financial Stability**

Powertech is a Canadian corporation with a marginal cash position and an uneven history. In the event of an error or technical difficulty, its capacity to make everyone whole and to self-insure for the risks of uranium mining appears questionable. This is true because of the nature of in situ mining, the nature of uranium and the trailings, and the existence of very dangerous buried toxins, which may be disturbed by the extensive use of water from the aquifers in the area.

Sincerely,

*Edward H Binns*

Edward H. Binns  
Retired MBA/CPA

cc: Richard Blubaugh  
Powertech (USA), Inc.  
5575 DTC Parkway, Suite 140  
Greenwood Village, Colorado 80111

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NOV 28 2012

WATER RIGHTS  
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28233 Cascade Road  
Hot Springs, SD 57747  
November 25, 2012

To whom it may concern,

I am opposed to "in situ" uranium mining in the Black Hills for several good reasons, these reasons I hope you will thoughtfully consider before moving ahead with any decisions of Powertech working in our area.

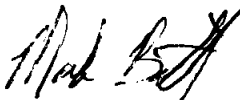
First, the amount of water projected to be consumed by the company could be as high as 12,960,000 gallons per day. This water would be coming from our treasured Madison aquifer and Inyan Kara aquifer. If they pump their radioactive wastes back into the ground (as they prefer to do) this water is forever polluted and can no longer be used by our local families and ranches for their purposes. Consider the extreme drought that we have been experiencing. Knowing that we have lost this potential reserve forever should give anyone a moment to pause and reflect the potential dire consequences for us or future generations. This is the fact: no groundwater has ever been returned to its original condition at any "in situ" leach uranium mine in the United States.

Secondly, Powertech is a Canadian company which has never mined uranium. This foreign company has no ties to our land and community and when they are done getting their profit, what incentive will they have to fix what is damaged? What recourse do we have on a foreign company?

Thirdly, I am not convinced with the argument that uranium mining in the Black Hills would boost the economy. The Canadian company would no doubt need some services from the local communities, but think about the impact the Balkan oil boom has done to our neighbors north of us. Some people get rich, while most people have to put up with the crowded towns, pothole roads, and additional crime in their once peaceful community. Isn't the Black Hills a tourist attraction? Do people really want to come to the Black Hills if the viewscape is littered with mining and radioactive materials?

Please do whatever is in your power and influence to stop the destruction of our land and water by Powertech.

Sincerely,



Mark Behitz

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WATER RIGHTS  
PROGRAM

Jennifer Belitz  
28233 Cascade Rd  
Hot Springs, SD 57747

11/24/2012

Attn: Eric Gronlund  
DENR

As a proud citizen, landowner, and mother in SD. I fervently oppose permitting Powertech Inc. any aquifer water for it's in-situ leach mining operations.

This company operated in TX where they relaxed water protection regulations.

In CO, when the state introduced legislation that would require the company to return water back to it's original condition, Powertech Inc. attempted to sue the state, then gave up and is focusing on mining operations here. (Where citizens and legislators care less about their water?)

I am originally from a small town in ND recently overrun by another dirty energy industry (OIL). I am in shock at how fast a peaceful, beautiful, healthy place can be turned upside down with seemingly little resistance by the state and no rights given landowners. Basically, if you value the beauty of your surroundings, the clean air, and water you've been accustomed to, you will LEAVE to find it again elsewhere.....please look into how many ND residents have recently move to SD (many are the "core" citizens that built the churches and schools there).

These types of mining operations should not have any priority in this state which thrives on agriculture, tourism, and a population of residents that are here because of the beauty, culture, and healthy environment SD offers.

CLEAN WATER IN AN AQUIFER .....consider our semi-arid climate, recent droughts, population growth, the amount of the earths water already polluted.....CLEAN WATER IN AQUIFERS is the last thing we should be permitting for a Candadian energy company already denied by our neighbors in CO.

How will the state of SD protect those of us who have wells in these aquifers for domestic and livestock use? How will SD ensure us our children (who absorb chemicals at a higher rate than adults) are not being poisoned and will not have a dry or polluted well in the future??

Powertech Inc. prefers to pump it's polluted water into the ground below current wells used for water. I'd like to make the point that our shallower wells have recently been found to be contaminated with farm and other chemicals. In the future we may have to go deeper for clean uncontaminated water. This out of site/ out of mind approach is nearly passing on the pollution to our children.

This water is too precious to all of us....

Thankyou for protecting your fellow South Dakota families from radioactive pollution,  
destruction of cultural sites, and most of all polluted water.

Jennifer Belitz



**SOUTH DAKOTA WATER MANAGEMENT BOARD  
STATE OF SOUTH DAKOTA  
IN RE APPLICATION #2685-2 and #2682-2**

**PETITION OF FALL RIVER COUNTY TO INTERVENE  
IN OPPOSITION TO THE APPLICATION**

COMES NOW Fall River County Commission, 906 North River Street, Hot Springs, South Dakota and makes the following Petition to oppose the two applications for water permits designated as application #2685-2 and #2682-2.

1. The Petitioner's interest in the applications are that it is a political subdivision of the State of South Dakota and it's interest in the application is to assure that any water used for mining operations in Fall River County is put to a beneficial use, does not impair existing rights and does not constitute a waste of water.

2. That the Petitioner opposes water permit applications #2685-2 and #2686-2 to appropriate water in that such applications cannot be developed without unlawful impairment of existing rights, the proposed use is not a beneficial use and the proposed use is not in the public interest and will constitute a waste of water under SDCL 46-5-46.

3. That the Petitioner does hereby request an automatic delay of the hearing scheduled for December 5, 2012.

Dated this 26 day of November, 2012.

  
Fall River County Commission  
Michael P. Ortner  
Chairman of the Fall River County Commission  
906 North River Street  
Hot Springs, SD 57747

CERTIFICATE OF SERVICE

The undersigned hereby certifies that he mailed a true and correct copy of the *Petition of Fall River County to Intervene in Opposition to the application* to the individuals hereinafter next designated all on the date below shown by depositing the same in the United States mail with first class postage prepaid in envelopes addressed to:

Steven N. Pirner  
Secretary of the Department of  
Environment and Natural Resources  
Foss Building  
523 E. Capital Ave.  
Pierre, SD 57501

Chief Engineer  
Water Rights Program  
Foss Building  
523 E. Capital Ave  
Pierre, SD 57501

PowerTech (USA) Inc.  
C/O Richard Blubaugh  
5575 DTC Parkway, Suite 140  
Greenwood Village, CO 80111

On the 26 day of November, 2012.



---

James G. Sword  
Fall River County State's Attorney

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11/15/2012

**NOTICE TO DENR ON WATER PERMIT APPLICATION  
NUMBERS 2685-2 AND 2686-2 TO APPROPRIATE WATER FOR  
POWER TECH (USA) INC.**

C/O

RICHARD BLUBURG

5575 CTC PKWY STE# 140

GREENWOOD VILLAGE, CO

80111

**THE PEOPLE OF FALL RIVER COUNTY SIGNING THIS PETITION OPPOSE WATER  
PERMITS TO BE GIVEN TO POWER TECH (USA) INC. DENR NEEDS TO HOLD A  
HEARING FOR THE PEOPLE OF FALL RIVER COUNTY ON WHY POWER TECH SHOULD  
BE PERMITTED THESE WATER PERMITS.**

Carl W. Parker	338 So. 17th Hot Springs, 890-9647
Guido Peralta	606 S River Hot Springs SD.
Dan Miller	486 Almond ST HOT SPRINGS
Jewel Krown	410 S 4TH ST Hot Springs 891-9861
Bonnie Sharp	445 S 3rd Hot Springs SD 57717
Mary Grotto	338 S. 5TH ST. 745-5078
Debbie Richards	340 N. 23rd St Hot Springs 605-929-4354
Raymond Fisher	27221 Windy Rd 890-2864
Lang Bloomer	3146 Minnekahter HotSp, 745-7816
William Ing	1446 Evanston Ave H.S. 891-9621
Elise Kaneshiro	1446 Evanston Ave. H.S. 891-9717

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WATER RIGHTS PROGRAM

11/15/2012

**NOTICE TO DENR ON WATER PERMIT APPLICATION  
NUMBERS 2685-2 AND 2686-2 TO APPROPRIATE WATER FOR  
POWER TECH (USA) INC.**

C/O

RICHARD BLUBURG

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NAME	Address	phone #
<i>Eggertsen</i>	<i>PO BOX 27 HS</i>	<i>745 3325</i>
<i>Casey Neugebauer</i>	<i>27552 S Buffalo Gap</i>	<i>424-2985</i>
<i>Neil Erce</i>		<i>745 7727</i>
<i>Louise Kursave</i>	<i>Buffalo Gap</i>	<del><i>745</i></del> <i>833-2122</i>
<i>Betty Welch</i>	<i>Edgemont</i>	<i>662-7300</i>
<i>Rusty Watter</i>	<i>301 So CHICAGO HOT SPRINGS SD</i>	<i>745-6297</i>
	<i>57747</i>	
<i>Deann Watter</i>	<i>446 50th 165T</i>	<i>745-3308</i>
<i>Don Jensen</i>	<i>Hot Springs Spak</i>	
	<i>806 Edgemont Ave</i>	<i>745 3373</i>
<i>Dary Schweigert</i>	<i>Hot Springs SD</i>	
	<i>2791 S Cascade Rd.</i>	<i>745-3153</i>

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WATER RIGHTS PROGRAM

11/15/2012

**NOTICE TO DENR ON WATER PERMIT APPLICATION  
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BE PERMITTED THESE WATER PERMITS.**

NAME	ADDRESS	Phone #
Maura Smith	306 Joplin #8 Hot Springs, JD	864-1604
Keller Walker	1005 S. River St Hot Springs	891-9747
Laura Summers	Hot Springs	
B. Kluck	Hot Springs	
Michelle Snuggs	P.O. Box 139 Hot Springs SD 57447	605-440-2310
Muii Vong	333 N River Hot Springs	745-3933
Linda J. Smith	947 So. Chicago St Hot Springs	745-3402
Terri Baker	705 North River St.	745-4420



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WATER RIGHTS  
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11/15/2012

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BE PERMITTED THESE WATER PERMITS.**

Name	Address	PHONE #
Ronald Baker	205 N. River St.	745-4420
Jamie Liff	2342 Wilson Ave. HS SD.	745-3036
Lyle Jones	13167 Fall River Rd	745-7291
Jenni Satterlund	2022 University	890-2362
Lynda Raves	P.O. Box 1204 HS SD	605-381-3510
Brenda Gamaeche	2332 Wilson Ave. HS.	605-745-4726

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11/15/2012

**NOTICE TO DENR ON WATER PERMIT APPLICATION  
NUMBERS 2685-2 AND 2686-2 TO APPROPRIATE WATER FOR  
POWER TECH (USA) INC.**

C/O


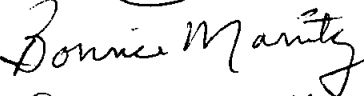






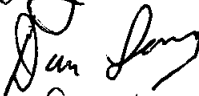
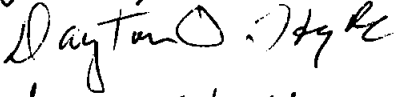

RICHARD BLUBURG

5575 CTC PKWY STE# 140

GREENWOOD VILLAGE, CO

80111

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HEARING FOR THE PEOPLE OF FALL RIVER COUNTY ON WHY POWER TECH SHOULD  
BE PERMITTED THESE WATER PERMITS.**

-  ALISON SWAN 302 S. 16<sup>th</sup> St. Hot Springs 745-7771
-  Bonnie Maritz 545 N. River #313 Hot Springs 745-4574
-  Donald C. Maritz 545 N. River #313 Hot Springs 745 4574
-  Peter Bane 713 N. River St Hot Springs 745 7936
-  Stan Facker 1913 Jennings Ave Hot Spring 745-3054
-  Robert Lee 338 S. 5<sup>th</sup> St., Hot Springs 745 3688
-  Gary Putman 204 4th Ave. ~~Hot~~ Edgemont 662-7229
-  Gary W. Friedrich 27098 ELK RD Buffalo Gap 833-2000
-  Dan Long 27569 Garden L Hatboro 745-5266
-  Dayton O. Hyle Box 932 Hot Springs 7456339
-  Susan Watt Box 790 Hot Springs 745-7494

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WATER RIGHTS PROGRAM

11/15/2012

**NOTICE TO DENR ON WATER PERMIT  
APPLICATION NUMBERS 2685-2 AND 2686-2 TO  
APPROPRIATE WATER FOR POWER TECH (USA) INC.**

C/O

RICHARD BLUBURG

5575 CTC PKWY STE# 140

GREENWOOD VILLAGE, CO

80111

**THE PEOPLE OF FALL RIVER COUNTY SIGNING THIS PETITION  
OPPOSE WATER PERMITS TO BE GIVEN TO POWER TECH (USA) INC.  
DENR NEEDS TO HOLD A HEARING FOR THE PEOPLE OF FALL RIVER  
COUNTY ON WHY POWER TECH SHOULD BE PERMITTED THESE WATER  
PERMITS.**

NAME	Address	phone #
Deora Dappen	13174 Fall River Rd Hot Springs	605-890-0641
Joe Dappen	Hot Springs	605 890 3063
Susan Stotarch	Hot Springs	605-745-4363
Karen Henderson	11507 Hwy 471 Edgemont SD 57135	605-662-5150
Tris Williams	27662 Scenic Rd Hot Springs, S.D.	6058911967
Judith Klein	238 N 6th St Hot Springs	605 145 3353
Bill Boeder	Hot Springs	890 1268
Paul Hottel	Hot Springs	891-9176
Craig Roney	342 N 4th Hot Springs SD	745-4465









November 15, 2012

NOTICE TO DENR ON WATER PERMIT APPLICATION

NUMBERS 2685-2 AND 2686-2 TO APPROPRIATE WATER FOR POWER TECH (USA) INC.

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WATER RIGHTS PROGRAM

C/O

RICHARD BLUBURG

5575 CTC PRWY SUITE 140

GREENWOOD VILLAGE, CO 80111

THE PEOPLE OF FALL RIVER COUNTY SIGNING THIS PETITION OPPOSE WATER PERMITS TO BE GIVEN TO POWER TECH (USA) INC. DENR NEEDS TO HOLD A HEARING FOR THE PEOPLE OF FALL RIVER COUNTY ON WHY POWER TECH SHOULD BE PERMITTED THESE WATER PERMITS.

NAME	ADDRESS	PHONE
Michelle Brock	26846 HWY 385 H.S.	605-515-3364
NANCY BLATCHEKRO	441 S 4TH ST	605 891-1712
RICH GERICKE	305 514 <sup>th</sup> ST Hot Springs SD	891-1142
JACKIE GERICKE	" " " "	" "
ELAINE EVERHART	545 N. River St. Hot Springs SD	890-1921
Allen Chesson	545 N. River St H.O. Springs	857-8345
Jay W. Friedrich	27098 Elk Rd Buffalo	833-2000
MARCELO HERNANDEZ	910 1/2 South Street	605-891-1866
Sarah Phillips	705 N. River St. Apt 1	605-891-1374
AJ Phillips	" " " "	" "
Ricardo C. Jacquez	629 Albany Ave	605-890-0038
Julie Christensen	603 N. River St.	719-482-4092
Emily Christensen	603 N. River St	605-745-4440
PAULA JAKEMAN	306 Thompson	605-745-4523
Cesar Hernandez	410 1/2 South 4th	608 891 1260
LORAINA TRECKER	P.O. Box 1129 H.S.	605-593-2373
Eddie Bertone	241 Galveston Ave	605-890-6356
Steve Park	2317 Washington	605-745-7085
Vivian Hauer	Yic 1/2 S	605-891-1866
Melissa Martin	2329 Ely Ave H.S. SD	605-745-3974
DeAnn McComb	P.O. BOX 254 H.S. SD	605-745-3096
Georgiana Cross	2045 Canton Ave #530 H.S. SD	745-6471
KAREN YEKEL	2245 Minnekahta	745-5213
Marion Muhm	1614 Coldbrook Ave	745-3659
Patricia Hernandez	246 S. 6th St Apt 4 H.S.	605-540-7592
Miriam Martin	801 N. River St H.S. SD	745-7321
Kris MARTIN	801 N. River St	745-7321
Sake Haacke	6026 Evanston Ave.	605-890-2773
Brianna Badure	Valley View Drive	605-220-6559
REX PIPER	12616 ARCYLE RD H.S. 51747	605-745-5765
MILDRED PIPER	12616 ARCYLE RD H.S. 51747	605-745-5765
Jim BEW (Loud)	13024 Greenwood H.S.	605 890-5460
J. Smith	2728 Hot Brook	605 890 3860

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WATER RIGHTS  
PROGRAM

11/15/2012

**NOTICE TO DENR ON WATER PERMIT APPLICATION  
NUMBERS 2685-2 AND 2686-2 TO APPROPRIATE WATER FOR  
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C/O


RICHARD BLUBURG

5575 CTC PKWY STE# 140

GREENWOOD VILLAGE, CO

80111

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BE PERMITTED THESE WATER PERMITS.**

Name	
Temp Holcomb	105 S. 23rd St #605-745-5982
Grady Lockhart	PO Box 1520elrichs (605)535-2004
Rose Petter	12544 West Cadade Rd. #605)890-4056 HOT SPRINGS S.D.
	27656 BAZAR Y-504 RD 605.745.3528

X

James B. Woodward  
P.O. Box 599  
Wellington, Colorado 80549  
970-402-7679  
[jbw@frii.com](mailto:jbw@frii.com)

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NOV 29 2012  
WATER RIGHTS  
PROGRAM

November 25, 2012

Mr. Garland Erbele, Chief Engineer  
Water Rights Program  
Foss Building, 523 E. Capitol  
Pierre, South Dakota 57501  
605-773-3352

Subject: Petition to Oppose Water Permit Applications Nos. 2685-2 and 2686-2, Oppose the Chief Engineer's recommendations, and Request Automatic Delay of Hearing Date

Dear Mr. Erbele:

Thank you for the opportunity to file this petition in opposition to Water Permit Application Nos. 2685-2 and 2686-2 filed by Powertech (USA) Inc., and to your recommendations for approval.

Although I do not reside in South Dakota, I have an interest in the applications due to my efforts to provide South Dakota residents with detailed information, news, analysis, and documents relating to the proposed Dewey-Burdock uranium project through my website, [www.powertechexposed.com](http://www.powertechexposed.com). This information allows South Dakota residents to be better informed on this matter of heightened public concern.

My opposition to the two permit applications is based on the following:

1. The proposed annual consumptive use volume per application No. 2686-2 of 274.2 acre feet is not supported by detailed calculations and is likely understated. More specifically, there is an inadequate analysis of the consumptive use that would occur during the well field restoration phase.
2. Permit application No. 2686-2 appears to be inconsistent with the U.S. Nuclear Regulatory Commission's Generic Environmental Impact Statement for In-Situ Leach Uranium Milling Facilities (NUREG-1910) with respect to the volume of water consumed by the reverse osmosis process.
3. If water quality restoration targets cannot be achieved during the term of the permit, other current and potential water users could be impaired by being unable to put Inyan Kara water to beneficial use due to elevated levels of heavy metals.
4. The applicant has failed to adequately demonstrate the public benefits of issuing the permits as required by Administrative Procedure 46-2A-9, and that any benefits outweigh the risks from the proposed project.

Pursuant to Administrative Procedure 46-2A-4, I request an automatic extension of the time of the hearing before the Water Management Board.

Sincerely,

A handwritten signature in cursive script that reads "James B. Woodward". The signature is written in black ink and has a long, sweeping tail that extends to the right.

James B. Woodward

cc: Powertech (USA) Inc.



X

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NOV 30 2012

WATER RIGHTS PROGRAM

STATE OF SOUTH DAKOTA  
BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF POWERTECH, )  
 )  
APPLICATION NOS. 2786-2 )  
2686-2 )

MOTION OUT OF TIME TO PETITION TO INTERVENE AND OPPOSITION TO APPLICATION

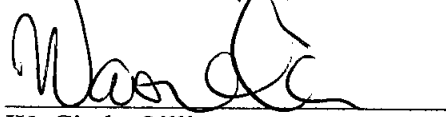
The Oglala Sioux Tribe, a federally recognized Indian tribe, by and through its undersigned counsel, hereby files its motion out of time by two business days as it was unable to fully review the application to prepare for hearing and objects to the above-described application to appropriate water filed on behalf of Powertech. This objection is based upon the grounds and for the reasons as follows:

- 1) That the granting of such permits will adversely affect the future surface and subsurface water rights of Oglala Sioux Tribe and its members in their ability to use our water resources for domestic, commercial, and other uses.
- 2) The proposal for a uranium mine northwest of Edgemont would use large amounts of water. Powertech Uranium has asked the state for a permit to extract 551 gallons per minute from the Madison aquifer. They have also applied for a permit to extract 8,500 gallons per minute from the Inyan Kara formation. 9,000 gallons per minute equals 12,960,000 gallons per day.
- 3) According to the company, the project may last as long as 20 years. The company plans to drill two or more wells into the Madison aquifer and a total of 1500 wells into the Inyan Kara.
- 4) Approximately 1000 wells would operate at any one time. According to the company, the project would consume (use up) 2.76 billion gallons of the water which would no longer be available to communities, ranches, and members of the Oglala Sioux Tribe.
- 5) After it is used for mining, the water that is not consumed or left in the aquifer would be treated in one of two ways: The company prefers to pump it underground -- below drinking water sources - where it would no longer be available to communities, ranches, and families. It could be sprayed on the ground, which has created a build-up of toxic materials, including selenium, at other sites.
- 6) The permit area is in a semi-arid area, and droughts are a regular occurrence. If this project goes through, we will lose access to critical groundwater resources.

- 7) The Oglala Sioux Tribe further objects to these applications for our water rights as they will interfere with and adversely affect existing water rights which is not in the best interests of the tribe and its members.

Dated this 28<sup>th</sup> day of November, 2012.

Respectfully submitted,



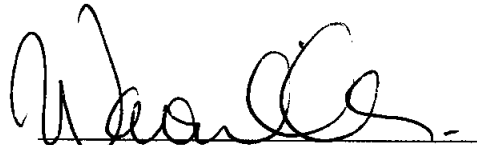
W. Cindy Gillis  
Attorney for the Oglala Sioux Tribe  
522 Seventh Street, Suite 202  
Rapid City, South Dakota 57701  
Tel: (605) 716-6355  
Fax: (605) 716-6357

CERTIFICATE OF SERVICE

The undersigned hereby certifies that she served the foregoing **PETITION TO INTERVENE AND OPPOSITION TO APPLICATION** on the 28<sup>th</sup> day of November, 2012, by email, fax and/or mailing a copy by First Class Mail, postage fully prepaid, from the United States Post Office at Rapid City, South Dakota to the following persons:

CHIEF ENGINEER  
Water Rights Program  
523 E. Capitol  
Pierre, S.D. 57501

POWERTECH  
c/o Richard Blubaugh  
5575 DTC Parkway, Suite 140  
Greenwood Village, CO 80111



W. Cindy Gillis  
Attorney for the Oglala Sioux Tribe