



Ground Water Quality Program
523 East Capital Avenue
Joe Foss Building, Pierre,
South Dakota 57501-3181

Ground Water Discharge Plan Application

(Revised July 1997)

1. Name of discharger or person legally responsible for discharge (owner/ operator),
refer to ARSD 74:54:02:06 (1):

Powertech (USA), Inc.

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

Telephone: (303) 790-7528

Local representative or contact person if different from above:

Name: Powertech (USA), Inc.

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

Telephone: (605) 662-8308

2. Legal Location of Discharge Facility, *refer to ARSD 74:54:02:06 (2)*
County Cust. & Fall R., 1/4 1/4, Section ,
Township 6S and 7S, Range 1E

3. *Refer to ARSD 74:54:02:06 (3)*

Name of facility and/or project Dewey-Burdock Project Land Appl. Systems

Estimated Project life 7 to 20 years

Type of operation, facility or development.

A. ☒ New facility ☐ Modification of existing facility

☐ Concentrated Animal Feeding Operation

☐ Industrial (i.e. chemical manufacture, metal manufacturing wood
treatment, photo processing, printing, paper mills, etc.)

☐ Municipal waste

☒ Mining

- ☐ Other (i.e. agricultural, silvicultural, gravel washing, rock crushing Activities, etc.)
Specify _____

Description of operation.

Two land application systems are proposed for disposal of treated liquid waste associated with the Dewey-Burdock Project, a uranium ISR facility. See Section 5.0 of the enclosed GDP.

4. Name, location (1/4, 1/4, 1/4, Section, Township, and Range), and description of all wells (existing, abandoned, or proposed), water bodies, drainages, natural or man-made structures, and water usage (past, present, or future) within a one-mile radius of the discharge site. *Refer to ARSD 74:54:02:06 (4).*

Wells - existing, abandoned, proposed, *refer to ARSD 74:54:02:06 (12)*

<u>Name</u>	<u>Location</u>	<u>Description</u>	<u>Status</u>	<u>Usage</u>
Refer to Section 3.7.2.3 of the GDP, including Figures 3.7-9 and 3.7-10 and Tables 3.7-3 and 3.7-4.				

Water Bodies and Drainages

<u>Name</u>	<u>Location</u>	<u>Description</u>	<u>Status</u>	<u>Usage</u>
Refer to Section 3.7.1.2 of the GDP, including Figures 3.7-2 and 2.7-3, and Section 4.1, including Table 4.1-3.				

Structures

<u>Name</u>	<u>Location</u>	<u>Description</u>	<u>Status</u>	<u>Usage</u>
Refer to Figures 3.5-1, 5.1-1 and 5.1-2 in the GDP.				

The above information MUST be included on a plat map and attached to the application.

5.
 - A. Geologic Description - discussion must include:
 1. Structural Geology - regional and local
 2. Stratigraphy - description of geographic formations and thickness
- soil types, thickness, depth to bedrock, cation exchange capacity, and attenuation capabilities.
 3. Geomorphology (topography)
 4. Land use See Section 3.6 (Geology) and 3.5 (Land Use) in the GDP.
 - B. Hydrologic description - discussion must include:
 1. Depth to ground-water or aquifer - must include all sources, description of the source, flow directions and gradients, well logs must be included. See Section 3.6 (Geology) and 3.7.2 (Groundwater Hydrology).
 2. The ground-water most likely to be affected by the discharge - description to include the name of the aquifer, saturated thickness, flow direction, porosity, hydraulic conductivity, and other flow characteristics, hydraulic connection with other aquifers or surface sources, recharge information, water in storage, usage, and the projected aerial extent of the aquifer. *Refer to ARSD 74:54:02:06 (11).*
 3. The quality of all water sources in accordance to the parameters listed in *ARSD 74:54:01:03 and 74:54:01:04*, inclusive. Future monitoring sites will be required to submit sampling data upon completion.
Source See Section 4.0 in the GDP.

<u>Parameter</u>	<u>Concentration (mg/L)</u>
_____	_____
_____	_____
_____	_____

4. Flooding potential of the site, the 100 year flood plain, if applicable, and any protection measures. *Refer to ARSD 74:54:02:06 (14).*
See Section 3.7.1 (Surface Water Hydrology) in the GDP.
 - C. Agricultural Description - if applicable, the discussion must include land use; types of crops produced; irrigation, if used; locations of livestock confinement areas (existing or abandoned).
See Section 3.5 (Land Use) in the GDP.
6. Description of construction, modification or operation of discharge system to include a quality assurance/quality control plan for construction. Copies of plans and specifications relating to construction, modification, and operation of discharge systems, including materials specifications provided by the manufacturer, must be submitted to the Department of Environment and Natural Resources. *Refer to ARSD 74:54:02:13.*
See Section 5.0 in the GDP.

The description must include the means of discharge (to a lagoon, cropland, septic tank-leach field, other - specify), the quantity, the quality, and the description of treatment, if any, prior to discharge. *Refer to ARSD 74:54:02:06 (6) and (10).*
See Section 5.0 in the GDP.

Note: listed volumes are per land application area. Refer to Tables
Quantity 5.2-1 and 5.2-2 in the GDP.

Average Volume discharged 446,400 gallons per day
 Maximum Volume discharged 940,320 gallons per day
 Number of days per year that facility will discharge. 217

If more than one discharge point exists, list the discharge volume (average and maximum) for each source in gallons per day.

Quality, refer to ARSD 74:54:01:03 and 74:54:01:04

Before Treatment See Table 5.8-2 in the GDP.

<u>Parameter</u>	<u>Concentration (mg/L)</u>
_____	_____
_____	_____
_____	_____

After Treatment - the quality of the discharge after treatment must be justified by the laboratory testing and calculation. If calculations are used, they must be submitted with the application. If more than one type of discharge, the quality for each must be submitted. composites of more than one individual discharge streams will not be accepted.

See Table 5.8-2 in the GDP. Treatment is proposed for uranium and radionuclides only.

<u>Parameter</u>	<u>Concentration (mg/L)</u>
_____	_____
_____	_____
_____	_____

7. What conditions naturally exist, and what actions will the discharger take to assure that the discharge can be controlled and will not migrate into or adversely affect the quality of any waters of the state. This discussion should address chemical loading, attenuation, dilution, methods to minimize ground water discharge (i.e., synthetically lined ponds with leak detection), and methods for detecting system failures. Refer to ARSD 74:54:02:06 (7) and 74:54:02:21. See Sections 8.1 and 8.2 in the GDP.
8. If applicable, describe the Perimeter of Operational Pollution (POP), and any Geologic or hydrological information used to determine the dimensions of the POP. A social and economic justification for the POP must be included. A plat map showing the proposed dimensions of the POP, monitoring points for the POP, and the compliance monitoring point must be included. Refer to ARSD 74:54:02:06 (8), 74:54:02:11, and 74:54:02:17. See Section 7.0 and Figures 6.1-1 and 6.1-2 in the GDP.
9. Refer to ARSD 74:54:02:06 (9) and 74:54:02:20, a monitoring plan to include:
 - A. The ambient water quality of the discharge site in accordance with ARSD 74:54:02:18. See Sections 6.1 and 6.2 in the GDP.
 - B. A quality assurance/quality control plan for sampling, well construction, or other effluent or leachate monitoring devices (e.g., lysimeters or tensiometers).


- C. A quality assurance/quality control plan for laboratories used by the operator.
- D. an operational monitoring plan to address monitoring sites, parameters to be measured, a monitoring schedule, and reporting schedule.
- E. Post closure monitoring plan to address monitoring sites, parameters to be measured, a monitoring schedule, and reporting schedule.

See Section 6.0 in the GDP.

10. Define an operational compliance effluent (discharge stream) sampling plan. Include parameters to be sampled, a monitoring schedule, and the means or devices used for measurement of the rate of discharge (flow monitoring) . Also address a reporting schedule of the discharge. *Refer to ARSD 74:54:02:06 (13), 74:54:02:20 and 74:54:02:22.*
See Section 6.3 in the GDP.
11. Define an operation and a post-closure contingency plan to bring the facility into compliance if the permitted allowable limits are exceeded. *Refer to ARSD 74:54:02:06 (15), 74:54:02:22 and 74:54:02:27.*
See Sections 8.1.1 and 9.0 in the GDP.
12. Define methods and procedures for inspections of facility operation and for detection of system failures. The discharger must include a notarized statement granting permission to inspect in accordance with ARSD 74:50:03:03. The document must be signed by a person legally responsible for the facility. *Refer to ARSD 74:54:02:06 (16).*
See Section 10.0 in the GDP.

NOTE:. *To demonstrate that the ground-water standards will not be violated, and waters of the State will be protected, additional information may be requested of the discharger.*

I certify that I am a person (the owner and/or operator) legally responsible for this facility, that I am familiar with the information contained in the application, and that to the best of my knowledge and belief, such information is true, complete and accurate.


Signature

March 5, 2012
Date

Richard Blubaugh
Printed Name of Person Signing

V.P., Environmental H&S
Title