DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES

PMB 2020
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July 2, 2010

Valois Shea
USEPA REGION 8
1595 Wynkoop St.
Mail Code: 8P-W-GW
Denver, CO 80202-1129

Subject: Powertech (USA) Inc. Dewey - Burdock Project - UIC Class V Application

Dear Ms. Shea,

Enclosed are the department's comments on Powertech (USA) Inc. application for a UIC Class V permit for deep disposal wells at the Dewey – Burdock site. If you have any questions concerning these comments feel free to contact me at 605.773.6477 or brian.walsh@state.sd.us.

Sincerely,

Brian J. Walsh
Hydrology Specialist
Ground Water Quality Program

Enclosure (1)

cc: Mike Cepak, SD DENR, Pierre

South Dakota Department of Environment and Natural Resources
Comments to EPA Region 8 on
Powertech (USA) Inc. UIC Permit Application
Class V Non-Hazardous Injection Wells
Dewey-Burdock Project

July 2, 2010

General Comments

1. The department understands EPA will require the applicant to construct and monitor these wells as if they are Class I disposal wells. The department concurs with this requirement as long as the injected fluid meets the requirements of the Class V program. As a reminder, Class I and Class IV disposal wells are prohibited in South Dakota under ARSD 74:55:02:02.

   74:55:02:02. Class I and IV disposal wells prohibited. No injection through a well which can be defined as Class I or IV is allowed.

Specific Comments

2. **Section 1.0 Permit Application and Introduction**. In the first paragraph of this section, the applicant requests a permit for up to eight non-hazardous Class V disposal wells. Later in the paragraph, the applicant refers to Figures B-2 for the location of the first four proposed injection wells but does not provide location information for all eight proposed disposal wells. If issued, will this Class V permit pertain to only the four wells whose locations the applicant identifies or will it allow for up to eight wells as requested by the applicant?

3. **Section 2.A Area of Review Methods**. On page 2-8, under the "Radius of Fluid Displacement" sub-heading the application states the porosity of the Minnelusa is 21% and the porosity of the Deadwood is 11%. In addition, the section lists the hydraulic gradient for both the Minnelusa and Deadwood formations as 10 ft/mile. The applicant needs to provide additional reference information supporting the use of these parameters in the project area.

4. **Section 2.D Maps and Cross Sections of USDW's**. On page 2-14, under the "Deadwood Formation" sub-heading the application states there is no water quality data available for the Deadwood formation near the proposed project. The applicant needs to drill a test hole to confirm its assumptions about the water quality of the Deadwood formation prior to issuance of the UIC Class V permit.

5. **Section 2.E Name and Depth of USDWs**. In this section the applicant states, "For Class II Wells (Not Applicable to this Application)." The department disagrees with this statement. The name and depth of the USDWs located within the receiving formations must be known to determine what may be injected under EPA's UIC program. The applicant needs to drill a test hole to determine if each receiving formation is a USDW prior to issuance of the Class V permit.

6. **Section 2.H Operating Data**. On page 2-27, under the "Maximum Injection Pressure" sub heading the application states, "Due to a lack of data for the Deadwood Formation, the same fracture gradient will be applied to that formation." This is not acceptable to the department. If the applicant intends to use the Deadwood formation for injection, they need to determine a site-specific fracture gradient for the Deadwood and limit the maximum injection pressure into that formation to 90% of the site-specific fracture gradient. This should ensure the formation will not be fractured and provide sufficient protection to nearby drinking water supplies.

7. **Section 2.L Construction Procedures**. In this Section, the applicant indicates they will drill DW No.1 through the Minnelusa, Madison, and Deadwood formations, to the top of the Pre-Cambrian bedrock. If, as described by the applicant, they will use this well for injection into the Minnelusa, the applicant should minimize penetration through the Madison, as the Madison is known to be a USDW in the area.

8. **Section 2.N Changes in Injected Fluid**. In this section the applicant states, "For Class III Wells (Not Applicable to this Application)." The department disagrees with this statement. The department thinks the applicant needs to provide detailed information about the character of the injected fluid and potential changes to the fluid prior to issuance of the Class V permit.

9. **Section 2.S Aquifer Exemptions**. Because there is no stipulation for "Aquifer Exemptions" in EPA's Class V injection well rules, the injected fluid must meet Safe Drinking Water Standards at the point of injection, unless sampling of the receiving zones prior to injection indicates they are not USDWs. The applicant needs to determine if each receiving formation is a USDW prior to issuance of the Class V permit.

10. **Waste Analysis Plan, Section 2.0 Procedures**. Until operational data establishes the presence of a chemically stable waste stream, quarterly sampling is not sufficient to ensure the waste stream complies with the threshold criteria. More frequent sampling is necessary to ensure the waste stream meets all Safe Drinking Water Standards.

    In addition, this section should describe the actions the applicant will take if sample results exceed the threshold criteria.

11. **Waste Analysis Plan, Section 2.C. Sampling and Analysis**. The second paragraph in this section states, "The table included below summarizes the analytical method and sampling frequency for typical parameters that may be included in the waste sampling for a particular waste source." However, the table included in the section does not display the sampling frequency as described in the text. The table should be modified to include the proposed sampling frequencies.

12. **Figure M-3 Proposed Well Schematic, DW No.3 – Minnelusa Completion**. The well design shown in Figure M-3 for DW No.3 is inconsistent with the well designs shown for DW No. 1, 2, and 4 in Figures M-1, M-2 and M-4. Figure M-3 is missing the outer, cement casing shown in the other figures. Please clarify this discrepancy.