



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

March 1, 2013

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

Dear Mr. Blubaugh:

Staff review continues on Powertech's large scale mine permit application submitted October 1, 2012 and supplemental information submitted December 4, 2012 and January 9, 2013. Based on this review, the department has generated the following technical comments:

Technical Comments from December 14, 2012 DENR Comment Letter

1. SDCL 45-6B-33(5) and SDCL 45-6B-92(1): A meeting was held on December 28, 2013 with Powertech, the Department of Game, Fish, and Parks, the US Fish and Wildlife Service, and our office to discuss contents of an Avian Monitoring and Mitigation Plan. We understand that Gwen McKee of Thunderbird Wildlife Consulting is currently working on a draft version of the plan. Once a final plan is completed and approved by these agencies, it will become part of the large scale mine permit. It will also need to comply with SDCL 34A-8-8 which authorizes a taking of a bald eagle's nest for very limited circumstances. This statute may therefore determine plan contents as it appears federal permits are valid upon obtaining state authorizations.

In the December 4 submittal, Powertech states it will establish buffer zones and seasonal restrictions to protect important bald eagle habitat. Currently the nest and "standard" 1/2 mile buffer encompass the Dewey processing plant, well fields, both proposed and standby land application pivots, monitor wells, process water wells, and overhead power lines. It is reasonable to assume there are developmental and operational challenges that Powertech will need to address in the Avian Monitoring and Management Plan to avoid jeopardizing bald eagles during all project phases.

2. ARSD 74:29:07:09(6): Will storm water diversions around the ponds in the land application option be necessary to keep storm water out of the ponds during storm events?
3. Appendix 6.4-D, Section 1.4: Powertech needs to include a discussion on complying with the vegetative cover and diversity and other requirements of SDCL 45-6B-39. In

the discussion, Powertech should include a minimum live vegetative cover value that will be used to assess the success of final reclamation. For other mines in our state, we use a minimum value of 40 percent live vegetative cover.

4. Section 5.6.3.2: Regarding notice for excursions, the department will require through permit conditions that Powertech give notice to the department through email or phone within 48 hours of any excursions. Written notice with additional details on the excursion will be required within seven days after the excursion. Since the NRC is the primary regulatory agency for the well fields, these data packages will be for the department's information only.

Additional Technical Comments

1. Section 5.3.3.4, page 5-49: The department will require through permit conditions that Powertech submit copies of well field hydrogeologic data and injection authorization data packages to the department prior to the development of each well field. Since the NRC is the primary regulatory agency for the well fields, these data packages will be for the department's information only.
2. Section 5.3.4.5, page 5-65: Regarding pond leak detection, the department requests copies of any plans submitted to NRC for response actions to leakage in the pond liners. Typically, the leakage response plans (also called Action Response Plans) would include the actions to be taken at various leakage thresholds. These actions would range from monitoring leakage only to the shutdown and repair of ponds.

Also, regarding pond leakage, we have found it to be helpful at the heap leach gold mines to install automatic or continuous pumping systems in the leakage detection gallery. This will limit build-up of solution in the leak detection gallery and will minimize hydraulic head on the secondary liner.

3. Section 5.3.4.5, page 5-71: The department will require through permit conditions that Powertech notify the department of any pond leaks within 48 hours of detection. Since the NRC is the primary regulatory agency for the well fields, this will be for the department's information only.
4. Table 5.4-2, page 5-85: Were other metals such as selenium and other radionuclides evaluated for end of production water quality during the development of Table 5.4-2? If so, please include them in the table.
5. Table 5.4-3, page 5-87: Please submit the results from the laboratory scale leach tests conducted on ore samples from the Dewey and Burdock sites and the historic end of production water quality data from in situ sites in Wyoming and Nebraska that were used to develop the land application water quality estimates in the table.
6. Section 5.6.11.1.5, page 5-156: In the first paragraph of this section, please identify which raptor species are using the nests in close proximity to the mining area.

7. Section 5.6.11.1.7, page 5-157: Please identify the birds tracked by the SDNHP.
8. Section 5.6.11.1.11, page 5-160: Please identify the SDNHP species mentioned in the “Species Tracked by SDNHP” section.
9. Sections 5.5.6 and 5.5.7, pages 5-113 and 5-113a: During our technical review of the mine permit application, we have had discussions with the Department of Game, Fish, and Parks over its concerns with the bioaccumulation of metals in the food chain, especially selenium. The Custer County Conservation District also expressed concerns over the buildup of salts in the soil profile based on the elevated SAR in the baseline soil data. We also have concerns over the development of saline seep conditions in the land application area over time similar to the alkaline area referenced in the mine permit application.

Mr. Michals, GFP, submitted the report “Selenium in a Wyoming Grassland Community Receiving Wastewater from an In Situ Uranium Mine” which was developed by the US Fish and Wildlife Service. This report is the basis of his agency’s concerns. Powertech has indicated it has a copy of this report. Please discuss the potential for the impacts described in the report to occur in Powertech’s land application area in situ mine site and mitigative measures such as additional treatment to remove selenium prior to land application. If there will be the potential for similar impacts, please address if Powertech plans to do additional sampling in addition to the soil and vegetative sampling, such as collecting tissue samples of grasshoppers and birds for selenium and other metal analysis. Powertech should also consider analyzing samples of water from the land application ponds for metals, common elements such as sodium and chloride, and SAR prior to land application.

Please discuss the potential for the buildup of salts in the soil profile and the development of saline seep conditions in the land application area. Also, please describe the measures Powertech plans to take to mitigate any problems that develop from salt buildup and saline seep.

In the mine permit application, Powertech proposes trigger points for arsenic and selenium of the baseline average concentration plus two standard deviations. However, the department wants Powertech to develop more specific trigger points for arsenic and selenium as well as other metals, sodium, chloride, and SAR.

10. Section 6.3.1.4 and Section 6.3.2.2, page 6-13: Will any of the removed contaminated soils underneath ponds and well houses be replaced at a 1:1 ratio with uncontaminated soils from another source?
11. Section 6.3.3, page 6-14: Will Powertech keep records of GPS locations of all wells after well plugging is completed to assist in locating the wells during future inspections of the mining area, including postclosure inspections?
12. Appendix 5.3-A: Regarding the 40 mil liners mentioned in the Appendix, the department suggests using 40 mil LLDPE liners or 60 mil HDPE or LLDPE liners for better puncture

resistance. Our experience with 40 mil HDPE liners is that they are prone to punctures and other damage.

13. Plate 5.3-1, Sheet 1 and Plate 5.3-2, Sheet 1: The topsoil stockpiles shown in these plates appear to be located too close to the ponds. Please submit revised plates with topsoil stockpiles located farther away from the ponds.
14. Plate 5.3-5, Sheet1: Powertech needs to show that the existing access road from the Dewey Road to the Dewey Satellite Plant will be upgraded to a primary access road. The current map does not show this road being upgraded. Also, will the primary access be used exclusively by the mining operation?
15. Plates 5.4-1 and 5.4-2: On each plate, please show the wetted perimeter of the normal operating level behind each catchment berm. Also, please show the location of the excess water level markers and the pumps and piping for the excess water. Are there any plans to pump water from the normal operating level if increasing Se, As, SAR, or other trends are noted? Finally, please submit electronic versions of Plates 5.4-1 and 5.4-2 in dwg or ArcMap format.

Department of Agriculture Comments

1. Appendix 6.4-C Noxious Weed Control Plan Page 6.4-C-1: In Line 1, the timing statement of the proposed noxious weed inspection is insufficient. Annual inspections should be performed during the active growing season of the weeds. Also, under "Herbicides", the herbicide use and application statement is insufficient. Herbicide application must be performed by South Dakota Certified Licensed Pesticide Applicators. Powertech (USA) must follow all grazing and haying restrictions noted on the product label.
2. Appendix 6.4-C Noxious Weed Control Plan Page 6.4-C-3, Table 1, Custer County Noxious Weeds: The Custer County noxious weed list is incomplete. White Horehound (*Marrubium vulgare*) was added to the list by emergency declaration in August 2012 (See Custer County Weed & Pest Board Archive meeting minutes, August 1, 2012: <http://www.custercountysd.com/wp-content/uploads/2011/01/Bdmtg080112.doc> (page 2)).
3. Appendix 6.4-C Noxious Weed Control Plan Page 6.4-C-4, References: The references to SDSU 2010 Weed Control in Pasture and Range is outdated. Please use South Dakota State University Extension, 2013 Weed Control, Pasture and Range: 2012 SDSU Extension, available on the internet as of January 2013: <http://igrow.org/up/resources/03-3020-2012.pdf>.

Custer Conservation District Comments

1. Land Reclamation Plan: What is the timing and methodology for reclaiming all exploration drill holes? What species will be planted and what will the soil material be?

What is the timing and species being used to stabilize the topsoil piles? Also, what is the quantity of soil in each of the stockpiles?

Will all locations be reseeded with the single seed mix, regardless of post mining soil analysis?

The soil analyses indicate areas of high pH, high conductivity, and SAR values that indicate potential problems. Will these soils be identified during the topsoil stripping process?

2. Land Application Plan: We note that much of the surface water analysis shows high salt content indicating the surrounding soils also are saline.

Water from the deep wells also indicates properties that would make reclamation more difficult.

The areas on the Land Application Exhibits showing where the excess water will be applied has soils that are thin and on the heavy texture side of the triangle.

We are concerned that there will be a buildup of salts in the soil profile which would make revegetation unsuccessful.

If indicated through analysis, will more appropriate species and soil amendments be applied to help ensure long term land use?

As required in ARSD 74:29:01:11, please submit proof that a copy of the information requested in this letter has been sent by certified mail to the applicable review agencies and a copy has been filed with the Fall River and Custer County Register of Deeds offices.

If you have any questions, please feel free to contact us.

Sincerely,

\s/

Eric Holm
Natural Resources Engineer III
Minerals and Mining Program
Telephone: (605) 773-4201
FAX: (605) 773-5286
E-mail: eric.holm@state.sd.us

\s/

Michael Cepak, P.E.
Engineering Manager I
Minerals and Mining Program
Telephone: (605) 773-4201
FAX: (605) 773-5286
E-mail: mike.cepak@state.sd.us

cc: Stan Michals, GFP