Cheyenne River/Niobrara

Powder River Coal Company
North Antelope/Rochelle Complex
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February 27, 2002

Ms. Terri A. Lorenzon
Director
Environmental Quality Council
Herschler Bldg. Room 1714
122 W. 25th Street
Cheyenne, WY 82002

RE: **Powder River Coal Company: NPDES Permit for Coalbed Methane Discharge WY0046582; Appeal by Niobrara County Commissioners.**

Dear Ms. Lorenzon,

Powder River Coal Company recently received the announcement of the prehearing conference on March 8, 2002 concerning the Niobrara County Commissioners appeal of fifteen coalbed methane (CBM) related NPDES permits issued for the Cheyenne River drainage. Among these permits was WY0046582 issued to Powder River Coal Company for twenty-eight wells within the Porcupine Creek drainage northwest of the North Antelope / Rochelle Complex.

The appeal raises four issues: 1) That no state agency is responsible for the quantity of water; 2) That there is an unknown quantity of water being discharged to the Cheyenne River; 3) That there is no science to determine the potential adverse effects to soils, vegetation, and ground water; and 4) There is no mitigation required in the permit applications for damages to downstream property. The appeal also questions the reporting requirements for quantity and states that SAR's have risen on the Cheyenne River since CBM water has been discharged. These discharges are within the drainage of Black Thunder Creek.

Description of the Application for Permit WY0046582

Permit WY0046582 is for twenty-eight CBM wells which either have been drilled or will be drilled in T42N, R70W, Section 30 or T42N, R71W, Sections 25 and 36. The eight discharge points are within the drainage of Porcupine Creek, which is tributary to Antelope Creek. Sixteen of the twenty-eight wells are on a coal lease owned by Powder River Coal Company. Dewatering wells were operating in the coal in this lease until the installation of the CBM wells. Permit WY0046582 was applied for using Option 2 of Application Short Form C. This is for points of compliance and discharge to Class 4 waters. The application stated that the maximum expected flow volume from each well was 72,000 gallons per day (50 gallons per minute) and showed the quality of the coal dewatering water from one of the coal dewatering wells in the section. The flow rate is expected to decrease rapidly due to drawdown in the wells and because of the influence of the nearby Middle and West Pits of the North Antelope / Rochelle Complex. CBM fields in the Little Thunder Creek drainage to the north are also influencing water levels at North Antelope / Rochelle. The TDS was 435 mg/l and the SAR was 6.4. The application further listed mitigative measures to be taken if the individual points of compliance did not meet effluent limitations.

Water discharged from the twenty-eight CBM wells is not expected to leave the North Antelope / Rochelle Complex (NARC). The water will most likely be used to water haul roads and to support reclamation wetlands. The application package for WY0046582 explained in detail the expected route of discharge water from the well to the points of use on the mine site and described the use of the water. Annual water use for haul roads at NARC in 2000 was 338 million gallons. In 2001, this amount increased significantly with over 70 million gallons being used in August. The water use at the mine is expected to increase over the next few years due to the lengthening of haul roads and continuing efforts to meet strict dust control standards. At NARC, runoff and pit water is combined with groundwater from four production water wells and gathered in water supply reservoirs during wetter periods of the year and held for use in the summer months. There are now approximately 250 acre-feet of water (~80 million gallons) storage available in water supply ponds. Summer evaporation and seepage removes approximately one foot of water per month from these reservoirs or as much as 20 acre-feet of water per month. Additional water is used for facilities water supply including plant and equipment washdown. A large portion of this water is recycled for reuse. If additional water is available from CBM discharges, the production wells can be shut down, thereby preserving groundwater.

In addition to the reduction of groundwater use, the availability of CBM-derived water will be used to improve reclamation at the mine. Water flowing through the reclaimed Porcupine Creek between water supply reservoirs and during the transit to the final discharge point downstream of the mine, will support wetlands on the reclamation and recharge the reclaimed alluvial valley floors. A portion of the application package describes the creation of wetlands on a section of the reclaimed Porcupine Creek. More wetlands were created on an older section of the reclaimed channel during this winter. In addition, seepage from wetlands, streams, and reservoirs will recharge the backfill aquifers at the mine.

Until the summer of 2001 North Antelope / Rochelle controlled floodwater on Porcupine Creek upstream of the mine by means of a diversion. However, operational concerns and the mining progression forced the abandonment of the diversion in favor of a series of flood control reservoirs. Twenty small flood control reservoirs, or highwall sumps, and four large flood control structures will capture water entering the permit area upstream of the mine. Water will be pumped from the smaller reservoirs to the larger structures and between the larger structures until it enters the mine water supply reservoirs. In addition to their use for flood control, the large structures provide an additional 145 acre-feet (47 million gallons) of storage for use in dust control operations.

Significant runoff events upstream of NARC are rare due to the climate, topography, and good vegetation, but they can be costly to the mine if not controlled properly. Flow records contained in the application package show that very little water has entered the permit area of the mine from Porcupine Creek, due to the amount of stock ponds on the drainage. This is expected to change, as CBM fields are placed into service upstream of the mine. North Antelope / Rochelle is prepared to accept a limited amount of CBM-derived water with the cooperation of the producing companies as this water will help us to better meet our air quality standards with reduced production of ground water. If the onset of new CBM production in the Porcupine Creek drainage is staggered and agreement is reached between producing companies and Powder River Coal Company on the flow rate of the discharge, the produced water will not necessarily lead to large discharges on Porcupine Creek downstream of NARC.

Most flow on Porcupine Creek downstream of the North Antelope / Rochelle Complex since 1983, when the North Antelope Mine opened, has originated due to mine discharges. Water discharging from the mine collects in the 330 acre-feet Porcupine Reservoir at the confluence of Porcupine and Antelope Creeks. The Bridle Bit Ranch Company owns the Porcupine Reservoir.

Water in the Porcupine Reservoir is used for livestock watering and hay production. Data from the gauging station on Porcupine Creek downstream of NARC, GS-5, is presented in the application package. Flow at GS-5 has reached a maximum of 61 cubic feet per second (cfs) since 1983 with flow usually zero or less than one cfs. The quality of the water at GS-5 is usually very good. The mean TDS concentration is 1644 mg/l and the mean SAR is 3.23. Water quality at Porcupine Reservoir is monitored by NARC at the GS-7 gauging station. TDS concentrations at GS-7 average 1088 mg/l with the mean SAR being 3.0. Water quality in the Porcupine Creek alluvium downstream of North Antelope / Rochelle has actually improved since the opening of the mine due to dilution by mine discharges.

Discharges from Porcupine Reservoir to Antelope Creek are very rare. In fact, only once in the last ten years has flow been recorded through the spillway of Porcupine Reservoir. This followed a storm in July 2001 that produced an estimated three to four inches in two hours in the southeast portion of North Antelope / Rochelle and adjacent areas. This storm occurred in the Boltz Draw drainage, which enters Porcupine Creek immediately upstream of Porcupine Reservoir. Flashy storms are common on Boltz Draw. The RS-5 gauging station on Boltz Draw at its confluence with Porcupine Creek was destroyed by the storm, which was estimated in excess of 1000 cfs. Porcupine Reservoir had received very little mine discharge prior to the storm and was at one of its lowest recorded levels. Storm water from Boltz Draw, combined with the relatively small amount of mine discharge produced by the storm, continued to flow through the Porcupine Reservoir spillway for nearly a week.

Conclusion

The application package for NPDES permit WY0046582 explained the expected flow rate of discharge from the CBM wells, the route of water from discharge points to the points of use, use of the expected water in mine dust control operations at the North Antelope / Rochelle Complex, and beneficial use of the water to support reclaimed wetlands and for livestock and wildlife watering. It is not expected that the influx of water from the twenty-eight CBM wells in T42N, R70W, Section 30 or T42N, R71W, Sections 25 and 36 will cause elevated discharges from the North Antelope / Rochelle Complex. Supporting data in the permit application included groundwater quality data, data from upstream and downstream stream gauging stations, a description of surface water resources in the vicinity of the North Antelope / Rochelle Complex, and a description of the new reclaimed wetlands on Porcupine Creek. In addition, the new flood control structures, including those constructed with future CBM production in mind, and the newly reclaimed wetland section on Porcupine Creek have been described in this letter. The appeal by the Niobrara County Commissioners does not apply to such an application. The quantity and quality of the anticipated produced water are stated in the application and will be monitored by Powder River Coal Company: The quantity of water discharged from the North Antelope / Rochelle Complex is limited, the quality of mine discharge is good, and both are carefully monitored by the mine. CBM-derived water is not expected to be a significant source, if at all, to the Cheyenne River and the North Antelope /Rochelle Complex has agreements with nearby landowners concerning surface damages. Therefore, we respectfully request that NPDES permit WY0046582 be withdrawn from the Niobrara County Commissioners' appeal. Please call me at 307-464-4777 if you have any questions or comments.

Sincerely,

Philip A. Murphree P.G.
Hydrologist

Cc: Donna I. Ruffling, Chairman
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