BEFORE THE ENVIRONMENTAL QUALITY COUNCIL
STATE OF WYOMING

IN THE MATTER OF:	)	
BASIN ELECTRICAL POWER COOPERATIVE	)	
DRY FORK STATION,	)	Docket No. 07-2801
AIR PERMIT CT-4631	)	

RESPONDENT DEPARTMENT OF ENVIRONMENTAL QUALITY'S MEMORANDUM IN SUPPORT OF MOTION FOR PARTIAL SUMMARY JUDGMENT

Schlichtemeir Affidavit

EXHIBIT E

Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

Dave Freudenthal, Governor

John Corra, Director

December 21, 2005

Mr. Jerry Menge
Air Quality Program Coordinator
Basin Electric Power Cooperative
1717 East Interstate Avenue
Bismark, ND 58503

Re: Completeness Review
Permit Application No. AP-3546

Dear Mr. Menge:

The Division has completed an initial review of the application referenced above to construct a 422 MW (gross) pulverized coal fired electrical generating facility to be known as Dry Fork Station located in Section 24, T51N, R72W, approximately 7 miles north northeast of Gillette, in Campbell County, Wyoming. The following are issues that need to be addressed:

SO_2 BACT for PC Boiler

Basin Electric proposed a dry lime scrubber with emission limits of 0.1 lb/MMBtu (3-hr and 30-day averages) as BACT for SO_2. Basin electric also considered a wet scrubber with an emission limit of 0.09 lb/MMBtu and determined that the average cost effectiveness was reasonable at $1,450/ton but excluded this option based on an incremental cost of $13,157/ton.

An analysis of the technical feasibility and cost effectiveness is required for wet scrubbers at 0.07 and 0.08 lb/MMBtu, 30-day average, and for dry scrubbers at 0.07, 0.08, and 0.09 lb/MMBtu, 30-day average. The analysis need to include an explanation of expected variability and how it affects a 3-hour versus 30-day average limit.

NO_X BACT for PC Boiler

Basin Electric proposed low NO_X burners, overfire air, and SCR with an emission limit 0.07 lb/MMBtu, 30-day average as BACT. An analysis of the technical feasibility and cost effectiveness is required for emission levels of 0.05 and 0.06 lb/MMBtu, 30-day average.

PM_{10} BACT for PC Boiler

Basin Electric proposed fabric filters with an emission limit of 0.012 lb/MMBtu, 3-hour average. An analysis of the technical feasibility and cost effectiveness is required for emission levels of 0.009, 0.01, and 0.011 lb/MMBtu, 3-hour average.

BACT for 134 MMBtu/hr Auxiliary Boiler

Basin Electric estimated emissions of 0.05 lb/MMBtu NO_X and 0.11 lb/MMBtu CO and proposed an hours limit of 2000 hours per year but did not address BACT. A top down BACT analysis is required for NO_X, CO, SO_2, PM_{10}, and VOC including an evaluation of a 0.03 lb/MMBtu NO_X emission level.

BACT for 8.36 MMBtu/hr Inlet Gas Heater

Basin Electric estimated emissions of 0.1 lb/MMBtu NO_X and 0.08 lb/MMBtu CO and proposed an hours limit of 2000 hours per year but did not address BACT. A top down BACT analysis is required for NO_X, CO, SO_2, PM_{10}, and VOC including an evaluation of Low NO_X burners.

Diesel Engines

Basin Electric estimated emissions of 14.1 g/hp-hr NO_X and 3.0 g/hp-hr CO for the 360 hp Fire Pump. Basin Electric estimated emissions of 10.9 g/hp-hr NO_X and 2.5 g/hp-hr CO for the 2377 hp Emergency Generator. The Division currently considers EPA Tier 2 to represent BACT and needs confirmation that these engines will meet Tier 2 emission levels.

Emergency Coal Truck Unloading Hopper

A detailed description of this emissions unit, predicted hours of usage, and an analysis of the feasibility of control measures such as a stilling shed, water sprays, and choke loading is required. Also, it is the Division's understanding that this unit is subject to NSPS Subpart Y because the 200 ton per day threshold in Subpart Y refers to the coal preparation plant rather than an individual affected facility.

WAQSR Chapter 6, Section 5

The Auxiliary Boiler is subject to 40 CFR 63 Subpart DDDDD and the Diesel Emergency Generator is subject to 40 CFR 63 Subpart ZZZZ. Therefore, the application requirements in Chapter 6, Section 5(a)(ii) are applicable.

All of the information in Chapter 6, Section 5(a)(iii)(A)(II) is required for these units. Specifically, items 5 (expected commencement date of construction), 6 (expected completion date of construction), 7 (anticipated date of initial startup), and 8 (units and averaging times specified in the standard or percent reduction with justifying parameters).

PSD Class II Modeling Issues

CH2MHILL conducted the PM_{10} modeling analysis using a meteorological data set collected by Basin Electric at an anemometer height of 10 meters for the 2002 calendar year. For the Class II modeling analyses, the Division will require the use of the meteorological data collected at the Eagle Butte mine for conducting PM_{10} ambient air quality assessments in the Gillette area; the Basin Electric meteorological (100-meter) data would be used to model all other criteria pollutants and HAPs from elevated releases, such as the coal-fired boiler stack.

As a result, the Class II annual PM_{10} significant impact analysis must be rerun the using the Eagle Butte meteorological data set. If the results of the revised annual PM_{10} significant impact analysis indicates the proposed project will have a significant annual impact, the Eagle Butte meteorological data would be used in any cumulative PM_{10} modeling assessments. The Eagle Butte meteorological data set is more representative because it better approximates the wind flows at the proposed release heights of the sources that will most strongly influence the maximum PM_{10} impacts (material handling sources); the Eagle Butte meteorological data were collected using an anemometer height of 10 meters.

The Division will not require Basin Electric to rerun the 24-hour PM_{10} significant impact analyses, as the present Division policy does not endorse short-term (24-hour) modeling exercises as a viable tool in predicting short-term ambient impacts from fugitive dust particulate emissions, as the recommended EPA dispersion models have not shown to work well when evaluating short-term fugitive particulate emissions.

Six (6) PM_{10} sources were identified as horizontal releases; these sources are reported to have a release temperature of 68 °F. If these sources are non-buoyant horizontal releases, the convention for modeling emissions from non-buoyant horizontal releases is to set the exit velocity to 0.001 meters per second, set the exit diameter to one meter, and model the release with a temperature of zero (0) Kelvin. Correcting the initial velocity and stack diameter parameters reduces the momentum flux to near zero. Setting the exit temperature to zero (0) causes the ISC model to use the hourly ambient temperature value in the meteorological data file to represent the stack exit temperature, which eliminates buoyancy-induced dispersion from the horizontal release.

CH2MHILL performed a Class II cumulative 24-hour SO_2 increment analysis for the Dry Fork project. The analysis identified the Wyodak coal-fired boiler as the only baseline source of SO_2. As a result, the emissions from this unit were not included in the 24-hour SO_2 increment analysis. The Division's records indicate that the Wyodak unit was not in operation and commercially producing electrical power until after the Minor Source baseline date for SO_2 (February 2, 1978), even though the commencement of construction was reported prior to 1978. Current allowable emissions from the Wyodak unit would therefore be included in the cumulative SO_2 increment analysis. Additionally, the Neil Simpson Unit I boiler was in operation prior to February 2, 1978, and therefore can be removed from the SO_2 increment analysis.

Electronic copies of the 7.5 minute Digital Elevation Models (DEM), the facility plot plans, concentration isopleth plots, and calculation spreadsheets were not provided in the permit application. Please include these electronic data, along with hard copies of the isopleth plots for all the applicable WAAQS and increment modeling analyses that were conducted for this project.

Table 7-5 summarizes the modeled impacts from the coal-fired boiler stack and compares the ambient impacts to applicable standards. However, Wyoming's Fluoride standards are incorrectly listed in this table. The 12-hour, 24-hour, 7-day, and 30-day Fluoride standards are 3.0, 1.8, 0.5, and 0.4 $\mu g/m^3$, respectively.

If you have any questions, you may contact this office at (307) 777-7340.

Sincerely,

Bernard J. Dailey
NSR Program Manager
Air Quality Division

cc: Mike Warren, AQD Sheridan
Chad Schlichtemeier, AQD Cheyenne
File:AP-3546