

## STATEMENT OF BASIS

To: Reviewers

Through: Dan Olson, Administrator, Air Quality Division  
Michael Stoll, Operating Permit Program Manager

From: Maggie Endres, Senior Environmental Analyst

Subject: Draft Operating Permit 30-205 for the Black Hills Corporation, Wygen I

Date: May 5, 2005

Attached is a draft Wyoming Air Quality Standards and Regulations (WAQSR) Chapter 6, Section 3 operating permit for Wygen Station I. Emission sources include one coal-fired boiler and lime and fly ash handling facilities. Particulate, SO<sub>2</sub> and NO<sub>x</sub> emissions from the boiler are controlled by a baghouse, spray dry absorber, and selective catalytic reduction/LoNO<sub>x</sub> burner, respectively. Particulate emissions from the lime and fly ash handling facilities are controlled by scrubbers or baghouses. The permittee notified the Division they would like the operating permit to include the wording for the WAQSR Ch 6, Sec 3(k) permit shield.

### Permit History

The permits in this paragraph are listed to document the permitting history. They have been superseded by CT-1236A listed below. Permit CT-1236 (9/6/96): authorized construction of an 80 megawatt pulverized coal fired steam electric power plant adjacent to the Neil Simpson II plant. Permit MD-510 (8/7/00): allowed modification of the facility to conform to 40 CFR 60 Subpart Da NO<sub>x</sub> standards, and modified the SO<sub>2</sub> limit. MD-510A (12/27/00): removed a condition requiring monitoring process steam output. (The facility is not a co-generation facility).

Permit CT-1236A (5/17/04): reflects the as-built configuration of the facility and revises the short term SO<sub>2</sub> limit. Particulate emission limits are established for the five baghouses and two scrubbers. Emission limits (in lb/MMBtu or lb/MW-hr, lb/hr and TPY) for the boiler have been established for SO<sub>2</sub> (3 hour and 30 day), NO<sub>x</sub> (30 day), CO and VOC emissions. Visible emissions from the point sources are limited to 20 percent (6 minute average). The permittee is required to maintain and operate a continuous opacity monitor (COM) and continuous emission monitors (CEM) for NO<sub>x</sub> and SO<sub>2</sub>. A telescoping chute system is required to eliminate fugitive dust from unloading dry waste and truck loading. To minimize transport emissions, the waste material is required to be entirely enclosed in the haul truck. Haul road routes are to be treated with suitable chemical dust suppressant in addition to water to control fugitive dust emissions. Division letter (7/21/04): waived performance testing for the material handling baghouses, because particulate emissions are fairly insignificant and daily visual observations will be conducted.

### Applicable Requirements

In addition to the requirements of permit CT-1236A, the boiler is subject to 40 CFR 60 Subpart Da which establishes opacity, particulate, SO<sub>2</sub>, and NO<sub>x</sub> emission standards and requires continuous

monitoring for opacity, NO<sub>x</sub>, SO<sub>2</sub>, and either O<sub>2</sub> or CO<sub>2</sub>. The facility is subject to the SO<sub>2</sub> milestone inventory requirements of Section 14 of WAQSR. The boiler is also subject to Acid Rain requirements and must operate in compliance with a Phase II Permit Application provided in Appendix B of permit 30-205. Because of the dates of construction and operation commencement, the boiler is not subject to the nitrogen oxides reduction requirements of 40 CFR Part 76.

### **Periodic Monitoring**

As discussed with the permittee, for visible emissions from the material handling baghouses and scrubbers, daily observations will be conducted. Upon detection of any visible emissions, corrective action will be taken. For the boiler, the continuous monitoring systems produce opacity, SO<sub>2</sub> and NO<sub>x</sub> data for the Acid Rain Program and the State and serve as periodic monitoring for these pollutants. Particulate testing is required every year, and CO testing is required annually. A correlation between the COM readings and particulate emissions will be developed for the boiler over the next five years. Boiler performance testing conducted May 2003 indicated particulate emissions of 12.1 lb/hr, compared to the permitted limit of 20.3 lb/hr. Some of the COM readings during the performance test were negative, so the COM data during testing is questionable. The permittee indicated that the boiler typically operates with COM readings of 3-5 percent. Compliance assurance monitoring (CAM) requirements will be addressed upon renewal as required by WAQSR Chapter 7, Section 3(e).