STATEMENT OF BASIS

To: Reviewers

Through: Michael Stoll, Operating Permit Program Manager

From: Melissa Meares, Air Quality Engineer

Subject: Draft Operating Permit 3-2-102, Basin Electric Power Cooperative Laramie River Station

Date: March 11, 2009 *(Addendum June 23, 2009)*

Introduction:
Attached is the draft Wyoming Air Quality Standards and Regulations (WAQSR) Chapter 6, Section 3 operating permit renewal for the Laramie River Station (LRS). LRS is a coal fired steam-electric power generating facility. Sources of air pollution at the plant include three 600-megawatt pulverized coal-fired boilers; various coal, limestone, and ash handling facilities; coal and limestone storage piles; various fuel and lube oil storage tanks; and miscellaneous small diesel-fired equipment.

Emissions from boiler units 1 and 2 are controlled by electrostatic precipitators (ESPs) followed by limestone wet scrubbers. Boiler unit 3 emissions are controlled by a dry scrubbing system followed by an ESP. Particulate emissions from the coal handling facilities are controlled with either fabric filters or water spray systems. Particulate emissions from lime and fly ash handling facilities are controlled by fabric filters. Fugitive emissions from coal and limestone stockpiles and unpaved trafficked areas around the plant are controlled with water and chemical dust suppressants.

Permitting History: The following permits are listed to document the permitting history.
EPA Reference 8AH-A (12/24/76): approved construction of the station facility, pursuant to 40 CFR §52.2630, and 40 CFR §52.21 for the Prevention of Significant Deterioration (PSD) regulations. This permit was issued prior to the state's implementation of the PSD program.

CT-36 (5/14/76)/OP-221 (8/5/91): allowed for the construction and operation of the power plant. Applicable requirements from OP-221 include particulate matter emission limits for the baghouses, a coal stock pile size limit of 3.4 million tons, and operation of an ambient monitoring network. The boilers are subject to the requirements of 40 CFR 60 Subpart D, for fossil-fuel-fired steam generators.

MD-54 (5/20/86): was issued for an increase in the coal storage at the facility.

MD-362 (6/3/98): authorized an increase in the hourly SO_2 emission rates for all three boilers, and a reduction of the lb/MMBtu NO_X and PM emissions limits, with no increase in annual emissions for any pollutants. This permit sets NO_X, SO_2 and particulate emission limits for all three boilers and indicates requirements for continuous emissions monitoring for NO_X and SO_2.

MD-431 (1/5/00): allowed the construction of a flyash haulroad to the landfill, to replace the overland flyash conveying system. The permit requires the truck loadout facility to operate with no visible emissions, the moisture content of the flyash be maintained to prevent visible emissions from flyash blowing out of the haul truck, and haul roads be maintained so fugitive dust emissions remain insignificant.

Waiver AP-5794 (3/8/07)/Waiver AP-7417 (3/20/08): authorized the replacement of the rotors in the high and intermediate pressure sections of the steam turbines for units 2 and 3, respectively. AP-5794 limits the heat input for unit 2 to 53,180,779 MMBtu per year for a five year period. AP-7417 limits the heat input for unit 3 to 53,025,986 MMBtu per year for a five year period.

Applicable Requirements:

Applicable requirements include the permit and waiver conditions listed above, and visible emission limits according to 40 CFR 60 Subpart Y for coal preparation plants, 40 CFR 60, Subpart D for fossil-fuel-fired steam generators, and WAQSR Ch 3, Sec 2 for the remaining sources. The diesel fired heaters are subject to the Ch 3, Sec 3 NO_X emission limits. During the review for the draft renewal permit, it was noticed that an incorrect opacity limit has been applied to the coal storage pile. The limit indicated in the original and first renewal operating permits (30-120 and 31-120) was 20 percent. The correct limit per Ch 3, Sec 2(a) and (e) is 20 percent, except for one period or periods aggregating not more than six minutes in any hour of not more than 40 percent opacity. This has been corrected.

The three boilers are subject to 40 CFR 60, Subpart D, based on the dates of construction. Subpart D limits stack gas opacity and particulate matter, SO_2 and NO_X emissions. Continuous monitoring systems for measuring opacity, SO_2, NO_X and either oxygen or carbon dioxide are required. All three boilers are subject to Acid Rain requirements of 40 CFR Parts 72, 73, 75, 76, 77, and 78.

The coal handling facilities are subject to the requirements found in 40 CFR 60, Subpart Y, based on the date of construction. Subpart Y limits all coal processing and conveying equipment and coal storage systems, except for open storage piles, to less than 20 percent opacity.

Tank T1 is a 1,000,000 gallon diesel fuel oil storage tank and is an affected facility under 40 CFR 60, Subpart K, however, the tank has no control or monitoring requirements due to the low true vapor pressure of diesel fuel. There are several other storage tanks, but based on the size and/or contents, none of the tanks are subject to the requirements of 40 CFR 60 Subparts K, Ka, or Kb.

The chip and seal roadway required by permit MD-431 was completed in July of 2007, as confirmed in a phone conversation with Terry Archibald.

Periodic Monitoring:

Basin Electric installed continuous emission monitoring (CEM) systems and continuous opacity monitors (COMs) on units 1, 2, and 3 to measure emissions of SO_2, NO_X and opacity to satisfy the requirements of 40 CFR 60, Subpart D, and the Title IV Acid Rain provisions of the 1990 Clean Air Act Amendments.

Units 1, 2, and 3 are Phase II units under the Acid Rain Program and must operate in compliance with an Acid Rain Phase II Permit Application. The Acid Rain Permit provides NO_X limits and SO_2 allowances for each unit, and monitoring, recordkeeping, and reporting requirements are included in the Acid Rain Permit Application which is attached as an Appendix to the permit. Certified CEMs produce SO_2 and NO_X data for the Clean Air Marketing Division of EPA, and the State.

For the heat input limits for units 2 and 3, the permittee will calculate the heat inputs monthly using data from the CEM systems, to demonstrate that a 12 month rolling average does not exceed the limits.

Weekly visible emissions observations will be conducted to monitor allowable emissions from the fly ash loadout facility. Observations of visible emissions will be performed for sources from which visible emissions are expected, including diesel-fired equipment. Observation of visible emissions above allowed limits will trigger maintenance as outlined in the Operation and Maintenance Plan.

Compliance Assurance Monitoring:

Compliance assurance monitoring (CAM) is required for particulate emissions from each of the boilers. For Boilers 1 and 2, the certified COMs operating in conjunction with the SO_2 emission monitors, will be used as indicators of compliance with the opacity limit and as indicators of compliance with particulate emission limits. Boilers 3 will use the opacity monitor alone as an indicator of compliance with the particulate emission limit. Daily visible emission observations will be conducted for the coal handling facility baghouses subject to CAM. Observation of visible emissions from a baghouse will prompt immediate inspection and corrective actions.

(Addendum June 23, 2009)

Through a number of conversations with the Environmental Protection Agency (EPA), Region VIII, the Division has been advised that certain periodic monitoring decisions regarding nitrogen oxides (NO_X) have not been adequately addressed in certain proposed permits, and/or adequately discussed in the Statement of Basis. The following provides additional clarification for periodic monitoring decisions:

There are several small diesel-fired space heaters (units 6-17) located at the facility, that are defined as "fuel burning equipment" in WAQSR Chapter 1. The sources are uncontrolled, but only operate occasionally. The space heaters have NO_X limits of 0.30 pounds per million Btu (lb/MMBtu) from WAQSR Chapter 3, Section 3. AP-42 emission factors were developed by the EPA to help estimate the quantity of a pollutant from a given source type. In developing an AP-42 emission factor, emission data is averaged from sources of similar size and type, and is then assigned a reliability rating based on quality and quantity of the data used. The rating scale runs from A to E with an A rating providing the highest quality. The AP-42 emission factor for distillate fired sources less than 100 MMBtu/hr is 0.14 lb/MMBtu with an A rating. Considering the amount of data evaluated to develop the AP-42 emission factor, and considering the Chapter 3, Section 3 emission limit is twice that value, the Division feels it is extremely unlikely these space heaters will operate out of compliance and considers further monitoring of these sources economically unreasonable.

The original condition F14 has been removed from the draft operating permit.