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**Jim Ruby, Executive Secretary
Environmental Quality Council**

ATTORNEYS FOR BASIN ELECTRIC
POWER COOPERATIVE

**BEFORE THE ENVIRONMENTAL QUALITY COUNCIL
STATE OF WYOMING**

In the Matter of:)
Basin Electric Power Cooperative) Docket No. 07-2801
Dry Fork Station,)
Air Permit CT – 4631)

**BASIN ELECTRIC'S MOTION FOR SUMMARY JUDGMENT
ON PROTESTANTS' CLAIMS REGARDING REDEFINITION OF
THE SOURCE, PM_{2.5} AND ALLEGED CLASS I INCREMENT VIOLATIONS**

Basin Electric Power Cooperative (Basin Electric) respectfully moves for summary judgment on: 1) Protestants' claims regarding "redefinition of the source" set forth in paragraphs 33-41 of the Protest and Petition for Rehearing (Petition); 2) Protestants claims regarding PM_{2.5}, set forth in paragraphs 61-66 of the Petition, and 3) Protestants claim that the Dry Fork Station will cause or contribute to an increment violation at the Class I area covering the Northern Cheyenne Indian Reservation in Montana, as set forth in paragraphs 67-69 of the Petition.

As grounds for this Motion, Basin Electric states as follows:

1. There are no genuine issues of material fact related to these claims, as the parties agree on the facts but differ on the law; and

2. Basin Electric is entitled to judgment on the law on all of these claims, for the reasons set forth in the attached Memorandum Brief and accompanying exhibits, incorporated into this Motion by reference.

3. A statement of the undisputed facts is set forth in the attached annex and in the attached Memorandum Brief.

WHEREFORE, Basin Electric respectfully requests that the claims of error set forth in paragraphs 33-41 and 61-69 of the Petition be dismissed.

DATED September 2, 2008.



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ATTORNEYS FOR BASIN ELECTRIC POWER
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CERTIFICATE OF SERVICE

I hereby certify that on September 2, 2008, I served the foregoing by electronic service and by placing a true and correct copy thereof in the United States mail, postage prepaid and properly addressed to the following:

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BASIN ELECTRIC'S ANNEX OF UNDISPUTED FACTS

Basin Electric Power Cooperative (Basin Electric) submits the following as undisputed facts in this matter:

1. Basin Electric provides wholesale, supplemental electric service for 125 member cooperatives in the states of Colorado, Iowa, Minnesota, Montana, Nebraska, New Mexico, North Dakota, South Dakota, and Wyoming serving approximately 2.6 million consumers, including approximately 146,000 consumers in Wyoming. Raatz Affidavit at ¶ 2.

2. Basin Electric's service territory is split electrically into eastern and western service areas (electrical grids). The Dry Fork Station power plant primarily will provide electrical power to consumers in northeast Wyoming through Basin Electric's rural electric cooperative member, Powder River Energy Corp. Raatz Affidavit at ¶ 2.

3. Basin Electric determined that a new coal-based base load power plant was the only appropriate power generation technology that would meet the increasing electrical demand in northeast Wyoming resulting from both increasing demand and lack of available power. A “base load” facility is a power plant that can operate at near maximum capacity 24-hours a day, 7 days a week, year round. Basin Electric’s ability to purchase supplemental electricity from other generating sources in this area was and is becoming more limited, and transmission constraints into this region also limit Basin Electric’s ability to meet existing and projected demand by outside purchases. Projected power deficits in the western service area are 265 megawatts (MW) in 2011 and 309 MW in 2012. Raatz Affidavit at ¶¶ 2-4.

4. To achieve a high cost effectiveness and to serve base load needs, Basin Electric believes it is prudent and expected to operate such a new coal-based power plant 90 to 95% of the time, near its design capacity, as Basin Electric has achieved from its other coal-based baseload plants. Basin Electric also believes it is prudent and expected to operate a new coal-based power plant 90 to 95% of the time in its first year of operation, as Basin Electric has achieved from its other coal-based baseload plants. Raatz Affidavit at ¶¶ 8-9.

5. Basin Electric selected advanced subcritical pulverized coal technology as its fundamental electrical generating choice for its Dry Fork Station. One of the world’s largest sub-bituminous coal reserves, Powder River Basin coal, is located in northeast Wyoming. Powder River Basin coal is known for its low sulfur content; this content allows coal-fired boilers to limit emissions of sulfur dioxide to very low levels. Raatz Affidavit at ¶ 7.

6. Basin Electric considered and evaluated a number of different coal-based generation technologies that may be able to use the sub-bituminous coal that is available from

Dry Fork Mine near the projected plant site before seeking a permit from DEQ. Before submitting an air permit application to DEQ, Basin Electric and its consultants, Sargent & Lundy and CH2M Hill, studied and evaluated the potential use and suitability of pulverized coal (both subcritical and supercritical), circulating fluidized bed, and integrated gasification combined cycle (IGCC) technologies for the new Dry Fork Station power plant. Those evaluations were shared with DEQ during the permitting process at DEQ's request. Williams Aff. at ¶¶ 2-3.

7. Basin Electric's project was limited in overall size to approximately 422 gross megawatts (MW) (approximately 385 MW net), effectively eliminating supercritical technology from consideration as efficiencies gained by supercritical technology diminish as the proposed plant gets smaller than 500 MW. It would have been in Basin Electric's best interests to build a supercritical pulverized plant if it could justify the large additional capital costs, because such a plant would use less coal to generate the same amount of electricity as a subcritical pulverized coal plant. Basin Electric therefore pursued consideration of supercritical technology aggressively, and only reluctantly concluded that the overall size of the Dry Fork Station project made supercritical technologies a non-viable choice. Williams Aff. at ¶¶ 5-7.

8. Basin Electric submitted to the DEQ a detailed explanation of the differences between subcritical and supercritical plants. Substantial design differences exist between subcritical and supercritical technologies. Many basic features of the operation differ between supercritical and subcritical technologies: the boilers are different, the water drum is different, the economizers are different, the turbines are different, and the feed-pumps are different. These differences go all the way down to the basic metallurgy comprising the steels used to construct the plant. Sahu Depo.; Williams Aff. at ¶ 6.

9. Integrated Gasification Combined Cycle (IGCC) technologies are not yet mature. There are only five demonstration coal-based IGCC projects in the world – none of which has achieved the level of reliable performance essential to the success of the Dry Fork Station project – and vendors currently do not offer commercially available IGCC plants at the 385 net MW size of the Dry Fork Station project at the specific elevation at Gillette, Wyoming, using sub-bituminous coal. At this size, and at the elevation of the Gillette area, an IGCC plant would not be commercially available, since vendors only offer existing designs that have been developed for larger projects of 600 – 630 net megawatts burning bituminous rather than sub-bituminous coals. Exhibit D to Williams Aff.; Exhibit 4 at 18-28.

10. Basin Electric's basic project needs require commercial availability of at least 90%, which eliminated IGCC technologies from consideration. In 2005 (re-verified in 2007), Basin Electric learned that IGCC technologies have never achieved availability in excess of 80% on a continuing and reliable basis after several years of operation – even new generation IGCC plants not yet built are only designed for 85% availability, and 85% availability is not forecasted to be achieved until the third year of operation at the earliest. The few existing coal IGCC plants in the world operated at less than 30% availability their first year and less than 60% availability by the third year. Therefore, any IGCC plant would not be operational at least 15-20% of the time and perhaps as much as 70% in its first year of operation. Exhibit 4 at 18-22; Fowler Depo.; Williams Aff. at ¶ 8.

11. Lack of operational availability of an IGCC plant at Dry Fork Station would force Basin Electric either to (a) buy supplemental power from the grid or (b) run the IGCC plant on natural gas if possible to increase the operational availability. As to option (a), it is the lack of a

long-term supply of such power, coupled with transmission constraints for moving such power, that is motivating this project in the first place. As to option (b), running the IGCC plant on natural gas greatly increases the cost per kilowatt hour for electricity and wastes the expensive IGCC capital infrastructure for which the plant was built but not operating as intended. Natural gas might be made available to fire the IGCC gas turbines when the plant is otherwise down (for which there would be an approximate capacity charge of \$11,000,000 per year, not including the actual fuel cost itself or capital costs to run pipelines to the plant), but natural gas prices are as much as 20 times higher than the cost of coal from the Dry Fork mine. Williams Aff. at ¶¶ 8-9.

12. Unlike a subcritical pulverized coal plant, IGCC does not use a coal-fired boiler. An IGCC plant employs a very different way of generating electricity than a subcritical pulverized coal plant. In a subcritical plant, coal is combusted in a boiler to heat water and convert it to steam. The steam is piped to a steam turbine which converts the steam's thermal energy into mechanical energy, and the steam turbine turns a generator to produce electricity. IGCC is more like a chemical plant that is combined with a combustion turbine to generate electricity. In an IGCC plant, coal is not burned but instead is heated and thermally converted into synthetic gas (syngas). After impurities such as sulfur compounds, metals, ash and ammonia are removed, the syngas is burned in a combustion turbine that is similar to a natural gas-fired turbine. The fuel that generates electricity in a subcritical pulverized coal plant is coal, but the fuel in an IGCC plant is syngas. The major items of equipment and the two processes in a subcritical pulverized coal plant and an IGCC plant are fundamentally different, even though both use coal as a feedstock to generate electricity. Fowler Depo.; Exhibit 4 at 13-17.

13. Advanced subcritical boiler technology and pollution controls selected for Dry Fork Station will result in emissions of regulated pollutants that are among the lowest in the country. This technology is highly reliable burning low-sulfur Powder River Basin coal with proven ability to provide the necessary high availability and reliability needed for the projected load demand at 422 gross (385 net) MW. Williams Aff. at ¶ 12.

14. The Dry Fork Station permit limit set by DEQ for nitrogen oxides (NO_x) of 0.05 lb/mmbtu (annual average) is among the lowest permit limit in the country, regardless of averaging time, for any coal-fired power plant (whether subcritical, supercritical or circulating fluidized bed). On an annual average, this permit limit is the lowest in the country for NO_x. Exhibit 10 at 29-31; Attachment 3 to Exhibit 10.

15. Basin Electric proposed a NO_x permit limit of 0.07 lb/mmbtu (30-day average) as best available control technology (BACT), but DEQ did not accept this proposal and lowered the BACT limit to the 0.05 lb/mmbtu (annual average) that is the lowest NO_x permit limits in the country. Exhibit 10 at 29-31; Attachment 3 to Exhibit 10.

16. The Dry Fork Station permit limit set by DEQ for sulphur dioxide (SO₂) of 0.07 lb/mmbtu (annual average) is among the lowest permit limit in the country, regardless of averaging time, for any coal-fired power plant (whether subcritical, supercritical or circulating fluidized bed). Exhibit 10 at 29-31; Attachment 3 to Exhibit 10.

17. Basin Electric proposed an SO₂ permit limit of 0.10 lb/mmbtu (30-day average) as BACT, but DEQ did not accept this proposal and lowered the BACT limit to 0.08 lb/mmbtu (annual average) in the proposed permit. After the public hearing on the proposed permit in June 2007, DEQ further lowered the SO₂ BACT limit to 0.07 lb/mmbtu (annual average) that is

among the very lowest SO₂ permit limits in the country. Exhibit 10 at 29-31; Attachment 3 to Exhibit 10.

18. The Dry Fork Station permit limit set by DEQ for particulate matter (PM₁₀) of 0.012 lb/mmbtu is among the lowest permit limit in the country, regardless of averaging time, for any coal-fired power plant (whether subcritical, supercritical or circulating fluidized bed).

19. Air quality regulations for particulate matter of 2.5 microns or less (PM_{2.5}) do not yet exist in Wyoming and have not yet been finalized by the EPA. As a result, EPA has authorized states including Wyoming to regulate PM_{2.5} by using particulate matter of 10 microns or less (PM₁₀) as a surrogate for PM_{2.5}, and that is what DEQ did in acting on the permit application for Dry Fork Station. Exhibits 12; 13.

20. The regulatory tools for separately regulating PM_{2.5} do not yet exist. Wyoming has until 2011 to adopt regulations for PM_{2.5}, and until those regulations are adopted there is no legal framework in place yet for regulating this pollutant. EPA has not yet issued final rules establishing “significant impact levels,” or “SILs” for this particulate, so as a practical matter it would be very difficult to do meaningful ambient air quality modeling. There is no inventory of existing emission data for all sources in the modeling area. The lack of established and reliable emission factors for PM_{2.5} would make a meaningful BACT analysis extremely difficult to conduct. Exhibits 12, 13.

21. PM_{2.5} impacts attributable to the Dry Fork Station will be well below the new PM_{2.5} national ambient air quality standards (NAAQS). In the permitting process, PM₁₀ emissions, which include all PM_{2.5} emissions as a subset of PM₁₀ emissions, were modeled to determine Dry Fork’s impact on PM₁₀ levels in the ambient air. The modeling showed that the

maximum impact from Dry Fork on the 24-hour ambient PM_{10} concentration was 4.2 micrograms per cubic meter. PM_{10} includes all particulate matter smaller than 10 microns in diameter, and thus includes all $PM_{2.5}$. Even if it were conservatively assumed that 100 percent of all PM_{10} is actually comprised of $PM_{2.5}$, and even if it were assumed that, as a result, the entire impact of Dry Fork on ambient $PM_{2.5}$ levels were 4.2 micrograms (the same as PM_{10} impacts), that impact would still be below the $PM_{2.5}$ 24-hour NAAQS of 35 micrograms per cubic meter. Exhibit 11.

22. Dry Fork Station BACT emission limits and control equipment for PM_{10} , SO_2 , NO_x , and sulfuric acid mist, (each of which contributes to $PM_{2.5}$ emissions), will control $PM_{2.5}$ emissions to virtually the same maximum achievable level that would have been required by a separate BACT analysis for $PM_{2.5}$. The presumptive precursors for secondary $PM_{2.5}$ (formed in the atmosphere) are NO_x and SO_2 , and both of these pollutants were subjected to BACT by DEQ. The emission limits for these pollutants, set by DEQ in Basin Electric's permit, are among the most stringent ever imposed anywhere in the country. Emissions of primary $PM_{2.5}$ will also be controlled at Dry Fork Station by the bags designed for use in the baghouse which are PPS with PTFE coating. PPS is polyphenylene sulfide, which is a felted filter. PTFE (polytetrafluoroethylene) is an expanded membrane that can be laminated with a variety of fibers such as PPS. This fabric bag with PTFE coating should achieve excellent particulate matter control, to include control of $PM_{2.5}$. Williams Aff. ¶ 13; Exhibit 10 at 29-62; Sahu Depo.

23. Cumulative ambient air quality modeling for SO_2 was done using both actual and potential emissions for a power plant in Montana (known as Colstrip Units 3 and 4) near the Northern Cheyenne Indian Reservation (NCIR). Cumulative modeling using actual emissions

from Colstrip demonstrated that there never any SO₂ increment violations at the NCIR (from Dry Fork Station or any other modeled source of emissions). Although cumulative modeling using potential emissions from Colstrip predicted some SO₂ increment violations, the modeled contributions from Dry Fork Station at the times and places of the predicted violations, were always below the significant impact level of 0.2 micrograms/cubic meter approved by the Environmental Protection Agency. On 25 of those 29 occasions when Dry Fork Station's contributions were greater than zero, the Dry Fork impact was between 0.0002 and 0.0009 micrograms per cubic meter (that is, between 200 and 900 billionths of a gram per cubic meter).

Exhibit 14.

DATED September 2, 2008.

A handwritten signature in black ink, appearing to read "Patrick R. Day", is written over a horizontal line.

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