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ATTORNEYS FOR BASIN ELECTRIC
POWER COOPERATIVE

FILED
MAR 08 2010
Jim Ruby, Executive Secretary
Environmental Quality Council

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

In the Matter of:)
Basin Electric Power Cooperative) Docket No. 10-2802
Air Quality Permit MD-6047)
BART Permit: Laramie River Station)

**Basin Electric Power Cooperative's
Appeal and Petition for Review**

Basin Electric Power Cooperative (Basin Electric) appeals Air Quality Permit MD-6047 for the Laramie River Station issued by the Wyoming Department of Environmental Quality, (DEQ). Basin Electric petitions the Wyoming Environmental Quality Council (EQC) to review the DEQ's Permit Condition 16 on the grounds and for the reasons stated below. DEQ acted outside of its statutory and regulatory authority, failed to follow applicable process and procedure, acted arbitrarily and capriciously, and acted without substantial evidence in adopting Permit Condition 16 regarding additional add-on NOx controls. Basin Electric does not appeal or protest Conditions 1 through 15 of the Permit. To the extent necessary after dispositive motions, Basin Electric further requests a contested case hearing before the EQC on the issues raised and relief requested in this Petition.

BACKGROUND FACTS

1. Basin Electric's address is 1717 East Interstate Avenue, Bismarck, North Dakota 58503-0564. Basin Electric is one of the six organizations in the Missouri Basin Power Project and the project manager for the Laramie River Station (LRS). The Missouri Basin Power Project is a group of six regional, consumer-owned energy organizations that jointly own the LRS in Platte County, Wyoming. LRS, one of the largest consumer-operated, regional joint-power-supply ventures in the United States, consists of three coal-based units: Unit 1: 570 net megawatts (began operating in 1980); Unit 2: 562 net megawatts (began operating in 1981); and Unit 3: 570 net megawatts (began operating in 1982). Counsel for the Petitioner are Mark R. Ruppert, P.C. and Patrick R. Day, P.C., Holland & Hart LLP, 2515 Warren Avenue, Cheyenne, WY 82001-3117; Ph: (307) 778-4200.

2. As required by DEQ, Basin Electric timely submitted a best available retrofit technology (BART) analysis for LRS on February 28, 2007, which was received by DEQ on or about March 5, 2007. Basin Electric also subsequently submitted additional information to DEQ in support of the analysis. DEQ issued a BART Application Analysis dated May 28, 2009. On June 3, 2009, DEQ published that analysis and solicited public comment. Public hearings were held in August 2009. DEQ received several comments on its draft BART determination, and Basin Electric submitted oral and written comments to DEQ.

3. DEQ sent a letter by regular mail, dated December 31, 2009, along with Permit No. MD-6047 (LRS BART Permit) to Basin Electric. On information and belief, this letter and the LRS BART Permit were mailed to Basin Electric by DEQ on January

5, 2010. Basin Electric received this letter and Permit by mail on January 11, 2010 (Exhibit A). Basin Electric timely files this Appeal and Petition within 60 days of the date the Permit was issued by DEQ to Basin Electric.

4. The LRS BART permit was issued pursuant to the “Regional Haze” program, established pursuant to 42 U.S.C. § 7491. The goal of the Regional Haze program is to remedy existing and prevent future impairment of visibility in mandatory Federal Class I areas (these are designated National Parks and wilderness areas). The federal regulation that implements the Regional Haze program and that is pertinent for this appeal is 40 C.F.R. § 51.308. Pursuant to this regulation, each state must adopt a State Implementation Plan (SIP) that includes, among other things, three key elements: (1) requirements that certain existing major sources of visibility-impairing pollutants install Best Available Retrofit Technology (BART) to control emissions of such pollutants; (2) the establishment for each Class I area of Reasonable Progress Goals, which are intended to define what constitutes reasonable progress toward achievement of natural visibility conditions by 2064; and (3) the adoption of a Long-Term Strategy to accomplish the Reasonable Progress Goals.

RELEVANT FACTS, AUTHORITY AND GROUNDS FOR APPEAL

5. In June 2006, the DEQ notified Basin Electric that the LRS was subject to BART requirements and that a BART engineering and modeling analysis for LRS was required. The analyses submitted by Basin Electric pursuant to the DEQ’s request addressed the criteria for determining what level of emission reduction would constitute BART for the LRS. Based on its review and analysis of these submittals and after consideration of public comments, the DEQ determined BART emission limits for

nitrogen oxides (NOx) (and particulate matter and sulfur dioxide not relevant to this appeal).

6. For LRS Units 1-3, BART for NOx was determined to be the installation of new low-NOx burners with overfire air and emissions limits of 0.23 lb/MMBtu (30-day rolling average), with separate lb/hr limits based on a 30-day rolling average and tons/year limits based on a 12-month rolling average. LRS BART permit; Condition 7; LRS BART Application Analysis, at pp. 42-43.

7. Condition 16 of the LRS BART permit, however, goes beyond BART and provides that, pursuant to the Long-Term Strategy of the Wyoming §308 Regional Haze Implementation Plan, Basin Electric is required in the future to submit permit applications for the installation of additional add-on NOx controls on two LRS units, and that those applications must address each add-on NOx control as a system of continuous emissions reduction achieving the “lowest viable” NOx emission, not to exceed a maximum of 0.07 lb/MMBtu, 30-day rolling average. Petitioner appeals this unlawful and unreasonable condition improperly imposed by DEQ in the LRS BART Permit.

8. DEQ has no authority to establish Condition 16. Neither the regulations for BART nor the regulations for the Long-Term Strategy authorize or justify Condition 16. In imposing Condition 16, the DEQ did not comply with the requirements for BART or for a Long-Term Strategy.

9. There are five factors set out in statute and regulation that must be taken into consideration in determining BART: (1) costs of compliance; (2) energy and non-air quality environmental impacts; (3) any pollution control equipment in use at the source; (4) the remaining useful life of the source; and (5) the degree of visibility reasonably

anticipated to result from the technology. EPA guidelines adopt presumptive NOx emission levels for utility boilers, which are presumed to constitute BART and considered to be cost effective. The presumptive BART level for NOx for the type of boilers at the LRS is 0.23 lb/MMBtu. 40 C.F.R. Part 51, App. Y, § IV.E.5. DEQ determined that this level constituted BART for the LRS units. LRS BART Permit Condition 7 and DEQ Application Analysis Conclusions at p. 42. A state may determine that an alternative control level is justified based on consideration of the five statutory factors, but the DEQ made no such determination and did not justify or seek to justify an alternative control level based on these factors. Therefore, the allegedly “lowest viable” future maximum level of 0.07 lb/MMBtu specified in Condition 16 is not and cannot be based on BART. The DEQ’s own finding identified BART for NOx as 0.23 lb/MMBtu and precludes any contradictory BART determination.

10. Nowhere in the Clean Air Act or the Regional Haze regulations is there any mention of a “lowest viable” criteria for establishing limits on visibility-impairing emissions. Neither the regulations regarding BART, Reasonable Progress Goals, nor Long-Term Strategy invoke a “lowest viable” criteria. DEQ’s use of a “lowest viable” criteria without regulatory support is in excess of law and arbitrary and capricious.

11. Condition 16 purports to be based on the Long-Term Strategy of the Wyoming §308 Regional Haze SIP. However, the Long-Term Strategy cannot and does not constitute authority for Condition 16.

12. It is Basin Electric’s understanding that Wyoming has not yet adopted either a §308 Regional Haze SIP or a Long-Term Strategy.

13. In any case, a Long-Term Strategy may not impose emission limits, permitting requirements or any other requirements on a single facility or a limited number of facilities in isolation from the overall strategy.

14. It is not permissible to use a BART permit to adopt a Long-Term Strategy or any element of a Long-Term Strategy. Adoption of a Regional Haze SIP, including the Long-Term Strategy element of a Regional Haze SIP, is the responsibility of the Environmental Quality Council.

15. The Long-Term Strategy must include emissions limitations, compliance schedules and other measures as necessary to achieve the Reasonable Progress Goals established by a state that has mandatory Federal Class I areas. 40 C.F.R. §51.308(d)(3). However, nothing in the DEQ's analysis or consideration of the terms of the LRS BART Permit identifies, discusses or evaluates Reasonable Progress Goals for any Class I area. DEQ's Application Analysis and the LRS BART Permit Decision also fail to indicate that Condition 16 is necessary to achieve any Reasonable Progress Goal for any Class I area. Reasonable Progress Goals must consider the costs of compliance, the energy and non-air quality environmental impacts of compliance, the time necessary for compliance, and the remaining useful life of the source. It is Basin Electric's understanding that Wyoming has not yet adopted any Reasonable Progress Goals for Class I areas within Wyoming. Condition 16 improperly bypasses the requirements for a Long-Term Strategy, Reasonable Progress Goals, and a §308 Regional Haze SIP.

16. The only Class I areas for which modeling for visibility impacts was done in connection with the LRS BART Permit were in the states of Colorado and South Dakota. Where a state has emissions that are reasonably anticipated to contribute to

visibility impairment in another state or states, it must consult with the other states in order to develop coordinated emission management strategies. 40 C.F.R. §51.308(d)(3). Nothing in the DEQ's record regarding this Permit indicates that it has consulted with any other state to develop coordinated management strategies.

17. Even if the DEQ had identified a Reasonable Progress Goal for a Class I area, and consulted with another state or states as necessary, any Long-Term Strategy must take into consideration numerous factors, as listed in Paragraph 17 below, and no Long-Term Strategy requirement for an individual source may be imposed in isolation, without taking such factors into account. Nothing in the DEQ's record indicates that any such factors were taken into consideration when imposing Condition 16.

18. In developing a Long-Term Strategy, a state must document the technical basis, including modeling, monitoring and emissions information, on which the state relies to determine its apportionment of emission reduction obligations necessary for achieving Reasonable Progress in each mandatory Federal Class I area it affects. 40 C.F.R. §51.308(d)(3). A state should consider major and minor stationary sources, mobile sources, and area sources. *Id.* It must, at a minimum, consider the following in developing its Long-Term Strategy: (A) emissions reductions due to ongoing air pollution control programs; (B) measures to mitigate the impacts of construction activities; (C) emissions limitations and schedules for compliance to achieve the Reasonable Progress Goal; (D) source retirement and replacement schedules; (E) smoke management techniques for agricultural and forestry management purposes; (F) enforceability of emissions limitations and control measures; (G) the anticipated net effect on visibility due to projected changes in point, area and mobile source emissions

over the period addressed by the Long-Term Strategy. *Id.* None of the foregoing were considered in establishing Condition 16. Without considering these factors, it is impossible to know what emission reductions, if any, might be necessary from the LRS to achieve Reasonable Progress Goals for Class I areas.

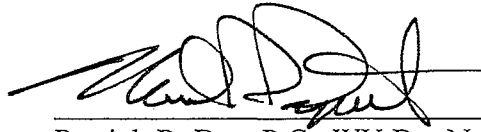
19. Even if Condition 16 had been adopted as part of the process of adopting a Long-Term Strategy for Wyoming's Regional Haze SIP, there is no authority for requiring an individual source such as the LRS to meet the "lowest viable" NO_x emission limit, not to exceed 0.07 lb/MMBtu, in isolation from, and regardless of, requirements for other sources and without considering the other regulatory factors.

20. Further, the evidence in the record and considered by the DEQ fails to establish that 0.07 lb/MMBtu NO_x limit in Condition 16 can feasibly be achieved in actual operation, as a continuously applicable emission limit, and fails to establish that, even if technologically feasible, it would be cost-effective.

RELIEF REQUESTED

For the reasons stated above, Basin Electric respectfully requests the EQC review DEQ's improper requirements and conditions in Permit No. MD-6047, Condition 16, and that the EQC modify the LRS BART Permit by vacating Permit Condition 16.

Dated this 8th day of March, 2010.



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Facsimile: (307) 778-8175
pday@hollandhart.com
mruppert@hollandhart.com

Attorneys for Basin Electric Power
Cooperative

CERTIFICATE OF SERVICE

The undersigned hereby certifies that, on this 8th day of March, 2010, in accordance with the requirements of Chapter 1, Section 3(b) of the Department of Environmental Quality Rules of Practice and Procedure, two copies of this Petition for Review and Request for Hearing, via registered mail, return receipt requested, were served on the following:

Dennis M. Boal, Chairman
Environmental Quality Council
122 West 25th Street
Herschler Building, Room 1714
Cheyenne, WY 82002

John Corra, Director
Department of Environmental Quality
122 West 25th Street
Herschler Building, 4th Floor West
Cheyenne, WY 82002

The undersigned further certifies that, on this 8th day of March, 2010, in accordance with the requirements of Chapter 1, Section 3(e) of the Department of Environmental Quality Rules of Practice and Procedure, this Petition for Review and Request for Hearing, was served on the following via registered mail, return receipt requested:

Bruce Salzburg
Wyoming Attorney General
123 Capitol Building
200 W. 24th Street
Cheyenne, WY 82002

Chad Schlichtemeier, Administrator
Air Quality Division
Wyoming Department of Environmental Quality
122 West 25th Street, Herschler Building
Cheyenne, Wyoming 82002

United States Department of Agriculture: Forest Service
Rocky Mountain Region (In care of Rick D. Cables)
740 Simms Street
Golden, CO 80401

United States Environmental Protection Agency
Region 8 (In care of Callie A. Videtich)
1595 Wynkoop Street
Denver, CO 80202-1129

United States Department of the Interior
National Park Service
Air Resources Division (In care of John Bunyak)
P.O. Box 25287
Denver, CO 80225

Shannon Anderson, Organizer
Powder River Basin Resource Council
934 N. Main St.
Sheridan, WY 82801

Joanna Taylor
601 Hemlock St.
Buffalo, WY 82834

Andrew H. Salter
P.O. Box 7586
Jackson, WY 83002

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P.O. Box 21
Pavillion, WY 82523

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Cheyenne, WY 82009

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Brad Mohrmann
Sierra Club-Associate Regional Representative
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Sheridan, WY 82801

PacifiCorp
825 NE Multnomah
Portland, OR 97232

Craig Kenworthy, Conservation Director
Greater Yellowstone Coalition
P.O. Box 1874
Bozeman, MT 59771

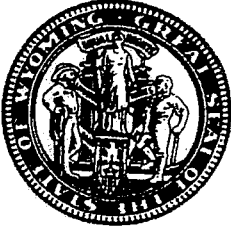
Stephanie Kodish, Clean Air Counsel
National Parks Conservation Association
706 Walnut Street, Suite 200
Knoxville, TN 37902

Linda Baker
Upper Green River Valley Coalition
P.O. Box 994
Pinedale, WY 82941

Bruce Pendery, Staff Attorney & Program Director
Wyoming Outdoor Council
444 East 800 North
Logan, UT 84321

A handwritten signature in black ink, appearing to read "Bruce Pendery", is written over a horizontal line. The signature is stylized and cursive.

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Department of Environmental Quality



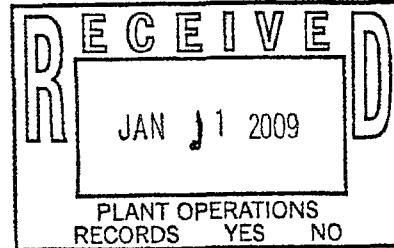
To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

Dave Freudenthal, Governor

John Corra, Director

December 31, 2009

Mr. Robert Eriksen
Sr. Environmental Compliance Administrator
Basin Electric Power Cooperative
1717 East Interstate Avenue
Bismarck, ND 58503-0564



Re: Air Quality Permit MD-6047
BART Permit: Laramie River Station

Dear Mr. Eriksen:

The Division of Air Quality of the Wyoming Department of Environmental Quality has enclosed a copy of the Best Available Control Technology (BART) permit for Basin Electric's Laramie River Station, dated December 31, 2009. Comments received during the public comment period and the public hearing were considered in the final permit. A copy of the decision document for the permit is also enclosed. One of the proposed permit conditions was modified in the final permit, as described below.

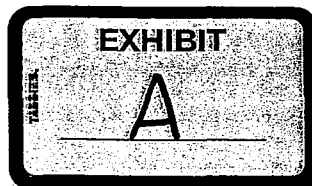
- Condition 16: The time for submitting a permit application for additional add-on NO_x control was changed from six years prior to installation to two years prior to installation.

If you have any questions, please feel free to contact this office.

Sincerely,

David A. Finley
Administrator
Air Quality Division

cc: Glen Spangler/AQD Cheyenne



Herschler Building • 122 West 25th Street • Cheyenne, WY 82002 • <http://deq.state.wy.us>

ADMIN/OUTREACH (307) 777-7937 FAX 777-3610	ABANDONED MINES (307) 777-6145 FAX 777-6462	AIR QUALITY (307) 777-7391 FAX 777-5616	INDUSTRIAL SITING (307) 777-7369 FAX 777-5973	LAND QUALITY (307) 777-7756 FAX 777-5864	SOLID & HAZ. WASTE (307) 777-7752 FAX 777-5973	WATER QUALITY (307) 777-7781 FAX 777-5973
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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 31, 2009

Mr. Robert Eriksen
Sr. Environmental Compliance Administrator
Basin Electric Power Cooperative
1717 East Interstate Avenue
Bismarck, ND 58503-0564

Permit No. **MD-6047**
(BART Permit for the Laramie River Station)

Dear Mr. Eriksen:

The Division of Air Quality of the Wyoming Department of Environmental Quality has completed final review of the application from Basin Electric Power Cooperative (Basin Electric) for a Best Available Retrofit Technology (BART) permit for the three coal-fired boilers at the Laramie River Station. The Laramie River Station is located at 347 Grayrocks Road, approximately five miles northeast of the town of Wheatland in Platte County, Wyoming.

Following the Division's proposed approval of the permit as published June 3, 2009, a 65-day public notice period ran from June 3, 2009 to August 6, 2009, and a public hearing was held on August 6, 2009 at 1 p.m. at the Platte County Library, located at 904 9th Street in Wheatland. Comments were received on the proposed permit and those comments have been considered by the Division in the final permit. Therefore, on the basis of the information provided to the Division, a BART permit is hereby granted pursuant to Chapter 6, Sections 2 and 9 of the Wyoming Air Quality Standards and Regulations (WAQSR) with the following conditions:

1. Authorized representatives of the Division of Air Quality be given permission to enter and inspect any property, premise or place on or at which an air pollution source is located or is being constructed or installed for the purpose of investigating actual or potential sources of air pollution, and for determining compliance or non-compliance with any rules, standards, permits or orders.
2. All substantive commitments and descriptions set forth in the application for this permit, unless superseded by a specific condition of this permit, are incorporated herein by this reference and are enforceable as conditions of this permit.
3. That Basin Electric shall modify their Operating Permit in accordance with Chapter 6, Section 9(e)(vi) and Chapter 6, Section 3 of the WAQSR.
4. All notifications, reports and correspondence associated with this permit shall be submitted to the Stationary Source Compliance Program Manager, Air Quality Division, 122 West 25th Street, Cheyenne, WY 82002 and a copy shall be submitted to the District Engineer, Air Quality Division, at the same address.

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ADMIN/OUTREACH (307) 777-7937 FAX 777-3610	ABANDONED MINES (307) 777-6145 FAX 777-6462	AIR QUALITY (307) 777-7391 FAX 777-5616	INDUSTRIAL SITING (307) 777-7369 FAX 777-5973	LAND QUALITY (307) 777-7756 FAX 777-5864	SOLID & HAZ. WASTE (307) 777-7752 FAX 777-5973	WATER QUALITY (307) 777-7781 FAX 777-5973
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5. Effective upon completion of the performance tests to verify the emission levels below, as required by Condition 6 of this permit, emissions from Laramie River Station Units 1 through 3 shall not exceed the levels below. PM/PM₁₀ lb/hr and tpy limits shall apply during all operating periods. PM/PM₁₀ lb/MMBtu limits shall apply during all operating periods except startup. Startup begins with the introduction of fuel oil into the boiler and ends no later than the point in time when the electricity generators are put online.

Pollutant	lb/MMBtu	lb/hr	tpy
PM/PM ₁₀ ^(a)	0.030	Unit 1: 193 Unit 2: 193 Unit 3: 198	Unit 1: 844 Unit 2: 844 Unit 3: 867

^(a) Filterable portion only

6. That no later than 90 days after permit issuance PM/PM₁₀ performance tests shall be conducted on Units 1-3 and a written report of the results be submitted. If a maximum design rate is not achieved within 90 days of permit issuance, the Administrator may require testing be done at the rate achieved and again when a maximum rate is achieved.
7. Effective upon completion of the initial performance tests to verify the emission levels below, as required by Condition 8 of this permit, emissions from Laramie River Station Units 1 through 3 shall not exceed the levels below. The NO_x limits shall apply during all operating periods.

Pollutant	lb/MMBtu	lb/hr	tpy
NO _x	0.23 (30-day rolling)	Unit 1: 1,348 Unit 2: 1,348 Unit 3: 1,386 (all 30-day rolling)	Unit 1: 5,343 Unit 2: 5,343 Unit 3: 5,493 (all 12-month rolling)

8. That initial NO_x performance tests be conducted, in accordance with Chapter 6, Section 2(j) of the WAQSR, within 30 days of achieving a maximum design rate but not later than 90 days following initial start-up, and a written report of the results be submitted. If a maximum design rate is not achieved within 90 days of start-up, the Administrator may require testing be done at the rate achieved and again when a maximum rate is achieved.
9. Performance tests shall consist of the following:

Coal-fired Boilers (Laramie River Station Units 1 through 3):

NO_x Emissions – Compliance with the NO_x 30-day rolling average shall be determined using a continuous emissions monitoring system (CEMS) certified in accordance with 40 CFR part 60.

PM/PM₁₀ Emissions – Testing shall follow 40 CFR 60.46 and EPA Reference Test Methods 1-4 and 5.

Testing required by the WAQSR Chapter 6, Section 3 operating permit may be submitted to satisfy the testing required by this condition.

10. Prior to any performance testing required by this permit, a test protocol shall be submitted to the Division for approval, at least 30 days prior to testing. Notification should be provided to the Division at least 15 days prior to any testing. Results of the tests shall be submitted to this office within 45 days of completing the tests.
11. Basin Electric shall comply with all requirements of the Regional SO₂ Milestone and Backstop Trading Program in accordance with Chapter 14, Sections 2 and 3, of the WAQSR.
12. After the installation or upgrade of control equipment, compliance with the limits set forth in this permit for the coal-fired boilers (Laramie River Station Units 1 through 3) shall be determined with data from the existing continuous monitoring systems required by 40 CFR Part 75 as follows:
 - a. Exceedances of the NO_x limits shall be defined as follows:
 - i. Any 30-day rolling average of NO_x emissions which exceeds the lb/MMBtu limits calculated in accordance with the compliance provisions and monitoring requirements of §60.48Da and §60.49Da. The definition of "boiler operating day" shall be consistent with the definition as specified in 40 CFR part 60, subpart Da.
 - ii. Any 30-day rolling average calculated using valid data (output concentration and average hourly volumetric flowrate) from the existing CEM equipment which exceeds the lb/hr NO_x limit established in this permit. Valid data shall meet the requirements of WAQSR, Chapter 5, Section 2(j) and follow the compliance provisions and monitoring requirements of §60.48Da and §60.49Da. The 30-day average emission rate shall be calculated as the arithmetic average of hourly emissions with valid data during the previous 30-day period. The definition of "boiler operating day" shall be consistent with the definition as specified in 40 CFR part 60, subpart Da.
 - iii. Any 12-month rolling emission rate which exceeds the tpy NO_x limit as calculated using the following formula:

$$E = \frac{\sum_{h=1} (C)_h}{2,000}$$

Where:

C = 1-hour average emission rate (lb/hr) for hour "h" calculated using data from the CEM equipment required by 40 CFR Part 75. For monitoring data not meeting the requirements of WAQSR, Chapter 5, Section 2(j), Basin Electric shall provide substituted data for an emissions unit according to the missing data procedures of 40 CFR Part 75 during any period of time that there is not monitoring data.

E = 12-month rolling emission rate (tpy).

- b. Basin Electric shall comply with all reporting and record keeping requirements as specified in WAQSR, Chapter 5, Section 2(g) and 40 CFR part 60, subpart D. All excess emissions shall be reported using the procedures and reporting format specified in WAQSR, Chapter 5, Section 2(g).
13. Compliance with the PM/PM₁₀ limits set forth in this permit for the coal-fired boilers (Laramie River Units 1-3) shall be determined with data from testing for PM conducted annually, or more frequently as specified by the Administrator, following 40 CFR 60.46 and EPA Reference Test Methods 1-4 and 5. Testing required by the WAQSR Chapter 6, Section 3 operating permit may be submitted to satisfy the testing required by this condition.
14. Records required by this permit shall be maintained for a period of at least five (5) years and shall be made available to the Division upon request.
15. Basin Electric shall install new low NO_x burners with overfire air on Units 1 through 3, in accordance with the Division's BART determination, and conduct the initial performance tests required in Condition 8 no later than December 31, 2012 for Unit 1; December 31, 2013 for Unit 2; and December 31, 2014 for Unit 3.
16. Basin Electric shall submit permit applications for the installation of additional add-on NO_x control on two units at the Laramie River Station to the Division no later than two (2) years prior to installation, under the Long-Term Strategy of the Wyoming §308 Regional Haze State Implementation Plan. It shall include an analysis of the four statutory factors and the associated visibility impacts from the application of each proposed NO_x control and resulting emission levels. This application shall address each add-on NO_x control as a system of continuous emissions reduction achieving the lowest viable NO_x emission, not to exceed a maximum of 0.07 lb/MMBtu on a 30-day rolling average as measured by a certified CEM. Additional add-on NO_x control shall be installed and operational on one (1) unit by December 31, 2018 and on a second unit by December 31, 2023.

Basin Electric Laramie River Station
Air Quality Permit MD-6047
Page 5

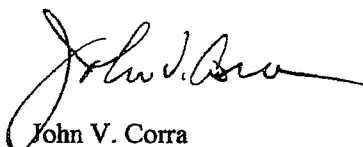
It must be noted that this approval does not relieve you of your obligation to comply with all applicable county, state, and federal standards, regulations or ordinances. Special attention must be given to Chapter 6, Section 3 of the Wyoming Air Quality Standards and Regulations, which details the requirements for compliance with condition 3. Attention must be given to Chapter 14, Sections 2 and 3 of the Wyoming Air Quality Standards and Regulations, which detail the requirements for compliance with condition 11. Any appeal of this permit as a final action of the Department must be made to the Environmental Quality Council within sixty (60) days of permit issuance per Section 16, Chapter I, General Rules of Practice and Procedure, Department of Environmental Quality.

If we may be of further assistance to you, please feel free to contact this office.

Sincerely,



David A. Finley
Administrator
Air Quality Division



John V. Corra
Director
Dept. of Environmental Quality

cc: Glenn Spangler/AQD Cheyenne

**IN THE MATTER OF A PERMIT APPLICATION (AP-6047) FROM BASIN ELECTRIC
POWER COOPERATIVE FOR A BEST AVAILABLE RETROFIT TECHNOLOGY (BART)
PERMIT FOR THE LARAMIE RIVER STATION**

DECISION

I. Introduction:

The Air Quality Division received a BART permit application from Basin Electric Power Cooperative (Basin Electric) for the three coal-fired boilers (Units 1 through 3) that operate at their Laramie River Station in Platte County, Wyoming. Regulations governing the BART program have been established by the U.S. EPA in 40 CFR Part 51 - Appendix Y. As stated in the regulations, a source is eligible for BART if it belongs within a particular group of stationary source categories, was not in operation prior to August 7, 1962, was in existence on August 7, 1977, and has the potential to emit 250 tons per year (tpy) or more of any visibility impairing air pollutant. Fossil fuel boilers with more than 250 million Btu (MMBtu) per hour heat input are listed as an eligible source type. Units 1 through 3 at the Laramie River Station have heat inputs of 6,420-6,600 MMBtu per hour and were in existence on August 7, 1977. Potential emissions from each boiler for two visibility impairing air pollutants, nitrogen oxides (NO_x) and sulfur dioxide (SO₂), exceed 250 tpy and therefore the units are eligible for BART.

The Division conducted an analysis of the BART permit application for the Laramie River Station and on June 3, 2009, published in the Platte County Record Times a public notice and notice of public hearing of the proposed intent to issue BART determinations. Copies of the BART application and the Division's analysis were placed in the Platte County Clerk's office in Wheatland, Wyoming in accordance with regulations. A 65-day public notice period ran from June 3, 2009 to August 6, 2009, and a public hearing was held on August 6, 2009, at 1 p.m. at the Platte County Library, located at 904 9th Street in Wheatland.

The Division received numerous comment letters on the proposed permit during the public comment period: 1) a letter dated July 21, 2009 from the USDA Forest Service; 2) a letter dated August 3, 2009 from EPA Region 8; 3) a letter dated August 4, 2009 from PacifiCorp; 4) a letter dated August 4, 2009 from the National Park Service; 5) a letter dated August 4, 2009 from the Powder River Basin Resource Council, et al.; 6) a letter dated August 5, 2009 from the Powder River Basin Resource Council; 7) a letter received July 20, 2009 from Joanna Taylor; 8) a letter dated July 16, 2009 from Andrew H. Salter; 9) a letter received July 20, 2009 from Evelyn and Marvin Griffin; 10) a letter received July 23, 2009 from Mimi McMillen; 11) a letter received July 24, 2009 from William M. Anderson; 12) a letter received July 24, 2009 from Rebekah Smith; 13) a letter dated July 24, 2009 from Mike Shonsey; 14) a letter dated July 24, 2009 from Susie Mohrmann; 15) a letter dated July 28, 2009 from Janice H. Harris; 16) a letter dated July 28, 2009 from M. Christensen; 17) a letter dated July 27, 2009 from Clint Morrison; 18) a letter dated August 3, 2009 from Ann Fuller; 19) a letter dated August 3, 2009 from Mary Fenton; 20) 725 unsigned letters received under a signed cover letter dated July 28, 2009 from Brad Mohrmann, Sierra Club Associate Regional Representative; and 21) 89 signatures received under a signed cover letter dated July 24, 2009 from Brad Mohrmann, Sierra Club Associate Regional Representative. The Division also received a letter from Basin Electric dated August 5, 2009.

Due to the number of public comments with similar concerns, the Division grouped individual comments and developed summary comments and responses. Comments from the EPA, Forest Service, National Park Service, Powder River Basin Resource Council, et al., and PacifiCorp are addressed individually. The comments and responses are presented on the following pages. The

Division also received positive comments supporting this project. The Division appreciates these comments but they are not included in this document as no response is required.

The Division received numerous comments that were descriptive of environmental impacts other than the impacts from BART-eligible sources in Wyoming on Class I area visibility. The Division's responses are limited to the comments that dealt with the State's BART analyses.

The Division is also preparing a revised Wyoming State Implementation Plan (SIP) for Regional Haze, and has solicited comments on that SIP. Some comments have been received which were submitted as comments on the Regional Haze SIP, but were principally directed at the Division's BART analyses. These comments will be addressed by the Division as it prepares the response to comments on the Regional Haze SIP.

II. Analysis of Comments from the USDA Forest Service:

- II.1 **NO, Step 5: Visibility Improvement Determination (Class I areas modeled)** – The Forest Service commented that all Class I areas within 300 km of a given source should be modeled and the cost of each BART alternative divided by the sum of the deciview (dv) improvement at all impacted Class I areas. If modeling exists for Class I areas that yield impacts above 0.5 dv just beyond 300 km, those results should be considered also. Savage Run Wilderness Area should also be modeled and considered.

Response – Only those Class I areas most likely to be impacted by sources subject to BART at a given facility were modeled, as determined by source/Class I area locations, distances to each Class I area, and professional judgment considering meteorological and terrain factors. The Division recognizes that more distant Class I areas may yield modeled impacts of some magnitude, but the Division is also satisfied that Class I areas at a greater distance and in directions of less frequent plume transport would not yield modeled impacts greater than those yielded by the Class I areas chosen for BART modeling. The modeling results for the Class I areas chosen for analysis allowed the Division to make an informed decision on the effect on visibility from the various BART control options. Additionally, EPA's Appendix Y BART guidance does not include any requirements for modeling distance.

EPA's Appendix Y BART guidance does mention that "dollars per deciview" (\$/dv) is a metric that could be used to evaluate the cost of BART compliance, but by no means identifies \$/dv as an essential or required metric. The Division considered capital cost, annual cost, cost effectiveness, and incremental cost effectiveness in the cost evaluation of each proposed BART control option. The Division chose not to use a hybrid metric such as \$/dv primarily because of the lack of historical precedent regarding reasonable/acceptable levels for such a metric. Additionally, the use of a hybrid cost metric such as \$/deciview can introduce uncertainty as to how the value was calculated. The value of "/deciview" could be based on the highest modeled value in a given area or the 98th percentile modeled value. It could be based on the 98th percentile value for any one modeled year or it could be an average for multiple years. It could even be based on an average modeled value across an entire Class I area or the sum of deciview changes across multiple areas. The Division has found that \$/dv values are often presented without explanation of the basis for the calculation. To avoid these confounding factors, the Division chose to evaluate and present the cost analyses and visibility analyses separately.

EPA's Regional Haze Rule affects sources that may cause or contribute to visibility impairment at any mandatory, federal Class I Area. Because Savage Run is a state-designated Class I area, the Division was not required to include it in the BART modeling. Additionally, the Division did not include Savage Run in any of its analyses for the State's Regional Haze Visibility SIP. For BART, the Division did model the impacts at several mandatory Class I areas that are located in the same general plume transport direction downwind of Savage Run, including Mt. Zirkel Wilderness, Rawah Wilderness, and Rocky Mountain National Park. Based on the modeling results for these Class I Areas in the proximity of Savage Run, the Division anticipates similar improvements in visibility from the analyzed emission reductions.

- II.2 **NO_x Step 5: Visibility Improvement Determination (significant impact)** – The Forest Service commented that it is incorrect to dismiss a control strategy on the basis that the modeled visibility improvement is not perceptible or significant.

Response – The Division used 0.5 dv as the threshold level to exempt a source from BART or to deem modeled impacts as insignificant. EPA's *Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations* (Appendix Y to 40 CFR part 51), suggest that 0.5 dv can represent the level at which a source "contributes" to visibility impairment. This is also consistent with the rules which are being applied by most states in the Western Regional Air Partnership (WRAP) region.

- II.3 **NO_x Controls: SCR** – The Forest Service commented that significant, cumulative visibility improvements modeled for SCR installations at the Jim Bridger and Naughton plants indicate that SCR should be BART for all units at those two plants. The Forest Service questions why DEQ chose SCR as BART only for Naughton Unit 3 when SCR costs for other Naughton units and all Jim Bridger units are similar. Also, environmental degradation from the operation of SCR should not be a factor in the BART determinations and energy impacts from SCR should not be a factor because they have already been considered in the cost analysis.

Response – The costs for SCR controls, as described in the Division's BART analyses, were deemed by the Division to be reasonable for all units at the Jim Bridger and Naughton plants, but the Division's BART determinations for the two plants were based on consideration of all five statutory BART factors, as required by EPA's Appendix Y BART guidance. PacifiCorp proposed a BART limit for NO_x emissions from Naughton Unit 3 of 0.37 lb/MMBtu, which would be achieved by tuning the existing LNB/OFA system. For Naughton Units 1 and 2, PacifiCorp proposed a BART limit for NO_x of 0.26 lb/MMBtu for each unit using new LNB/OFA. Visibility modeling showed that the NO_x emission level proposed by PacifiCorp for Naughton Unit 3 provided less in terms of modeled visibility reductions from baseline as compared to other units at the two plants. For example, Naughton Units 1 and 2 showed a 72% to 73% reduction in the number of days with predicted impacts of 0.5 dv or more at the nearest Class I area (Bridger Wilderness) for LNB/OFA as compared to baseline. The reduction for Naughton Unit 3 for LNB/OFA vs. baseline was only 31%. Appendix A includes graphs of the modeled results at the Class I area that yielded the highest modeled impacts for the Jim Bridger and Naughton plants (Bridger Wilderness) and the Class I area that yielded the highest modeled impacts for the Wyodak, Dave Johnston, and Laramie River Station plants (Wind Cave National Park). As shown in the graphs, the LNB/OFA option reduces the 98th percentile result to less than 1.0 dv for every unit with the exception of Naughton Unit 3 (1.4 dv). The predicted number of days above 0.5 dv for the LNB/OFA option was 40 for Naughton Unit 3, and 16 or less for each of the other twelve units. The Division determined that SCR would be required on

Naughton Unit 3 to bring about additional NO_x emissions reductions and modeled visibility improvement, and these factors differentiated the Naughton Unit 3 BART analysis from the others.

It was the full consideration of all five statutory BART factors, principally the pronounced visibility improvement for LNB/OFA as compared to baseline and the lack of non-air quality environmental impacts that led the Division to conclude that LNB/OFA would be BART for NO_x control at the Jim Bridger plant and for Units 1 and 2 at the Naughton Plant. Modeled visibility impacts for Naughton Unit 3 were reduced to levels comparable to those yielded by LNB/OFA controls on Naughton Units 1 and 2 only through the addition of SCR as BART on Naughton Unit 3. Potential energy losses and environmental impacts from the operation of SCR were mentioned in the Division's BART analysis for both the Naughton and Jim Bridger plants, but were only part of the larger evaluations that considered all five statutory factors.

II.4 NO_x Controls: SCR Efficiencies – The Forest Service commented that greater SCR control efficiencies should be factored into the cost and visibility analyses.

Response – The Division conducted a search of the EPA RACT/BACT/LAER Clearinghouse (RBLC) to find NO_x emission limits as BACT associated with SCR control in recently issued permits. Table 2 presents a summary of the Division's RBLC search. Two plants have limits of 0.05 lb/MMBtu NO_x with a 12-month rolling average, which is significantly longer than a 30-day averaging period. Because the 0.05 lb/MMBtu limits are based on a 12-month averaging period, they are not comparable to the 30-day limits established by the Division. The two plants with 30-day averaging periods will be subjected to either a 0.08 lb/MMBtu or 0.07 lb/MMBtu limit, and the limits established by the Division meet these lower limits. A spreadsheet compiled by the National Park Service with a summary of nationwide BART determinations shows that both units outside of Wyoming for which SCR is proposed as BART will be subject to a NO_x emission limit of 0.07 lb/MMBtu, and both will be based on a 30-day averaging period.

The RBLC search showed two plants that will be subject to 24-hour NO_x limits of less than 0.07 lb/MMBtu (0.067 lb/MMBtu), but these limits are for newly constructed plants which have been engineered to meet these levels. BART will require the retrofit of significant controls at plants that were not designed to meet these lower levels. Based on the Division's evaluation, the Division is satisfied that the NO_x emission limit of 0.07 lb/MMBtu (30-day rolling average) that was evaluated for SCR control under BART is the most stringent control level likely to be achieved in a retrofit.

Table 2: SCR Permit Limits from the RBLC				
Facility/Location	Size of Source	Source Description	NO _x Permit Limit(s) for SCR Control	Permit Date
John W. Turk Power Plant/Arkansas	600 MW	6,000 MMBtu/hr PC Boiler (PRB Coal)	1) 0.067 lb/MMBtu (24-hr rolling) 2) 0.05 lb/MMBtu (12-month rolling) [SCR, BACT]	Nov 2008
Dry Fork Station/Wyoming	385 MW	PC Boiler	0.05 lb/MMBtu (12-month rolling) [SCR, BACT]	Oct 2007
WYGEN3/Wyoming	100 MW	1,300 MMBtu/hr PC Boiler	0.05 lb/MMBtu (12-month rolling) [SCR, BACT]	Feb 2007
Iatan Station/Missouri	--	PC Boiler	0.08 lb/MMBtu (30-day rolling) [SCR, BACT]	Jan 2006
Big Cajun II Power Plant/Louisiana	675 MW	PC Boiler	0.07 lb/MMBtu (annual average) [SCR, BACT]	Aug 2005
TS Power Plant/Nevada	200 MW	PC Boiler	0.067 lb/MMBtu (24-hour rolling) [SCR, BACT]	May 2005
OPPD – Nebraska City Station/Nebraska	--	--	0.07 lb/MMBtu (30-day rolling) [SCR, BACT]	Mar 2005

Note: "--" indicates that this value was not provided in the RBLC

II.5 **SO₂ Controls (Section 309)** – The Forest Service understands the role of Section 309 in exempting the State of Wyoming from making BART determinations for SO₂ controls based on the demonstration that the benefits from SO₂ emissions reductions under Section 309 exceed those that would have resulted from BART. Are the existing SO₂ controls in place at the Jim Bridger and Naughton plants at least equivalent to the control scenario used in the demonstration, i.e., are the existing controls needed to accomplish the “Better than BART” demonstration for Section 309? They also note that the 309 program sunsets in 2018 and added SO₂ controls may be needed for reasonable progress at that time.

Response – The State of Wyoming submitted a 309 SIP as is allowed by the Regional Haze Rule. Part of the SIP submittal is a “Better than BART” demonstration, required by rule, which does not require that each and every unit demonstrate emission controls that are “Better than BART”. The demonstration is a regional demonstration. The Division is aware that the 309 program only establishes milestones through 2018, and that following 2018 another strategy may be necessary to reduce visibility-impairing pollutants. Additional strategies will be addressed in future SIP revisions.

III. Analysis of Comments from EPA Region 8:

- III.1 Background Ozone Concentration in CALPUFF** – EPA Region 8 commented that the Division’s visibility modeling used 44 ppb as a background ozone concentration as the default value for periods when measured data was missing. This value appears to be too low based on the average annual concentrations at sites near the facilities (Thunder Basin = 50-55 ppb, Jonah = 55-58 ppb). DEQ should provide an analysis of how higher ozone background concentrations would affect results.

Response – The default ozone background concentration is used by CALPUFF as a domain-wide substitute for any hour for which all measured ozone concentrations are missing. For the Division’s visibility modeling for BART, hourly ozone concentrations measured at seven monitoring stations spaced across the modeling domain were input to CALPUFF. A visual inspection of the ozone files that were input to CALPUFF reveals that at least one valid ozone observation was available for every hour of the modeled period (2001-2003), making it unnecessary for the model to use the default background of 44 ppb.

Although the model did not use the default background value for the BART analyses, the Division calculated annual average concentrations for recent years (2007-2008) and all available data for 2009 for many of the stations that were used for input to CALPUFF, including Thunder Basin, Jonah, Rocky Mountain National Park, Centennial, and Pinedale. Annual average values for these stations ranged from 35 ppb to 49 ppb, with an overall average of approximately 40 ppb. The Division is confident that the default background value of 44 ppb was appropriate for the BART modeling, and that there is no need for additional analyses to explore alternate background concentrations.

- III.2 Weight of Visibility Modeling Results in BART Determinations** – EPA Region 8 commented that DEQ should provide an explanation of how modeled visibility improvements were weighed in making BART determinations.

Response – The Division’s BART determinations were based on consideration of all five statutory factors, as required by EPA’s Appendix Y BART guidance. The modeled visibility improvements for a given control strategy were one of the five factors that were considered. No single factor was weighted as being more important than another, because the Division looked at all five statutory factors in their entirety. EPA guidance did not provide a quantification of the amount of modeled visibility improvement that would be acceptable or significant. The Division used two metrics that were mentioned in the EPA BART guidance, the 98th percentile result for a given year and the level at which a source “contributes” to visibility degradation (0.5 Δ dv), to present the results of the BART visibility modeling. Also see the response to USDA Forest Service comment II.3.

- III.3 Cumulative Modeled Impacts** – EPA Region 8 commented that cumulative, modeled Class I impacts from all units at a facility (or combined impacts from multiple facilities) should be presented in addition to the results for individual units.

Response – The visibility impacts from BART-eligible sources are to be modeled separately. As stated in the EPA’s Appendix Y guidance, relative to the use of the CALPUFF model for BART determinations, “*We believe that CALPUFF is an appropriate application for States to use for the particular purposes of this rule, to determine if an individual source is reasonably anticipated to*

cause or contribute to impairment of visibility in Class I areas, and to predict the degree of visibility improvement which could reasonably be anticipated to result from the use of retrofit technology at an individual source. We encourage States to use it for these purposes.” [emphasis added]

- III.4 **Language from BART Determinations** – EPA Region 8 commented that the Division should clarify the statements of “3-year average visibility improvements”. Are dv improvements calculated for each Class I area added together? If so, what is the meaning of the number? Are three Class I areas sufficient to quantify cumulative impacts? Were all Class I areas within 300 km considered?

Response – To arrive at the “3-year average visibility improvements” that were reported in the Division’s BART analyses, the modeled 98th percentile dv change or the number of days above 0.5 dv predicted for a given year of meteorology was averaged with the similar result from the other two years of meteorology. These 3-year average values were determined for each modeled Class I area separately, and were devised to allow a straightforward, direct comparison of one control option to another. Regarding the sufficiency of the number of modeled Class I areas and the question of other Class I areas within 300 km, see response to USDA Forest Service comment II.1.

- III.5 **NO_x Controls** – EPA Region 8 commented that the most stringent emission control levels for NO_x controls have not been evaluated, resulting in inflated calculated cost effectiveness values. Lower emission limits should be evaluated for selective non-catalytic reduction (SNCR) and SCR.

Response – The Division has analyzed the most stringent levels for SNCR and SCR, and does not agree that the cost effectiveness numbers have been inflated. See response to USDA Forest Service comment II.4. Furthermore, the Division has deemed the costs associated with all analyzed BART NO_x control options, including SNCR and SCR, to be reasonable (see the conclusions listed under the section: **NO_x: EVALUATE IMPACTS AND DOCUMENT RESULTS** in each of the five BART Application Analyses).

- III.6 **PM Controls: Averaging Periods** – EPA Region 8 commented that the BART conclusions and the permit conditions should include associated averaging periods for all PM/PM₁₀ limits.

Response – The averaging periods for the PM/PM₁₀ limits are dictated by the performance test requirements in the BART permits. Compliance with the lb/MMBtu and lb/hr PM/PM₁₀ limits is based on the average of three 1-hour tests per 40 CFR 60.46.

- III.7 **PM Controls: Control Effectiveness** – EPA Region 8 commented that the Division should explain why 0.015 lb/MMBtu for baghouse/fabric filter control effectiveness is acceptable, when 0.012 lb/MMBtu has been approved by the Division for other permits and 0.010 lb/MMBtu was approved for the Desert Rock project. The BART determinations should include analyses of electrostatic precipitators (ESPs) and baghouses at lower control levels.

Response – Recent Prevention of Significant Deterioration (PSD) permits issued by the Division did include PM/PM₁₀ limits of 0.012 lb/MMBtu for fabric filter controls, but those limits (and PM/PM₁₀ limits established for the Desert Rock Project in New Mexico) were determined through Best Available Control Technology (BACT) analyses for new sources. The BART

process deals with retrofit controls on existing units, and therefore is not directly comparable to BACT determinations. Additionally, visibility modeling described in the Division's BART analysis for the Jim Bridger Plant showed that the addition of a fabric filter to replace an Electrostatic Precipitator (ESP) provided very little in the way of visibility improvement, with predicted cumulative improvements across three Class I areas of only 0.03 to 0.1 Δ dv for Units 1-4. These results indicate that requiring more stringent control levels for a fabric filter would not provide significant visibility improvement. As described on page 18 of the Division's BART analysis, ESP performance enhancements are already in use at the Laramie River Station.

- III.8 **PM Controls: Permit Exemption** – EPA Region 8 commented that Condition 5 in the proposed EGU BART permits contains an inappropriate exemption for startup. The exemption from the lb/MMBtu PM limit during startup should be removed or it may be appropriate to analyze the need for a startup BART limit.

Response – For each EGU subject to BART in Wyoming, only the BART limits for PM/PM₁₀ that are expressed in lb/MMBtu will not apply during startup. The BART limits for PM/PM₁₀ that are expressed in lb/hr and tpy (as based on the lb/MMBtu limits) will apply during all operating periods including startup.

The Division considers the BART limits expressed in terms of lb/hr and tpy to be appropriate limits for startup. For the four units at the Jim Bridger plant, PacifiCorp calculated that the particulate emissions from the startup fuel (fuel oil) would be no greater than 10.9 lb/hr per unit, conservatively assuming that the ESP controls had zero control efficiency during the startup process. As a comparison, the BART limit that would apply for each unit during startup is 180 lb/hr. Further, PacifiCorp has agreed to minimize startup emissions from the four units at the plant by placing the ESPs in service prior to the introduction of coal to the boilers, which is contrary to the manufacturer's recommendation to energize the ESP only after the unit is at full operating temperature and combustion of fuel oil has ceased.

Similarly for Unit 1 at Wyodak, particulates are controlled by an ESP and startup is accomplished with fuel oil. The maximum emissions estimated for startup (8.9 lb/hr) would be well below the BART limit of 71 lb/hr. The three units at LRS are also started on fuel oil and controlled with ESPs, and the particulate emissions during startup are expected to be well below the BART limits, which are set at 193 lb/hr to 198 lb/hr for the three units.

For units with baghouse controls for particulate matter such as Dave Johnston Units 3 and 4, emissions from fuel oil during the startup process are also estimated to be well below the allowable lb/hr BART limits.

In the case of the Naughton plant, particulate controls will include a mixture of ESPs (Units 1 and 2) and a fabric filter/baghouse (Unit 3). Natural gas is the startup fuel for each of these units, and particulate emissions during startup are expected to be well below the established lb/hr BART limits.

- III.9 **SO₂ Controls: Reasonable Progress** – EPA Region 8 commented that the Division must evaluate the visibility impacts of SO₂ controls and demonstrate reasonable progress for the Class I areas away from the Colorado Plateau.

Response – Wyoming, along with other 309 states in the WRAP region, evaluated the impact of the 309 program on all Class I areas in the west, even though the requirement by rule was to demonstrate improvement in Class I areas on the Colorado Plateau. The WRAP modeling for sulfates shows that all Class I areas in and around Wyoming are benefiting from the sulfur dioxide emission reductions instituted in the 309 program. Sulfate extinction levels show improvement on the 20% worst days and improvement or at least no degradation on the 20% best days. Furthermore, the Regional Haze rule allows a state to take full credit for strategies implemented under 309 when addressing Class I Areas away from the Colorado Plateau (51.309(g)(4)(i)).

- III.10 **FGC for PM Control at Laramie River Station** – EPA Region 8 commented that no additional PM controls were considered for Laramie River Station (LRS). The Division should evaluate if flue gas conditioning (FGC) would be a suitable low-cost option.

Response – The commenter was incorrect, because FGC was evaluated. Page 18 of the Division's BART analysis includes a description of FGC at the LRS. The Division concluded that FGC would not substantially reduce PM emissions, so FGC was eliminated from consideration in the BART review.

- III.11 **Control Levels for LNB, OFA, and LNB/OFA** – EPA Region 8 questions why separate evaluations of multiple potential NO_x controls for Units 1-3 at the Laramie River Station all arrived at the same control level (0.23 lb/MMBtu) for different technologies. LNB, OFA, and a LNB/OFA combo are all listed with the same controlled rate. Also, LNB/OFA cost is much higher than for PacifiCorp units, why?

Response – Computational Fluid Dynamics (CFD) modeling of the LRS boilers conducted for Basin Electric indicated that the addition of new LNB would not be capable of reducing NO_x emissions to levels any lower than could be achieved with the proposed OFA alone. However, the LRS boilers would benefit from new LNB because of the ability to operate the burners at the proper stoichiometric ratio and to maintain a stable flame. As described in a letter to the Division from Basin Electric dated September 10, 2009, LRS already is equipped with early versions of LNB. The burners were modified in the mid-1990's, which lowered NO_x emissions from about 0.45 lb/MMBtu to about 0.27 lb/MMBtu. Due to existing boiler geometries, the addition of OFA with the existing low NO_x burners has the potential of reducing NO_x emissions to 0.23 lb/MMBtu. This would only be possible with the existing burners if they were able to be staged down to a 0.90 stoichiometric ratio and have stable flames. New burners are primarily designed for the ability to stage down to a 0.90 stoichiometric ratio and to maintain stable flames.

Because the Division has deemed the costs associated with LNB/OFA to be reasonable for the LRS and for all of the PacifiCorp plants, an explanation for differences in cost estimates by Basin Electric and PacifiCorp is not relevant.

- III.12 **SCR for NO_x Control** – EPA Region 8 commented that the Division's BART analysis for LRS requires that add-on NO_x controls at or below 0.07 lb/MMBtu be installed on one of the LRS boilers by December 31, 2018, and on a second LRS unit by December 31, 2023. If such a limit is achievable at LRS, it should be required as BART. Also, greater levels of control should be examined for NO_x.

Response – The Division’s BART determinations for the Laramie River Station were based on consideration of all five statutory BART factors in their entirety, as required by EPA’s Appendix Y BART guidance. A BART determination does not rely on a single factor such as the level of control that can be achieved.

Regarding greater levels of NO_x control for SCR, a letter to the Division from Basin Electric dated September 10, 2009 states that an emission rate of 0.07 lb/MMBtu is the best performance that can be expected from retrofitting an SCR on the existing LRS boilers. These boilers, which were built in the late 1970’s, were not designed to accommodate the addition of an SCR between the reheat superheater and the air heater. Thus, the spacing and the temperature of flue gas are not optimum for an SCR. New power plants can be designed with a taller boiler and spacing appropriate for an SCR and with the specific temperature distribution through the boiler to provide more effective reduction of NO_x. The design of an SCR is much different for a retrofit than for a new facility. Also see response to USDA Forest Service Comment II.4.

IV. **Analysis of Comments from PacifiCorp:**

IV.1 **General Comments: Cost Metrics** – PacifiCorp commented that EPA’s Appendix Y BART guidance states that a proper BART evaluation should include “other cost-effectiveness measures (such as \$/deciview)”. Thus, any BART determination that is limited to use only cost effectiveness and incremental cost effectiveness may be unacceptably narrow.

Response – EPA’s Appendix Y BART guidance does mention that “dollars per deciview” (\$/dv) is a metric that could be used to evaluate the cost of BART compliance, but by no means identifies \$/dv as an essential or required metric. The Division considered capital cost, annual cost, cost effectiveness, and incremental cost effectiveness in the cost evaluation of each proposed BART control option. The Division chose not to use a hybrid metric such as \$/dv primarily because of the lack of historical precedent regarding reasonable/acceptable levels for such a metric. Additionally, the use of a hybrid cost metric such as \$/deciview can introduce uncertainty as to how the value was calculated. The value of “/deciview” could be based on the highest modeled value in a given area or the 98th percentile modeled value. It could be based on the 98th percentile value for any one modeled year or it could be an average for multiple years. It could even be based on an average modeled value across an entire Class I area or the sum of deciview changes across multiple areas. The Division has found that \$/dv values are often presented without explanation of the basis for the calculation. To avoid these confounding factors, the Division chose to evaluate and present the cost analyses and visibility analyses separately.

IV.2 **General Comments: Cost Effectiveness** – PacifiCorp commented that any BART determination requiring a source to install post-combustion controls like SCR or spend more than \$1,500 per ton of NO_x removed would be contrary to EPA Appendix Y BART guidance.

Response – The EPA’s Appendix Y guidance describes the EPA’s selection of presumptive NO_x limits for coal-fired EGUs, and provides approximate cost levels for meeting the presumptive limits with current combustion controls and a somewhat higher cost level for a subset of units that would require advanced combustion controls such as rotating opposed fire air (ROFA). The EPA guidance does not attempt to establish cost thresholds that would be considered unreasonable for a given control technology, nor does it present the approximate costs associated with the presumptive levels as absolute limits above which cost should be deemed unreasonable. The

guidance also states that states may in specific cases find that the use of SCR is appropriate. As stated previously, the Division established NO_x emission limits for BART based on consideration of all five statutory factors in their entirety, as required by the Appendix Y guidance.

- IV.3 **General Comments: Power Plants More Than 750 MW** – PacifiCorp commented that Appendix Y indicates that states must follow Appendix Y guidelines in making BART determinations on a source-by-source basis for 750 MW plants. Wyoming rules impose similar requirements for power plants greater than 750 MW.

Response – The Division followed EPA and State of Wyoming rules for the BART analyses. Specifically, the Division followed WAQSR Chapter 6, §9(c)(ii), which states that power plants with generating capacities greater than seven hundred fifty megawatts shall comply with EPA Appendix Y, and that Appendix Y should be used as guidance for preparing BART analyses for all other facilities.

- IV.4 **General Comments: Post-Combustion Controls** – PacifiCorp commented that EPA never contemplated the use of post-combustion controls to meet BART limits for tangentially-fired boilers, and that it is nearly impossible under Appendix Y guidance to show that anything other than combustion controls should be required as BART.

Response – See response to PacifiCorp comment IV.2.

- IV.5 **General Comments: Visibility Improvement** – PacifiCorp commented that a BART determination that only relied on the 98th percentile, three-year average results from CALPUFF may be too narrow to satisfy Appendix Y.

Response – The Division did not rely solely on the three-year average of the 98th percentile CALPUFF results to evaluate the expected visibility changes for the BART control options. The 98th percentile values and the number of days with predicted results above 0.5 dv were presented in the Division's BART analyses for each of three modeled years, for each Class I area, and for each control option. The three-year average of the 98th percentile results and the number of days above 0.5 dv were chosen for graphical representation and were mentioned prominently in the Division's conclusions because they offered the clearest comparison of one control option to another (see graphs in Appendix A).

- IV.6 **General Comments: Modeling** – PacifiCorp commented that visibility modeling contains inherent bias or exaggeration because it assumes that a particular source will operate at its maximum capacity 100% of the time and that each unit at a facility operates in the same way.

Response – The results from BART visibility modeling, as required by EPA guidance, are based on daily (24-hour) averages. Reported results for a given control scenario, expressed in units of deciviews, represent the predicted change in visibility as compared to natural background over the course of 24-hour periods of meteorology. The modeled emission rates for a given unit at a power plant should reflect the highest rate that could be achieved over a 24-hour period, and therefore the assumption that a given unit is operating at its maximum operating capacity is appropriate for each unit at a base-load power plant such as Jim Bridger or Laramie River Station. Additionally, the conclusions drawn from BART visibility modeling primarily involve comparisons between control scenarios for which the emissions are determined similarly.

- IV.7 **General Comments: NO_x Emissions** – PacifiCorp commented that emissions of NO_x during the 20% best and 20% worst days at Class I areas in Wyoming are not a significant contributor to regional haze as compared to other emissions, and therefore the Division should consider this before requiring extreme NO_x control measures such as SCR as BART.

Response – For the 20% worst days during the years 2000-2004 at the Bridger Wilderness Area, 6.21% of the total visibility degradation was attributable to nitrates. Source apportionment modeling provided by the WRAP showed that 19% of the nitrates come from Wyoming sources. The Division recognizes that pollutants other than nitrates contribute more toward the total visibility degradation at the Bridger Wilderness Area, but the Division has concluded that the contribution from Wyoming sources toward the formation of nitrates at the Bridger Wilderness Area and other Class I areas warrants a full consideration of prospective NO_x controls under the BART process.

- IV.8 **Perceptibility** – PacifiCorp commented that credible studies indicate that only changes in visibility as high as 1.5-2.0 dv are perceptible to the human eye. The Division should consider this while drawing conclusions based on the results of the visibility modeling and before requiring extreme NO_x control measures such as SCR.

Response – The Division did not attempt to endorse a particular threshold for human eye “perceptibility” since the level of perceptibility has long been disputed. Instead, the Division has relied on EPA’s Appendix Y BART guidance, which suggests a value of 0.5 dv as the level that a source “contributes” to visibility impairment. One of the metrics used by the Division to evaluate the relative benefit of a given BART control option was the number of days yielding a modeled impact of 0.5 dv or more.

V. **Analysis of Comments from the National Park Service:**

- V.1 **NO_x Step 1: Identify Available Retrofit Control Technologies** – The NPS commented that Basin Electric’s cost analysis is flawed because they omitted the most effective NO_x control technology (LNB-OFA-SCR).

Response – Basin Electric’s BART analysis did include the combination of OFA, new LNBS, and SCR. The performance of the SCR was based on installation after OFA/LNB.

- V.2 **NO_x Step 3: Evaluate Effectiveness of Remaining Control Technologies (SCR capabilities)** – The NPS commented that the Division underestimated the ability of SCR to reduce emissions. The proposed NO_x limit for SCR (0.07 lb/MMBtu) is not low enough. SCR can achieve greater reductions. NPS suggests 0.06 lb/MMBtu for 30-day limit, 0.05 lb/MMBtu or lower for an annual limit.

Response – See response to USDA Forest Service comment II.4.

- V.3 **NO_x Step 4: Evaluate Impacts and Document Results (SCR costs)** – The NPS commented that SCR costs were generally overestimated because the OAQPS Control Cost Manual was not used for cost estimates.

Response – Basin Electric developed cost estimates for SCR control using a combination of Coal Utility Environmental Cost (CUECost) estimates, vendor-obtained cost data, and estimates from

previous in-house design/build projects. The degree to which the SCR costs may have been overestimated does not require further review because the Division has concluded that the estimated costs are reasonable and that costs alone would not preclude the use of SCR.

- V.4 **NO_x Step 4: Evaluate Impacts and Document Results (incremental costs for SCR)** – The NPS commented that the Division over-emphasized the incremental costs for the addition of SCR in the BART determinations. The Division should consider the average costs calculated for combustion controls plus SCR.

Response – See response to PacifiCorp comment IV.1 and NPS comment V.3.

- V.5 **NO_x Step 4: Evaluate Impacts and Document Results (basis for costs)** – The NPS commented that cost estimates should be documented by vendor or by the EPA Control Cost Manual.

Response – See response to NPS comment V.3.

- V.6 **NO_x Step 5: Visibility Improvement Determination (Class I Areas Modeled)** – The NPS commented that the Division should consider visibility impacts at all Class I areas within 300 kilometers (km) of a source.

Response – See response to USDA Forest Service comment II.1.

- V.7 **NO_x Step 5: Visibility Improvement Determination (incremental benefits of SCR)** – The NPS commented that the Division placed too much emphasis on the incremental improvement in visibility that was predicted for the addition of SCR. The total predicted visibility improvement resulting from a combination of control options should have been presented.

Response – The incremental improvement in modeled visibility with the addition of SCR was mentioned prominently in the summary of the Division's BART conclusions, but all visibility modeling results were considered. For more information on the presentation of the visibility modeling results in the Division's BART analyses, see the response to EPA Region 8 comment III.2 and PacifiCorp's comment IV.5.

- V.8 **BART Conclusions for NO_x Controls: \$/dv** – The NPS commented that the Division should use \$/dv as an additional metric for evaluating BART controls.

Response – See response to PacifiCorp response IV.1.

- V.9 **BART Conclusions for NO_x Controls: Cost Benchmarks** – The NPS commented that the Division determined that the costs for SCR were reasonable, yet rejected SCR for BART control. DEQ should explain why and provide the cost benchmarks used to determine reasonable costs.

Response – The Division established NO_x emission limits for BART based on consideration of all five statutory factors (as required by EPA's Appendix Y BART guidance) and not merely based on cost. The Division relied on past experience with BACT determinations for similar sources/control options to determine the range of control costs that were reasonable.

- V.10 **BART Conclusions for NO_x Controls: Non-Air Quality Impacts** – The NPS commented that the Division mentioned non-air quality impacts as reasons to reject SCR for BART controls. Recent PSD permits issued by DEQ and requiring SCR did not mention such impacts. Why were such impacts mentioned in these particular cases? SCR has been used at many facilities with minimal problems with transport and storage of ammonia, why would this be a particular problem for SCR as BART control?

Response – The Division’s BART determinations were based on consideration of the five statutory factors, including the cost of compliance and the energy and non-air quality environmental impacts of compliance. Potential energy losses and environmental impacts from the operation of SNCR and SCR were mentioned in the Division’s BART analysis, but were only part of the larger evaluation that considered all five statutory factors.

- V.11 **BART Conclusions for NO_x Controls: Non-Air Quality Impacts (continued)** – The NPS commented that the Division mentioned parasitic power loss in association with the operation of OFA and SCR. Parasitic power loss associated with SCR has already been accounted for in the cost analysis for NO_x and should not be “double-counted” by using it to draw conclusions for BART control unless it would cause a power shortage. The NPS commented that the Division stated that the operation of SCR could impact the “salability” of fly ash. Evidence should be presented and the economic impact quantified. The NPS also commented that the Division stated that SCR could create “blue plume” if the ammonia injection rate is not well controlled. NPS states that it assumes that a plant operator can properly control the injection rate.

Response – See response to NPS comment V.10.

- V.12 **BART Conclusions for PM₁₀ Controls: Control Effectiveness** – The NPS commented that the Division should explain why 0.015 lb/MMBtu was acceptable to the Division as a control effectiveness for a ESP/polishing fabric filter combination, when 0.012 lb/MMBtu has been approved by the Division for other recent permits involving fabric filters and limits as low as 0.010 lb/MMBtu have recently been approved for fabric filters (e.g., Desert Rock Project).

Response – See response to EPA Region 8 comment III.7.

- V.13 **BART Modeling: Baseline NO_x and SO₂ Emission Rates** – The NPS commented that the Division should provide confirmation of the basis for the modeled emission rates for the baseline scenario.

Response – As shown in Table 16 (page 32) of the Division’s BART analysis for the Laramie River Station, NO_x and SO₂ emissions for the baseline modeling scenario were based on annual averages for 2001-2003. If the baseline emissions had been based on 24-hour maximum rates or permit limits, the modeled visibility impacts for baseline would have been higher, and the modeled visibility improvement with the BART controls chosen by the Division would have been more pronounced. The Division’s BART determinations for the Laramie River Station were based on all five statutory factors in their entirety, and higher modeled visibility impacts for the baseline scenario would not have changed the determinations.

VI. Analysis of Comments from the Powder River Basin Resource Council:

- VII.1 **SCR as BART** – The Powder River Basin Resource Council commented that SCR is the best available retrofit technology and should be required as BART at all of the Wyoming power plants under consideration.

Response – The Division determined BART for the control of NO_x emissions from power plants in Wyoming based on a full consideration of all five statutory factors in their entirety, as required by EPA’s Appendix Y BART guidance. The BART guidance does not dictate that a state require the control technology with the highest level of control in all cases.

VII. Analysis of Comments from the Powder River Basin Resource Council, et al.:

- VII.1 **Modeled Class I Areas** – The Powder River Basin Resource Council, et al. commented that all Class I areas within 300 km of a given source should be modeled for visibility impacts.

Response – See response to USDA Forest Service comment II.1.

- VII.2 **SCR as BART** – The Powder River Basin Resource Council, et al. commented that SCR is BART and must be required for all units at all coal-fired power plants.

Response – See response to USDA Forest Service comments and II.3.

- VII.3 **Section 309 Milestone Program** – The Powder River Basin Resource Council, et al. commented that DEQ should impose BART limits for SO₂ because participation in the Section 309 program only excuses DEQ from setting BART limits if the State’s 309 SIP is approved by the EPA and if the 309 SIP demonstrates that emissions levels would result in greater visibility improvement than source-specific BART limits.

Response – The Regional Haze Rule allows the State of Wyoming to submit a 309 SIP in lieu of establishing BART limits for SO₂. The 309 SIP submittal includes a “Better than BART” demonstration. The entire submittal is currently undergoing EPA review and the State has no control over how long the EPA takes to review the SIP. The State, however, does not wait for EPA to complete its review before implementing a SIP. All of the 309 states have been participating in the 309 program, collecting SO₂ inventories, allowing independent audits of the information, comparing the regional totals to the milestones, and taking public comment on the regional figures and the comparisons with the milestone figures. The SO₂ levels have shown compliance with the milestones and continue to demonstrate declining SO₂ emissions levels. Also see responses to USDA Forest Service comment II.5 and EPA comment III.9.

- VII.4 **Reasonably Attributable Visibility Impairment** – The Powder River Basin Resource Council, et al. commented that because of the magnitude of modeled visibility impacts, DEQ should certify that Wyoming power plants are causing reasonably attributable visibility impairment, and establish more stringent BART controls. A single source that is responsible for a 1.0 deciview change or more should be considered to “cause” visibility impairment, according to WAQSR Chapter 6, §9(d)(i)(A). Because of the reasonably attributable visibility impairment, BART must be determined under WAQSR Chapter 9, §2(d)(ii) and 40 CFR §51.302(c)(4)(iii). These regulations provide that BART is presumed to be at least at NSPS levels. This would require at least 0.11 lb/MMBtu for NO_x limits, but SCR should be required at 0.07 lb/MMBtu.

Response – WAQSR Chapter 6, §9(d)(i)(A) applies to the determination of which sources in Wyoming are subject to BART under the regional haze program, and is not relevant to the determination of *reasonably attributable visibility impairment*. Since adoption of Wyoming's Visibility SIP and visibility regulations to address *reasonably attributable visibility impairment*, neither the Federal Land Managers of any Class I area nor the Division has certified that visibility impairment, attributable to a source or small group of sources, exists in any Wyoming Class I area pursuant to provisions in Chapter 9, Section 2 of the WAQSR. The provisions of Chapter 9, Section 2 of the WAQSR are therefore not relevant to the Division's BART analyses.

- VII.5 **SCR for Long-Term Strategy** – The Powder River Basin Resource Council, et al. commented that the BART limits determined by the Division for the three units at the Laramie River Station (0.23 lb/MMBtu) meet presumptive BART, but further reductions are warranted to reduce Class I impacts. The Division will require SCR to be installed on two of the LRS units under Long-Term Strategy by 2023, but no explanation is given for the extension beyond the 5-year deadline for BART.

Response – The Division determined BART for NO_x control at the Laramie River Station based on consideration of all five statutory BART factors, as required by EPA's Appendix Y BART guidance. No single factor was weighted as being more important than another, because the Division looked at all five statutory factors in their entirety. The BART determination for NO_x control on all three units included low NO_x burners (LNB) with overfire air (OFA). The Division's BART analysis provides the basis for the BART determination of LNB with OFA as well as why SCR was not determined to be BART.

The BART permit conditions that are associated with Long-Term Strategy have been included in the August 25, 2009 draft of Wyoming's Regional Haze SIP without modification. The particular Long-Term Strategy requirements, in this case add-on NO_x controls for two units at the Laramie River Station, are established as enforceable on the source by the Division through inclusion in the BART permit.

VIII. **Analysis of Comments from the Sierra Club and Citizens Associated with the Sierra Club:**

- VIII.1 **Air Quality Laws and Regulations** – The Sierra Club commented that it is important that air quality laws and regulations are strictly complied with to preserve park resources for present and future generations.

Response – The Division followed federal regulations and guidance as well as state regulations in assessing the BART applications and for making the BART determination for all sources eligible for BART in the State of Wyoming. The BART rules and guidance used by the Division included:

- Section 308 of the Regional Haze Rule [40 CFR 51.308(e)]
- *Guidelines for BART Determinations Under the Regional Haze Rule* [Appendix Y to part 51]
- Chapter 6, Section 9 of the Wyoming Air Quality Standards and Regulations (WAQSR), *Best Available Retrofit Technology*

VIII.2 **Regional Haze Rule** – The Sierra Club commented that the State of Wyoming can and should do more to protect air quality as the Regional Haze Rule is implemented.

Response – The Division’s BART determinations for Wyoming sources, as well as additional air pollution controls that will be required to further reduce regional haze, will be addressed in the Wyoming State Implementation Plan (SIP) for regional haze. The SIP incorporates the emissions reductions associated with the Long-Term Strategy for regional haze.

VIII.3 **Control of Nitrogen Oxide Emissions** – The Sierra Club commented that the State of Wyoming should require the coal plants to install devices that reduce nitrogen oxide emissions.

Response – All of the Division’s BART determinations for coal-fired power plants in the State of Wyoming include pollution control equipment that will substantially reduce nitrogen oxide emissions.

VIII.4 **20-Year Trend** – A commenter stated that the amount of air and water pollution has clearly escalated in the past 20 years, with little relief for citizens or for the health of forests and the environment.

Response – The Division’s BART determinations and other requirements under the regional haze program will result in large, state-wide emission reductions for three visibility-impairing pollutants; nitrogen oxides (NO_x), particulate matter (PM/PM₁₀), and sulfur dioxide (SO₂). As an example, BART controls at the Jim Bridger plant will result in a total annual reduction in potential NO_x emissions of approximately 13,500 tons per year.

VIII.5 **Wind Power** – A commenter stated that Wyoming can readily replace aging coal-fired power plants with wind power to protect public health and to protect our national parks and wilderness areas.

Response – The BART program is designed to assess Best Available Retrofit Technology on existing sources of air pollution, including the existing power plants in the State. The Division’s BART determinations will result in significant reductions in air pollutants from several power plants in Wyoming, but complete replacement of the power plants with an alternate source of energy is well beyond the scope of the BART program.

VIII.6 **Pollution Reduction from Power Plants** – A commenter stated that Wyoming has an obligation to protect treasured public spaces by adhering to federal air quality laws. The State must reduce air pollutants from the old coal plants that are federally required to utilize the most advanced technical developments in ensuring that air pollution is minimized.

Response – The Division determined BART controls based on the five statutory factors developed by the EPA. Various control technologies were evaluated for each source subject to BART, including the “most advanced technical developments”, but the ultimate BART determinations were made based on a full consideration of all five statutory factors in their entirety.

VIII.7 **SCR Controls** – Several commenters stated that BART for NO_x control should be SCR for all plants.

Response – See responses to USDA Forest Service comments II.3.

IX. Analysis of Public Comments:

IX.1 **SCR Controls** – Several commenters stated that BART for NO_x control should be SCR for all plants.

Response – See responses to USDA Forest Service comments II.3.

X. Analysis of Comments from Basin Electric Power Cooperative:

X.1 **Permit Condition 16** – Basin Electric requested that the Division revise BART Permit Condition 16 for the LRS to change the time for submitting a permit application for additional add-on NO_x control from six years prior to installation to two years prior to installation.

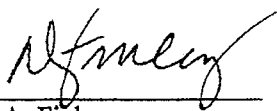
Response – The Division will make the requested change in the final BART permit for the LRS.

XI. Decision:

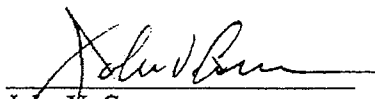
On the basis of comments received during the public comment period, an analysis of those comments, and representations made by Basin Electric, the Department of Environmental Quality has determined that the permit application filed by Basin Electric complies with all applicable Wyoming Air Quality Standards and Regulations and that a BART permit will be issued for the Laramie River Station. All of the conditions proposed in the Division's analysis will be included in the permit with the following changes (in bold):

16. Basin Electric shall submit permit applications for the installation of additional add-on NO_x control on two units at the Laramie River Station to the Division no later than **two (2)** ~~six (6)~~ years prior to installation, under the Long-Term Strategy of the Wyoming §308 Regional Haze State Implementation Plan. It shall include an analysis of the four statutory factors and the associated visibility impacts from the application of each proposed NO_x control and resulting emission levels. This application shall address each add-on NO_x control as a system of continuous emissions reduction achieving the lowest viable NO_x emission, not to exceed a maximum of 0.07 lb/MMBtu on a 30-day rolling average as measured by a certified CEM. Additional add-on NO_x control shall be installed and operational on one (1) unit by December 31, 2018 and on a second unit by December 31, 2023.

Dated this 31st day of December, 2009.



David A. Finley
Administrator
Wyoming Air Quality Division



John V. Corra
Director
Wyoming Department of Environmental Quality

APPENDIX A

VISIBILITY MODELING RESULTS (Baseline vs. LNB and SCR)

Figure 1
Modeled BART Impacts in Bridger Wilderness Area
Naughton and Jim Bridger Power Plants: 98th Percentile (delta-dv)

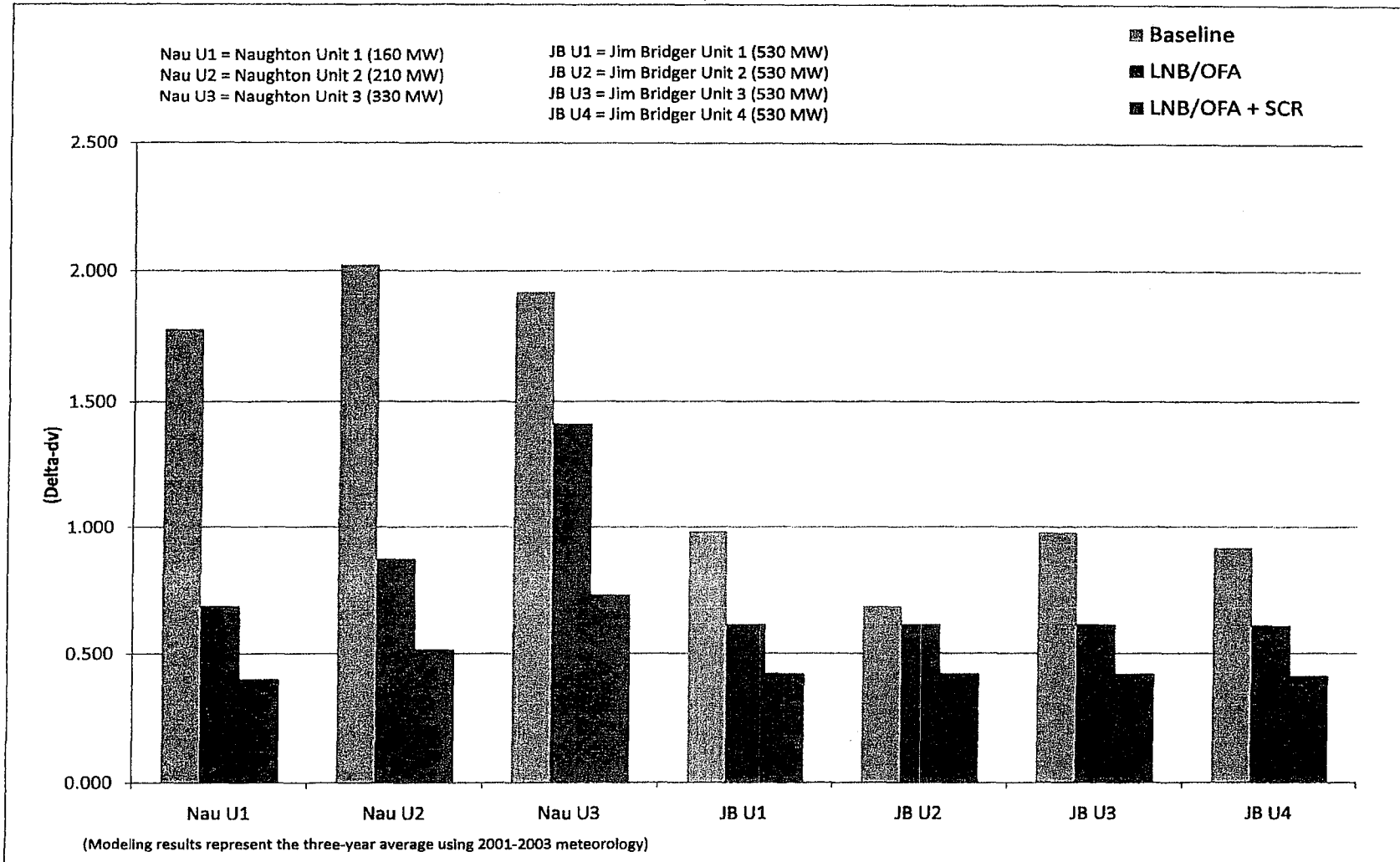


Figure 2
Modeled BART Impacts in Wind Cave National Park
Wyodak, Dave Johnston, and Laramie River Station Power Plants: 98th Percentile (delta-dv)

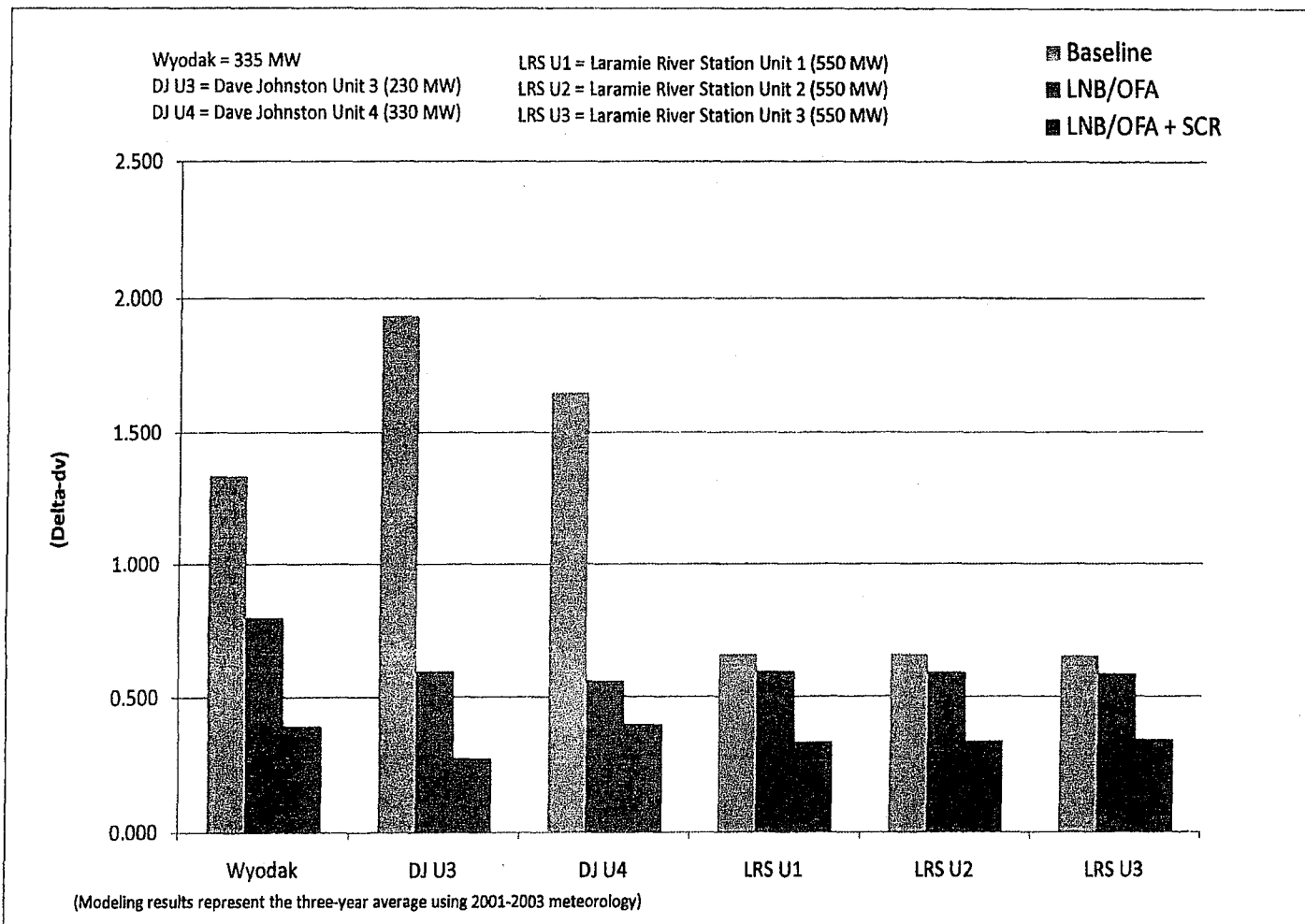


Figure 3
Modeled BART Impacts in Bridger Wilderness Area
Naughton and Jim Bridger Power Plants: # Days > 0.5 delta-dv

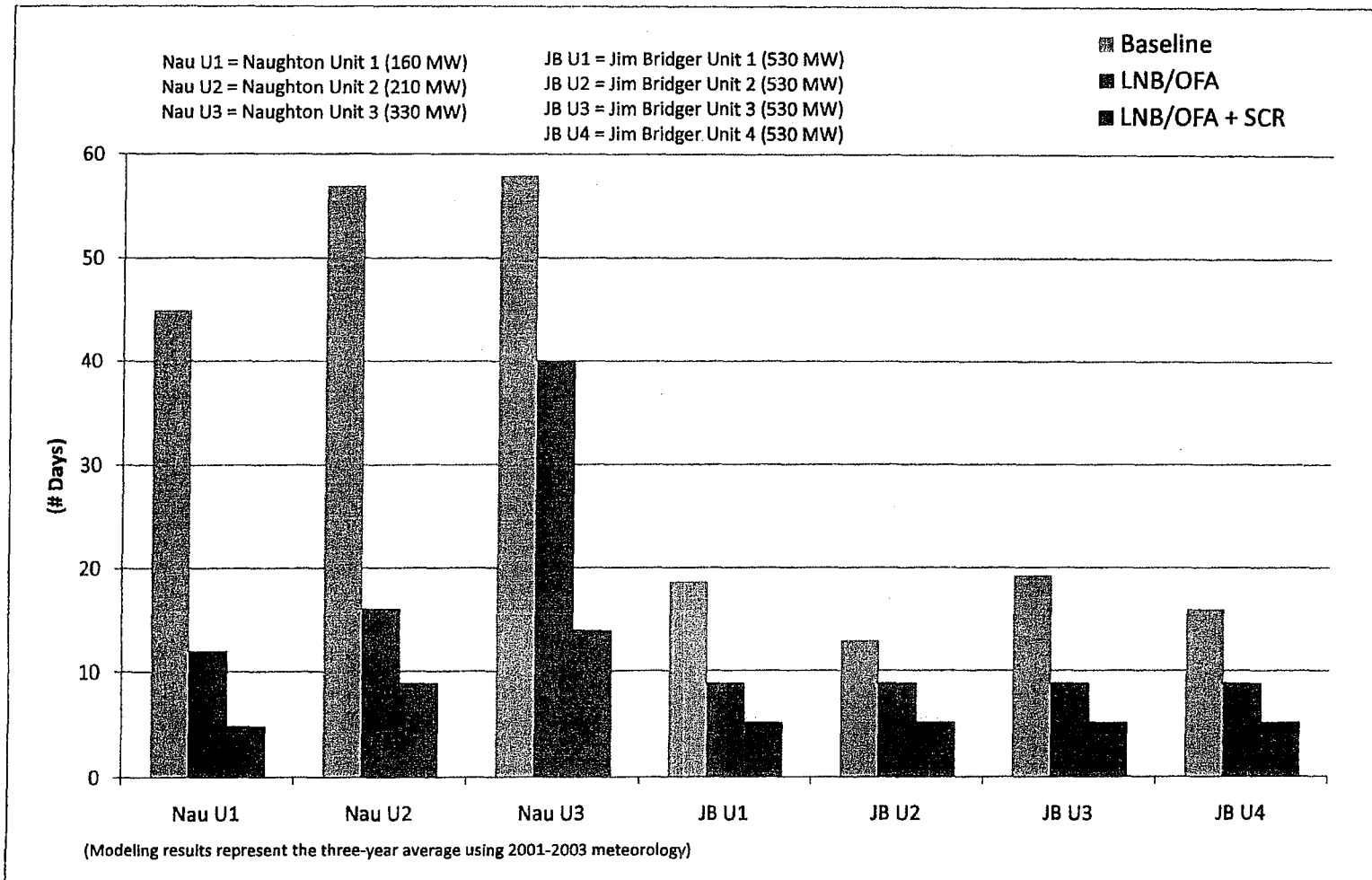


Figure 4
Modeled BART Impacts in Wind Cave National Park
Wyodak, Dave Johnston, and Laramie River Station Power Plants: # Days > 0.5 delta-dv

