The EPA Regional Administrator for Region 8, Shaun McGrath, signed the following notice on 5/23/13, and EPA is submitting it for publication in the *Federal Register* (FR). While we have taken steps to ensure the accuracy of this Internet version of the rule, it is not the official version of the rule for purposes of compliance. Please refer to the official version in a forthcoming FR publication, which will appear on the Government Printing Office's FDSys website (http://www.gpo.gov/fdsys/search/home.action) and on Regulations.gov (http://www.regulations.gov) in Docket No. EPA-R08-OAR-2012-0026. Once the official version of this document is published in the FR, this version will be removed from the Internet and replaced with a link to the official version.

Billing Code: 6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

EPA-R08-OAR-2012-0026, FRL-]

Approval, Disapproval and Promulgation of Implementation Plans; State of Wyoming; Regional Haze State Implementation Plan; Federal Implementation Plan for Regional Haze

AGENCY: Environmental Protection Agency.

ACTION: Proposed rule.

SUMMARY: EPA is proposing to partially approve and partially disapprove a State Implementation Plan (SIP) submitted by the State of Wyoming on January 12, 2011, that addresses regional haze. This SIP revision was submitted to address the requirements of the Clean Air Act (CAA or "the Act") and our rules that require states to prevent any future and remedy any existing anthropogenic impairment of visibility in mandatory Class I areas caused by emissions of air pollutants from numerous sources located over a wide geographic area (also referred to as the "regional haze program"). States are required to assure reasonable progress toward the national goal of achieving natural visibility conditions in Class I areas.

EPA is taking this action pursuant to section 110 of the CAA.

EPA is also proposing a Federal Implementation Plan (FIP) to address the deficiencies identified in our proposed partial disapproval of Wyoming's regional haze SIP. In lieu of our proposed FIP, or a portion thereof, we will propose approval of a SIP revision as expeditiously as practicable if the State submits such a revision and the revision matches the terms of our proposed FIP. We will also review and take action on any regional haze SIP submitted by the state to determine whether such SIP is approvable, regardless of whether or not its terms match

those of the FIP. We encourage the State to submit a SIP revision to replace the FIP, either before or after our final action.

DATES: *Comments:* Written comments must be received at the address below on or before [insert date 60 days from the date of publication in the Federal Register]. *Public Hearing:* A public hearing for this proposal is scheduled to be held on Monday, June 24, 2013, at the Hershchler Building, Room 1699, 122 W. 25th St., Cheyenne, Wyoming 82002. The public hearing will be held from 1 p.m. until 5 p.m., and again from 6 p.m. until 8 p.m.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA-R08-OAR-2012-0026, by one of the following methods:

- http://www.regulations.gov . Follow the on-line instructions for submitting comments.
- E-mail: r8airrulemakings@epa.gov
- Fax: (303) 312-6064 (please alert the individual listed in the **FOR FURTHER INFORMATION CONTACT** if you are faxing comments).
- Mail: Carl Daly, Director, Air Program, Environmental Protection Agency (EPA), Region 8, Mailcode 8P-AR, 1595 Wynkoop Street, Denver, Colorado 80202-1129.
- Hand Delivery: Carl Daly, Director, Air Program, Environmental Protection Agency (EPA), Region 8, Mailcode 8P-AR, 1595 Wynkoop, Denver, Colorado 80202-1129. Such deliveries are only accepted Monday through Friday, 8:00 a.m. to 4:30 p.m., excluding Federal holidays. Special arrangements should be made for deliveries of boxed information.

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Instructions: Direct your comments to Docket ID No. EPA-R08-OAR -2012-0026. EPA's policy is that all comments received will be included in the public docket without change and may be made available online at http://www.regulations.gov , including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through http://www.regulations.gov or e-mail. The http://www.regulations.gov Web site is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA, without going through http://www.regulations.gov , your e-mail address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional instructions on submitting comments, go to Section I. General Information of the **SUPPLEMENTARY INFORMATION** section of this document.

Docket: All documents in the docket are listed in the http://www.regulations.gov index. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly-available docket materials are available either electronically in http://www.regulations.gov or in hard copy at the Air Program,

Environmental Protection Agency (EPA), Region 8, Mailcode 8P-AR, 1595 Wynkoop, Denver, Colorado 80202-1129. EPA requests that if at all possible, you contact the individual listed in the **FOR FURTHER INFORMATION CONTACT** section to view the hard copy of the docket. You may view the hard copy of the docket Monday through Friday, 8:00 a.m. to 4:00 p.m., excluding Federal holidays.

FOR FURTHER INFORMATION CONTACT: Laurel Dygowski, Air Program, U.S. Environmental Protection Agency, Region 8, Mailcode 8P-AR, 1595 Wynkoop, Denver, Colorado 80202-1129, (303) 312-6144, dygowski.laurel@epa.gov.

SUPPLEMENTARY INFORMATION:

Definitions

For the purpose of this document, we are giving meaning to certain words or initials as follows:

i. The words or initials Act or CAA mean or refer to the Clean Air Act, unless the context indicates otherwise.

ii. The initials AFRC mean or refer to air-fuel ratio controls.

iii. The initials BART mean or refer to Best Available Retrofit Technology.

iv. The initials CAMx mean or refer to Comprehensive Air Quality Model.

v. The initials CMAQ mean or refer to Community Multi-Scale Air Quality modeling system.

vi. The initials CEMS mean or refer to continuous emission monitoring systems.

vii. The initials EC mean or refer to elemental carbon.

viii. The initials EGUs mean or refer to Electric Generating Units.

ix. The initials EGR mean or refer to exhaust gas recirculation.

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x. The words EPA, we, us or our mean or refer to the United States Environmental Protection Agency.

xi. The initials ESP mean or refer to electrostatic precipitator.

xii. The initials FGC mean or refer to flue gas conditioning.

xiii. The initials FGD mean or refer to flue gas desulfurization.

xiv. The initials FGR mean or refer to external flue gas recirculation.

xv. The initials FIP mean or refer to Federal Implementation Plan.

xvi. The initials FLMs mean or refer to Federal Land Managers.

xvii. The initials FS mean or refer to the U.S. Forest Service.

xviii. The initials IMPROVE mean or refer to Interagency Monitoring of Protected Visual Environments monitoring network.

xix. The initials IWAQM mean or refer to Interagency Workgroup on Air Quality Modeling.

xx. The initials LEC mean or refer to low-emission combustion.

xxi. The initials LNB mean or refer to low NO_x burner.

xxii. The initials LTS mean or refer to the long-term strategy.

xxiii. The initials MW mean or refer to megawatts.

xxiv. The initials NH_3 mean or refer to ammonia.

xxv. The initials NO_x mean or refer to nitrogen oxides.

xxvi. The initials NPS mean or refer to National Park Service.

xxvii. The initials OC mean or refer to organic carbon.

xxviii. The initials OFA mean or refer to overfire air.

xxix. The initials $PM_{2.5}$ mean or refer to particulate matter with an aerodynamic diameter of less than 2.5 micrometers.

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xxx. The initials PM_{10} mean or refer to particulate matter with an aerodynamic diameter of less than 10 micrometers.

xxxi. The initials PSAT mean or refer to Particle Source Apportionment Technology.

xxxii. The initials PSD mean or refer to Prevention of Signification Deterioration.

xxxiii. The initials RAVI mean or refer to Reasonably Attributable Visibility Impairment.

xxxiv. The initials RHR mean or refer to the Regional Haze Rule.

xxxv. The initials RMC mean or refer to the Regional Modeling Center at the University of California Riverside.

xxxvi. The initials RPGs mean or refer to Reasonable Progress Goals.

xxxvii. The initials RPOs mean or refer to regional planning organizations.

xxxviii. The initials SCR mean or refer to selective catalytic reduction.

xxxix. The initials SIP mean or refer to State Implementation Plan.

xl. The initials SNCR mean or refer to selective non-catalytic reduction.

xli. The initials SO_2 mean or refer to sulfur dioxide.

xlii. The initials SOFA mean or refer to separated overfire air.

xliii. The initials TSD mean or refer to Technical Support Document.

xliv. The initials ULNB mean or refer to ultra-low NO_x burners.

xlv. The initials URP mean or refer to Uniform Rate of Progress.

xlvi. The initials VOC mean or refer to volatile organic compounds.

xlvii. The initials WAQSR mean or refer to Wyoming Air Quality Standards and Regulations.

xlviii. The initials WEP mean or refer to Weighted Emissions Potential.

xlix. The initials WRAP mean or refer to the Western Regional Air Partnership.

l. The words Wyoming and State mean the State of Wyoming.

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I. General Information

A. What Should I Consider as I Prepare My Comments for EPA?

1. *Submitting CBI.* Do not submit CBI to EPA through http://www.regulations.gov or e-mail. Clearly mark the part or all of the information that you claim to be CBI. For CBI information in a disk or CD ROM that you mail to EPA, mark the outside of the disk or CD ROM as CBI and then identify electronically within the disk or CD ROM the specific

information that is claimed as CBI. In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR part 2.

2. *Tips for Preparing Your Comments.* When submitting comments, remember to:

   a. Identify the rulemaking by docket number and other identifying information (subject heading, Federal Register date and page number).

   b. Follow directions - The agency may ask you to respond to specific questions or organize comments by referencing a Code of Federal Regulations (CFR) part or section number.

   c. Explain why you agree or disagree; suggest alternatives and substitute language for your requested changes.

   d. Describe any assumptions and provide any technical information and/or data that you used.

   e. If you estimate potential costs or burdens, explain how you arrived at your estimate in sufficient detail to allow for it to be reproduced.

   f. Provide specific examples to illustrate your concerns, and suggest alternatives.

   g. Explain your views as clearly as possible, avoiding the use of profanity or personal threats.

   h. Make sure to submit your comments by the comment period deadline identified.

II. EPA's Prior Action

We signed a notice of proposed rulemaking on May 15, 2012, and it was published in the Federal Register on June 4, 2012 (77 FR 33022).

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In our proposal, we proposed to disapprove the following:

- The State's nitrogen oxides (NO_x) best available retrofit technology (BART) determinations for PacifiCorp Dave Johnston Unit 3, PacifiCorp Jim Bridger Units 1 and 2, PacifiCorp Wyodak Unit 1, and Basin Electric Laramie River Station Units 1, 2, and 3.
- The State's NO_x reasonable progress determination for PacifiCorp Dave Johnston Units 1 and 2.
- The State's Reasonable Progress Goals (RPGs).
- The State's monitoring, recordkeeping, and reporting requirements in Chapter 6.4 of the SIP.
- Portions of the State's long-term strategy (LTS) that rely on or reflect aspects of the regional haze SIP that we are disapproving.
- The State's SIP because it does not contain the necessary provisions to meet the requirements for the coordination of the review of the reasonably attributable visibility impairment (RAVI) and the regional haze LTS.

We proposed to approve the remaining aspects of the State's January 12, 2011 SIP submittal. We also sought comment on two alternative proposals related to the State's NO_x BART determination for PacifiCorp Jim Bridger Units 1 and 2.

We proposed the promulgation of a FIP to address the deficiencies in the Wyoming regional haze SIP that we identified in the proposal. The proposed FIP included the following elements:

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- NO_x BART determinations and limits for PacifiCorp Dave Johnston Unit 3, PacifiCorp Jim Bridger Units 1 and 2, PacifiCorp Wyodak Unit 1, and Basin Electric Laramie River Station Units 1, 2, and 3.
- NO_x reasonable progress determination and limits for PacifiCorp Dave Johnston Units 1 and 2.
- RPGs consistent with the SIP limits proposed for approval and the proposed FIP limits.
- Monitoring, recordkeeping, and reporting requirements applicable to all BART and reasonable progress sources for which there is a SIP or FIP emissions limit.
- LTS elements pertaining to emission limits and compliance schedules for the proposed BART and reasonable progress FIP emission limits.
- Provisions to ensure the coordination of the RAVI and regional haze LTS.

In lieu of our proposed FIP, or a portion thereof, we stated that we would propose approval of a SIP revision if the State submits such a revision and the revision matches the terms of our proposed FIP. We encouraged the State to submit a SIP revision to replace the FIP, either before or after our final action.

We requested comments on all aspects of our proposed action and provided a 60-day comment period, with the comment period closing on August 3, 2012. We also held two public hearings. The public hearings were held on June 26, 2012, in Cheyenne, Wyoming and June 28, 2012, in Rock Springs, Wyoming.

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The Conservation Organizations[1] and the National Park Service submitted comments during the public comment period pertaining to, among other things, the cost analyses that the State relied upon in its SIP and that EPA subsequently relied on to make its proposed rulemaking decision. The commenters asserted that the State overestimated the costs for some control technologies and underestimated the costs for other control technologies. Based on our review of these comments and upon further review of the State's cost and visibility analyses, we determined that the State's analyses are flawed in several respects and are therefore inconsistent with the BART Guidelines and statutory requirements, as discussed further in this notice. As a result, EPA conducted its own cost analyses for the BART and reasonable progress electric generating units (EGUs), and also revised its modeling of the visibility improvement for these sources in order to be comparable to the revised costs analyses as explained in section V.II.C.3. The revised costs and visibility modeling are explained in further detail in section VII.C.3. Because we have developed new cost and visibility improvement modeling analyses, we are re-proposing action on Wyoming's SIP in order to give the public the opportunity to comment on our updated cost and visibility analyses and our proposed determinations based on this new information.

III. Overview of Proposed Actions

EPA is proposing to partially approve and partially disapprove a regional haze SIP submitted by the State of Wyoming on January 12, 2011. Specifically, we are proposing to disapprove the following:

[1] The Conservation Organizations refers to comments submitted on behalf of Powder River Basin Resource Council, Wyoming Outdoor Council, Greater Yellowstone Coalition, Sierra Club, National Parks Conservation Association, and WildEarth Guardians.

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- The State's NO_x BART determinations for PacifiCorp Dave Johnston Units 3 and 4, PacifiCorp Naughton Units 1 and 2, PacifiCorp Wyodak Unit 1, and Basin Electric Laramie River Units 1, 2, and 3.
- The State's NO_x reasonable progress determinations for PacifiCorp Dave Johnston Units 1 and 2.
- Wyoming's RPGs.
- The State's monitoring, recordkeeping, and reporting requirements in Chapter 6.4 of the SIP.
- Portions of the State's LTS that rely on or reflect other aspects of the regional haze SIP.
- The provisions necessary to meet the requirements for the coordination of the review of the RAVI and the regional haze LTS.

We are proposing to approve the remaining aspects of the State's January 12, 2011SIP submittal. However, we are also seeking comment on an alternative proposal, related to the State's NO_x BART determinations, for PacifiCorp Jim Bridger Units 1 and 2, that would involve disapproval and the promulgation of a FIP.

We are proposing the promulgation of a FIP to address the deficiencies in the Wyoming regional haze SIP that we have identified in this notice. The proposed FIP includes the following elements:

- NO_x BART determinations and limits for PacifiCorp Dave Johnston Units 3 and 4, PacifiCorp Naughton Units 1 and 2, PacifiCorp Wyodak Unit 1, and Basin Electric Laramie River Units 1, 2, and 3.

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- NO_x reasonable progress determinations and limits for PacifiCorp Dave Johnston Units 1 and 2.
- RPGs consistent with the SIP limits proposed for approval and the proposed FIP limits.
- Monitoring, recordkeeping, and reporting requirements applicable to all BART and reasonable progress sources for which there is a SIP or FIP emissions limit.
- LTS elements pertaining to emission limits and compliance schedules for the proposed BART and reasonable progress FIP emission limits.
- Provisions to ensure the coordination of the RAVI and regional haze LTS.

In lieu of our proposed FIP, or a portion thereof, we will propose approval of a SIP revision as expeditiously as practicable if the State submits such a revision and the revision matches the terms of our proposed FIP. We will also review and take action on any regional haze SIP submitted by the state to determine whether such SIP is approvable, regardless of whether or not its terms match those of the FIP. We encourage the State to submit a SIP revision to replace the FIP, either before or after our final action.

IV. SIP and FIP Background

The CAA requires each state to develop plans to meet various air quality requirements, including protection of visibility. CAA sections 110(a), 169A, and 169B. The plans developed by a state are referred to as SIPs. A state must submit its SIPs and SIP revisions to us for approval. Once approved, a SIP is enforceable by EPA and citizens under the CAA, also known as being federally enforceable. If a state fails to make a required SIP submittal or if we find that a state's required submittal is incomplete or unapprovable, then we must promulgate a FIP to fill this regulatory gap. CAA section 110(c)(1). As discussed elsewhere in this notice, we are

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proposing to disapprove aspects of Wyoming's regional haze SIP. We are proposing a FIP to address the deficiencies in Wyoming's regional haze SIP.

V. Background

A. Regional Haze

Regional haze is visibility impairment that is produced by a multitude of sources and activities which are located across a broad geographic area and emit fine particles ($PM_{2.5}$) (e.g., sulfates, nitrates, organic carbon (OC), elemental carbon (EC), and soil dust), and their precursors (e.g., sulfur dioxide (SO_2), NO_x, and in some cases, ammonia (NH_3) and volatile organic compounds (VOC)). Fine particle precursors react in the atmosphere to form $PM_{2.5}$, which impairs visibility by scattering and absorbing light. Visibility impairment reduces the clarity, color, and visible distance that one can see. $PM_{2.5}$ can also cause serious health effects and mortality in humans and contributes to environmental effects such as acid deposition and eutrophication.

Data from the existing visibility monitoring network, the "Interagency Monitoring of Protected Visual Environments" (IMPROVE) monitoring network, show that visibility impairment caused by air pollution occurs virtually all the time at most national park and wilderness areas. The average visual range[2] in many Class I areas (i.e., national parks and memorial parks, wilderness areas, and international parks meeting certain size criteria) in the western United States is 100-150 kilometers, or about one-half to two-thirds of the visual range that would exist without anthropogenic air pollution. In most of the eastern Class I areas of the United States, the average visual range is less than 30 kilometers, or about one-fifth of the visual range that would exist under estimated natural conditions. 64 FR 35715 (July 1, 1999).

B. Requirements of the CAA and EPA's Regional Haze Rule (RHR)

[2] Visual range is the greatest distance, in kilometers or miles, at which a dark object can be viewed against the sky.

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In section 169A of the 1977 Amendments to the CAA, Congress created a program for protecting visibility in the nation's national parks and wilderness areas. This section of the CAA establishes as a national goal the "prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I Federal areas[3] which impairment results from manmade air pollution." On December 2, 1980, EPA promulgated regulations to address visibility impairment in Class I areas that is "reasonably attributable" to a single source or small group of sources, i.e., "reasonably attributable visibility impairment." 45 FR 80084. These regulations represented the first phase in addressing visibility impairment. EPA deferred action on regional haze that emanates from a variety of sources until monitoring, modeling and scientific knowledge about the relationships between pollutants and visibility impairment were improved.

Congress added section 169B to the CAA in 1990 to address regional haze issues. EPA promulgated a rule to address regional haze on July 1, 1999. 64 FR 35714 (July 1, 1999), codified at 40 CFR part 51, subpart P. The RHR revised the existing visibility regulations to integrate into the regulation provisions addressing regional haze impairment and established a comprehensive visibility protection program for Class I areas. The requirements for regional haze, found at 40 CFR 51.308 and 51.309, are included in EPA's visibility protection regulations at 40 CFR 51.300-309. Some of the main elements of the regional haze requirements are summarized in section III of this preamble. The requirement to submit a regional haze SIP

[3] Areas designated as mandatory Class I Federal areas consist of national parks exceeding 6000 acres, wilderness areas and national memorial parks exceeding 5000 acres, and all international parks that were in existence on August 7, 1977. 42 U.S.C. 7472(a). In accordance with section 169A of the CAA, EPA, in consultation with the Department of Interior, promulgated a list of 156 areas where visibility is identified as an important value. 44 FR 69122 (November 30, 1979). The extent of a mandatory Class I area includes subsequent changes in boundaries, such as park expansions. 42 U.S.C. 7472(a). Although states and tribes may designate as Class I additional areas which they consider to have visibility as an important value, the requirements of the visibility program set forth in section 169A of the CAA apply only to ''mandatory Class I Federal areas." Each mandatory Class I Federal area is the responsibility of a ''Federal Land Manager.'' 42 U.S.C. 7602(i). When we use the term "Class I area" in this action, we mean a "mandatory Class I Federal area."

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applies to all 50 states, the District of Columbia and the Virgin Islands. 40 CFR 51.308(b) requires states to submit the first implementation plan addressing regional haze visibility impairment no later than December 17, 2007.[4]

Few states submitted a regional haze SIP prior to the December 17, 2007 deadline, and on January 15, 2009, EPA found that 37 states (including Wyoming), the District of Columbia, and the Virgin Islands, had failed to submit SIPs addressing the regional haze requirements. 74 FR 2392. Once EPA has found that a state has failed to make a required submission, EPA is required to promulgate a FIP within two years unless the state submits a SIP and the Agency approves it within the two-year period. CAA §110(c)(1).

C. Roles of Agencies in Addressing Regional Haze

Successful implementation of the regional haze program will require long-term regional coordination among states, tribal governments, and various federal agencies. As noted above, pollution affecting the air quality in Class I areas can be transported over long distances, even hundreds of kilometers. Therefore, to effectively address the problem of visibility impairment in Class I areas, states need to develop strategies in coordination with one another, taking into account the effect of emissions from one jurisdiction on the air quality in another.

Because the pollutants that lead to regional haze can originate from sources located across broad geographic areas, EPA has encouraged the states and tribes across the United States to address visibility impairment from a regional perspective. Five regional planning organizations (RPOs) were developed to address regional haze and related issues. The RPOs first evaluated technical information to better understand how their states and tribes impact Class I areas across the country, and then pursued the development of regional strategies to reduce emissions of pollutants that lead to regional haze.

[4] EPA's regional haze regulations require subsequent updates to the regional haze SIPs. 40 CFR 51.308(g) – (i).

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The Western Regional Air Partnership (WRAP) RPO is a collaborative effort of state governments, tribal governments, and various federal agencies established to initiate and coordinate activities associated with the management of regional haze, visibility and other air quality issues in the western United States. WRAP member state governments include: Alaska, Arizona, California, Colorado, Idaho, Montana, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming. Tribal members include Campo Band of Kumeyaay Indians, Confederated Salish and Kootenai Tribes, Cortina Indian Rancheria, Hopi Tribe, Hualapai Nation of the Grand Canyon, Native Village of Shungnak, Nez Perce Tribe, Northern Cheyenne Tribe, Pueblo of Acoma, Pueblo of San Felipe, and Shoshone-Bannock Tribes of Fort Hall.

VI. Requirements for Regional Haze SIPs

The following is a summary of the requirements of the RHR. See 40 CFR 51.308 for further detail regarding the requirements of the rule.

A. The CAA and the Regional Haze Rule

Regional haze SIPs must assure reasonable progress towards the national goal of achieving natural visibility conditions in Class I areas. Section 169A of the CAA and EPA's implementing regulations require states to establish long-term strategies for making reasonable progress toward meeting this goal. Implementation plans must also give specific attention to certain stationary sources that were in existence on August 7, 1977, but were not in operation before August 7, 1962, and require these sources, where appropriate, to install BART controls for the purpose of eliminating or reducing visibility impairment. The specific regional haze SIP requirements are discussed in further detail below.

B. Determination of Baseline, Natural, and Current Visibility Conditions

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The RHR establishes the deciview as the principal metric or unit for expressing visibility. *See* 70 FR 39104, 39118. This visibility metric expresses uniform changes in the degree of haze in terms of common increments across the entire range of visibility conditions, from pristine to extremely hazy conditions. Visibility expressed in deciviews is determined by using air quality measurements to estimate light extinction and then transforming the value of light extinction using a logarithmic function. The deciview is a more useful measure for tracking progress in improving visibility than light extinction itself because each deciview change is an equal incremental change in visibility perceived by the human eye. Most people can detect a change in visibility at one deciview.[5]

The deciview is used in expressing RPGs (which are interim visibility goals towards meeting the national visibility goal), defining baseline, current, and natural conditions, and tracking changes in visibility. The regional haze SIPs must contain measures that ensure "reasonable progress" toward the national goal of preventing and remedying visibility impairment in Class I areas caused by anthropogenic air pollution by reducing anthropogenic emissions that cause regional haze. The national goal is a return to natural conditions, i.e., anthropogenic sources of air pollution would no longer impair visibility in Class I areas.

To track changes in visibility over time at each of the 156 Class I areas covered by the visibility program (40 CFR 81.401-437), and as part of the process for determining reasonable progress, states must calculate the degree of existing visibility impairment at each Class I area at the time of each regional haze SIP submittal and periodically review progress every five years midway through each 10-year implementation period. To do this, the RHR requires states to determine the degree of impairment (in deciviews) for the average of the 20 percent least impaired ("best") and 20 percent most impaired ("worst") visibility days over a specified time

[5] The preamble to the RHR provides additional details about the dv. 64 FR 35714, 35725 (July 1, 1999).

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period at each of their Class I areas. In addition, states must also develop an estimate of natural visibility conditions for the purpose of comparing progress toward the national goal. Natural visibility is determined by estimating the natural concentrations of pollutants that cause visibility impairment and then calculating total light extinction based on those estimates. We have provided guidance to states regarding how to calculate baseline, natural and current visibility conditions.[6]

For the first regional haze SIPs that were due by December 17, 2007, "baseline visibility conditions" were the starting points for assessing "current" visibility impairment. Baseline visibility conditions represent the degree of visibility impairment for the 20 percent least impaired days and 20 percent most impaired days for each calendar year from 2000 to 2004. Using monitoring data for 2000 through 2004, states are required to calculate the average degree of visibility impairment for each Class I area, based on the average of annual values over the five-year period. The comparison of initial baseline visibility conditions to natural visibility conditions indicates the amount of improvement necessary to attain natural visibility, while the future comparison of baseline conditions to the then current conditions will indicate the amount of progress made. In general, the 2000 - 2004 baseline period is considered the time from which improvement in visibility is measured.

C. Determination of Reasonable Progress Goals

The vehicle for ensuring continuing progress towards achieving the natural visibility goal is the submission of a series of regional haze SIPs from the states that establish two RPGs (i.e.,

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[6] *Guidance for Estimating Natural Visibility Conditions Under the Regional Haze Rule*, September 2003, EPA-454/B-03-005, *available* at http://www.epa.gov/ttncaaa1/t1/memoranda/ Regional Haze _envcurhr_gd.pdf, (hereinafter referred to as "our 2003 Natural Visibility Guidance"); and *Guidance for Tracking Progress Under the Regional Haze Rule,*(September 2003, EPA-454/B-03-004, available at http://www.epa.gov/ttncaaa1/t1/memoranda/rh_tpurhr_ gd.pdf, (hereinafter referred to as our "2003 Tracking Progress Guidance").

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two distinct goals, one for the "best" and one for the "worst" days) for every Class I area for each (approximately) 10-year implementation period. *See* 40 CFR 51.308(d), (f). The RHR does not mandate specific milestones or rates of progress, but instead calls for states to establish goals that provide for "reasonable progress" toward achieving natural visibility conditions. In setting RPGs, states must provide for an improvement in visibility for the most impaired days over the (approximately) 10-year period of the SIP, and ensure no degradation in visibility for the least impaired days over the same period. *Id.*

In establishing RPGs, states are required to consider the following factors established in section 169A of the CAA and in our RHR at 40 CFR 51.308(d)(1)(i)(A): (1) the costs of compliance; (2) the time necessary for compliance; (3) the energy and non-air quality environmental impacts of compliance; and (4) the remaining useful life of any potentially affected sources. States must demonstrate in their SIPs how these factors are considered when selecting the RPGs for the best and worst days for each applicable Class I area. In setting the RPGs, states must also consider the rate of progress needed to reach natural visibility conditions by 2064 (referred to as the "uniform rate of progress" (URP) or the "glidepath") and the emission reduction measures needed to achieve that rate of progress over the 10-year period of the SIP. Uniform progress towards achievement of natural conditions by the year 2064 represents a rate of progress, which states are to use for analytical comparison to the amount of progress they expect to achieve. In setting RPGs, each state with one or more Class I areas ("Class I state") must also consult with potentially "contributing states," i.e., other nearby states with emission sources that may be affecting visibility impairment at the state's Class I areas. 40 CFR 51.308(d)(1)(iv). In determining whether a state's goals for visibility improvement provide for reasonable progress toward natural visibility conditions, EPA is required to evaluate the

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demonstrations developed by the state pursuant to paragraphs 40 CFR 51.308(d)(1)(i) and (d)(1)(ii). 40 CFR 51.308(d)(1)(iii).

D. Best Available Retrofit Technology

Section 169A of the CAA directs states to evaluate the use of retrofit controls at certain larger, often uncontrolled, older stationary sources in order to address visibility impacts from these sources. Specifically, section 169A(b)(2)(A) of the CAA requires states to revise their SIPs to contain such measures as may be necessary to make reasonable progress towards the natural visibility goal, including a requirement that certain categories of existing major stationary sources[7] built between 1962 and 1977 procure, install, and operate the "Best Available Retrofit Technology" as determined by the state. Under the RHR, states are directed to conduct BART determinations for such "BART-eligible" sources that may be anticipated to cause or contribute to any visibility impairment in a Class I area. Rather than requiring source-specific BART controls, states also have the flexibility to adopt an emissions trading program or other alternative program as long as the alternative provides greater reasonable progress towards improving visibility than BART.

On July 6, 2005, EPA published the *Guidelines for BART Determinations Under the Regional Haze Rule* at appendix Y to 40 CFR part 51 (hereinafter referred to as the "BART Guidelines") to assist states in determining which of their sources should be subject to the BART requirements and in determining appropriate emission limits for each applicable source. 70 FR 39104. In making a BART determination for a fossil fuel-fired electric generating plant with a total generating capacity in excess of 750 megawatts (MW), a state must use the approach set forth in the BART Guidelines. A state is encouraged, but not required, to follow the BART Guidelines in making BART determinations for other types of sources. Regardless of source

[7] The set of "major stationary sources" potentially subject-to-BART is listed in CAA section 169A(g)(7).

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size or type, a state must meet the requirements of the CAA and our regulations for selection of BART, and the state's BART analysis and determination must be reasonable in light of the overarching purpose of the regional haze program.

The process of establishing BART emission limitations can be logically broken down into three steps: first, states identify those sources which meet the definition of "BART-eligible source" set forth in 40 CFR 51.301;[8] second, states determine which of such sources "emits any air pollutant which may reasonably be anticipated to cause or contribute to any impairment of visibility in any such area" (a source which fits this description is "subject to BART"); and third, for each source subject-to-BART, states then identify the best available type and level of control for reducing emissions.

States must address all visibility-impairing pollutants emitted by a source in the BART determination process. The most significant visibility impairing pollutants are SO_2, NO_x, and PM. EPA has stated that states should use their best judgment in determining whether VOC or NH_3 emissions impair visibility in Class I areas.

Under the BART Guidelines, states may select an exemption threshold value for their BART modeling, below which a BART-eligible source would not be expected to cause or contribute to visibility impairment in any Class I area. The state must document this exemption threshold value in the SIP and must state the basis for its selection of that value. Any source with emissions that model above the threshold value would be subject to a BART determination review. The BART Guidelines acknowledge varying circumstances affecting different Class I areas. States should consider the number of emission sources affecting the Class I areas at issue

[8] BART-eligible sources are those sources that have the potential to emit 250 tons or more of a visibility-impairing air pollutant, were not in operation prior to August 7, 1962, but were in existence on August 7, 1977, and whose operations fall within one or more of 26 specifically listed source categories. 40 CFR 51.301.

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and the magnitude of the individual sources' impacts. Any exemption threshold set by the state should not be higher than 0.5 deciview. 40 CFR part 51, appendix Y, section III.A.1.

In their SIPs, states must identify the sources that are subject-to-BART and document their BART control determination analyses for such sources. In making their BART determinations, section 169A(g)(2) of the CAA requires that states consider the following factors when evaluating potential control technologies: (1) the costs of compliance; (2) the energy and non-air quality environmental impacts of compliance; (3) any existing pollution control technology in use at the source; (4) the remaining useful life of the source; and (5) the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology.

A regional haze SIP must include source-specific BART emission limits and compliance schedules for each source subject-to-BART. Once a state has made its BART determination, the BART controls must be installed and in operation as expeditiously as practicable, but no later than five years after the date of EPA approval of the regional haze SIP. CAA section 169(g)(4) and 40 CFR 51.308(e)(1)(iv). In addition to what is required by the RHR, general SIP requirements mandate that the SIP must also include all regulatory requirements related to monitoring, recordkeeping, and reporting for the BART controls on the source. See CAA section 110(a). As noted above, the RHR allows states to implement an alternative program in lieu of BART so long as the alternative program can be demonstrated to achieve greater reasonable progress toward the national visibility goal than would BART.

E. Long-Term Strategy

Consistent with the requirement in section 169A(b) of the CAA that states include in their regional haze SIP a 10 to 15-year strategy for making reasonable progress, section 51.308(d)(3)

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of the RHR requires that states include a LTS in their regional haze SIPs. The LTS is the compilation of all control measures a state will use during the implementation period of the specific SIP submittal to meet applicable RPGs. The LTS must include "enforceable emissions limitations, compliance schedules, and other measures as necessary to achieve the reasonable progress goals" for all Class I areas within, or affected by emissions from, the state. 40 CFR 51.308(d)(3).

When a state's emissions are reasonably anticipated to cause or contribute to visibility impairment in a Class I area located in another state, the RHR requires the impacted state to coordinate with the contributing states in order to develop coordinated emissions management strategies. 40 CFR 51.308(d)(3)(i). In such cases, the contributing state must demonstrate that it has included, in its SIP, all measures necessary to obtain its share of the emission reductions needed to meet the RPGs for the Class I area. *Id.* at (d)(3)(ii). The RPOs have provided forums for significant interstate consultation, but additional consultations between states may be required to sufficiently address interstate visibility issues. This is especially true where two states belong to different RPOs.

States should consider all types of anthropogenic sources of visibility impairment in developing their long-term strategy, including stationary, minor, mobile, and area sources. At a minimum, states must describe how each of the following seven factors listed below are taken into account in developing their LTS: (1) emission reductions due to ongoing air pollution control programs, including measures to address RAVI; (2) measures to mitigate the impacts of construction activities; (3) emissions limitations and schedules for compliance to achieve the RPG; (4) source retirement and replacement schedules; (5) smoke management techniques for agricultural and forestry management purposes including plans as currently exist within the state

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for these purposes; (6) enforceability of emissions limitations and control measures; and (7) the anticipated net effect on visibility due to projected changes in point, area, and mobile source emissions over the period addressed by the LTS. 40 CFR 51.308(d)(3)(v).

F. Coordinating Regional Haze and Reasonably Attributable Visibility Impairment

As part of the RHR, EPA revised 40 CFR 51.306(c) regarding the LTS for RAVI to require that the RAVI plan must provide for a periodic review and SIP revision not less frequently than every three years until the date of submission of the state's first plan addressing regional haze visibility impairment, which was due December 17, 2007, in accordance with 40 CFR 51.308(b) and (c). On or before this date, the state must revise its plan to provide for review and revision of a coordinated LTS for addressing RAVI and regional haze, and the state must submit the first such coordinated LTS with its first regional haze SIP. Future coordinated LTS's, and periodic progress reports evaluating progress towards RPGs, must be submitted consistent with the schedule for SIP submission and periodic progress reports set forth in 40 CFR 51.308(f) and 51.308(g), respectively. The periodic review of a state's LTS must report on both regional haze and RAVI impairment and must be submitted to EPA as a SIP revision.

F. Monitoring Strategy and Other Implementation Plan Requirements

Section 51.308(d)(4) of the RHR includes the requirement for a monitoring strategy for measuring, characterizing, and reporting of regional haze visibility impairment that is representative of all mandatory Class I Federal areas within the state. The strategy must be coordinated with the monitoring strategy required in section 51.305 for RAVI. Compliance with this requirement may be met through "participation" in the IMPROVE network, i.e., review and use of monitoring data from the network. The monitoring strategy is due with the first regional haze SIP, and it must be reviewed every five years. The monitoring strategy must also provide

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for additional monitoring sites if the IMPROVE network is not sufficient to determine whether RPGs will be met.

The SIP must also provide for the following:

- Procedures for using monitoring data and other information in a state with mandatory Class I areas to determine the contribution of emissions from within the state to regional haze visibility impairment at Class I areas both within and outside the state;
- Procedures for using monitoring data and other information in a state with no mandatory Class I areas to determine the contribution of emissions from within the state to regional haze visibility impairment at Class I areas in other states;
- Reporting of all visibility monitoring data to the Administrator at least annually for each Class I area in the state, and where possible, in electronic format;
- Developing a statewide inventory of emissions of pollutants that are reasonably anticipated to cause or contribute to visibility impairment in any Class I area. The inventory must include emissions for a baseline year, emissions for the most recent year for which data are available, and estimates of future projected emissions. A state must also make a commitment to update the inventory periodically; and
- Other elements, including reporting, recordkeeping, and other measures necessary to assess and report on visibility.

The RHR requires control strategies to cover an initial implementation period extending to the year 2018, with a comprehensive reassessment and revision of those strategies, as appropriate, every 10 years thereafter. Periodic SIP revisions must meet the core requirements of section 51.308(d) with the exception of BART. The requirement to evaluate sources for BART applies only to the first regional haze SIP. Facilities subject-to-BART must continue to comply

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with the BART provisions of section 51.308(e), as noted above. Periodic SIP revisions will assure that the statutory requirement of reasonable progress will continue to be met.

G. Consultation with States and Federal Land Managers (FLMs)

The RHR requires that states consult with FLMs before adopting and submitting their SIPs. 40 CFR 51.308(i). States must provide FLMs an opportunity for consultation, in person and at least 60 days prior to holding any public hearing on the SIP. This consultation must include the opportunity for the FLMs to discuss their assessment of impairment of visibility in any Class I area and to offer recommendations on the development of the RPGs and on the development and implementation of strategies to address visibility impairment. Further, a state must include in its SIP a description of how it addressed any comments provided by the FLMs. Finally, a SIP must provide procedures for continuing consultation between the state and FLMs regarding the state's visibility protection program, including development and review of SIP revisions, five-year progress reports, and the implementation of other programs having the potential to contribute to impairment of visibility in Class I areas.

VII. EPA's Evaluation of Wyoming's Regional Haze SIP

A. Affected Class I Areas

Pursuant to 40 CFR 51.308(d), the State identified seven mandatory Class I areas in Wyoming: Grand Teton National Park, Yellowstone National Park, Bridger Wilderness, Fitzpatrick Wilderness, North Absaroka Wilderness, Teton Wilderness, and Washakie Wilderness.

B. Baseline Visibility, Natural Visibility, and Uniform Rate of Progress

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As required by 40 CFR 51.308(d)(2), Wyoming provided baseline visibility, natural visibility, and the URP for each Class I area in the State. Natural background visibility, as defined in our *2003 Natural Visibility Guidance*, is estimated by calculating the expected light extinction using default estimates of natural concentrations of fine particle components adjusted by site-specific estimates of humidity. This calculation uses the IMPROVE equation, which is a formula for estimating light extinction from the estimated natural concentrations of fine particle components (or from components measured by the IMPROVE monitors). As documented in our *2003 Natural Visibility Guidance*, EPA allows states to use "refined" or alternative approaches to this guidance to estimate the values that characterize the natural visibility conditions of Class I areas.

One alternative approach is to develop and justify the use of alternative estimates of natural concentrations of fine particle components. Another alternative is to use the "new IMPROVE equation" that was adopted for use by the IMPROVE Steering Committee in December 2005.[9] The purpose of this refinement to the "old IMPROVE equation" is to provide more accurate estimates of the various factors that affect the calculation of light extinction.

Wyoming used the new IMPROVE equation to calculate natural conditions and baseline visibility. The natural condition for each Class I area represents the visibility goal expressed in deciviews for the 20% worst days and the 20% best days that would exist if there were only naturally occurring visibility impairment. In accordance with 40 CFR 51.308(d)(2)(iii), the State calculated natural visibility conditions based on available monitoring information and

[9] The IMPROVE program is a cooperative measurement effort governed by a steering committee composed of representatives from Federal agencies (including representatives from EPA and the FLMs) and regional planning organizations. The IMPROVE monitoring program was established in 1985 to aid the creation of Federal and State implementation plans for the protection of visibility in Class I areas. One of the objectives of IMPROVE is to identify chemical species and emission sources responsible for existing anthropogenic visibility impairment. The IMPROVE program has also been a key participant in visibility-related research, including the advancement of monitoring instrumentation, analysis techniques, visibility modeling, policy formulation and source attribution field studies.

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appropriate data analysis techniques and in accordance with our *2003 Natural Visibility Guidance.* The State also calculated the number of deciviews by which baseline conditions exceed natural conditions at each of its Class I areas to meet the requirements of 40 CFR 51.308(d)(2)(iv)(A).

Wyoming established the baseline visibility for the best and worst visibility days for each Class I area based on data from the IMPROVE monitoring sites. Each IMPROVE monitor collects particulate concentration data which are converted into reconstructed light extinction through a complex calculation using the IMPROVE equation (see Chapter 13 of the SIP for more information on reconstructed light extinction and the IMPROVE equation). Per 40 CFR 51.308(d)(2)(i), the State calculated baseline visibility using a five-year average (2000 to 2004) of IMPROVE data for both the 20% best and 20% worst days. The State's baseline calculations were made in accordance with our *2003 Tracking Progress Guidance*.

Pursuant to 40 CFR 51.308(d)(1)(i)(B), the State calculated the URP for each of its Class I areas. For the 20% worst days, the URP is the calculation of the deciview reduction needed to achieve natural conditions by 2064. For the 20% worst days, the State calculated the URP in deciviews per year using the following formula: URP = [Baseline Condition - Natural Condition] / 60 years. In order to determine the uniform progress needed by 2018 to be on the path to achieving natural visibility conditions by 2064, the State multiplied the URP by the 14 years in the first planning period (2004-2018).

Table 1 shows the baseline visibility, natural conditions, and URP for each of the Class I areas. As indicated by the table, some Class I areas share a single monitor because of the proximity of the areas to each other.

Table 1 – Baseline Visibility, Natural Conditions, and URP for Wyoming Class I Areas

20% Worst Days	20% Best

							Days
Wyoming Class I Areas	Monitor Name	2000-2004 Baseline (deciview)	2018 URP (deciview)	Reduction Needed to Reach 2018 URP (delta deciview)	2064 Natural Conditions (deciview)	Delta Baseline – 2064 Natural Conditions	2000-2004 Baseline (deciview)
Yellowstone National Park Grand Teton National Park Teton Wilderness	YELL2	11.8	10.5	1.3	6.44	5.36	2.58
North Absaroka Wilderness Washakie Wilderness	NOABI	11.5	10.4	1.1	6.83	4.67	2.0
Bridger Wilderness Fitzpatrick Wilderness	BRID1	11.1	10.0	1.1	6.45	4.65	2.1

We have reviewed Wyoming's baseline visibility, natural conditions, and URP. We find they have been calculated correctly and are proposing to approve them.

C. BART Determinations

BART is an element of Wyoming's LTS for the first implementation period. As discussed in more detail in section VI.D of this notice, the BART evaluation process consists of three components: (1) an identification of all the BART-eligible sources; (2) an assessment of whether those BART-eligible sources are in fact subject-to-BART; and (3) a determination of any BART controls. Wyoming addressed these steps as follows:

1. BART-Eligible Sources

The first step of a BART evaluation is to identify all the BART-eligible sources within the state's boundaries. Wyoming identified its BART-eligible sources by using the approach set out in the BART Guidelines (70 FR 39158). This approach provides three criteria for identifying BART-eligible sources: (1) one or more emission units at the facility fit within one of the 26 categories listed in the BART Guidelines; (2) the emission unit or units began operation on or

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after August 6, 1962, and were in existence on August 6, 1977; and (3) combined potential emissions of any visibility-impairing pollutant from the units that meet the criteria in (1) and (2) are 250 tons or more per year. Wyoming reviewed source permits and emission data from 2001-2003 to identify facilities in the BART source categories with potential emissions of 250 tons per year or more for any visibility-impairing pollutant from any unit or units that were in existence on August 7, 1977 and began operation on or after August 7, 1962. The BART Guidelines direct states to address SO_2[10], NO_x, and direct PM (including both PM_{10} and $PM_{2.5}$) emissions as visibility-impairing pollutants and to exercise their "best judgment to determine whether VOC or NH_3 emissions from a source are likely to have an impact on visibility in an area." (70 FR 39162).

The State analyzed the emissions from VOC and NH_3 from sources in the State and eliminated them from further consideration for BART controls. The State evaluated the BART-eligible sources and determined emissions of VOC and NH_3 were negligible. Thus, the State has eliminated VOC and NH_3 from further consideration for BART controls. We agree with the State that emissions of VOC and NH_3 are negligible and propose to accept this determination.

The State determined that the following were BART-eligible sources: PacifiCorp Jim Bridger, P4 Production, PacifiCorp Naughton, OCI Wyoming, FMC Granger, Dyno Nobel, FMC Westvaco, Sinclair Casper Refinery, Basin Electric Laramie River, Black Hills Neil Simpson 1, PacifiCorp Wyodak, Sinclair - Sinclair Refinery, PacifiCorp Dave Johnston, and General Chemical Green River.

We have reviewed this information and propose to accept this determination.

2. Sources Subject to BART

[10] Wyoming has elected to submit its RH SIP pursuant to the requirements of 40 CFR 51.309. For states electing to submit under section 309, States do not have to do a BART analysis for SO_2. SO_2 controls are included in the backstop trading program under 40 CFR 51.309(d)(4).

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The second step of the BART evaluation is to identify those BART-eligible sources that may reasonably be anticipated to cause or contribute to any visibility impairment at any Class I area, i.e., those sources that are subject-to-BART. The BART Guidelines allow states to consider exempting some BART-eligible sources from further BART review because they may not reasonably be anticipated to cause or contribute to any visibility impairment in a Class I area. Consistent with the BART Guidelines, Wyoming performed dispersion modeling on the BART-eligible sources to assess the extent of their contribution to visibility impairment at surrounding Class I areas.

a. Modeling Methodology

The BART Guidelines provide that states may use the CALPUFF[11] modeling system or another appropriate model to predict the visibility impacts from a single source on a Class I area and to, therefore, determine whether an individual source is anticipated to cause or contribute to impairment of visibility in Class I areas, i.e., "is subject to BART." The Guidelines state that CALPUFF is the best regulatory modeling application currently available for predicting a single source's contribution to visibility impairment (70 FR 39162).

The BART Guidelines also recommend that states develop a modeling protocol for making individual source attributions, and suggest that states may want to consult with EPA and their RPO to address any issues prior to modeling. Wyoming used the CALPUFF model for Wyoming BART sources in accordance with a protocol it developed titled *BART Air Modeling Protocol Individual Source Visibility Impairment Analysis*, March 2006, which was approved by

[11] Note that our reference to CALPUFF encompasses the entire CALPUFF modeling system, which includes the CALMET, CALPUFF, and CALPOST models and other pre and post processors. The different versions of CALPUFF have corresponding versions of CALMET, CALPOST, etc. which may not be compatible with previous versions (e.g., the output from a newer version of CALMET may not be compatible with an older version of CALPUFF). The different versions of the CALPUFF modeling system are available from the model developer at http://www.src.com/verio/download/download.htm .

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EPA and is included in Chapter 6 of the State's TSD. The Wyoming protocol follows recommendations for long-range transport described in appendix W to 40 CFR part 51, *Guideline on Air Quality Models*, and in EPA's *Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts* as recommended by the BART Guidelines. (40 CFR part 51, appendix Y, section III.A.3). To determine if each BART-eligible source has a significant impact on visibility, Wyoming used the CALPUFF model to estimate daily visibility impacts above estimated natural conditions at each Class I area within 300 km of any BART-eligible facility. The emission rates used in the CALPUFF modeling were determined by Wyoming based upon existing permits, allowable rates, and emissions reporting data.

b. Contribution Threshold

For states using modeling to determine the applicability of BART to single sources, the BART Guidelines note that the first step is to set a contribution threshold to assess whether the impact of a single source is sufficient to cause or contribute to visibility impairment at a Class I area. The BART Guidelines state that, "[a] single source that is responsible for a 1.0 deciview change or more should be considered to 'cause' visibility impairment." (70 FR 39104, 39161). The BART Guidelines also state that "the appropriate threshold for determining whether a source contributes to visibility impairment may reasonably differ across states," but, "[a]s a general matter, any threshold that you use for determining whether a source "contributes" to visibility impairment should not be higher than 0.5 deciviews." *Id.* Further, in setting a contribution threshold, states should "consider the number of emissions sources affecting the Class I areas at issue and the magnitude of the individual sources' impacts." The Guidelines affirm that states are free to use a lower threshold if they conclude that the location of a large number of BART-eligible sources in proximity to a Class I area justifies this approach.

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Wyoming used a contribution threshold of 0.5 deciviews for determining which sources are subject-to-BART. By using a contribution threshold of 0.5 deciviews, Wyoming exempted seven of the fourteen BART-eligible sources in the State from further review under the BART requirements. Based on the modeling results, the State determined that P4 Production, FMC Granger,[12] and OCI Wyoming had an impact of .07 deciview, 0.39 deciview, and 0.07 deciview, respectively, at Bridger Wilderness. Black Hills Neil Simpson 1, Sinclair Casper Refinery, and Sinclair - Sinclair Refinery have an impact of 0.27 deciview, 0.06 deciview, and 0.12 deciview, respectively, at Wind Cave. Dyno-Nobel had an impact of 0.22 deciview at Rocky Mountain National Park. These sources' modeled visibility impacts fell below the State's threshold of 0.5 deciview and were determined not to be subject-to-BART.[13] Given the relatively limited impact on visibility from these seven sources, we propose to agree with Wyoming that 0.5 deciviews is a reasonable threshold for determining whether its BART-eligible sources are subject-to-BART.

Because our recommended modeling approach already incorporates choices that tend to lower peak daily visibility impact values,[14] our BART Guidelines state that a state should compare the 98th percentile (as opposed to the 90th or lower percentile) of CALPUFF modeling results against the "contribution" threshold established by the state for purposes of determining BART applicability. Wyoming used a 98th percentile comparison that we find appropriate. Further explanation on use of the 98th versus 90th percentile value is provided at 70 FR 39121.

c. Sources Identified by Wyoming as Subject-to-BART

[12] The State of Wyoming performed a refined CALPUFF visibility modeling analysis for the two BART-eligible units at the FMC Wyoming Granger Facility and demonstrated that the predicted 98th percentile impacts at Bridger Wilderness Area and Fitzpatrick Wilderness Area would be below 0.5 dv for all meteorological periods modeled. This modeling used higher-resolution meteorological data as compared to the data used by the State for the initial screening modeling that identified the facility as subject-to-BART.

[13] CALPUFF modeling results, which provide the maximum change in visibility are summarized in the *WY BART Screening Analysis Results* and the *WY BART Screening Analysis Results DV Frequency*, which can also be found in Chapter 6 of the State's TSD.

[14] See our BART Guidelines, Section III.A.3.

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Table 2 shows the sources identified by the State as subject-to-BART and the results of the CALPUFF modeling. The results reflect the single highest impacted year.

Table 2 – Wyoming Subject-to-BART Sources and CALPUFF Modeling Results

Facility Name	Subject-to-BART Units	State Modeling Results – 98th Percentile Delta-Deciview
PacifiCorp - Jim Bridger	Units 1-4	3.1
Basin Electric - Laramie River	Units 1, 2 and 3	3.68
PacifiCorp - Dave Johnston	Units 3 and 4	3.30
PacifiCorp - Naughton	Units 1-3	4.36
PacifiCorp - Wyodak	Unit 1	1.66
FMC - Westvaco	Units NS-1A and NS-1B	1.3
General Chemical – Green River	Boilers C and D	1.36

We are proposing to approve the State's determination of the subject-to-BART sources.

3. BART Determinations and Federally Enforceable Limits

The third step of a BART evaluation is to perform the BART analysis. The BART Guidelines (70 FR 39164) describe the BART analysis as consisting of the following five steps:

- Step 1: Identify All Available Retrofit Control Technologies;
- Step 2: Eliminate Technically Infeasible Options;
- Step 3: Evaluate Control Effectiveness of Remaining Control Technologies;
- Step 4: Evaluate Impacts and Document the Results; and
- Step 5: Evaluate Visibility Impacts.

In determining BART, the State must consider the five statutory factors in section 169A of the CAA: (1) the costs of compliance; (2) the energy and non-air quality environmental

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impacts of compliance; (3) any existing pollution control technology in use at the source; (4) the remaining useful life of the source; and (5) the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology. *See also* 40 CFR 51.308(e)(1)(ii)(A).

We find that Wyoming considered all five steps above in its BART determinations, but we propose to find that its consideration of the costs of compliance and visibility improvement for the EGUs was inadequate and did not properly follow the requirements in the BART Guidelines and statutory requirements, as explained below.

a. Costs of Compliance

Wyoming obtained the costs of compliance for controls from the BART applications submitted by sources that were subject to BART.[15] EPA in turn relied on these costs in our original proposed rule. EPA has reviewed Wyoming's cost analyses and has identified deficiencies in various cost assumptions and methods. Accordingly, EPA has subsequently and independently calculated costs of compliance and performed new visibility modeling. In many instances, the BART sources underestimated the cost of selective non-catalytic reduction (SNCR), while overestimating the cost of selective catalytic reduction (SCR) (both in combination with additional combustion controls). Depending on the particular BART source in question, we believe this was due to a number of errors, such as: use of incorrect baseline emissions; overestimation of the ability of SNCR to reduce NO_x; underestimation of SNCR reagent (urea) usage and cost; and underestimation of the ability of SCR to reduce NO_x.

EPA has identified a number of flaws in Wyoming's cost analyses for SNCR. For example, in the case of Laramie River Units 1-3, Wyoming significantly overestimated the ability of SNCR to reduce NO_x. The analyses submitted by the source, and in turn used by

[15] Attachment A to the Wyoming 309(g) Regional Haze SIP

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Wyoming, assumed that after the installation of additional combustion controls, SNCR would reduce NO_x from 0.23 lb/MMBtu to 0.12 lb/MMBtu (or by roughly 48%). However, SNCR typically reduces NO_x an additional 20 to 30% above combustion controls without excessive NH_3 slip.[16] NO_x reduction with SNCR is known to be greater at higher NOx emission rates than lower rates.[17] Accordingly, EPA has estimated that the NO_x reduction from SNCR as 30% for initial NO_x greater than 0.25 lb/MMBtu, 25% for NO_x from 0.20 to 0.25 lb/MMBtu and 20% for NOx less than 0.20 lb/MMBtu.[18] Due to the relatively recent installation of overfire air at the Laramie River units, the actual annual emissions in 2012 dropped to around 0.19 lb/MMBtu,[19] even lower than the 0.23 lb/MMbtu rate assumed by Wyoming. Therefore, EPA predicts that the reduction that can be achieved with SNCR at the Laramie River units is 20%, which is much lower than the 48% assumed by Wyoming. This significantly reduces the tons reduced by SNCR which is in turn used in the calculation of cost effectiveness. It also affects the incremental cost effectiveness between SNCR and SCR (both in combination with additional combustion controls). In addition, our analysis of urea prices indicates that producer prices for urea have increased the past three years. This increase in price is not reflected in the Wyoming estimates for SNCR.

EPA has also identified a number of flaws in Wyoming's cost analyses for SCR. For example, Wyoming assumed that SCR could only achieve a control effectiveness of 0.07 lb/MMBtu. By contrast, EPA has determined that on an annual basis SCR can achieve emission rates of 0.05 lb/MMbtu or lower. Moreover, we note that Wyoming's SCR capital costs on a

[16] White Paper, SNCR for Controlling NOx Emissions, Institute of Clean of Clean Air Companies, pp. 4 and 9, February 2008.

[17] Hofmann, J., Sun, W., "Process for Nitrogen Oxides Reduction to Lowest Achievable Level", US Patent 5,229,090, July 20, 1993, Figure 6

[18] *Review of Estimated Compliance Costs for Wyoming Electric Generating (EGUs) – Revision of Previous Memo*, memo from Jim Staudt, Andover Technology Partners, to Doug Grano, EC/R, Inc., February 7, 2013., page 7 (Staudt Memo).

[19] Staudt memo, Table 2, p. 7.

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$/kW basis often exceeded real-world industry costs. The capital costs for SCR claimed by Wyoming for Dave Johnston 3 and 4, Naughton Units 1-3, and Wyodak are in excess of the range of capital costs documented by various studies for actual installations. Five industry studies conducted between 2002 and 2007 have reported the installed unit capital cost of SCRs, or the costs actually incurred by owners, to range from $79/kW to $316/kW (2010 dollars). By contrast, Wyoming's SCR costs range from $415/kW to $531/kW.[20] These studies show actual capital costs are much lower than Wyoming's, particularly for the PacifiCorp units.

For all control technologies, EPA has identified instances in which Wyoming's source-based cost analyses did not follow the methods set forth in the EPA Control Cost Manual.[21] For example, Wyoming included an allowance for funds used during construction and for owners costs and did not provide sufficient documentation such as vendor estimates or bids.

In addition, for the PacifiCorp units, Wyoming calculated the baseline annual emissions used for determining cost effectiveness based on allowable emissions, rated heat input, and 7,884 hours of operation (equivalent to a 85% capacity factor), which are not representative of actual emissions from the baseline period. By contrast, the BART Guidelines state that the baseline emissions should "represent a realistic depiction of anticipated annual emissions for the source."[22] Therefore, in our revised cost analyses, we have consistently used the actual annual average emissions from 2001-2003 to represent baseline emissions.

To address these flaws and deficiencies, EPA has developed independent cost analyses. In our revised cost analyses, we have followed the structure of the EPA Control Cost Manual, though we have largely used the Integrated Planning Model cost calculations to estimate direct

[20] Staudt memo, Table 1, p. 4.
[21] "In order to maintain and improve consistency, cost estimates should be based on the OAQPS Control Cost Manual, where possible." 70 FR 39166.
[22] 70 FR 39167.

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capital costs and operating and maintenance costs. We have also followed the BART Guidelines. Detailed information on the revised costs can be found in the docket.[23,24] In addition, we received comments on our original proposed rulemaking from the National Park Service and Conservation Organizations that expressed similar concerns with the State's cost analyses.

b. Visibility Improvement Modeling

The BART Guidelines provide that states may use the CALPUFF modeling system or another appropriate model to determine the visibility improvement expected at a Class I area from potential BART control technologies applied to the source. The BART Guidelines also recommend that states develop a modeling protocol for modeling visibility improvement, and suggest that states may want to consult with EPA and their RPO to address any issues prior to modeling. Wyoming developed a modeling protocol titled BART Air Modeling Protocol Individual Source Visibility Assessments for BART Control Analyses, September 2006, for sources to use when they performed their BART analysis (see Chapter 6 of the State's TSD). The Wyoming protocol follows recommendations for long-range transport described in appendix W to 40 CFR part 51, Guideline on Air Quality Models, and in EPA's Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts, as recommended by the BART Guidelines (40 CFR part 51, appendix Y, section III.D.5).

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[23] *Review of Estimated Compliance Costs for Wyoming Electric Generating (EGUs) – Revision of Previous Memo*, memo from Jim Staudt, Andover Technology Partners, to Doug Grano, EC/R, Inc., February 7, 2013. (Staudt Memo).

[24] *Review of Estimated BART Compliance Costs for Wyoming Electricity Generating Units (EGUs)* memo from Jim Staudt, Andover Technology Partners, to Doug Grano, EC/R, Inc., February 7, 2013.

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While we are able to propose approval of the State's PM BART determinations without having additional visibility improvement modeling for PM controls, as discussed below, additional visibility improvement modeling to address the EGU NOx BART controls was needed and subsequently performed by EPA and presented in our original proposed rulemaking.[25] Our additional modeling to support the original proposed rule was intended to addresses two deficiencies. First, while Wyoming took into consideration the degree of visibility improvement for some BART NOx control options for the PacifiCorp EGUs, such as SCR, they did not do so for SNCR. The visibility improvement for SNCR was neither provided in the State's SIP nor made available to EPA. Wyoming did not assess the visibility improvement of SNCR despite having found it to be a technically feasible control option, and having considered a number of the other statutory factors for SNCR, such as costs of compliance and energy impacts. Wyoming did not consider the visibility improvement associated with SNCR, which is clearly in conflict with the requirements set forth in section 169A(g)(2) of the CAA, as well as in the implementing regulations,[26] which require that states take into consideration "the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology." Because Wyoming did not do so, and in order to be consistent with the statutory and regulatory requirements, EPA conducted additional CALPUFF modeling to fill this gap in the State's visibility analysis (that is, to assess the visibility improvement associated with SNCR.

Second, it was not possible for EPA, or any other party, to ascertain the visibility improvement that would result from the installation of the various NO_x control options because Wyoming modeled the emission reductions for multiple pollutants together in its SIP. In other words, because the visibility improvement associated with each of the State's control scenarios

[25] A summary of EPA's modeling methodology and results for the original proposed rulemaking can be found in the docket under *EPA BART and RP Modeling for Wyoming Sources*.
[26] 40 CFR 51.308(e)(1)(ii)(A).

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was due to the combined emission reductions associated with SO_2, NO_x, and PM controls, it was not possible to isolate what portion of the improvement was attributable to the NO_x controls alone. In addition, because Wyoming varied SO_2 and PM emission rates along with NO_x emission rates, it was not possible to assess the incremental visibility improvement between the various NO_x controls options. For these reasons, EPA conducted additional modeling for the EGUs in which we held SO_2 and PM emission rates constant (reflecting the "committed controls" identified by Wyoming), and varied only the NO_x emission rate. This allowed us to isolate the degree of visibility improvement attributable to the NO_x control technologies. The modeling which EPA performed to support our original proposed rule addressed these two deficiencies in the State's analysis.

To support today's proposal, EPA has found it necessary to revise the CALPUFF modeling we performed in association with our original proposed rule. The revised modeling to support today's proposed rule is intended to address two additional issues that were raised by commenters during the comment period for the original proposed rule. First, as discussed above in section V.II, we have revised the costs of control submitted by the State. In the process of revising these costs, we have calculated a new removal efficiency for the control options under consideration to reflect updated assumptions about baseline emissions and control effectiveness.[27]

In order to align our cost and modeling analyses, these removal efficiencies have been incorporated into our revised modeling. Second, the emission rates we relied on in our original proposed rule for both the baseline (i.e., pre-control) and post-control modeling scenarios were not consistent with the BART Guidelines. For pre-control emission rates, the BART Guidelines recommend that States use the 24-hour average actual emission rate from the highest emitting

[27] See Staudt memos.

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day of the meteorological period modeled.[28] By contrast, the visibility modeling performed by PacifiCorp, and subsequently submitted by the State and utilized by EPA in our original proposal, deviates from the BART Guidelines by using permit limits and the maximum rated heat input to derive the modeled emission rates. Similarly, the visibility modeling performed by Basin Electric, and subsequently submitted by the State and utilized by EPA in our original proposal, deviates from the BART Guidelines by using actual annual average heat input and actual annual average emission rates (on a lb/MMBtu basis) from 2001-2003 continuous emissions monitoring data to derive modeled emission rates. Furthermore, the BART Guidelines recommend that post-control emission rates be calculated as a percentage of pre-control emission rates.[29] The visibility modeling performed by PacifiCorp and Basin Electric, and subsequently submitted by the State and utilized by EPA in our original proposal, deviates from the BART Guidelines by using post-control emission rates calculated in a similar manner to the pre-control emission rates. Our revised modeling remedies both of the issues identified by the commenters and is consistent with the requirements of the BART Guidelines. We have otherwise followed the procedures contained in the Wyoming BART Air Modeling Protocol. A summary of EPA's revised modeling methodology and results can be found in the docket.[30]

Because Wyoming relied on visibility modeling methodologies that are inconsistent with the statutory and regulatory requirements, we do not consider Wyoming's analyses of visibility improvement for NOx BART to be reasonable. We propose to find that Wyoming's analyses are inconsistent with the statutory and regulatory requirement that Wyoming reasonably take into

[28] The BART Guidelines, Section IV. (70 FR 39170) specify that the modeling should "[u]se the 24-hour average actual emission rate from the highest emitting day of the meteorological period modeled (for the pre-control scenario)".

[29] The BART Guidelines, Section IV. (70 FR 39170) specify that "[p]ost-control emission rates are calculated as a percentage of pre-control emission rates".

[30] EPA's modeling results and a summary of EPA's modeling methodology can be found in the docket under *Summary of EPA's Revised Modeling - Including Revisions from Previous Version Posted on 1/18/2013 and Results for Jim Bridger Units 1-4* and *EPA's Revised Modeling Results*; posted to the docket on February 11, 2013.

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consideration "the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology." Therefore, as discussed in more detail below, we are proposing to disapprove several of the State's NO_x BART determinations that do not meet the requirements of the CAA and regional haze regulations because they are inconsistent with the visibility requirements.

c. Summary of BART Determinations and Federally Enforceable Limits

For the subject-to-BART sources, the State provided BART analyses, as well as additional technical information and materials, in Attachment A to the SIP. Chapter 6 of the SIP provides a summary of the five-factor analyses. As noted above, for this proposed rulemaking, EPA performed cost analyses and NO_x visibility improvement modeling for the control technology options analyzed for the subject-to-BART EGU sources. We are presenting the BART analyses that we based our June 4, 2012 proposed rulemaking on, as well as EPA's revised BART analyses, reflecting our revised cost and visibility improvement modeling for the EGUs.

EPA is proposing to approve the State's BART determinations for the following units because we have determined that the State's conclusions were reasonable despite the cost and visibility errors for the EGUs discussed earlier: NO_x and PM BART for FMC Westvaco Unit NS-1A and NS-1B; NO_x and PM BART for General Chemical Green River Boiler C and Boiler D;[31] PM BART for Basin Electric Laramie River Units 1, 2, and 3; PM BART for PacifiCorp Dave Johnston Unit 3; PM BART for PacifiCorp Dave Johnston Unit 4; NO_x and PM BART (including reasonable progress controls) for PacifiCorp Jim Bridger Units 1-4; PM BART for PacifiCorp Naughton Units 1and 2; NO_x and PM BART for Naughton Unit 3; and PM BART for

[31] FMC Westvaco and General Chemical Green River are not EGUs and EPA did not identify the same cost and visibility improvement modeling issues as it did for the EGUs and are thus proposing to approve the State's BART analyses and determinations for these units.

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PacifiCorp Wyodak Unit 1. A summary of the State's and EPA's BART determination for each source is provided below.

EPA is proposing to disapprove the State's NO_x BART determinations and promulgate a FIP for the following units: PacifiCorp Dave Johnston Units 3 and 4; PacifiCorp Naughton Units 1 and 2; PacifiCorp Wyodak Unit 1; and Basin Electric Laramie River Units 1, 2, and 3. After re-analyzing the costs of control and visibility improvement associated with these units, we determined that the State's selection of NO_x BART controls could not be supported, warranting a FIP. EPA's reasoning behind its own NO_x BART determinations and emission limitations for these units can be found in section VIII.A of this notice.

i. FMC Westvaco – Units NS-1A and NS-1B

Background

FMC's Westvaco facility is a trona mine and sodium products plant located in Sweetwater County, Wyoming. FMC Westvaco has two existing coal-fired boilers, Unit NS-1A and Unit NS-1B, that are subject to BART. Unit NS-1A and Unit NS-1B each have a design heat input rate of 887 MMBtu/hr and were constructed in 1975. They are both wall-fired, wet-bottom boilers burning subbituminous coal. The State's BART determinations for these units can be found in Chapter 6.5.2 and Attachment A of the SIP.

NO_x BART Determination

Units NS-1A and NS-1B are currently controlled with combustion air control with a permit limit of 0.7 lb/MMBtu (3-hour rolling average). The State determined that low NO_x burners (LNBs) and overfired air (OFA), LNBs and OFA with SNCR, and LNBs and OFA with SCR were all technically feasible for reducing NO_x emissions at Unit NS-1A and NS-1B. The State did not identify any technically infeasible options. The State did not identify any energy or

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non-air quality environmental impacts that would preclude the selection of any of the controls evaluated, and there are no remaining-useful-life issues for this source. A summary of the State's NO_x BART analyses and the visibility impacts is provided in Table 3. Baseline NO_x emissions are 2,719.5 tpy for each unit based on a heat input rate of 887 MMBtu/hr and 8,760 hours of operation per year.

Table 3 – Summary of FMC Westvaco Unit NS-1A and Unit NS-1B NO_x BART Analysis*

Control Technology	Emission Rate (lb/MMBtu) (30-day Rolling Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Bridger Wilderness Area)
LNB + OFA	0.35	1,359.7	$413,145	$304	--	0.13
LNB+OFA + SNCR	0.21	1,903.6	$1,281,851	$673	$1,597	0.19
LNB+OFA +SCR	0.10	2,331.0	$8,141,177	$3,493	$16,051	0.24

*This table reflects the costs and visibility improvements per boiler.

The visibility modeling in the State's SIP only includes the visibility improvement at the two most impacted Class I areas: Bridger Wilderness Area and Fitzpatrick Wilderness Area. The visibility improvement at Bridger is listed in the Table above. For Fitzpatrick, the visibility improvement is .09 dv for LNBs with OFA, 0.11 dv for LNBs with SNCR, and 0.13 dv for LNBs with SCR. Given the limited visibility improvement at the two most impacted areas, we propose to find that it was reasonable for the State to model only those two receptors.

Based on its consideration of the five factors, the State determined that LNBs plus OFA are reasonable for BART. The State determined that the other control options were not reasonable based on the cost effectiveness and associated visibility improvement. The State has

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determined that NO_x BART emission limit for FMC Westvaco Unit NS-1A and Unit MS-1B is 0.35 lb/MMBtu (30-day rolling average).

We agree with the State's conclusions, and we are proposing to approve its NO_x BART determinations for FMC Westvaco Unit NS-1A and Unit NS-1B. Although the cost-effectiveness for SNCR is reasonable, we find it reasonable for the State not to select this control technology based on the incremental visibility improvement for this control technology.

PM BART Determination

Unit NS-1A and Unit NS-1B are currently controlled for PM emissions by electrostatic precipitators (ESPs). The units each currently have a PM emission limit of 0.05 lb/MMBtu. The State determined that fabric filters on the wet scrubber, addition of an ESP downstream of the wet scrubber, and replacement of the ESPs with fabric filters were technically feasible control options. The State did not identify any energy or non-air quality environmental impacts that would preclude the selection of any of the controls evaluated, and there are no remaining-useful-life issues for this source. A summary of the State's PM BART analysis is provided in Table 4 below. Baseline PM emissions are 197 tpy for each unit based on a heat input rate of 887 MMBtu/hr and 8,760 hours of operation per year.

Table 4 – Summary of FMC Westvaco Unit NS-1A and Unit NS-1B PM BART Analysis*

Control Technology	Control Efficiency (%)	Emission Rate (lb/MMBtu) (30-day Rolling Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)
Fabric Filter on Wet Scrubber	21.4	0.04	41.7	$1,791,364	$42,948
ESP after Wet Scrubber	63.3	0.019	123.3	$3,507,617	$28,448
Replace ESP with Fabric Filter	71.3	0.015	138.8	$4,116,036	$29,654

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*This table reflects the costs and visibility improvements per boiler.

Given the high cost of controls, which are higher than what EPA, or other states have considered reasonable for PM, FMC did not evaluate the visibility improvement that would result from the PM controls evaluated. Previous visibility modeling analyses from the source indicate that the contribution in visibility degradation from PM is minor when compared to the effects of NO_x and SO_2. Results from FMC's visibility modeling screening and analysis confirm this conclusion and are discussed in further detail within the comprehensive visibility analysis included as part of FMC's BART application (see Attachment A to the SIP). The State agreed with FMC's conclusions and did not require FMC to perform additional visibility analyses for the PM control options.

The State determined that the current ESP control was reasonable for PM BART. The State rejected other controls because of their high cost-effectiveness values. The State has determined that the PM BART emission limits for FMC Westvaco Unit NS-1A and NS-1B are 0.05 lb/MMBtu, 45.0 lb/hr, and 197 tpy.

We agree with the State's conclusions, and we are proposing to approve its PM BART determinations for FMC Westvaco Unit NS-1A and Unit NS-1B.

ii. General Chemical Green River – Boilers C and D

General Chemical Green River is a trona mine and sodium products plant. General Chemical's two existing coal-fired boilers, C and D, are co-located at the facility power plant. Both boilers burn low sulfur bituminous coal, and they supply power and process steam to mining and ore processing operations. Both boilers are tangentially fired using in-line coal pulverizers. The firing rate is 534 MMBtu/hr for Boiler C and 880 MMBtu/hr for Boiler D. The State's BART determinations can be found in Chapter 6.5.3 and Attachment A of the SIP.

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NO_x BART Determination

Boiler C and Boiler D are currently controlled with LNBs plus OFA with a permit limit of 0.7 lb/MMBtu (3-hour rolling average). On August 7, 2009, the State issued a BART permit to General Chemical that required the source to meet a NO_x emission limit of 0.32 lb/MMBtu (30-day rolling average) for Boiler C and Boiler D. The State assumed the source could meet this emission limit with the installation and operation of new LNBs with the existing OFA. Upon further investigation, the source determined it could not meet a limit of 0.32 lbs/MMBtu with new LNBs and the existing OFA.

In response to the additional information provided by the source, the State reexamined its BART determination for Boiler C and D. The State determined that installing SOFA in addition to the existing LNBs and OFA could achieve an emission limit of 0.28 lb/MMBtu. Because SOFA in conjunction with the existing NO_x controls could achieve better emission reductions than new LNBs plus OFA, the State eliminated the latter from further consideration in the BART analysis. The State determined that SNCR and SCR were also technically feasible. The State did not identify any technically infeasible options.

The State did not identify any energy or non-air quality environmental impacts that would preclude the selection of any of the controls evaluated, and there are no remaining-useful-life issues for this source. A summary of the State's NO_x BART analysis and visibility impacts is provided in Tables 5 and 6 below. Baseline NO_x emissions are 1,167 tpy for Boiler C and 1,816 tpy for Boiler D based on an average of 2001-2003 actual emissions.

Table 5 – Summary of General Chemical – Green River Boiler C NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (30-day Rolling	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th

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	Average)					Percentile Impact at Bridger Wilderness Area)
Existing LNBs with SOFA	0.28	512	$757,711	$1,480	--	0.05
SNCR	0.35	584	$1,433,720	$2,455	$4,782	0.08
SCR	0.14	934	$2,434,809	$2,607	$3,156	0.14

Table 6 – Summary of General Chemical – Green River Boiler D NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (30-day Rolling Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Bridger Wilderness Area)
Existing LNBs with SOFA	028	737	$943,549	$1,280	--	0.07
SNCR	0.35	908	$1,486,581	$3,176	$2,913	0.12
SCR	0.14	1,453	$3,399,266	$3,510	$4,342	0.17

The visibility modeling in the State's SIP only includes the visibility improvement at the two most impacted Class I areas: Bridger Wilderness Area and Fitzpatrick Wilderness Area. The visibility improvement at Bridger is listed in the Table above. For Fitzpatrick, the visibility improvement is 0.10 dv for LNBs with SOFA, 0.09 for SNCR, and 0.12 dv for SCR for each unit. Given the limited visibility improvement at the two most impacted areas, we propose to find that it was reasonable for the State to model only those two receptors.

Based on its consideration of the five factors, the State determined that NO_x BART is the existing LNBs with new SOFA, or a comparable performing technology. The State determined that SNCR and SCR were not reasonable based on the high cost effectiveness and low visibility

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improvement. The State determined the NO_x BART emission limit for General Chemical Green River Boiler C is 0.28 lb/MMBtu (30-day rolling average) and that the NO_x BART emission limit for Boiler D is 0.28 lb/MMBtu (30-day rolling average).

We agree with the State's conclusions, and we are proposing to approve its NO_x BART determinations for General Chemical Green River – Boiler C and D. Although the cost-effectiveness for SNCR and SCR is reasonable, we find it reasonable for the State not to select this control technology based on the low visibility improvement for these control technologies.

PM BART Determination

Boilers C and D are currently controlled by ESPs with permit limits of 50 lb/hr and 80 lb/hr, respectively. General Chemical addressed PM emissions through an abbreviated analysis by using PM BART information from FMC Westvaco, as discussed above. The facilities are similar in size and located about ten miles apart. Baseline PM emissions are 98 tpy for Boiler C and 161 tpy for Boiler D based on the average of 2001-2003 actual emissions. As discussed above, visibility modeling screening and analyses for FMC Westvaco indicate that the contribution in visibility degradation from PM for a source comparable to Boiler C and Boiler D is minor. Additionally, costs for controlling PM from similar boilers are high as indicated by the FMC analysis for Westvaco.

The State accepted General Chemical's abbreviated PM BART analysis. The State determined that the current ESP control was reasonable for PM BART. The State rejected other controls because of their high cost-effectiveness values. The State determined that the PM BART emission limits for Boiler C are 0.09 lb/MMBtu, 50 lb/hr, and 219 tpy, and that the PM BART emissions limits for Boiler D are 0.09 lb/MMBtu, 80 lb/hr, and 350.4 tpy.

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We agree with the State's conclusions, and we are proposing to approve its PM BART determination for General Chemical Green River Boiler C and D.

iii. Basin Electric Laramie River Station – Units 1-3

Basin Electric Laramie River Station is located in Platte County, Wyoming. Laramie River Station is comprised of three 550 MW dry-bottom, wall-fired boilers (Units 1, 2, and 3) burning subbituminous coal for a total net generating capacity of 1,650 MW. All three units are subject-to-BART. The State's BART determination can be found in Chapter 6.5.8 and Attachment A of the SIP (The NO_x BART analysis is discussed in section VIII.A of this notice).

PM BART Determination

Laramie River Units 1, 2, and 3 are currently controlled with ESPs, each with a permit limit of 0.03 lb/MMBtu. The State determined that fabric filters were technically feasible for Unit 3 but not Units 1 and 2. Units 1 and 2 are controlled with wet flue gas desulfurization and fabric filters cannot be used downstream of such a system. The State determined that flue gas treatment and GE Max-9 hybrid were technically infeasible for all three units. Thus, the only technically feasible control option for PM is fabric filters on Unit 3.

The State did not identify any energy or non-air quality environmental impacts that would preclude the selection of any of the controls evaluated, and there are no remaining-useful-life issues for this source. A summary of the State's PM BART analysis for Unit 3 is provided in Table 7 below. Baseline PM emissions are 716 tpy for the unit based on 2001-2003 actual emissions.

Table 7 – Summary of Basin Electric Laramie River Unit 3 PM BART Analysis

Control Technology	Control Efficiency (%)	Emission Rate (lb/MMBtu) (30-day Rolling	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)

		Average)			
Fabric Filter – Peak Rate for Lost Generating Costs	50	0.015	358	$194,809,000	$54,707
Fabric Filter Non–Peak Rate for Lost Generating Costs	50	0.015	358	$134,934,000	$40,156

The State did not provide visibility improvement modeling for fabric filters, but EPA is proposing to conclude this is reasonable based on the high cost-effectiveness of fabric filters at each of the units, which is higher than EPA or other state have considered reasonable for PM BART.

Based on its consideration of the five factors, the State determined that the current ESPs are reasonable for PM BART, as fabric filters on Unit 3 are not cost-effective and there are no other technically feasible controls for Units 1 and 2. The State determined that the PM BART emission limit for each of the Laramie River Units 1, 2, and 3 is 0.03 lb/MMBtu.

We agree with the State's conclusions, and we are proposing to approve its PM BART determination for Basin Electric Laramie River Units 1, 2, and 3.

iv. PacifiCorp Dave Johnston - Units 3 and 4

Background

PacifiCorp's Dave Johnston power plant is located in Converse County, Wyoming. Dave Johnston Power Plant is comprised of four units burning pulverized subbituminous Powder River Basin coal. Units 3 and 4 are the only units subject-to-BART. Dave Johnston Unit 3 is a nominal 230 MW pulverized coal-fired boiler that commenced service in 1964. It was equipped with burners in a cell configuration until 2010, but was then converted to a dry bottom wall-fired

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boiler. Dave Johnston Unit 4 is a nominal 330 MW pulverized coal-fired boiler that commenced service in 1972. It is a tangential-fired boiler. The State's BART analysis can be found in Chapter 6.5.5 and Appendix A of the SIP (the NO_x BART determination for Dave Johnston Unit 3 and Unit 4 is discussed in section VIII.A of this notice).

PM BART Determination

Units 3 and 4 are currently controlled with fabric filters installed in 2008 with an emission limit of 0.015 lb/MMBtu. The State determined that fabric filters represent the most stringent PM control technology and that 0.015 lb/MMBtu is the most stringent emission limit. Consistent with the BART Guidelines, the State did not provide a five-factor analysis because the State determined BART to be the most stringent control technology and limit available (70 FR 39165). The State determined that the PM BART emission limits for Unit 3 and 4 are both 0.015 lb/MMBtu.

We agree with the State's conclusions, and we are proposing to approve its PM BART determination for Dave Johnston Units 3 and 4.

v. PacifiCorp Jim Bridger - Units 1-4

Background

PacifiCorp's Jim Bridger Power Plant is located in Sweetwater County, Wyoming. Jim Bridger is comprised of four identically sized nominal 530 MW tangentially fired boilers burning pulverized coal for a total net generating capacity of 2,120 MW. Jim Bridger Unit 1 was placed in service in 1974, Unit 2 in 1975, Unit 3 in 1976, and Unit 4 in 1979. The State's BART determination can be found in Chapter 6.5.4 and Appendix A of the SIP.

Wyoming's NO_x BART Determination for Jim Bridger Unit 1 and Unit 2

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During the baseline period of 2001-2003, PacifiCorp Jim Bridger Units 1 and 2 were equipped with early generation LNBs with permit limits of 0.70 lb/MMBtu (3-hour fixed) and 0.42 lb/MMBtu and 0.40 lb/MMBtu (annual limit), respectively. The State determined that new LNBs with SOFA, new LNBs with SOFA plus SNCR, and new LNBs with SOFA plus SCR were all technically feasible for controlling NO_x emissions. The State did not identify any technically infeasible options.

The State did not identify any energy or non-air quality environmental impacts that would preclude the selection of any of the controls evaluated, nor are there any remaining-useful-life issues for this source. Baseline NO_x emissions are 10,643 tpy for each unit based on unit heat input rate of 6,000 MMBtu/hr and 7,884 hours of operation. A summary of the State's NO_x BART analysis and the visibility impacts is provided in Table 8 below.[32]

Table 8 – Summary of Wyoming's Jim Bridger Units 1 and 2 NO_x BART Analysis – Costs per Boiler

Control Technology	Emission Rate (lb/MMBtu) (30-day Rolling Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta deciview for the Maximum 98th Percentile Impact at Mt. Zirkel Wilderness)
New LNB with SOFA	0.26	4,493	$1,144,969	$255	--	0.41/0.47
New LNB with SOFA and SNCR	0.20	5,913	$2,710.801	$459	$1,103	0.52/0.62
New LNB with	0.07	8,987	$20,296,400	$2,258	$5,721	0.76/0.82

[32] We are assuming the same costs for Unit 2 as the other Jim Bridger Units. The State analyzed Unit 2 using post installation of LNBs/OFA costs so the cost information provided in their analysis is not consistent with an uncontrolled baseline.

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SOFA and SCR						

Based on its consideration of the five factors, the State determined new LNBs with SOFA was reasonable for NO_x BART. The State determined the NO_x BART emission limit for Jim Bridger Units 1and 2 is 0.28 lb/MMBtu (30-day rolling average).

PacifiCorp is required to install additional controls under the State's LTS. The State determined that based on the cost of compliance and visibility improvement presented by PacifiCorp in the BART applications for Jim Bridger Units 1 and 2 and taking into consideration the logistical challenge of managing multiple pollution control installations within the regulatory time allotted for installation of BART by the RHR, additional controls would be required under the LTS in order to achieve reasonable progress but would not be requires as BART. With respect to Jim Bridger Units 1 and 2, the State has required PacifiCorp to install SCR, or other NO_x control systems, to achieve an emission limit of 0.07 lb/MMBtu on a 30-day rolling average. As part of Wyoming's Regional Haze plan, PacifiCorp is required to meet the 0.07 lb/MMBtu emission rate on Unit 1 prior to December 31, 2021 and on Unit 2 prior to December 31, 2022.

EPA's PacifiCorp Jim Bridger Units 1 and 2 NO_x BART Determination

The EPA agrees with the State's analysis pertaining to energy or non-air quality environmental impacts and remaining-useful-life for this source. Baseline NO_x emissions are 8,426 tpy for Unit 1 and 7,577 for Unit 2 based on the actual annual average for the years 2001-2003. A summary of the EPA's NO_x BART analysis and the visibility impacts is provided in Tables 9-12 below. The cost effectiveness values for the Jim Bridger units vary considerably for the same control option. This is largely due to differences in the (actual) baseline emissions.

Table 9 – Summary of EPA's Jim Bridger Unit 1 NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (Annual Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Mt. Zirkel)
New LNBs with OFA	0.18	4,558	$1,167,297	$256	--	0.59
New LNBs with OFA and SNCR	0.14	5,332	$4,402,757	$826	$4,182	0.69
New LNBs with OFA and SCR	0.05	7,352	$17,592,636	$2,393	$6,530	0.96

Jim Bridger Unit 1 also impacts other Class I areas. The visibility improvement modeled by EPA at other Class I areas is shown in Table 10 below.

Table 10 – Jim Bridger Unit 1: Visibility Improvement at Other Class I Areas

Class I Area	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA/SNCR	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA/SCR
Bridger	0.53	0.62	0.91
Fitzpatrick	0.22	0.26	0.36
Rawah	0.59	0.70	0.96
Rocky Mountain	0.50	0.58	0.79
Grand Teton	0.17	0.19	0.27
Teton	0.16	0.19	0.26
Washakie	0.18	0.21	0.27
Yellowstone	0.23	0.15	0.26

Table 11 – Summary of EPA's Jim Bridger Unit 2 NO_x BART Analysis

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Control Technology	Emission Rate (lb/MMBtu) (Annual Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Mt. Zirkel)
New LNBs with OFA	0.19	3,787	$1,167,297	$308	--	0.55
New LNBs with OFA and SNCR	0.15	4,545	$4,360,958	$959	$4,214	0.65
New LNBs with OFA and SCR	0.05	6,554	$19,757,979	$3,015	$7,664	0.95

Jim Bridger Unit 2 also impacts other Class I areas. The visibility improvement modeled by EPA at other Class I areas is shown in Table 12 below.

Table 12 – Jim Bridger Unit 2: Visibility Improvement at Other Class I Areas

Class I Area	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA/SNCR	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA/SCR
Bridger	0.48	0.58	0.89
Fitzpatrick	0.21	0.25	0.36
Rawah	0.46	0.48	0.78
Rocky Mountain	0.38	0.46	0.68
Grand Teton	0.15	0.18	0.26
Teton	0.15	0.18	0.25
Washakie	0.17	0.20	0.27
Yellowstone	0.15	0.18	0.26

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As discussed in detail above, because Wyoming relied on visibility modeling methodologies that are inconsistent with the statutory and regulatory requirements, we do not consider Wyoming's analysis of visibility improvement for the NO_x BART to be reasonable for Wyodak Unit 1. We propose to find that Wyoming's analysis for this Unit is inconsistent with the statutory and regulatory requirement that "the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology."

Also, we are not relying on the State's costs due to reasons stated in section VII.C.3.b of this notice. We propose to find that Wyoming did not properly or reasonably "take into consideration the costs of compliance."

Our analysis follows our BART Guidelines. With the exception of the NOx emission limits, the visibility improvement analyses, and the cost effectiveness analyses, EPA is proposing to find that the Wyoming RH BART analysis NO_x for Dave Johnson Units 4 fulfills all the relevant requirements of CAA Section 169A and the RHR.

PacifiCorp asserted to the State during formulation of the SIP proposal, and has since asserted directly to EPA[33], that a number of factors, when considered together, suggest that requiring installation of SCR at Jim Bridger Units 1 and 2 earlier than 2021-2022 is not reasonable. First, PacifiCorp points to the large number of retrofit actions it is taking at 20 coal-fired electric generating units in Wyoming, Utah, Colorado, and Arizona in order to reduce their emissions.[34] These retrofits are intended to comply with the requirements in the regional haze SIPs that these states have submitted to EPA and with other regulatory requirements, including required controls for mercury and acid gases under the recent Mercury and Air Toxics Standards rule. The company asserts that there are high capital costs for the measures required for these air

[33] See July 12, 2012 letter from PacifiCorp to EPA Region 8 located in the docket for this notice.
[34] For a listing of PacifiCorp's retrofit actions, see Table 1 of *Exhibit A – PacifiCorp's Emissions Reductions Plan* in Chapter 6 of the State's TSD.

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quality-improving retrofits. Moreover, PacifiCorp states that accelerating the required installation of SCR at Jim Bridger Units 1 and 2 to late 2017, rather than the 2021 and 2022 dates established by the State, would significantly increase the costs to the utility and to its customers.

In addition, the company asserts that it has designed the installation schedule in order to minimize the number of units that are out of service system wide for installation of emissions controls at any one time. Its goal, it asserts, is to be able to maintain service to its customers with an adequate capacity margin. The company asserts that accelerating the timeline for installation of SCR would upset the orderly shut-down schedule they have devised and would threaten both service interruptions and an increased risk of spot-purchases of more expensive electrical energy, if it is available, to serve customers, but that either eventuality would significantly increase costs to its customers.[35]

EPA notes that PacifiCorp has offered these assertions taking into account only the requirements in the SIPs that have been submitted to EPA by Wyoming, Utah, Colorado, and Arizona. Today's proposal includes requirements that would likely require the additional installation of SCRs at three units and SNCR at two units owned by PacifiCorp in Wyoming. In addition, we have since finalized action on the SIP for Arizona, and are requiring LNBs plus SCR on three units under a FIP.

As stated in the BART Guidelines pertaining to affordability: "1. Even if the control technology is cost effective, there may be cases where the installation of controls would affect the viability of continued plant operations. 2. There may be unusual circumstances that justify taking into consideration the conditions of the plant and the economic effects of requiring the use of a given control technology. These effects would include effects on product prices, the market share, and profitability of the source. Where there are such unusual circumstances that are

[35] See *Exhibit A – PacifiCorp's Emissions Reductions Plan* in Chapter 6 of the State's TSD.

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judged to affect plant operations, you may take into consideration the conditions of the plant and the economic effects of requiring the use of a control technology. Where these effects are judged to have a severe impact on plant operations you may consider them in the selection process, but you may wish to provide an economic analysis that demonstrates, in sufficient detail for public review, the specific economic effects, parameters, and reasoning. (We recognize that this review process must preserve the confidentiality of sensitive business information). Any analysis may also consider whether other competing plants in the same industry have been required to install BART controls if this information is available." 40 CFR part 50, Appendix Y, IV.E.3.

Based on the points made by PacifiCorp and noting the additional requirements in the proposed FIP for Wyoming, the finalized FIP for Arizona, and the possibility of additional requirements in a future FIP or SIP for Utah, EPA is proposing that the additional time to install controls under the State's LTS on Jim Bridger Unit 1 and Unit 2 is warranted under the affordability provisions in the BART Guidelines discussed above. Although neither the CAA nor the RHR require states or EPA to consider the affordability of controls or ratepayer impacts as part of a BART analysis, the BART guidelines allow (but do not require) consideration of "affordability" in the BART analysis.

EPA is proposing to determine that BART for all units at Jim Bridger would be SCR if the units were considered individually, based on the five factors, without regard for the controls being required at other units in the PacifiCorp system. However, when the cost of BART controls at other PacifiCorp-owned EGUs is considered as part of the cost factor for the Jim Bridger Units, EPA is proposing that Wyoming's determination that NO_x BART for these units is new LNB plus OFA for is reasonable. Considering costs broadly, it would be unreasonable to require any further retrofits at this source within five years of our final action. We note that the

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CAA establishes five years at the longest period that can be allowed for compliance with BART emission limits.

EPA is proposing to approve the SIP with regard to the State's determination that the appropriate level of NO_x control for Units 1 and 2 at Jim Bridger for purposes of reasonable progress is the SCR-based emission limit in the SIP, with compliance dates of December 31, 2021 for Unit 2 and December 31, 2022 for Unit 1. In the context of reasonable progress in the second planning period of the regional haze program, we have determined it is appropriate to give considerable deference to the State's conclusions about what controls are reasonable and when they should be implemented. Thus, we do not find it appropriate to disapprove the State's preferred compliance deadlines for Jim Bridger Units 1 and 2. As discussed below, we are seeking comment on an alternative proposal to promulgate a FIP for PacifiCorp Jim Bridger Units 1 and 2.

Wyoming's NO_x BART Determination for Jim Bridger Units 3 and 4

During the 2001-2003 baseline period, PacifiCorp Jim Bridger Units 3 and 4 were equipped with early generation LNBs with permit limits of 0.70 lb/MMBtu (3-hour fixed) and 0.41 lb/MMBtu and 0.45 lb/MMBtu (annual), respectively. The State determined that new LNBs with SOFA, new LNBs with SOFA plus SNCR, and new LNBs with SOFA plus SCR were technically feasible for controlling NO_x emissions. The State did not identify any technically infeasible options.

The State did not identify any energy or non-air quality environmental impacts that would preclude the selection of any of the controls evaluated, and there are no remaining-useful-life issues for this source. Baseline NO_x emissions are 10,643 tpy for each unit based on unit heat input rate of 6,000 MMBtu/hr and 7,884 hours of operation.

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A summary of the State's NO_x BART analysis and the visibility impacts is provided in Table 13 below.

Table 13 – Summary of Wyoming's Jim Bridger Units 3 and 4 NO_x BART Analysis – Costs per Boiler

Control Technology	Emission Rate (lb/MMBtu) (30-day Rolling Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta deciview for the Maximum 98th Percentile Impact at Mt. Zirkel Wilderness) [36]
New LNB with SOFA	0.26	4,493	$1,144,969	$255	--	0.41/0.47
New LNB with SOFA and SNCR	0.20	5,913	$2,710.801	$459	$1,103	0.53/0.62
New LNB with SOFA and SCR	0.07	8,987	$20,296,400	$2,258	$5,721	0.80/0.82

The State determined that new LNBs with SOFA were reasonable for NO_x BART for Jim Bridger Units 3 and 4. The State determined that the NO_x BART emission limits for Jim Bridger Units 3 and 4 are both 0.26 lb/MMBtu (30-day rolling average). As explained below, the State determined SCR was not reasonable for BART.

The State is requiring PacifiCorp to install SCR controls under its LTS. The State determined that based on the cost of compliance and visibility improvement presented by PacifiCorp in the BART applications for Jim Bridger Units 3 and 4 and taking into consideration

[36] Unit 4 has different modeling results as the stack parameters used in the modeling are different enough from Units 1- 3 to yield different modeled results.

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the logistical challenge of managing multiple pollution control installations within the regulatory time allotted for installation of BART by the RHR, SCR controls would be required under the LTS but not BART (see Chapter 8.3.3 of the SIP). With respect to Jim Bridger Units 3 and 4, the State has required PacifiCorp to install SCR, or other NO_x control systems, to achieve an emission limit of 0.07 lb/MMBtu (30-day rolling average). PacifiCorp is required to meet the 0.07 lb/MMBtu emission rate on Unit 3 prior to December 31, 2015 and on Unit 4 prior to December 31, 2016.

EPA's NO_x BART Determination for Jim Bridger Unit 3 and Unit 4

The EPA agrees with the State's analysis pertaining to energy and non-air quality environmental impacts and remaining-useful-life for this source. EPA determined that baseline NO_x emissions are 7,853 tpy for Unit 3 and 8,133 tpy for Unit 4 based on the actual annual average for the years 2001-2003 (compared to 10,643 tpy that Wyoming relied on as noted above). As explained above, Wyoming determined that taking into consideration the logistical challenge of managing multiple pollution control installations within the regulatory time allotted for installation of BART by the RHR, SCR controls would be required under the LTS but not BART. A summary of the EPA's NO_x BART analysis and the visibility impacts is provided in Tables 14-17 below.

Table 14 – Summary of EPA's Jim Bridger Unit 3 NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (Annual Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Mt. Zirkel)
New LNBs with SOFA	0.20	3,710	$1,167,297	$315	--	0.50
New LNBs with SOFA	0.16	4,539	$4,530,069	$998	$4,058	0.61

and SNCR						
New LNBs with SOFA and SCR	0.05	6,799	$20,135,420	$2,961	$6,905	0.92

Jim Bridger Unit 3 also impacts other Class I areas. The visibility improvement modeled by EPA at other Class I areas is shown in Table 15 below.

Table 15 – Jim Bridger Unit 3: Visibility Improvement at Other Class I Areas

Class I Area	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + SOFA	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + SOFA/SNCR	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + SOFA/SCR
Bridger	0.43	0.54	0.87
Fitzpatrick	0.19	0.23	0.34
Rawah	0.41	0.51	0.75
Rocky Mountain	0.34	0.42	0.65
Grand Teton	0.14	0.17	0.25
Teton	0.14	0.17	0.24
Washakie	0.22	0.19	0.26
Yellowstone	0.24	0.16	0.25

Table 16 – Summary of EPA's Jim Bridger Unit 4 NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (Annual Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Mt. Zirkel)
New LNBs with SOFA	0.19	4,161	$1,167,297	$281	--	0.63
New LNBs	0.15	4,956	$4,445,990	$897	$4,127	0.75

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with SOFA and SNCR						
New LNBs with SOFA and SCR	0.05	7,108	$17,712,336	$2,492	$6,165	1.01

Jim Bridger Unit 4 also impacts other Class I areas. The visibility improvement modeled by EPA at other Class I areas is shown in Table 17 below.

Table 17 – Jim Bridger Unit 3: Visibility Improvement at Other Class I Areas

Class I Area	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + SOFA	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + SOFA/SNCR	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + SOFA/SCR
Bridger	0.56	0.68	1.00
Fitzpatrick	0.23	0.27	0.39
Rawah	0.45	0.53	0.71
Rocky Mountain	0.42	0.50	0.75
Grand Teton	0.18	0.21	0.30
Teton	0.15	0.18	0.27
Washakie	0.19	0.23	0.29
Yellowstone	0.17	0.20	0.29

As discussed in detail above, because Wyoming relied on visibility modeling methodologies that are inconsistent with the statutory and regulatory requirements, we do not consider Wyoming's analysis of visibility improvement for the NO_x BART to be reasonable for Jim Bridger Unit 3 and 4. We propose to find that Wyoming's analysis for this Unit is inconsistent with the statutory and regulatory requirement that "the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology."

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Also, we are not relying on the State's costs due to reasons stated in section VII.C.3.b of this notice. We propose to find that Wyoming did not properly or reasonably "take into consideration the costs of compliance."

Our analysis follows our BART Guidelines. With the exception of the NOx emission limits, the visibility improvement analyses, and the cost effectiveness analyses, EPA is proposing to find that the Wyoming regional haze BART analysis NO_x for Jim Bridger Units 3 and 4 fulfills all the relevant requirements of CAA Section 169A and the RHR.

As stated above for Jim Bridger Units 1 and 2, EPA is proposing to determine that the facts indicate that BART for the all units at Jim Bridger is SCR when the units are considered individually based on the five factors without regard to the status of those factors for other units in the PacifiCorp system. However, when the five factors are considered across all the units, EPA is proposing that BART for Jim Bridger Units 3 and 4 is new LNB plus OFA.

EPA is proposing to approve the SIP with regard to the State's determination that the appropriate level of NO_x control for Units 3 and 4 at Jim Bridger for purposes of reasonable progress is the SCR-based emission limit in the SIP of 0.07 lb/MMBtu, with compliance dates of December 31, 2015 for Unit 3 and December 31, 2016 for Unit 4. As discussed above for Jim Bridger Units 1 and 2, in the context of reasonable progress in the second planning period of the regional haze program, we have determined it is appropriate to give considerable deference to the State's conclusions about what controls are reasonable and when they should be implemented. Thus, we do not find it appropriate to disapprove the State's preferred compliance deadlines for Jim Bridger Units 3 and 4. In addition, the State is requiring PacifiCorp to install the LTS controls within the timeline that BART controls would have to be installed pursuant to 40 CFR 51.308(e)(iv). Thus, we are proposing to approve the State's compliance schedule and

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emission limit of 0.07 lb/MMBtu for Jim Bridger Units 3 and 4 as meeting the BART requirements.

PM BART Determination for Jim Bridger Units 1-4

Units 1, 2, 3, and 4 are currently controlled for PM with ESPs and flue gas conditioning (FGC). The current permit limit for all four units is 0.03 lb/MMBtu. The State determined that fabric filters were technically feasible for controlling PM emissions. The State did not identify any technically infeasible controls or any energy or non-air quality environmental impacts that would preclude the selection of any of the controls evaluated. There are no remaining-useful-life issues for this source. A summary of the State's PM BART analyses for Units 1-4 is provided in Table 18 below. Baseline PM emissions are 1,064 tpy for Unit 1, 1,750 tpy for Unit 2, 1,348 tpy for Unit 3, and 710 tpy for Unit 4 based on unit heat input rate of 6,000 MMBtu/hr and 7,884 hours of operation per year.

Table 18 – Summary of Wyoming's PacifiCorp Jim Bridger Units 1-4 PM BART Analysis

Control Technology	Control Efficiency (%)	Emission Rate (lb/MMBtu) (30-day Rolling Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)
Fabric Filter – Unit 1	66.6	0.015	709	$6,367,118	$8,980
Fabric Filter - Unit 2	79.7	0.015	1,395	$6,357,658	$4,557
Fabric Filter - Unit 3	73.7	0.015	993	$6,337,434	$6,382
Fabric Filter - Unit 4	50	0.015	355	$6,367,118	$17,936

The State did not provide visibility improvement modeling for fabric filters, but EPA is proposing to conclude this is reasonable based on the high cost for fabric filters at each of the units. In addition, we anticipate that the visibility improvement that would result from lowering

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the limit from 0.03 lb/MMBtu to 0.015 lb/MMBtu would be insignificant based on the State's analysis.[37]

Based on its consideration of the five-factors, the State determined the current ESPs with FGC are reasonable for BART. The State determined that fabric filters were not reasonable based on the high cost-effectiveness values. The State determined that the PM BART emission limit for Jim Bridger Units 1 through 4 is 0.03 lb/MMBtu.

We agree with the State's conclusions, and we are proposing approve its PM BART determination for Jim Bridger Units 1-4.

vi. PacifiCorp Naughton Units 1-3

PacifiCorp Naughton is located in Lincoln County, Wyoming. Naughton is comprised of three pulverized coal-fired units with a total net generating capacity of 700 MW. Naughton Unit 1 generates a nominal 160 MW and commenced operation in 1963. Naughton Unit 2 generates a nominal 210 MW and commenced operation in 1968. Naughton Unit 3 generates a nominal 330 MW and commenced operation in 1971. All three boilers are tangentially fired boilers. The State's BART determinations can be found in Chapter 6.5.6 and Appendix A of the SIP. The NO_x BART analysis for Unit 1 and Unit 2 is discussed in section VIII.A of this notice.

Wyoming's NO_x BART Determination for Naughton Unit 3

Naughton Unit 3 is currently controlled with LNBs with OFA with permit limits of 0.75 lb/MMBtu (93-hour block) and 0.49 lb/MMBtu (annual). The State determined that tuning the existing LNBs, existing LNBs with OFA and SNCR, and existing LNBs with OFA and SCR

[37] The cumulative 3-year averaged visibility improvement from new LNB with separated OFA, upgraded wet FGD, and FGC for enhanced ESP with FGC (Post-Control Scenario 1) across the three Class I areas achieved with LNB and separated OFA, upgraded wet FGD, and adding a polishing fabric filter (Post-Control Scenario 2) was 0.095 delta dv from Unit 1, 0.090 delta dv from Unit 2, 0.089 delta dv from Unit 3 and 0.025 delta dv from Unit 4.

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were all technically feasible for controlling NO_x emissions from Unit 3. The State did not identify any technically infeasible options.

Wyoming treated Naughton Unit 3 differently than most other units in that it did not assume that Unit 3 would first upgrade the combustion controls. The State did not identify any energy or non-air quality environmental impacts that would preclude the selection of any of the controls evaluated, and there no remaining-useful-life issues for this source. A summary of the State's NO_x BART analyses for Unit 3 is provided in Table 19 below. Baseline NOx emissions are 6,563 tpy for Unit 3 based on the unit heat input rate of 3,700 MMBtu/hr and 7,884 hours of operation per year.

Table 19 – Summary of Wyoming's Naughton Unit 3 NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (30-day Rolling Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Bridger Wilderness Area)
Tuning Existing LNBs	0.37	1,167	$95,130	$82	--	0.25
Existing LNBs with OFA and SNCR	0.30	2,188	$1,916,039	$876	$1,783	0.46
Existing LNB with OFA and SCR	0.07	5,542	$15,682,702	$2,830	$4,105	1.00

Based on its consideration of the five-factors, the State determined that the existing LNBs with OFA plus SCR were NO_x BART for Unit 3. The State determined the NO_x BART emission limit for Naughton Unit 3 is 0.07 lb/MMBtu (30-day rolling average).

EPA's NO_x BART Determination for Naughton Unit 3

The EPA agrees with the State's analysis pertaining to energy or non-air quality environmental impacts and remaining-useful-life for this source. Baseline NO_x emissions are 4,544 tpy for Unit 3 based on the actual annual average for the years 2001-2003. A summary of the EPA's NO_x BART analysis and the visibility impacts is provided in Tables 20 and 21 below.

Table 20 – Summary of EPA's Naughton Unit 3 NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (Annual Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Wind Cave National Park)
Existing LNBs with OFA	0.33	442	$106,393	$240	--	0.17
Existing LNBs with OFA and SNCR	0.23	1,673	$3,896,839	$2,329	$3,081	0.70
Existing LNBs with OFA and SCR	0.05	3,922	$12,718,731	$3,243	$3,922	1.51

Naughton Unit 3 also impacts other Class I areas. The visibility improvement modeled by EPA at other Class I areas is shown in Table 21 below.

Table 21 – Visibility Improvement at Other Class I Areas

Class I Area	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – Existing LNBs + OFA	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – Existing LNBs + OFA/SNCR	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – Existing LNBs + OFA/SCR
Fitzpatrick	0.09	0.33	0.74
N. Absaroka	0.04	0.16	0.36

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Washakie	0.06	0.23	0.51
Teton	0.08	0.30	0.66
Grand Teton	0.09	0.33	0.73
Yellowstone	0.07	0.26	0.57

As stated above, the State determined that NOx BART for Naughton Unit 3 was existing LNBs plus OFA with SCR with an emission limit of 0.07 lb/MMBtu (30-day rolling average). We find this determination reasonable given that the average cost effectiveness is reasonable at $3,243/ton with significant visibility improvement at the most impacted Class I area of 1.51 dv, as well as improvements ranging from 0.36 dv to 0.74 dv at six other Class I areas.

We agree with the State's conclusions, and we are proposing to approve its NO_x BART determination for Naughton Unit 3.

We are also asking if interested parties have additional information regarding the possible conversion of Naughton Unit 3 from a coal fired unit to a natural gas fired unit as part of a better-than-BART demonstration to the proposed requirement for the installation of combustion controls and SCR.[38] PacifiCorp has indicated that converting the unit to natural gas would reduce NO_x emissions to 0.10 lb/MMbtu, and nearly eliminate all SO_2 emissions. If PacifiCorp proceeds with their planned conversion to natural gas, we seek comment on whether the interested parties think the Agency should consider the conversion of Naughton Unit 3 to natural gas as a BART control technology option that could be finalized as either a FIP, or a SIP (if the

[38] At PacifiCorp's request, on December 11, 2013, EPA Region 8 met with PacifiCorp. PacifiCorp discussed the option of Naughton Unit 3 being converted to natural gas and stated that they were working on the analysis. In subsequent conversations with the State, EPA learned that PacifiCorp had submitted its analysis to the State, which the State then provided to EPA. We have included this information in the docket (see document titled *2/19/2013 E-mail from Cole Anderson, Wyoming DEQ, to Laurel Dygowski, EPA Region 8).*

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Agency were to receive a SIP revision from the State) instead of BART as proposed, with associated changes to the proposed regulatory text as necessary.

PM BART Determination

Naughton Units 1 and 2 are currently controlled for PM with ESPs and FGC. The current permit limit for Units 1 and 2 is 0.04 lb/MMBtu. Unit 3 is required by permit to install fabric filters for both Units by 2014 with a permit limit of 0.015 lb/MMBtu. The State determined that fabric filters were technically feasible for controlling PM emissions for Units 1 and 2. The State did not identify any technically infeasible controls. The State determined that a fabric filter on Unit 3 represents the most stringent PM control technology and that 0.015 lb/MMBtu represents the most stringent emission limit. Consistent with the BART Guidelines, the State did not provide a full five-factor analysis because the State determined BART to be the most stringent control technology and limit.

The State did not identify any energy or non-air quality environmental impacts that would preclude the selection of any of the controls evaluated, and there are no remaining-useful-life issues for this source. A summary of the State's PM BART analyses for Units 1 and 2 is provided in Table 22 below. Baseline emissions for Unit 1 are 409 tpy and 605 tpy for Unit 2 based on unit heat input rate of 1,850 MMBtu/hr and 7,884 hours of operation per year.

Table 22 – Summary of PacifiCorp Naughton Unit 1 and Unit 2 PM BART Analysis

Control Technology	Control Efficiency (%)	Emission Rate (lb/MMBtu) (30-day Rolling Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)
Fabric Filter – Unit 1	73.2	0.015	299	$3,436,594	$11,494
Fabric Filter - Unit 2	76.6	0.015	464	$4,101,705	$8,848

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The State did not provide visibility improvement modeling for fabric filters, but EPA is proposing to conclude this is reasonable based on the high cost-effectiveness values of fabric filters at each of the units, which are higher than EPA or other state have considered reasonable for PM BART.

Based on its consideration of the five-factors, the State determined that the existing ESPs with FGC were reasonable for PM BART for Units 1 and 2. The State determined that fabric filters were not reasonable based on the high cost-effectiveness values. The State determined that the PM BART emission limit for Naughton Unit 1 and Unit 2 is 0.04 lb/MMBtu. The State determined the PM BART emission limit for Naughton Unit 3 is 0.015 lb/MMBtu.

We agree with the State's conclusions, and we are proposing to approve its PM BART determination for Naughton Units 1, 2, and 3.

vii. PacifiCorp Wyodak – Unit 1

Background

PacifiCorp Wyodak power plant is located in Campbell County, Wyoming. Wyodak is comprised of one coal-fired boiler, Unit 1, burning pulverized sub-bituminous Powder River Basin coal for a total net generating capacity of a nominal 335MW. Wyodak's boiler commenced service in 1978. The State's BART determination can be found in Chapter 6.5.7 and Appendix A of the SIP. The NO_x BART analysis for Wyodak Unit 1 is discussed in Section VII.A of this notice.

Wyodak Unit 1 PM BART Determination

Wyodak Unit 1 is currently controlled with fabric filters with an emission limit of 0.015 lb/MMBtu (30-day rolling average). The State determined that fabric filters on Wyodak Unit 1 represent the most stringent PM control technology and that 0.015 lb/MMBtu represents the most

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stringent emission limit. Consistent with the BART Guidelines, the State did not provide a full five-factor analysis because the State determined BART to be the most stringent control technology and limit. The State determined the PM BART emission limit for Wyodak Unit 1 is 0.015 lb/MMBtu.

We agree with the State's conclusions, and we are proposing to approve its PM BART determination for Wyodak Unit 1.

D. Reasonable Progress Requirements

In order to establish RPGs for it Class I areas, and to determine the controls needed for the LTS, Wyoming followed the process established in the RHR. Wyoming identified sources (other than BART sources) and source categories in Wyoming that are major contributors to visibility impairment and considered whether these sources should be controlled based on a consideration of the factors identified in the CAA and EPA's regulations (see CAA 169A(g)(1) and 40 CFR 51.308(d)(1)(i)(A)). Wyoming then identified the anticipated visibility improvement in 2018 in all its Class I areas using the WRAP Community Multi-Scale Air Quality (CMAQ) modeling results.

1. Visibility Impairing Pollutants and Sources

In order to determine the significant sources contributing to haze in Wyoming's Class I areas, Wyoming relied upon two source apportionment analysis techniques developed by the WRAP. The first technique was regional modeling using the Comprehensive Air Quality Model (CAMx) and the PM Source Apportionment Technology (PSAT) tool, used for the attribution for sulfate and nitrate sources only. The second technique was the Weighted Emissions Potential (WEP) tool, used for attribution of sources of OC, EC, $PM_{2.5}$, and PM_{10}. The WEP tool is based

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on emissions and residence time, not dispersion modeling, and looks at all sources throughout the modeling domain.

PSAT uses the CAMx air quality model to simulate nitrate-sulfate-ammonia chemistry and apply this chemistry to a system of tracers or "tags" to track the chemical transformations, transport, and removal of NO_x and SO_2. These two pollutants are important because they tend to originate from anthropogenic sources. Therefore, the results from this analysis can be useful in determining contributing sources that may be controllable, both in-state and in neighboring states.

WEP is a screening tool that helps to identify source regions that have the potential to contribute to haze formation at specific Class I areas. Unlike PSAT, this method does not account for chemistry or deposition. The WEP combines emissions inventories, wind patterns, and residence times of air masses over each area where emissions occur, to estimate the percent contribution of different pollutants. Like PSAT, the WEP tool compares baseline values (2000-2004) to 2018 values, to show the improvement expected by 2018 for OC, EC, $PM_{2.5}$, and PM_{10}. More information on the WRAP modeling methodologies is available in the document *Technical Support Document for Technical Products Prepared by the Western Regional Air Partnership (WRAP) in Support of Western Regional Haze Plans* in the Supporting and Related Materials section of the docket. Table 23 shows Wyoming's contribution to extinction at its own Class I areas.

Table 23 - Wyoming Sources Extinction Contribution 2000-2004 for 20% Worst Days[39]

[39] Extinction and species contribution to total particulate extinction taken from IMPROVE data (http://vista.cira.colostate.edu/dev/web/AnnualSummaryDev/Composition.aspx). IMPROVE data for NOABI based on available data for 2002-2004. Contribution of sulfate and nitrate based on PSAT; OC, EC, $PM_{2.5}$, and PM_{10} contribution based on WEP as taken from the WRAP TSS (http://vista.cira.colostate.edu/tss/).

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Class I Area	Pollutant Species	Extinction (Mm^{-1})	Species Contribution to Total Particulate Extinction (%)	Wyoming Sources Contribution to Species Extinction (%)
Yellowstone National Park Grand Teton National Park Teton Wilderness	Sulfate	4.3	16.7	5.9
	Nitrate	1.8	7.0	4.7
	OC	13.5	52.4	72.6
	EC	2.5	9.7	66.8
	Fine PM	1.0	3.9	24.0
	Coarse PM	2.6	10.1	20.0
	Sea Salt	0.02	0.08	---
North Absaroka Wilderness Washakie Wilderness	Sulfate	4.9	20.7	5.6
	Nitrate	1.6	6.8	8.2
	OC	11.6	48.9	44.6
	EC	1.9	8.0	39.5
	Fine PM	0.8	3.4	14.0
	Coarse PM	2.9	12.2	12.1
	Sea Salt		0.04	---
Bridger Wilderness Fitzpatrick Wilderness	Sulfate	5.0	22.2	15.4
	Nitrate	1.4	6.2	19.4
	OC	10.5	46.6	58.5
	EC	2.0	8.9	51.0
	Fine PM	1.1	4.9	30.3
	Coarse PM	2.5	11.1	27.4
	Sea Salt	0.04	0.2	---

Table 24 shows influences from sources both inside and outside of Wyoming per the PSAT modeling for 2018. As indicated, the outside domain (OD) region is the highest contributor to sulfate and nitrate at all Wyoming Class I areas. The outside domain region represents the concentration of pollutants at the boundaries of the modeling domain. Depending

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on meteorology and the type of pollutant (particularly sulfate), these emissions can be transported great distances from regions such as Canada, Mexico, and the Pacific Ocean. Wyoming is the second highest contributor of particulate sulfate and nitrate at Bridger and Fitzpatrick Wilderness areas, but is a lesser contributor at the other Class I areas.

Table 24 – PSAT Source Region Apportionment for 20% Worst Days[40]

Class I Area		**2018 Sulfate PSAT**					**2018 Nitrate PSAT**				
Yellowstone National Park Grand Teton National Park Teton Wilderness	**Region**	OD	ID	WY	CAN	OR	OD	ID	WA	UT	OR
	% Contribution	46.5	8.1	5.8	5.4	4.6	31.3	28.2	9.4	7.4	7.0
North Absaroka Wilderness Washakie Wilderness	**Region**	OD	CAN	MT	ID	WY	OD	ID	MT	CAN	WY
	% Contribution	50.1	12.5	6.5	5.7	5.5	30.7	16.7	14.8	11.5	8.2
Bridger Wilderness Fitzpatrick Wilderness	**Region**	OD	WY	ID	UT	CAN	OD	WY	UT	ID	CA
	% Contribution	31.1	15.3	7.6	5.9	5.1	21.8	19.3	15.6	10.6	6.8

Table 25 shows the WEP contribution by source category for EC, OC, $PM_{2.5}$, and PM_{10}.

Table 25 – WEP Source Category Contribution for 20% Worst Days

Class I Area	**Point**	**Area**	**Mobile**	**Anthropogenic Fires**	**Natural Fires and Biogenic**
OC					
Yellowstone	0.408	3.892	1.636	8.303	85.764

[40] OD denotes Outside Domain; ID denotes Idaho, MT denotes Montana, CAN denotes Canada, UT denotes Utah, WA denotes Washington, WY denotes Wyoming, CA denotes California, and OR denotes Oregon.

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National Park Grand Teton National Park Teton Wilderness					
North Absaroka Wilderness Washakie Wilderness	0.661	9.449	2.844	11.881	75.159
Bridger Wilderness Fitzpatrick Wilderness	0.984	7.552	3.28	7.644	80.543
EC					
Yellowstone National Park Grand Teton National Park Teton Wilderness	0.243	2.628	13.659	5.51	77.958
North Absaroka Wilderness Washakie Wilderness	0.386	5.755	23.253	7.054	63.55
Bridger Wilderness Fitzpatrick Wilderness	0.54	4.509	25.65	4.105	65.195
$PM_{2.5}$					
Yellowstone National Park Grand Teton National Park Teton Wilderness	5.565	70.463	0.086	5.469	18.411
North Absaroka Wilderness Washakie Wilderness	3.491	86.311	0.171	3.334	6.691
Bridger Wilderness Fitzpatrick Wilderness	16.311	69.195	0.081	3.618	10.785
PM_{10}					
Yellowstone National Park Grand Teton National Park Teton Wilderness	2.655	83.939	0.363	0.717	12.316
North Absaroka Wilderness Washakie Wilderness	2.066	93.197	0.213	0.313	4.206
Bridger	6.775	84.157	0.477	0.353	8.23

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Wilderness Fitzpatrick Wilderness					

Table 25 shows that EC, OC, $PM_{2.5}$ and PM_{10} emissions come mainly from sources such as natural fire, windblown dust, and road dust. To select the sources that would undergo the required four-factor analysis, Wyoming looked at State emission inventory data in conjunction with the source apportionment information discussed above (a summary of the State's emission inventory can be found in section VI.E.1 of this notice). After evaluating this information, the State determined that stationary source emissions of NO_x and SO_2 were reasonable to evaluate for purposes of reasonable progress controls. The State also determined that emissions of NO_x from oil and gas development should be analyzed for purposes of reasonable progress. Since emissions of OC, EC, $PM_{2.5}$, and PM_{10} come from mainly uncontrollable sources, the State determined it was reasonable to not evaluate these pollutants for reasonable progress controls. The State submitted a January 12, 2011, SIP that addresses sources of SO_2.[41] Thus, the State evaluated emissions of the remaining pollutant, NO_x, for reasonable progress in this SIP.

2. Four-Factor Analysis

In determining the measures necessary to make reasonable progress, States must take into account the following four factors and demonstrate how they were taken into consideration in selecting reasonable progress goals for each Class I area:

- Costs of Compliance;
- Time Necessary for Compliance;
- Energy and Non-air Quality Environmental Impacts of Compliance; and
- Remaining Useful Life of any Potentially Affected Sources.

[41] The State submitted a January 12, 2011 SIP submittal to address the requirements under 40 CFR 51.309, with the exception of the 40 CFR 51.309(g) requirements addressed in this SIP action.

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CAA § 169A(g)(1) and 40 CFR 308(d)(1)(i)(A).

The State performed a four factor analysis for each of the reasonable progress sources pursuant to 40 CFR 51.308(d)(1)(i)(A).

a. Stationary Sources

The State used a reasonable progress screening methodology termed "Q/d" to determine which stationary sources would be candidates for controls under reasonable progress. Q/d is a calculated ratio where Q represents (in this case) the NO_x emission rate in tpy of the source divided by the distance in kilometers of the point source from the nearest Class I area, denoted by "d." The State used the maximum permitted emission rate for each source to determine the tpy of NO_x in the Q/d calculation. The State determined that a Q/d value of 10 is reasonable for determining which sources the State should consider for reasonable progress controls, since this value yielded sources of concern similar in magnitude to sources subject-to-BART.

The State determined there were three units with a Q/d of greater than 10 that are not already being controlled under BART and the State completed a reasonable progress analysis for each of the sources. The sources are PacifiCorp Dave Johnson Unit 1 and Unit 2 and Mountain Cement Company Laramie Plant kiln. Dave Johnston Units 1 and 2 are addressed as part of our FIP in section VII.B of this notice. In addition, as previously mentioned, the State considered reasonable controls on oil and gas development sources.

b. Summary of Reasonable Progress Determinations and Limits

For the subject-to-reasonable progress sources, the State provided analyses that took into consideration the four factors as required by section 169A(g)(1) of the CAA and 40 CFR 51.308(d)(1)(i)(A). For the stationary sources, the State relied on the analysis found in *Supplementary Information for Four-Factor Analyses for Selected Individual Facilities in Wyoming*, May 6, 2009, Revised Draft Report Prepared by EC/R Incorporated. For oil and gas

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sources, the State relied on the analysis found in *Supplementary Information for Four Factor Analyses by WRAP States*, May 4, 2009 (Corrected 4/20/10) Revised Draft Report Prepared by EC/R Incorporated (for a complete copy of the reports see Chapter 7 of the State's TSD). The analyses considered EPA's BART Guidelines as relevant to their reasonable progress evaluations, as well as EPA's *Guidance for Setting Reasonable Progress Goals Under the Regional Haze Program*.

In this action, EPA is proposing to approve the reasonable progress NO_x determinations submitted by the State for oil and gas sources and for Mountain Cement Company Laramie Plant kiln. EPA is proposing to disapprove the State's reasonable progress determinations and proposing to issue a reasonable progress determination NO_x FIP for PacifiCorp Dave Johnston Unit 1 and Unit 2. As with the BART EGUs, EPA is providing revised cost analyses and visibility improvement modeling for PacifiCorp Dave Johnston Unit 1 and 2. We are also providing the original reasonable progress analyses EPA relied on in its June 4, 2012 proposed rulemaking. EPA's rationale for disapproving the State's reasonable progress determination for these units, as well as EPA's reasonable progress FIP determination, can be found in section VIII.B of this notice.

A summary of the reasonable progress analysis and determination for each source/source category that we are proposing to approve is provided below.

i. Oil and Gas Sources

Background

Oil and gas exploration and production is occurring in numerous areas in Wyoming. The sources associated with oil and gas production mainly emit NO_x and VOCs; in this context, the State considered NO_x. Oil and gas production and exploration includes operation, maintenance,

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and servicing of production properties, including transportation to and from sites. EC/R evaluated reasonable progress control technologies for common sources in the oil and gas industry including compressor engines, turbines, process heaters, and drilling rig engines. The State's NO_x reasonable progress determination for oil and gas sources can be found in Chapter 7.3.5 of the SIP.

NO_x Reasonable Progress Determination

For compressor engines, potential control options identified by the State include air-fuel ratio controls (AFRC), ignition timing retard, low-emission combustion (LEC) retrofit, SCR, SNCR, and replacement with electric motors. The State evaluated several control technologies for drilling rig engines including ignition timing retard, exhaust gas recirculation (EGR), SCR, replacement of Tier 2 engines with Tier 4 engines, and diesel oxidation catalyst. Potential controls for turbines identified by the State include water or steam injection, LNBs, SCR, and water or steam injection with SCR. NO_x emission control technologies identified by the State for process heaters include LNBs, ultra-low NO_x burners (ULNBs), LNBs with flue gas recirculation (FGR), SNCR, SCR, and LNBs installed in conjunction with SCR.

NO_x emissions vary based on the equipment and fuel source. Emissions from individual natural gas-fired turbines at production operations can be as high as 877 tpy of NO_x, while emissions from individual natural gas turbines at exploration operations can reach 131 tpy of NO_x. Individual gas reciprocating engines have comparable NO_x emissions with up to 700 tpy at production operations and 210 tpy at exploration operations. Diesel engine emissions can approach 46 tpy for production operations and 10 tpy for exploration operations.

Table 26 provides a summary of the reasonable progress NO_x analysis for oil and gas sources. Both the capital and annual costs for each technology is dependent on the engine size or

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on the process throughput; therefore, for most of the control technologies listed in Table 26, the State has provided cost estimate ranges. The lower end of the cost/ton estimates represent the cost per unit for larger or higher production units, while the higher end of the cost/ton estimates represent the cost per unit for the smaller or lower production units. The capital and annual cost figures are expressed in terms of the cost per unit of engine size or per unit of process throughput.

Table 26 – Summary of Reasonable Progress NO_x Analysis for Oil and Gas Exploration and Production Equipment

Source Type	Control Technology	Estimated Control Efficiency (%)	Pollutant Controlled	Estimated Capital Cost ($/unit)	Annual Cost ($/year/unit)	Units	Cost Effectiveness ($/ton)
Compressor Engines	AFRC	10-40	NO_x	5.3 - 42	0.9 - 6.8	hp	68 - 2,500
	Ignition timing retard	15-30	NO_x	N/A	1-3	hp	42 – 1,200
	LEC retrofit	80 - 90	NO_x	120 – 820	30 – 210	hp	320 – 2,500
	SCR	90	NO_x	100 – 450	40 – 270	hp	870 – 31,000
	SNCR	90 – 99	NO_x	17 – 35	3 – 6	hp	16 - 36
	Replacement with electric motors	100	NO_x	120 - 140	38 - 44	hp	100 – 4,700
Drilling Rig Engines and Other Engines	Ignition timing retard	15 – 30	NO_x	16 - 120	14 – 66	hp	1,000 – 2,200
	EGR	40	NO_x	100	26 – 67	hp	780 – 2,000
	SCR	80 – 95	NO_x	100 – 2,000	40 – 1,200	hp	3,000 – 7,700
	Replacement of Tier 2 engines with Tier 4	87	NO_x	125	20	hp	900 – 2,400
Turbines	Water or steam injection	68 – 80	NO_x	4.4 – 16	2 – 5	1000 BTU	560 – 3,100
	LNB	68 – 84	NO_x	8 – 22	2.7 – 8.5	1000 BTU	2,000 – 10,000
	SCR	90	NO_x	13 – 34	5.1 – 13	1000 BTU	1,000 – 6,700
	Water or steam injection with SCR	93 – 96	NO_x	13 – 34	5.1 – 13	1000 BTU	1,000 – 6,700
Process Heaters	LNB	40	NO_x	3.8 – 7.6	0.41 – 0.81	1000 BTU	2,100 – 2,800
	ULNB	75 – 85	NO_x	4.0 – 13	0.43 – 1.3	1000 BTU	1, 500 – 2,000
	LNB and	48	NO_x	16	1.7	1000 BTU	2,600

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	FGR						
	SNCR	60	NO_x	10 – 22	1.1 – 2.4	1000 BTU	4,700 – 5,200
	SCR	70 – 90	NO_x	33 – 48	3.7 – 5.6	1000 BTU	2,900 – 6,700
	LNB and SCR	70 – 90	NO_x	37 – 55	4 – 6.3	1000 BTU	2,900 – 6,300

Wyoming states that it would need up to two years to develop the necessary regulations to control oil and gas sources.[42] The State estimated that companies would require a year to procure the necessary capital to purchase the control equipment. The time required to design, fabricate, and install control technologies will vary based on the control technology selected and other factors.

The State determined that no additional controls for oil and gas sources were reasonable at this time. The State concluded that emissions from large stationary sources processing oil and gas in the WRAP region have been well quantified over the years, while smaller exploration and production sources that the State is evaluating for reasonable progress have not had the same degree of emission inventory development. The State points out that understanding the sources and volume of emissions at oil and gas production sites is necessary to recognizing the impact that these emissions have on visibility.

To better understand the emissions from stationary and mobile equipment operated as part of oil and gas field operations, the WRAP has been working on developing an emission inventory to more fully characterize the oil and gas field operations emissions. The WRAP's development of a more comprehensive emission inventory is still in process (as of the date of the State's SIP submittal). The State determined it cannot complete the evaluation of oil and gas on visibility until the WRAP emission inventory study has been completed.

[42] For all reasonable progress sources, the time necessary to develop regulations is not a consideration under the time necessary for compliance factor. If regulations are needed to implement reasonable progress controls, the State must develop them as part of the regional haze SIP.

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The State points out that in the case of compressor engines, many facilities have already installed control equipment.[43] For lean burn engines, oxidation catalysts are commonly installed, while SNCR with AFRC are commonly installed for rich burn engines. The State also points out that regulating drill rig engines can be problematic since drill rig engines are, for the most part, considered mobile sources and emission limits for mobile sources are set by the Federal government under section 202 of the CAA.

We disagree with the State's reasoning for not adopting reasonable progress controls for oil and gas sources. If the State determined that additional information was needed to potentially control oil and gas sources, the State should have developed the information. While we disagree with the State's reasoning for not requiring any controls under reasonable progress, we are proposing to approve the State's conclusion that no additional NO_x controls are warranted for this planning period. As shown by the four-factor analyses, the most reasonable controls are for compressor engines, which the State already controls through its minor source BACT requirements (see above). In addition, while the costs of some controls are within the range of cost-effectiveness values Wyoming, other states, and we have considered as reasonable in the BART context, they are not so low that we are prepared to disapprove the State's conclusion in the reasonable progress context. Therefore, we are proposing to approve the State's reasonable progress determination for oil and gas sources.

ii. Mountain Cement Company Laramie Plant - Kiln

Background

[43] Oil and gas sources are regulated by the State as part of its minor source BACT requirements in Wyoming Air Quality Standards and Regulations Chapter 6, Section 2.

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The Mountain Cement Company Laramie Plant cement kiln is a long dry kiln with a capacity of 1,500 tons of clinker per day. Assuming the plant runs 365 days of the year, the result is 547,500 tpy of clinker.

NO_x Reasonable Progress Determination

The kiln is currently uncontrolled for NO_x emissions. The State determined that indirect and direct firing of LNBs, biosolid injection, NOxOUT[SM], CemSTAR[SM], LoTOx™, SCR, SNCR (using urea), and SNCR (using ammonia) were technically feasible for controlling NO_x emissions from the kiln. The State did not identify any technically infeasible controls.

The State did not identify any energy or non-air quality environmental impacts that would preclude the selection of any of the controls evaluated, and there are no remaining-useful-life issues for this source. A summary of the State's NO_x reasonable progress analyses for the kiln is provided in Table 27 below. Baseline NO_x emissions for the kiln are 524 tpy based on 2002 actual emissions.

Table 27 – Summary of Mountain Cement Company Kiln NO_x Reasonable Progress Analysis

Control Technology	Control Efficiency (%)	Emission Reduction (tpy)	Annualized Costs	Cost Effectiveness ($/ton)
LNB (indirect)	30-40	157-210	$205,000	$6,568-4,910
LNB (direct)	40	210	$449,000	$13,853
Biosolid Injection[44]	50	262	-$127,000	$1,324
NOxOUT[SM]	35	183	507,000	$8,023
CemSTAR[SM][45]	20-60	105-314	Unknown	Unknown
LoTOx™[46]	80-90	419-472	Unknown	Unknown
SCR	80	419	$7,553,000	$82,535
SNCR (urea)[47]	35	183	Unknown	$1,223

[44] A negative annual cost is given because cement kilns receive a credit for the biosolids tipping fee paid by facilities providing the biosolids to the cement plant. For the purposes of this analysis, the tipping fee is $5.00/ton.
[45] Cost effectiveness figures for the CemStar[SM] process were not available for dry kilns.
[46] Cost effectiveness figures for LoTOx™ were not available for dry kilns.

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SNCR (ammonia)	35	183	Unknown	$1,223

The State estimated that it could potentially take seven years to install control equipment on the kiln. This estimate includes the two years that will be necessary for the State to implement new regulations and the one-year Mountain Cement will likely need to obtain the necessary capital for the purchase of new emission control technology. The State estimates the total time necessary for compliance will vary based on the control technology selected. For example, the State predicts that one and a half years will be required to design, fabricate, and install SCR or SNCR technology, while over two and a half years will be required to design, fabricate, and install LoTOx™ technology.

The State determined no controls were reasonable for reasonable progress for Mountain Cement Company Laramie Plant kiln. The State cited that the four-factor analysis was limited, in that no guidance was provided by EPA for identifying significant sources and EPA did not establish contribution to visibility impairment thresholds (a potential fifth factor for reasonable progress determinations).[48] The State further claims that the State cannot, per Wyoming Statute 35-11-202, establish emission control requirements except through State rule or regulation. Furthermore, the Wyoming statute requires the State to consider the character and degree of injury of the emissions involved. In this case, the State claims it would need to have visibility modeling that assessed the degree of injury caused by the emissions, which the State does not have. The State believes it has taken a strong and reasonable first step in identifying potential

[47] Capital and annual costs for SNCR have only been evaluated for preheater and precalcnier kilns. Only cost effectiveness figures were available for dry kilns.
[48] States must consider the four factors as listed above but can also take into account other relevant factors for the reasonable progress sources identified (see EPA's *Guidance for Setting Reasonable Progress Goals under the Regional Haze Program,* ("EPA's Reasonable Progress Guidance"), p. 2-3, July 1, 2007).

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contributors to visibility impairment, and that the next step of creating an appropriate rule or regulation will be accomplished in the next SIP revision.

We disagree with the State's reasoning for not adopting reasonable progress controls for Mountain Cement Company Laramie Plant kiln. If the State determined that it needed to adopt a rule or perform modeling to adequately assess and, if warranted, require reasonable progress controls, the State should have completed these steps before it submitted its regional haze SIP. The RHR does not allow for commitments to potentially implement strategies at some later date that are identified under reasonable progress or for the State to take credit for such commitments. Nor does it allow the State to consider the time to promulgate regulations as part of the time for compliance.

While we disagree with the State's reasoning for not requiring any controls under reasonable progress, we are proposing to approve the State's conclusion that no additional NO_x controls are warranted for this planning period. While the costs of some controls (i.e., biosolid injection and SNCR) are within the range of cost-effectiveness values that Wyoming, other states, and EPA have considered as reasonable in the BART context, the costs are not so low that we are prepared to disapprove the State's conclusion in the reasonable progress context. In addition, these additional controls only afford relatively modest emission reductions.

3. Reasonable Progress Goals

40 CFR 51.308(d)(1) requires states to "establish goals" (in deciviews) that provide for reasonable progress towards achieving natural visibility conditions for each Class I area of the State. These RPGs are interim goals that must provide for incremental visibility improvement for the most impaired visibility days, and ensure no degradation for the least impaired visibility days. The RPGs for the first planning period are goals for the year 2018.

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Wyoming relied on WRAP modeling to establish its RPGs for 2018. The primary tool WRAP relied upon for modeling regional haze improvements by 2018, and for estimating Wyoming's RPGs, was the CMAQ model. The CMAQ model was used to estimate 2018 visibility conditions in Wyoming and all western Class I areas, based on application of anticipated regional haze strategies in the various states' regional haze plans, including assumed controls on BART sources.

The Regional Modeling Center (RMC) at the University of California Riverside conducted the CMAQ modeling under the oversight of the WRAP Modeling Forum. The RMC developed air quality modeling inputs including annual meteorology and emissions inventories for: (1) a 2002 actual emissions base case; (2) a planning case to represent the 2000-2004 regional haze baseline period using averages for key emissions categories; (3) a 2018 base case of projected emissions determined using factors known at the end of 2005; and (4) a 2018 reasonable progress case to represent anticipated BART controls. All emission inventories were spatially and temporally allocated using the Sparse Matrix Operator Kernel Emissions (SMOKE) modeling system. Each of these inventories underwent a number of revisions throughout the development process to arrive at the final versions used in CMAQ modeling.

The photochemical modeling of regional haze for the WRAP states for 2002 and 2018 was conducted on the 36-km resolution national regional planning organization domain that covered the continental United States, portions of Canada and Mexico, and portions of the Atlantic and Pacific Oceans along the east and west coasts. The RMC examined the model performance of the regional modeling for the areas of interest before determining whether the CMAQ model results were suitable for use in the regional haze assessment of the LTS and for use in the modeling assessment. The 2002 modeling efforts were used to evaluate air

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quality/visibility modeling for a historical episode, in this case, for calendar year 2002, to demonstrate the suitability of the modeling systems for subsequent planning, sensitivity, and emissions control strategy modeling. Model performance evaluation compares output from model simulations with ambient air quality data for the same time period to determine whether model performance is sufficiently accurate to justify using the model to simulate future conditions. Once the RMC determined that model performance was acceptable, it used the model to determine the 2018 RPGs using the current and future year air quality modeling predictions, and compared the RPGs to the uniform rate of progress. A more detailed description of the CMAQ modeling performed for the WRAP can be found in the Chapter 5 of the State's TSD.

The State determined that the WRAP 2018 projections represent significant visibility improvement and reasonable progress toward natural visibility based upon the State's consideration of the factors required for BART and reasonable progress. The State adopted the WRAPs 2018 projections as their RPG for each Class I area. Table 28 shows the URP and the 2018 RPGs adopted by the State.

Table 28 – Wyoming's URP and RPGs for 2018

	20% Worst Days				20% Best Days	
Wyoming Class I Areas	2000-2004 Baseline (deciview)	2018 URP (deciview)	Reduction Needed to Reach URP Goal (delta deciview)	2018 CMAQ Modeling Projection – State's RPG	2000-2004 Baseline (deciview)	2018 CMAQ Modeling Projection (deciview)
Yellowstone National Park Grand Teton National Park Teton Wilderness	11.8	10.5	0.7	11.2	2.6	2.4
North Absaroka Wilderness Washakie	11.5	10.4	0.6	11.0	2.0	2.0

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Wilderness						
Bridger Wilderness Fitzpatrick Wilderness	11.1	10.0	0.6	10.6	2.1	2.0

Table 28 shows that the State's regional haze SIP is providing for improvement in visibility for the most-impaired days for the period ending in 2018 and allows for no degradation in visibility for the least-impaired days.

Table 28 also shows that Wyoming is not meeting the URP to meet natural visibility conditions by 2064. In this case, 40 CFR 51.308(d)(1)(ii) requires the State to demonstrate, based on the four factors in 51.308(d)(1)(i)(A), that the RPGs established in this SIP are reasonable for this planning period and that achieving the URP in this planning period is not reasonable. In its demonstration, the State cited many reasons why meeting the URP was not reasonable, including the following. First, emissions from natural sources greatly affect the State's ability to meet the 2018 URP. As discussed earlier, WEP data shows that emissions of OC, EC, $PM_{2.5}$, and PM_{10} come mainly from natural or non-anthropogenic sources, such as natural wildfire and windblown dust. The State has little or no control over OC, EC, $PM_{2.5}$, and PM_{10} emissions associated with natural fire and windblown dust. Second, emissions from sources outside the WRAP modeling domain also affect the State's ability to meet the 2018 URP. Sources outside of the modeling domain are the single largest source region contributor to sulfate and nitrate at the State's Class I areas. These sources are not under the control of Wyoming or the surrounding states.

Because the State is not meeting the URP, the State is required by 40 CFR 51.308(d)(1)(ii) to assess the number of years it would take to reach natural conditions if visibility improvement continues at the current rate of progress. The State has calculated the year and the length of time to reach natural visibility as follows: Yellowstone National Park,

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Grand Teton National Park, and Teton Wilderness: 2130 (126 years); North Absaroka Wilderness and Washakie Wilderness: 2136 (132 years); and Bridger Wilderness and Fitzpatrick Wilderness: 2165 (161 years).

EPA disagrees with the State's assessment that, based on the factors in 40 CFR 51.308(d)(1)(i)(a), all reasonable controls were implemented by the State for this first planning period of the regional haze program. In particular, as discussed in sections VIII.A and VIII.B. below, we find unreasonable the State's determination to not impose more stringent NO_x BART controls on certain sources or not to impose any reasonable progress controls at PacifiCorp Dave Johnston Units 1 and 2. As a result, EPA is proposing to disapprove the State's RPGs, and because we are proposing to disapprove Wyoming's RPGs, we are also proposing a FIP to replace them. See discussion in section VIII.C below.

E. Long Term Strategy

1. Emission Inventories

40 CFR 51.308(d)(3)(iii) requires that Wyoming document the technical basis, including modeling, monitoring, and emissions information, on which it relied to determine its apportionment of emission reduction obligations necessary for achieving reasonable progress in each mandatory Class I Federal area it affects. Wyoming must identify the baseline emissions inventory on which its strategies are based. 40 CFR 51.308(d)(3)(iv) requires that Wyoming identify all anthropogenic sources of visibility impairment it considered in developing its LTS. This includes major and minor stationary sources, mobile sources, and area sources.

In order to meet these requirements, Wyoming relied on the emission inventory developed by the WRAP. The State has provided an emission inventory for SO_2, NO_x, VOC, OC, EC, $PM_{2.5}$, PM_{10}, and NH_3. The inventory provides the baseline year 2002 emissions and

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provides projections of future emissions in 2018 based on expected controls, growth, and other factors. The following are the inventory source categories identified by the State: point, area, on-road mobile, off-road mobile, anthropogenic fire, natural fire, road dust, fugitive dust, area source oil and gas, and biogenic emissions. The emission inventories developed by the WRAP were calculated using best available data and approved EPA methods.[49] Following is a summary of the emission inventory for each pollutant by source.

SO_2

Sulfur dioxide emissions come primarily from coal combustion at EGUs, but smaller amounts come from natural gas combustion, mobile sources, and wood combustion.

Table 29 – Wyoming SO_2 Emissions – 2002 and 2018

Source Category	Baseline 2002	Future 2018	Percent Change
Point	119,717	96,809	-19
Area	16,689	23,093	38
On-Road Mobile	959	81	-92
Off-Road Mobile	5,866	65	-99
Oil & Gas	150	3	-98
Road Dust	0	0	0
Fugitive Dust	0	0	0
Windblown Dust	0	0	0
Anthropogenic Fire	173	109	-37
Natural Fire	2,286	2,286	0
Biogenic	0	0	0
Total	145,840	122,446	-16

The State expects a 16% reduction in SO_2 emissions by 2018 due to planned controls on existing sources, even with expected growth in generating capacity for the State.

NO_x

[49] The methods WRAP used to develop these emission inventories are described in more detail in *Technical Support Document for Technical Products Prepared by the Western Regional Air Partnership (WRAP) in Support of Western Regional Haze Plans* in the Supporting and Related Materials section of the docket.

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NO_x emissions in Wyoming come mostly from point sources and from on-road and off-road mobile sources.

Table 30 – Wyoming NO_x Emissions – 2002 and 2018

Source Category	Baseline 2002	Future 2018	Percent Change
Point	117,806	110,109	-7
Area	15,192	19,663	29
On-Road Mobile	38,535	9,728	-75
Off-Road Mobile	76,637	49,677	-35
Oil & Gas	14,725	34,142	132
Road Dust	0	0	0
Fugitive Dust	0	0	0
Windblown Dust	0	0	0
Anthropogenic Fire	782	484	-38
Natural Fire	8,372	8,372	0
Biogenic	15,925	15,925	0
Total	287,974	248,100	-14

The State expects NO_x emissions to decrease by 14% by 2018, primarily due to significant reductions in mobile source emissions. The State projects that off-road and on-road vehicles emissions will decline by more than 55,760 tpy from the baseline 2002 emissions of 115,172 tpy.

OC

A wide variety of sources contribute emissions to this pollutant, including diesel emissions and combustion byproducts from wood and agricultural burning.

Table 31 – Wyoming OC Emissions – 2002 and 2018

Source Category	Baseline 2002	Future 2018	Percent Change
Point	646	990	53
Area	2,000	1,975	-1
On-Road Mobile	304	249	-18
Off-Road Mobile	625	411	-34
Oil & Gas	0	0	0
Road Dust	20	26	30

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Fugitive Dust	96	133	39
Windblown Dust	0	0	0
Anthropogenic Fire	1,709	886	-48
Natural Fire	23,793	23,793	0
Biogenic	0	0	0
Total	29,193	28,463	-3

OC emissions from all sources are expected to show a 3% decline. Natural fire is the largest source contributing to OC emissions. The State does not have the ability to predict future emissions from natural fires and thus, the State held this category constant in the inventory.

EC

EC is a byproduct of incomplete combustion. EC emissions mainly come from mobile sources and natural fires.

Table 32 – Wyoming EC Emissions – 2002 and 2018

Source Category	Baseline 2002	Future 2018	Percent Change
Point	104	180	73
Area	304	335	10
On-Road Mobile	443	86	-81
Off-Road Mobile	1,986	1,161	-42
Oil & Gas	0	0	0
Road Dust	2	2	0
Fugitive Dust	7	9	29
Windblown Dust	0	0	0
Anthropogenic Fire	298	153	-49
Natural Fire	4,922	4,922	0
Biogenic	0	0	0
Total	8,066	6,848	-15

The State predicts EC emissions to decrease approximately 15% by 2018. Reductions in manmade emissions of EC are largely due to mobile sources emission reductions resulting from new federal emission standards for mobile sources, especially for diesel engines.

$PM_{2.5}$

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$PM_{2.5}$ emissions come mainly from agricultural and mining activities, windblown dust from construction areas, and emissions from unpaved and paved roads.

Table 33 – Wyoming $PM_{2.5}$ Emissions – 2002 and 2018

Source Category	Baseline 2002	Future 2018	Percent Change
Point	11,375	15,709	38
Area	1,601	1,756	10
On-Road Mobile	0	0	0
Off-Road Mobile	0	0	0
Oil & Gas	0	0	0
Road Dust	160	206	29
Fugitive Dust	2,082	2,882	38
Windblown Dust	5,838	5,838	0
Anthropogenic Fire	242	129	-47
Natural Fire	1,535	1,535	0
Biogenic	0	0	0
Total	22,833	28,055	23

The State predicts emissions of $PM_{2.5}$ to increase 23% by 2018. Emission increases are related to population growth and an increase in vehicle miles traveled.

PM_{10}

PM_{10} emissions come from many of the same sources as $PM_{2.5}$ emissions but other activities like rock crushing and processing, material transfer, open pit mining, and unpaved road emissions also can be prominent sources.

Table 34 – Wyoming PM_{10} Emissions – 2002 and 2018

Source Category	Baseline 2002	Future 2018	Percent Change
Point	24,751	30,619	24
Area	409	653	60
On-Road Mobile	171	165	-4
Off-Road Mobile	0	0	0
Oil & Gas	0	0	0
Road Dust	1,125	1,449	29
Fugitive Dust	18,030	25,144	39
Windblown Dust	52,546	52,546	0

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Anthro Fire	259	109	-58
Natural Fire	5,369	5,369	0
Biogenic	0	0	0
Total	102,660	116,054	13

Overall, PM_{10} emissions are expected to increase by 13%. Increases in coarse PM emissions are linked to population growth and vehicle miles traveled.

NH_3

NH_3 emissions come from a variety of sources including wastewater treatment facilities, livestock operations, fertilizer application, mobile sources, and point sources.

Table 35 – Wyoming NH_3 Emissions – 2002 and 2018

Source Category	Baseline 2002	Future 2018	Percent Change
Point	685	1,398	104
Area	29,776	29,901	0
On-Road Mobile	538	724	35
Off-Road Mobile	41	57	39
Oil & Gas	0	0	0
Road Dust	0	0	0
Fugitive Dust	0	0	0
Windblown Dust	0	0	0
Anthropogenic Fire	218	119	-45
Natural Fire	1,775	1,775	0
Biogenic	0	0	0
Total	33,033	33,974	3

NH_3 emissions are expected to increase by 3% by 2018. Increases in NH_3 emissions are linked to population growth and increased vehicular traffic.

2. Consultation and Emissions Reductions for Other States' Class I Areas

40 CFR 51.308(d)(3)(i) requires that Wyoming consult with another state if its emissions are reasonably anticipated to contribute to visibility impairment at that state's Class I area(s), and that Wyoming consult with other states if those other states' emissions are reasonably anticipated

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to contribute to visibility impairment at its Class I areas. The State participated in regional planning, coordination, and consultation with other states in developing emission management strategies through the WRAP. Through the WRAP consultation process, Wyoming has reviewed and analyzed contributions from other states that reasonably may cause or contribute to visibility impairment in Wyoming's Class I areas and analyzed Wyoming's impact on other states' Class I areas.

40 CFR 51.308(d)(3)(ii) requires that if Wyoming emissions cause or contribute to impairment in another state's Class I area, Wyoming must demonstrate that it has included in its regional haze SIP all measures necessary to obtain its share of the emission reductions needed to meet the RPG for that Class I area. Section 51.308(d)(3)(ii) also requires that, since Wyoming participated in a regional planning process, it must ensure it has included all measures needed to achieve its apportionment of emission reduction obligations agreed upon through that process. As we state in the RHR, Wyoming's commitments to participate in WRAP bind it to secure emission reductions agreed to as a result of that process.

The State determined it did potentially impact Class I areas in South Dakota, Colorado, Utah, Idaho, Montana, and North Dakota (see Table 8.1.2.1-1 in the SIP). Wyoming accepted and incorporated the WRAP-developed visibility modeling into its regional haze SIP and the SIP includes the controls assumed in the modeling. Wyoming has satisfied the RHR requirements for consultation and included controls in the SIP sufficient to address the relevant requirements related to impacts on Class I areas in other states.

We are proposing to find that the State has met the requirements for consultation under 40 CFR 51.308(d)(3)(i) and 40 CFR 51.308(d)(3)(ii).

3. Mandatory Long-Term Strategy Requirements

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40 CFR 51.308(d)(3)(v) requires that Wyoming, at a minimum, consider certain factors in developing its LTS. These are: a) emission reductions due to ongoing air pollution control programs, including measures to address RAVI; b) measures to mitigate the impacts of construction activities; c) emissions limitations and schedules for compliance to achieve the reasonable progress goals; d) source retirement and replacement schedules; e) smoke management techniques for agricultural and forestry management purposes including plans that currently exist within the state for these purposes; f) enforceability of emissions limitations and control measures; and g) the anticipated net effect on visibility due to projected changes in point, area, and mobile source emissions over the period addressed by the LTS.

a. Reductions Due to Ongoing Air Pollution Programs

In addition to its BART and reasonable progress determinations, the State's LTS contains other reductions due to ongoing air pollution programs. The State's LTS contains numerous ongoing air pollution programs, including: 1) New Source Review Program, which is a permit program for the construction of new sources and the modification of existing sources; 2) Prevention of Significant Deterioration Program, which protects visibility from proposed major stationary sources or major modifications to existing facilities; and 3) New Source Performance Standards, which the State incorporates by reference on an annual basis. For a complete listing of ongoing air pollution programs in Wyoming, see Chapter 8.2.1 of the SIP.

b. Measures to Mitigate the Impacts of Construction Activities

Chapter 3 of the Wyoming Air Quality Standards and Regulations (WAQSR) establishes limits on the quantity or concentration of emissions of air pollutants from numerous sources, including construction activities. Specifically, WAQSR Chapter 3, Section 2(f), prescribes measures to ensure the control of fugitive dust emissions during construction or demolition

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activities. WAQSR Chapter 3, Section 2(f) requires any person engaged in clearing or leveling of land, earthmoving, excavation, or movement of trucks or construction equipment over access haul roads or cleared land to take steps to minimize fugitive dust from such activities. Such control measures may include frequent watering and/or chemical stabilization. EPA approved WAQSR Chapter 3 into the SIP on July 28, 2004 (69 FR 44965).

c. Smoke Management

WAQSR Chapter 10 establishes restrictions and requirements on different types of burning in Wyoming. WAQSR Chapter 10, Section 2 regulates open burning, including refuse burning, open burning of trade wastes, open burning at salvage operations, open burning for firefighting training, and small vegetative material open burning (not exceeding 0.25 tons per day of PM). WAQSR Chapter 10, Section 3 regulates emissions from wood waste burners. EPA approved WAQSR Chapter 10, Section 2 and 3 into the SIP on July 28, 2004 (69 FR 44965). WAQSR Chapter 10, Section 4 was adopted by the State and submitted to EPA to meet the requirements for programs related to fire under 40 CFR 51.309(d)(6). Chapter 10, Section 4 seeks to minimize the impacts from private and prescribed burning on visibility in Class I areas and potentially affected populations. EPA is proposing approval of Chapter 10, Section 4 in a separate action.

d. Emission Limitations and Schedules for Compliance

Chapter 6.5 of the State's SIP contains the emission limitations and schedules for compliance for BART sources. Chapter 6.5 of the SIP requires the BART sources to install and demonstrate compliance with the State's BART determination as expeditiously as practicable, but no later than five years after EPA approval of the SIP. For some sources where controls have already been installed, the State specifies an earlier compliance deadline in Chapter 6.5 of the

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SIP. In addition, Chapter 8.3.3 of the SIP contains the emission limits and compliance schedule for LTS controls on Jim Bridger Units 1- 4.

e. Source Retirement and Replacement Schedules

The State is not currently aware of any specific scheduled shutdowns, retirements in upcoming years, or replacement schedules, such as planned installation of new control equipment to meet other regulations. If such actions occur, the State will factor them into upcoming reviews.

f. Enforceability of Wyoming's Measures

As discussed in section VII.D of this notice, EPA is proposing to disapprove the State's SIP because it contains inadequate monitoring, recordkeeping, and reporting requirements, and we are proposing a FIP to address the enforceability of BART and reasonable progress controls.

g. Anticipated Net Effect on Visibility Due to Projected Changes

The anticipated net effect on visibility due to projected changes in point, area, and mobile source emissions during this planning period is addressed in section VI.D.3 of this notice.

4. Our Conclusions on Wyoming's Long-Term Strategy

We propose to partially approve and partially disapprove Wyoming's LTS. Because we are proposing to disapprove the NO_x BART determinations for PacifiCorp Dave Johnston Unit 3 and Unit 4, PacifiCorp Naughton Units 1and 2, PacifiCorp Wyodak Unit 1, and Basin Electric Laramie River Units 1, 2, and 3, we are also proposing to disapprove the corresponding emission limits and compliance schedules that Wyoming relied on as part of its LTS. Because we are proposing to disapprove the reasonable progress determination for PacifiCorp Dave Johnston Units 1 and 2, we are also proposing to disapprove the LTS because it does not include appropriate NO_x reasonable progress emission limits and compliance schedules for Dave

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Johnston Units 1 and 2. We are also proposing to disapprove the State's LTS because it does not contain the necessary monitoring, recordkeeping, and reporting requirements to make the BART and reasonable progress limits practically enforceable. Except for these elements, the State's LTS satisfies the requirements of 40 CFR 51.308(d)(3), and we are proposing to approve it.

F. Coordination of RAVI and Regional Haze Rule Requirements

Per 40 CFR 51.306(c), the State must provide for review and revision of a coordinated LTS for addressing RAVI and regional haze, and the State must submit the first such coordinated LTS with its first regional haze SIP. The State did not provide for the coordination of their RAVI and regional haze LTS. We are proposing to disapprove the State's SIP as not meeting the requirements of 40 CFR 51.306(c). We are proposing a FIP as explained in section VIII.F of this notice to meet the coordination requirements of 40 CFR 51.306(c).

G. Monitoring Strategy and Other Implementation Plan Requirements

40 CFR 51.308(d)(4) requires that the SIP contain a monitoring strategy for measuring, characterizing, and reporting regional haze visibility impairment that is representative of all mandatory Class I Federal areas within the state. This monitoring strategy must be coordinated with the monitoring strategy required in 40 CFR 51.305 for RAVI. As 40 CFR 51.308(d)(4) notes, compliance with this requirement may be met through participation in the IMPROVE network. 40 CFR 51.308(d)(4)(i) further requires the establishment of any additional monitoring sites or equipment needed to assess whether the RPGs for all mandatory Class I Federal areas within the state are being achieved.

Consistent with EPA's monitoring regulations for RAVI and regional haze, Wyoming states in Chapter 9 of the regional haze SIP that it will rely on the IMPROVE network for

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compliance purposes, in addition to any additional visibility impairment monitoring that may be needed in the future.

Section 51.308(d)(4)(ii) requires that states establish procedures by which monitoring data and other information are used in determining the contribution of emissions from within Wyoming to regional haze visibility impairment at mandatory Class I Federal areas both within and outside the state. The IMPROVE monitoring program is national in scope, and other states have similar monitoring and data reporting procedures, ensuring a consistent and robust monitoring data collection system. As 40 CFR 51.308(d)(4) indicates, Wyoming's participation in the IMPROVE program constitutes compliance with this requirement.

40 CFR 51.308(d)(4)(iv) requires that the SIP provide for the reporting of all visibility monitoring data to the Administrator, at least annually, for each mandatory Class I Federal area in the state. To the extent possible, Wyoming should report visibility monitoring data electronically. 40 CFR 51.308(d)(4)(vi) also requires that the SIP provide for other elements, including reporting, recordkeeping, and other measures, necessary to assess and report on visibility. We propose that Wyoming's participation in the IMPROVE network ensures that the monitoring data is reported at least annually and is easily accessible; therefore, such participation complies with this requirement. IMPROVE data are centrally compiled and made available to EPA, states and the public via various electronic formats and websites including IMPROVE (http://vista.cira.colostate.edu/improve/) and VIEWS (http://vista.cira.colostate.edu/views/).

40 CFR 51.308(d)(4)(v) requires that Wyoming maintain a statewide inventory of emissions of pollutants that are reasonably anticipated to cause or contribute to visibility impairment in any mandatory Class I Federal area. The inventory must include emissions for a

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baseline year, emissions for the most recent year for which data are available, and estimates of future projected emissions. The State must also include a commitment to update the inventory periodically. The State's emission inventory is discussed in section VI.F.1 of this notice. Wyoming states in Chapter 9 of the SIP that it intends to update the Wyoming statewide emissions inventories periodically and review periodic emissions information from other states and future emissions projections. We propose that this satisfies the requirement.

40 CFR 51.308(d)(4)(vi) requires that states provide for any additional reporting, recordkeeping, and measures necessary to evaluate and report on visibility. The State of Wyoming, in accordance with provisions of 40 CFR 51.308(d)(4)(vi), will track data related to regional haze for sources for which the State has regulatory authority, and will depend on the IMPROVE program and RPO sponsored collection and analysis efforts for monitoring and emissions inventory data, respectively. To ensure the availability of data and analyses to report on visibility conditions and progress toward Class I area visibility goals, the State of Wyoming will collaborate with members of a RPO to ensure the continued operation of the IMPROVE program and RPO sponsored technical support analysis tools and systems.

We propose to find that the State's SIP satisfies the requirements of 40 CFR 51.308(d)(4).

H. Consultation with FLMs

Although the FLMs are very active in participating in the RPOs, the RHR grants the FLMs a special role in the review of the regional haze SIPs, summarized in section V.H above. Under 40 CFR 51.308(i)(2), states are obligated to provide the FLMs with an opportunity for consultation, in person, and at least 60 days prior to holding a public hearing on the regional haze SIP. The State provided an opportunity for FLM consultation, in person and at least 60 days

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prior to holding any public hearing on the SIP. As required by 40 CFR Section 51.308(i)(3), the State has included FLM comments and State responses in Chapter 11 of the Wyoming TSD.

40 CFR 51.308(i)(3) requires that states provide in its regional haze SIP a description of how it addressed any comments provided by the FLMs. The FLMs formally commented on the Wyoming proposed SIP in November and December of 2010. The FLM comments provided support for the modeling approach used by the State in the BART determinations and complimented the State on thorough BART, reasonable progress, and area source analysis. The FLMs also recommended the State reevaluate costs and emission limits for some of the BART and reasonable progress sources. Chapter 11 of the State's TSD provides detailed information on the State's response to FLM comments.

Lastly, 40 CFR 51.308(i)(4) specifies the regional haze SIP must provide procedures for continuing consultation between a state and FLMs on the implementation of the visibility protection program required by 40 CFR 51.308. This includes development and review of implementation plan revisions and five-year progress reports and the implementation of other programs having the potential to contribute to impairment of visibility in mandatory Class I Federal areas. Pursuant to Chapter 11.2 of the SIP, the State will provide the FLMs an opportunity to review and comment on SIP revisions, the five-year progress reports, and other developing programs that may contribute to Class I visibility impairment.

We are proposing that the State's SIP satisfies the requirements of 40 CFR 51.308(i).

I. Periodic SIP Revisions and 5-year Progress Reports

40 CFR 51.308(f) requires a state to revise and submit its regional haze SIP to EPA by July 31, 2018, and every ten years thereafter. Pursuant to Chapter 10 of the SIP, the State will provide this revision. In accordance with the requirements listed in 40 CFR 51.308(g), the State

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will submit a report on reasonable progress to EPA every five years following the initial submittal of the SIP. That report will be in the form of an implementation plan revision. The State's report will evaluate the progress made towards the RPGs for each mandatory Class I area located within the State and in each mandatory Class I area located outside the State, which have been identified as being affected by emissions from the State. The State will also evaluate the monitoring strategy adequacy in assessing RPGs.

Based on the findings of the five-year progress report, 40 CFR 51.308(h) requires a state to make a determination of adequacy of the current implementation plan. The State must take one or more of the actions listed in 40 CFR 51. 308(h)(1) through (4) that are applicable at the same time as the state submits a five-year progress report. Chapter 12 of the SIP requires the State to make an adequacy determination of the current SIP pursuant to 40 CFR 51.308(h)(1) through (4) at the same time a five-year progress report is due.

We propose to find the State's SIP satisfies the requirements of 40 CFR 51.308(f) – (h).

VIII. Federal Implementation Plan

EPA is proposing a FIP to address the deficiencies indentified in our proposed partial disapproval of Wyoming's regional haze SIP. In lieu of our proposed FIP, or a portion thereof, we will propose approval of a SIP revision as expeditiously as practicable if the State submits such a revision and the revision matches the terms of our proposed FIP. We will also review and take action on any regional haze SIP submitted by the state to determine whether such SIP is approvable, regardless of whether or not its terms match those of the FIP. We encourage the State to submit a SIP revision to replace the FIP, either before or after our final action.

A. Disapproval of the State's NO_x BART Determinations and Federal Implementation Plan for NO_x BART Determinations and Limits

As noted above, the State provided five-factor analyses that considered all factors, but we find that its consideration of the costs of compliance and visibility improvement was inconsistent with regulatory and statutory requirements. In disapproving specific State BART determinations in our proposed rulemaking notice on June 4, 2012, we based our analysis on information provided by the State in their BART analyses, with the exception of visibility improvement modeling, and thus accepted the cost information provided by the State. In this proposed rulemaking, in addition to the other BART information in the State SIP submittal, we are basing our proposed BART determinations on cost analyses and visibility improvement modeling developed by EPA, as explained in section VII.C of this notice. EPA is proposing to disapprove the State's NO_x BART determinations, and we are proposing to issue a BART FIP, for the following units: PacifiCorp Dave Johnston Unit 3 and Unit 4, PacifiCorp Naughton Unit 1 and Unit 2, PacifiCorp Wyodak Unit 1, and Basin Electric Laramie River Units 1, 2, and 3. EPA's rationale for disapproving the State's BART determinations for these units, as well as EPA's BART FIP determinations and emission limits, are discussed below.

We are also asking if interested parties have additional information or comments regarding the BART factors and EPA's proposed determinations, for example our weighing of average costs, incremental costs, visibility improvement, and timing of installation of such controls, and in light of such information, whether the interested parties think the Agency should consider another BART control technology option that could be finalized either instead of, or in conjunction with, BART as proposed. The Agency is also asking if interested parties have additional information or comments on the proposed timing of compliance when the challenge of coordinating the work our proposed SIP and FIP will require is considered.

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The Agency will take the comments and testimony received, as well as any further SIP revisions submitted by the State, into consideration in our final promulgation. Supplemental information received may lead the Agency to adopt final SIP and/or FIP regulations that reflect a different BART control technology option, or impact other proposed regulatory provisions, which differ from this proposal.

1. Disapproval of the State's Basin Electric Laramie River Units 1-3 NO_x BART Determination and FIP to Address NO_x BART

Wyoming's NO_x BART Determination

During the 2001-2003 baseline, Basin Electric Laramie River Units 1-3 were all controlled with LNBs with a permit limit of 0.5 lbs/MMBtu (3-hour rolling average). The State determined that new LNBs, OFA, new LNBs and OFA, new SNCR/SCR hybrid[50], new LNBs and OFA with SNCR, and SCR were technically feasible for reducing NO_x emissions at Units 1-3. The State determined that natural gas re-burn was technically infeasible. The State did not identify any energy or non-air quality environmental impacts that would preclude the selection of any of the controls evaluated, and there are no remaining-useful-life issues for this source. A summary of the State's NO_x BART analysis is provided in Tables 36-38 below. As discussed above, the visibility improvement modeling results in these tables were developed by EPA because Wyoming did not properly follow the BART Guidelines. Baseline NO_x emissions are 6,320 tpy for Unit 1, 6,285 tpy for Unit 2, and 6,448 tpy for Unit 3 based on annual average heat input for 2001-2003 and an emission rate of 0.27 lb/MMBtu.

[50] A hybrid SNCR/SCR system combines the lower costs and higher ammonia slip of SNCR with the higher NOx reduction potential and lower ammonia slip of SCR. During operation, the SNCR system is allowed to inject higher amounts of reagent into the flue gas. The increased reagent flow brings about increased NOx reduction, but also causes increased ammonia slip which is then consumed by the SCR system. The use of the ammonia slip by the SCR system can reduce the size of the required SCR catalyst.

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Table 36 – Summary of Wyoming's Basin Electric Laramie River Unit 1 NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (30-day Rolling Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Wind Cave National Park) EPA Analysis
OFA	0.23	936	$625,000	$668	--	0.08
New LNBs	0.23	936	$1,360,000	$1,453	--	0.08
New LNBs with OFA	0.23	936	$1,944,000	$2,077	--	0.08
SNCR/SCR Hybrid	0.20	1,639	$7,429,000	$4,534	--	--
New LNBs with OFA and SNCR	0.12	3,511	$7,365,000	$2,098	$2,105	0.32
SCR	0.07	4,681	$15,787,000	$3,372	$7,198	0.44

Table 37 – Summary of Wyoming's Basin Electric Laramie River Unit 2 NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (30-day Rolling Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness --	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Wind Cave National Park) EPA Analysis
OFA	0.23	931	$625,000	$671	--	0.08
New LNBs	0.23	931	$1,360,000	$1,461	--	0.08
New LNBs with OFA	0.23	931	$1,944,000	$2,088	--	0.08
SNCR/SCR Hybrid	0.20	1,630	$7,429,000	$4,559	--	--
New LNBs with OFA and SNCR	0.12	3,492	$7,365,000	$2,109	$2,117	0.32

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SCR	0.07	4,656	$15,787,000	$3,391	$7,242	0.44

Table 38 – Summary of Wyoming's Basin Electric Laramie River Unit 3 NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (30-day Rolling Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Wind Cave National Park) EPA Analysis
OFA	0.23	955	$625,000	$654	--	0.08
New LNBs	0.23	955	$1,360,000	$1,424	--	0.08
New LNBs with OFA	0.23	955	$1,944,000	$2,036	--	0.08
SNCR/SCR Hybrid	0.20	1,672	$7,429,000	$4,444	--	--
New LNBs with OFA and SNCR	0.12	3,582	$7,365,000	$2,056	$2,064	0.33
SCR	0.07	4,777	$15,787,000	$3,305	$7,054	0.44

The State eliminated the SNCR/SCR hybrid from further consideration because it has higher cost-effectiveness values and lower control efficiency compared to new LNBs plus OFA with SNCR.

Based on its consideration of the five factors, the State determined that new LNBs with OFA were reasonable for NO_x BART. The State determined that the NO_x BART emission limit for Laramie River Unit 1 is 0.23 lb/MMBtu (30-day rolling average). The State determined that the NO_x BART emission limit for Laramie River Unit 2 is 0.23 lb/MMBtu (30-day rolling average). The State determined that the NO_x BART emission limit for Laramie River Unit 3 is 0.23 lb/MMBtu (30-day rolling average).

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The State's proposed SIP required additional NO_x emission reductions for Laramie River under its LTS. Based on the costs and visibility improvement for Laramie River Station Units 1, 2, and 3, the State proposed installation of two SCRs, or equivalent performing emission control systems, at any of the three units. The State proposed that the add-on NO_x control achieve an emission rate, on an individual unit basis, at or below 0.07 lb/MMBtu on a 30-day rolling average. The State proposed that the add-on controls be installed and operational on one of the Laramie River Station units by December 31, 2018 and on a second Laramie River Station unit by December 31, 2023.

On March 8, 2010, Basin Electric Power Cooperative appealed the additional controls proposed by the State under its LTS before the Wyoming Environmental Quality Council. The State entered into a settlement agreement on November 16, 2010 with Basin Electric Power Cooperative (a copy of the settlement agreement is included in the State's revised NO_x BART Analysis for Laramie River dated January 3, 2011). As part of the settlement agreement, the State agreed to remove the requirement for Basin Electric to install additional controls under the LTS. In return, Basin Electric agreed to additional NO_x emissions reductions under BART. Under the settlement agreement, Basin Electric agreed to a NO_x emission limit of 0.21 lb/MMBtu (30-day rolling average) on all three units. Basin Electric also agreed to a NO_x emission limit for Unit 1 and Unit 2 of 4,780 tpy and a NO_x emission limit for Unit 3 of 4,914 tpy, effectively capping emissions from all three units at 12,773 tpy. In the SIP adopted by the State, the State determined the emission limits in the settlement agreement were BART for Basin Electric Laramie River Units 1, 2, and 3.

<u>EPA's Basin Electric Laramie River Units 1-3 NO_x BART Determination and FIP for NO_x BART</u>

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The EPA agrees with the State's analysis pertaining to energy or non-air quality environmental impacts and remaining-useful-life for this source. However, EPA disagrees with the State's baseline NO_x emissions estimates, as listed above, because the State based its estimate on annual average heat input for 2001- 2003 at an emission rate of 0.07 lb/MMBtu and not actual annual averages. EPA's revised baseline NO_x emissions are 6,051 tpy for Unit 1, 6,293 tpy for Unit 2, and 6,375 tpy for Unit 3 based on the actual annual average for the years 2001-2003. A summary of the EPA's NO_x BART analysis and the visibility impacts is provided in Tables 39-44 below.

Table 39 – Summary of EPA's Laramie River Unit 1 NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (Annual Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Badlands)
New LNBs with OFA	0.19	1,556	$2,268,806	$1,458	--	0.29
New LNBs with OFA and SNCR	0.15	2,445	$5,880,822	$2,395	$4,018	0.44
New LNBs with OFA and SCR	0.05	4,880	$18,146,629	$3,718	$5,057	0.79

Laramie River Unit 1 also impacts other Class I areas. The visibility improvement modeled by EPA at other Class I areas is shown in Table 40 below.

Table 40 – Laramie River Unit 1: Visibility Improvement at Other Class I Areas

Class I Area	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA/SNCR	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA/SCR

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Wind Cave	0.20	0.30	0.64
Rawah	0.10	0.16	0.32
Rocky Mountain	0.12	0.19	0.37

Table 41 – Summary of EPA's Laramie River Unit 2 NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (Annual Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Badlands)
New LNBs with OFA	0.19	1823	$2,268,806	$1,244	--	0.30
New LNBs with OFA and SNCR	0.15	2,717	$5,884,257	$2,166	$4,044	0.42
New LNBs with OFA and SCR	0.05	5,129	$20,017,988	$3,903	$5,860	0.73

Laramie River Unit 2 also impacts other Class I areas. The visibility improvement modeled by EPA at other Class I areas is shown in Table 42 below.

Table 42 – Laramie River Unit 2: Visibility Improvement at Other Class I Areas

Class I Area	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA/SNCR	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA/SCR
Wind Cave	0.24	0.36	0.66
Rawah	0.10	0.16	0.29
Rocky Mountain	0.13	0.19	0.35

Table 43 – Summary of EPA's Laramie River Unit 3 NO_x BART Analysis

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Control Technology	Emission Rate (lb/MMBtu) (Annual Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Badlands)
New LNBs with OFA	0.19	1789	$2,268,806	$1,268	--	0.22
New LNBs with OFA and SNCR	0.15	2,706	$5,933,791	$2,192	$3,996	0.33
New LNBs with OFA and SCR	0.05	5,181	$18,597,027	$3,589	$5,117	0.67

Laramie River Unit 3 also impacts other Class I areas. The visibility improvement modeled by EPA at other Class I areas is shown in Table 44 below.

Table 44 – Laramie River Unit 3: Visibility Improvement at Other Class I Areas

Class I Area	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA/SNCR	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA/SCR
Wind Cave	0.20	0.31	0.60
Rawah	0.10	0.15	0.29
Rocky Mountain	0.12	0.18	0.34

As noted above, under the settlement agreement terms incorporated into the SIP, Basin Electric agreed to a NO_x emission limit of 0.21 lb/MMBtu (30-day rolling average) on all three units, and thus eliminated other control options. We propose to find that Wyoming did not properly follow the requirements of the BART Guidelines in determining NO_x BART for these units.

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Furthermore, as discussed in detail above, because Wyoming relied on visibility modeling methodologies that are inconsistent with the statutory and regulatory requirements, we do not consider Wyoming's analyses of visibility improvement for the NO_x BART to be reasonable for the Laramie units. We propose to find that Wyoming's analyses for these units are inconsistent with the statutory and regulatory requirement that "the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology."

Therefore, EPA does not agree with the State's conclusion that a limit of 0.21 lb/MMBtu is consistent with the BART Guidelines and reasonable for BART for Laramie River Units 1, 2, and 3, which can be achieved with the installation and operation of new LNBs with OFA. Specifically, we propose to find that in negotiating the emission limit, Wyoming did not properly or reasonably "take into consideration the costs of compliance." Thus, the State's BART analyses for Basin Electric Laramie River Units 1, 2, and 3 do not meet the requirements of the regional haze regulation, and we are proposing to disapprove those analyses and the State's NO_x BART determination. We are proposing a FIP for NO_x BART to fill the gap left by our disapproval, as explained below.

Our analysis follows our BART Guidelines. Because the Basin Electric Laramie River Units 1, 2, and 3 are similar, we are proposing a single BART analysis and determination that applies to each unit. With the exception of the NO_x emission limits, the visibility improvement analyses, and the cost-effectiveness analyses, EPA is proposing to find that the Wyoming regional haze NO_x BART analyses for Units 1, 2 and 3, fulfills all the relevant requirements of CAA Section 169A and the RHR. As discussed above in section VII.C.3.b.,Wyoming's visibility improvement analyses for these units is inconsistent with the requirements found in the

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CAA and BART Guidelines. Furthermore, we are not relying on the State's costs due to the reasons described in section VII.C.3.a above.

In addition, the cost-effectiveness for new LNBs with OFA and SCR ranges from approximately $3,600/ton to $3,900/ton with significant visibility improvement at the most impacted Class I area of 0.79 dv for Unit 1, 0.73 dv for Unit 2, and 0.67 dv for Unit 3. SCR provides significant visibility improvement at other impacted Class I areas, with cumulative visibility improvements of 2.12 dv for Unit 1, 1.97 dv for Unit 2, and 2.29 dv for Unit 3. When considering the cost effectiveness and visibility improvement of new LNBs plus OFA and SCR, it is within the range of what EPA has found reasonable for BART in other SIP and FIP actions. We also propose to find that the incremental cost-effectiveness does not preclude the selection of new LNBs with OFA and SCR.

EPA's NO_x BART analyses and the visibility impacts for Units 1, 2 and 3 is summarized in Tables 39-44 above and detailed information can be found in the docket.[51] We propose to find that at an emission limit of 0.07 lb/MMBtu (30-day rolling average), which can be achieved by the installation of new LNBs with OFA plus SCR, is reasonable and consistent with the CAA and BART Guideline requirements for NO_x BART for Basin Electric Laramie River Units 1, 2, and 3. Consequently, we are proposing that the FIP NO_x BART emission limit for Basin Electric Laramie River Unit 1, Unit 2, and Unit 3 is 0.07 lb/MMBtu (30-day rolling average).

We propose that Basin Electric meet our proposed emission limit at Laramie River Units 1, 2, and 3, as expeditiously as practicable, but no later than five years after EPA finalizes action on our proposed FIP. This is consistent with the requirements of 40 CFR 51.308(e)(iv).

[51] Detailed supporting information for our cost and visibility improvement analyses can be found in the Docket (see Staudt memos and *EPA BART and RP Modeling for Wyoming,* respectively*)*.

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We are also asking if interested parties have additional information regarding the BART factors and EPA's proposed determination, for example our weighing of average costs, incremental costs, visibility improvement, and timing of installation of such controls, and in light of such information, whether the interested parties think the Agency should consider another BART control technology option that could be finalized either instead of, or in conjunction with, BART as proposed. The Agency will take the comments and testimony received, as well as any further SIP revisions submitted by the State, into consideration in our final promulgation. Supplemental information received may lead the Agency to adopt final SIP and/or FIP regulations that reflect a different BART control technology option, or impact other proposed regulatory provisions, which differ from this proposal.

2. Disapproval of the State's PacifiCorp Dave Johnston Unit 3 and Unit 4 NO_x BART Determinations and FIP to Address NO_x BART

Wyoming's NO_x BART Determination for Dave Johnston Unit 3

During the baseline period of 2001-2003, Dave Johnston Unit 3 was uncontrolled for NO_x and had emission limits of 0.75 lb/MMbtu (3-hour rolling) and 0.59 lb/MMbtu (annual). The State determined LNBs with advanced OFA, LNBs with advanced OFA and SNCR, and LNBs with advanced OFA and SCR were technically feasible for controlling NO_x emissions from Unit 3. The State did not identify any technically infeasible controls.

The State did not identify any energy or non-air quality environmental impacts that would preclude the selection of any of the controls evaluated, and there are no remaining-useful-life issues for this source. Baseline NO_x emissions are 5,814 tpy for Unit 3 based on unit heat input rate of 2,500 MMBtu/hr and 7,884 hours of operation. A summary of the State's NO_x BART analysis and the visibility impacts is provided in Table 45 below. As discussed above, the

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visibility improvement modeling results in these tables were developed by EPA because Wyoming did not properly follow the BART Guidelines.

Table 45 – Summary of Wyoming's Dave Johnston Unit 3 NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (30-day Rolling Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta deciview for the Maximum 98th Percentile Impact at Wind Cave National Park) EPA Analysis
LNB with advanced OFA	0.28	2,723	$1,764,775	$648	--	0.77
LNB with advanced OFA and SNCR	0.19	3,717	$2,679,192	$721	$920	0.94
LNB with advanced OFA and SCR	0.07	5,041	$16,347,519	$3,243	$10,234	1.16

Based on its consideration of the five factors, the State determined LNBs with OFA were reasonable for NO_x BART. The State determined the cost of compliance (capital costs and annual operating and maintenance costs) were significantly higher for the addition of SCR. The State determined that the NO_x BART emission limit for Unit 3 is 0.28 lb/MMBtu (30-day rolling average).

<u>EPA's Conclusions on Dave Johnston Unit 3 NO_x BART Determination and proposed FIP for NO_x BART</u>

The EPA agrees with the State's analysis pertaining to energy or non-air quality environmental impacts and remaining-useful-life for this source. We disagree with the State's estimate of baseline NOX emissions (5,814 tpy) because it is based on a unit heat input rate of

2,500 MMBtu/hr and 7,884 hours of operation rather than an average of actual annual emissions. EPA finds that baseline NO_x emissions are 4,913 tpy for Unit 3 based on the actual annual average for the years 2001-2003. A summary of the EPA's NO_x BART analysis and the visibility impacts is provided in Tables 46 and 47 below.

Table 46 – Summary of EPA's Dave Johnston Unit 3 NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (Annual Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Wind Cave National Park)
LNBs with OFA	0.22	2,837	$1,699,807	$599	--	0.64
LNBs with OFA and SNCR	0.16	3,356	$3,545,435	$1,057	$3,555	0.76
LNBs with OFA and SCR	0.05	4,433	$11,262,188	$2,540	$7,163	1.00

Dave Johnston Unit 3 also impacts other Class I areas. The visibility improvement modeled by EPA at other Class I areas is shown in Table 47 below.

Table 47 – Dave Johnston Unit 3: Visibility Improvement Modeled at Other Class I Areas

Class I Area	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – LNBs + OFA	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – LNBs + OFA/SNCR	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – LNBs + OFA/SCR
Badlands	0.44	0.52	0.67
Mt. Zirkel	0.21	0.25	0.33
Rawah	0.24	0.29	0.38

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Rocky Mountain	0.34	0.41	0.54

EPA does not agree with the State's conclusion that a limit of 0.28 lb/MMBtu, which can be achieved with the installation and operation of LNBs with OFA, is reasonable for NO_x BART for Dave Johnston Unit 3. We propose to find that Wyoming did not properly follow the requirements of the BART Guidelines in determining NO_x BART for this unit. Specifically, we propose to find that Wyoming did not properly or reasonably conduct certain requirements of the BART analysis.

As discussed in detail above, because Wyoming relied on visibility modeling methodologies that are inconsistent with the statutory and regulatory requirements, we do not consider Wyoming's analysis of visibility improvement for the NO_x BART to be reasonable for Dave Johnston Unit 3. We propose to find that Wyoming's analysis for this Unit is inconsistent with the statutory and regulatory requirement that "the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology."

Also, we are not relying on the State's costs due to reasons stated in section VII.C.3.a. We propose to find that Wyoming did not properly or reasonably "take into consideration the costs of compliance." Thus, the State's BART analysis for Dave Johnson Unit 3 does not meet the requirements of the CAA and the RHR, and we are proposing to disapprove the analysis and the State's NO_x BART determination. We are proposing a FIP for NO_x BART to fill the gap left by our disapproval, as explained below.

Our analysis follows our BART Guidelines. With the exception of the NO_x emission limits, the visibility improvement analyses, and the cost analyses, EPA is proposing to find that the Wyoming regional haze NO_x BART analysis for Dave Johnson Units 3 fulfills all the relevant requirements of CAA Section 169A and the Regional Haze Rule. As discussed above,

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Wyoming's visibility improvement analyses for these units is inconsistent with the requirements found in the BART Guidelines.

EPA's NO_x BART analysis and the visibility impacts for Dave Johnson Units 3 are summarized in Tables 46-47 above and detailed information can be found in the docket.[52] The cost-effectiveness for LNB with OFA and SCR at this unit is $2,540, with visibility improvement at the most impacted Class I area of 1.00 dv. SCR provides significant visibility improvement at other impacted Class I areas, with cumulative visibility improvements of 2.92 dv. We do not find that the incremental cost-effectiveness for LNBs with OFA and SCR precludes the selection of this technology for BART. The cost-effectivenes s and visibility improvement are within the range that Wyoming in its SIP and EPA in other SIP and FIP actions have considered reasonable in the BART context.

Based on our examination of the cost estimates and the predicted visibility improvement (along with a consideration of the other BART factors), we propose to find that LNBs with OFA plus SCR at an emission limit of 0.07 lb/MMBtu (30-day rolling average) is reasonable and consistent with the CAA and BART Guideline requirem ents for NO_x BART for Dave Johnston Unit 3. We are proposing that the FIP NO_x BART emission limit for PacifiCorp Dave Johnston Unit 3 is 0.07 lb/MMBtu (30-day rolling average).

We propose that PacifiCorp meet our proposed emissi on limit at Dave Johnston Unit , as expeditiously as practicable, but no later than five years after EPA finalizes action on our proposed FIP, consistent with the requirements of 40 CFR 51.308(e)(iv).

We are also asking if interested parties have additional information regarding the BART factors and EPA's proposed determination, for examp le our weighing of average costs,

[52] Detailed supporting information for our cost and visibility improvement analyses can be found in the Docket (see Staudt memos and *EPA BART and RP Modeling for Wyoming,* respectively*)*.

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incremental costs, visibility improvement, and timing of installation of such controls, and in light of such information, whether the interested parties think the Agency should consider another BART control technology option that could be finalized either instead of, or in conjunction with, BART as proposed. The Agency will take the comments and testimony received, as well as any further SIP revisions submitted by the State, into consideration in our final promulgation. Supplemental information received may lead the Agency to adopt final SIP and/or FIP regulations that reflect a different BART control technology option, or impact other proposed regulatory provisions, which differ from this proposal.

Wyoming's NO_x BART Determination for Dave Johnston Unit 4

Unit 4 is currently controlled with LNBs that were placed in operation in 1976. The State determined new LNBs with advanced OFA, new LNBs with advanced OFA and SNCR, and new LNBs with advanced OFA and SCR were technically feasible for controlling NO_x emissions for Unit 4. The State did not identify any technically infeasible controls.

The State did not identify any energy or non-air quality environmental impacts that would preclude the selection of any of the controls evaluated, and there are no remaining-useful-life issues for this source. Baseline NO_x emissions are 8,566 tpy for Unit 4 based on unit heat input rate of 2,500 MMBtu/hr and 7,884 hours of operation. A summary of the State's NO_x BART analysis and the visibility impacts is provided in Table 48 below. As discussed above, the visibility improvement modeling results in these tables were developed by EPA because Wyoming did not properly follow the BART Guidelines.

Table 48 – Summary of Wyoming's Dave Johnston Unit 4 NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (30-day Rolling Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta deciview for the Maximum 98th Percentile Impact at Wind Cave National Park) EPA Analysis
New LNB with advanced OFA	0.15	6,142	$841,527	$137	--	0.71
New LNB with advanced OFA and SNCR	0.12	6,626	$2,141,786	$323	$2,686	0.80
New LNB with advanced OFA and SCR	0.07	7,435	$16,430,528	$2,210	$17,662	0.97

Based on its consideration of the five factors, the State determined new LNBs with advanced OFA was reasonable for NO_x BART for Dave Johnston Unit 4. The State determined the NO_x BART emission limit for Unit 4 is 0.15 lb/MMBtu (30-day rolling average).

EPA's Conclusions on Dave Johnston Unit 4 NO_x BART Determination and FIP for NO_x BART

The EPA agrees with the State's analysis pertaining to energy or non-air quality environmental impacts and remaining-useful-life for this source. We disagree with the State's estimate of baseline NO_X emissions (8,566 tpy) because it is based on a unit heat input rate of 2,500 MMBtu/hr and 7,884 hours of operation rather than an average of actual annual emissions. EPA finds that baseline NO_x emissions are 5,070 tpy for Unit 4 based on the actual annual average for the years 2001-2003. A summary of the EPA's NO_x BART analysis and the visibility impacts is provided in Tables 49 and 50 below.

Table 49 – Summary of EPA's Dave Johnston Unit 4 NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (Annual Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Wind Cave National Park)
New LNBs with OFA	0.14	3,114	$767,342	$246	--	0.84
New LNBs with OFA and SNCR	0.11	3,505	$2,592,288	$740	$4,665	0.95
New LNBs with OFA and SCR	0.05	4,377	$13,021,894	$2,975	$11,951	1.2

Dave Johnston Unit 4 also impacts other Class I areas. The visibility improvement EPA modeled at other Class I areas is shown in Table 50 below.

Table 50 – Dave Johnston Unit 4: Visibility Improvement Modeled at Other Class I Areas

Class I Area	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA/SNCR	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA/SCR
Badlands	0.54	0.57	0.73
Mt. Zirkel	0.28	0.32	0.37
Rawah	0.29	0.32	0.39
Rocky Mountain	0.45	0.51	0.63

EPA does not agree with the State's conclusion that a limit of 0.15 lb/MMBtu, which can be achieved with the installation and operation on new LNBs with OFA, is reasonable for NO_x BART for Dave Johnston Unit 4. We propose to find that Wyoming did not properly follow the requirements of the BART Guidelines in determining NO_x BART for this unit. Specifically, we

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propose to find that Wyoming did not properly or reasonably conduct certain requirements of the BART analysis.

As discussed in detail above, because Wyoming relied on visibility modeling methodologies that are inconsistent with the statutory and regulatory requirements, we do not consider Wyoming's analysis of visibility improvement for the NO_x BART to be reasonable for Dave Johnston Unit 4. We propose to find that Wyoming's analysis for this Unit is inconsistent with the statutory and regulatory requirement that "the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology."

Also, we are not relying on the State's costs due to reasons stated in section VII.C.3.b. We propose to find that Wyoming did not properly or reasonably "take into consideration the costs of compliance." Thus, the State's BART analysis for Dave Johnson Unit 4 does not meet the requirements of the regional haze regulation, and we are proposing to disapprove the analysis and the State's NO_x BART determination. We are proposing a FIP for NO_x BART to fill the gap left by our disapproval, as explained below.

Our analysis follows our BART Guidelines. With the exception of the NOx emission limits, the visibility improvement analyses, and the cost-effectiveness analyses, EPA is proposing to find that the Wyoming RH BART analysis of NO_x for Dave Johnson Units 4 fulfills all the relevant requirements of CAA Section 169A and the RHR. As discussed above, Wyoming's visibility improvement analyses for these units are inconsistent with the requirements found in the BART Guidelines.

EPA's NO_x BART analysis and the visibility impacts for Dave Johnson Unit 4 are summarized in Tables 49-50 above and detailed information can be found in the docket.[53]

[53] Detailed supporting information for our cost and visibility improvement analyses can be found in the Docket (see Staudt memos and *EPA BART and RP Modeling for Wyoming,* respectively*)*.

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Additionally, the cost effectiveness and visibility improvement are within the range that Wyoming in its SIP and EPA in other SIP and FIP actions have considered reasonable and consistent with the BART Guidelines.

Based on our examination of the cost estimates and the predicted visibility improvement (along with a consideration of the other BART factors), we propose to find that new LNBs with OFA plus SNCR at an emission limit of 0.12 lb/MMBtu (30-day rolling average) is reasonable and consistent with the CAA and BART Guideline requirements for NO_x BART for Dave Johnston Unit 4. We are proposing that the FIP NO_x BART emission limit for PacifiCorp Dave Johnston Unit 4 is 0.12 lb/MMBtu (30-day rolling average).

We propose to eliminate the higher performing control option (i.e., new LNBs with advanced OFA plus SCR) because, although the average cost effectiveness and visibility improvement for SCR are within the range EPA has found reasonable in other SIP or FIP actions, we find that the incremental cost of SCR at $11,951/ton is high enough so that it precludes the selection of SCR.

We propose that PacifiCorp meet our proposed emission limit at Dave Johnston Unit 4, as expeditiously as practicable, but no later than five years after EPA finalizes action on our proposed FIP. This is consistent with the requirements of 40 CFR 51.308(e)(iv).

We are also asking if interested parties have additional information regarding the BART factors and EPA's proposed determination, for example our weighing of average costs, incremental costs, visibility improvement, and timing of installation of such controls, and in light of such information, whether the interested parties think the Agency should consider another BART control technology option that could be finalized either instead of, or in conjunction with, BART as proposed. The Agency will take the comments and testimony received, as well as any

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further SIP revisions submitted by the State, into consideration in our final promulgation. Supplemental information received may lead the Agency to adopt final SIP and/or FIP regulations that reflect a different BART control technology option, or impact other proposed regulatory provisions, which differ from this proposal.

3. Proposal in the Alternative for PacifiCorp Jim Bridger Units 1and 2 NO_x BART

As noted above, EPA is seeking comment on a proposal ("first proposed approach") to approve the regional haze plan submitted by the State for Jim Bridger Unit 1 and Unit 2. EPA also is seeking comment on another alternative approach ("second proposed approach") that would determine that BART for Units 1 and 2 at Jim Bridger power plant is SCR, and would establish corresponding NO_x emission limits for these units that would have to be achieved within five years of our final action. This would have the effect of accelerating the installation of the SCR controls at these units that the State and source owner (PacifiCorp) had proposed to install later (in the 2021-2022 time-period). The State determined that BART for these units is LNB plus OFA, and selected the 2021-2022 time-period for SCR-based emission limits as a reasonable progress measure. The timeframe was based on the large number of actions PacifiCorp is undertaking (or helping to finance) at a large number of EGUs in Wyoming, Utah, Colorado, and Arizona that it owns and operates or co-owns.

Under our second proposed approach, EPA would propose that it does not agree with the State's conclusion that a limit of 0.26 lb/MMBtu is reasonable for BART for Jim Bridger Units 1 and 2, which can be achieved with the installation and operation on LNBs with OFA. In particular, the cost-effectiveness values that EPA calculated for LNBs with OFA and SCR at Unit 1 is $2,393 with a 0.96 deciview visibility improvement at the most impacted Class I area.

The cost-effectiveness values that EPA calculated for LNBs with SOFA and SCR at Unit 2 is $2,492, with a 0.95 deciview visibility improvement at the most impacted Class I area. Under this approach, EPA would propose to find that the cost effectiveness values are reasonable and the visibility improvement significant for LNBs with SOFA plus SCR. In addition, the costs are within the range that Wyoming in its SIP and EPA in other SIP and FIP actions have considered reasonable in the BART context. We would propose in the alternative to find that it was unreasonable for the State not to determine that LNBs with OFA plus SCR was NO_x BART for Jim Bridger Units 1 and 2. Though the State is requiring the installation of SCR on Units 1 and 2 under its LTS, the compliance date for both installations is beyond the five-years allowed for BART sources by 40 CFR 51.308(e)(iv). Thus, we would propose to disapprove the State's NO_x BART determination for Jim Bridger Units 1 and 2 and propose a FIP for NO_x BART.

Based on our examination of the cost estimates and the predicted visibility improvement (along with a consideration of the other BART factors), for our second proposed approach we would propose to find that LNBs with SOFA plus SCR at an emission limit of 0.07 lb/MMBtu (30-day rolling average) is reasonable for NO_x BART for Jim Bridger Units 1 and 2. We would propose that the FIP NO_x BART emission limit for PacifiCorp Units 1 and 2 is 0.07 lb/MMBtu (30-day rolling average).

Under our second proposed approach, we would propose that PacifiCorp meet our proposed emission limit at Jim Bridger Unit 1 and 2, as expeditiously as practicable, but no later than five years after EPA finalizes action on our proposed FIP. This is consistent with the requirements of 40 CFR 51.308(e)(iv).[54]

[54] The proposed regulatory language for this rulemaking only covers our first proposed approach. If EPA finalizes an action that differs from our first proposed approach for Jim Bridger Units 1 and 2, we will revise the regulatory language accordingly. If we finalize action on our first proposed approach, the regulatory language will reflect a compliance deadline of December 31, 2021 for Unit 2 and December 31, 2022 for Unit 1. If we finalize action on

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4. Disapproval of the State's PacifiCorp Naughton Units 1 and 2 NO_x BART Determinations and FIP to Address NO_x BART

Wyoming's NO_x BART Determination

During the baseline period of 2001-2003, NO_x emissions from Naughton Unit 1 and Unit 2 were controlled with good combustion practices with NO_x emission limits of 0.75 lb/MMBtu (3-hour block) per boiler, and 0.58 lb/MMBtu (annual) and 0.54 lb/MMBtu (annual), respectively. The State determined that new LNBs with OFA, new LNBs with OFA and SNCR, and new LNBs with OFA and SCR were all technically feasible for controlling NO_x emissions from Unit 1 and Unit 2. The State did not identify any technically infeasible options.

The State did not identify any energy or non-air quality environmental impacts that would preclude the selection of any of the controls evaluated, and there are no remaining-useful-life issues for this source. A summary of the State's NO_x BART analyses for Units 1 and 2 is provided in Tables 51 and 52 below. As discussed above, the visibility improvement modeling results in these tables were developed by EPA because Wyoming did not properly follow the BART Guidelines. Baseline NO_x emissions are 4,230 tpy for Unit 1 and 5,109 tpy for Unit 2 based on heat input rates of 1,850 MMBtu/hr and 2,400 MMBtu/hr, respectively, and 7,884 hours of operation.

Table 51 – Summary of Wyoming's Naughton Unit 1 NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (30-day Rolling Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta deciview for the Maximum 98th Percentile Impact at

our second proposed approach, the regulatory language would be revised to require compliance at Unit 1 and Unit 2 no later than five years after we take final action.

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						Bridger Wilderness Area) EPA Analysis
New LNBs with OFA	0.26	2,334	$993,248	$426	--	0.79
New LNBs with OFA and SNCR	0.21	2,699	$1,972,363	$731	$2,683	0.80
New LNBs with OFA and SCR	0.07	3,720	$10,231,210	$2,750	$8,089	1.07

Table 52 – Summary of Wyoming's Naughton Unit 2 NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (30-day Rolling Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (delta deciview) (Delta deciview for the Maximum 98th Percentile Impact at Bridger Wilderness Area) EPA Analysis
New LNBs with OFA	0.26	2,649	$945,683	$357	--	0.70
New LNBs with OFA and SNCR	0.21	3,122	$2,260,957	$724	$2,781	0.74
New LNBs with OFA and SCR	0.07	4,447	$12,664,919	$2,848	$7,852	1.10

Based on its consideration of the five factors, the State determined new LNBs with OFA was reasonable for NO_x BART for Unit 1 and Unit 2. The State determined SNCR and SCR were not reasonable based on the high cost effectiveness and associated visibility improvement. The State determined that the NO_x BART emission limit for Naughton Unit 1 is 0.26 lb/MMBtu

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(30-day rolling average), and the NO_x BART emission limit for Naughton Unit 2 is 0.26 lb/MMBtu (30-day rolling average.

EPA's PacifiCorp Naughton Units 1and 2 NO_x BART Determination and proposed FIP for NO_x BART

The EPA agrees with the State's analysis pertaining to energy or non-air quality environmental impacts and remaining-useful-life for this source. We disagree with the State's estimate of baseline NO_X emissions of 4,230 tpy for Unit 1 and 5,109 tpy for Unit 2 because these estimates are based on heat input rates of 1,850 MMBtu/hr and 2,400 MMBtu/hr, respectively rather than an average of actual annual emissions. EPA finds that baseline NO_x emissions are 3,553 tpy for Unit 1 and 4,337 tpy for Unit 2 based on the actual annual average for the years 2001-2003. A summary of the EPA's NO_x BART analysis and the visibility impacts is provided in Tables 53-56 below.

Table 53 – Summary of EPA's Naughton Unit 1 NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (Annual Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Bridger Wilderness Area)
New LNBs with OFA	0.21	2,100	$932,466	$444	--	0.84
New LNBs with OFA and SNCR	0.16	2,463	$2,258,826	$917	$3,650	0.99
New LNBs with OFA and SCR	0.05	3,209	$7,437,269	$2,318	$6,947	1.23

Naughton Unit 1 also impacts other Class I areas. The visibility improvement modeled by EPA at other Class I areas is shown in Table 54 below.

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Table 54 – Naughton Unit 1: Visibility Improvement at Other Class I Areas

Class I Area	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) New LNBs + OFA	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) New LNBs + OFA/SNCR	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) New LNBs + OFA/SCR
Fitzpatrick	0.38	0.45	0.56
N. Absaroka	0.14	0.16	0.20
Washakie	0.20	0.23	0.29
Teton	0.25	0.29	0.36
Grand Teton	0.33	0.39	0.49
Yellowstone	0.28	0.32	0.41

Table 55 – Summary of EPA's Naughton Unit 2 NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (Annual Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Bridger Wilderness Area)
New LNBs with OFA	0.21	2,586	$883,900	$342	--	0.97
New LNBs with OFA and SNCR	0.16	3,024	$2,510,049	$830	$3,713	1.15
New LNBs with OFA and SCR	0.05	3,922	$8,843,387	$2,255	$7,050	1.42

Naughton Unit 2 also impacts other Class I areas. The visibility improvement modeled by EPA at other Class I areas is shown in Table 56 below.

Table 56 – Naughton Unit 2: Visibility Improvement at Other Class I Areas

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Class I Area	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) New LNBs + OFA	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) New LNBs + OFA/SNCR	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) New LNBs + OFA/SCR
Fitzpatrick	0.43	0.51	0.64
N. Absaroka	0.18	0.21	0.26
Washakie	0.24	0.28	0.34
Teton	0.24	0.37	0.45
Grand Teton	0.48	0.56	0.70
Yellowstone	0.26	0.30	0.37

EPA does not agree with the State's conclusion that a limit of 0.26 lb/MMBtu, which can be achieved with the installation and operation of new LNBs with SOFA, is reasonable for BART for Naughton Units 1 and 2. We propose to find that Wyoming did not properly follow the requirements of the BART Guidelines in determining NOx BART for these units. Specifically, we propose to find that Wyoming did not properly or reasonably conduct certain requirements of the BART analyses.

As discussed in detail above, because Wyoming relied on visibility modeling methodologies that are inconsistent with the statutory and regulatory requirements, we do not consider Wyoming's analysis of visibility improvement for the NO_x BART to be reasonable for Naughton Units 1 and 2. We propose to find that Wyoming's analyses for these Units are inconsistent with the statutory and regulatory requirement that "the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology."

Also, we are not relying on the State's costs due to reasons stated in section VII.C.3.b. We propose to find that Wyoming did not properly or reasonably "take into consideration the

costs of compliance." Thus, the State's BART analyses for Naughton Units 1 and 2 do not meet the requirements of the CAA and RHR, and we are proposing to disapprove the analyses and the State's NO_x BART determinations. We are proposing a FIP for NO_x BART to fill the gaps left by our disapproval, as explained below.

Our analysis follows our BART Guidelines. With the exception of the NOx emission limits, the visibility improvement analyses, and the cost effectiveness analyses, EPA is proposing to find that the Wyoming's regional haze NO_x BART analysis for Naughton Units 1 and 2, fulfills all the relevant requirements of CAA Section 169A and the RHR.

EPA's NO_x BART analysis and the visibility impacts for Naughton Units 1 and 2 are summarized in Tables 53-56 above and detailed information can be found in the docket.[55] EPA's cost analysis estimated the cost-effectiveness value for LNBs with OFA and SCR at Unit 1 is $2,318/ton with a 1.23 dv visibility improvement at the most impacted Class I area. The cost effectiveness value for LNBs with OFA and SCR at Unit 2 is estimated at $2,255/ton, with a 1.42 dv visibility improvement at the most impacted Class I area. In addition, the installation of SCR will also have substantial visibility benefits for other Class I areas, besides the most impacted area. The cumulative visibility improvement is 3.54 dv for Unit 1 and 4.18 dv for Unit 2. EPA followed the BART Guidelines in developing these cost-effectiveness values, which are reasonable and the visibility improvement is significant for new LNBs with OFA plus SCR. The costs and visibility improvements are within the range that Wyoming in its SIP and EPA in other SIP and FIP actions have considered reasonable in the BART context.

Based on our examination of the cost estimates and the predicted visibility improvement (along with a consideration of the other BART factors), we propose to find that new LNBs with

[55] Detailed supporting information for our cost and visibility improvement analyses can be found in the Docket (see Staudt memos and *EPA BART and RP Modeling for Wyoming,* respectively).

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OFA plus SCR at an emission limit of 0.07 lb/MMBtu (30-day rolling average) is reasonable and consistent with the CAA and BART Guidelines requirements for NO_x BART for Naughton Units 1 and 2. We are proposing that the FIP NO_x BART emission limit for PacifiCorp Naughton Units 1 and 2 is 0.07 lb/MMBtu (30-day rolling average).

We propose that PacifiCorp meet our proposed emission limit at Naughton Unit 1 and 2, as expeditiously as practicable, but no later than five years after EPA finalizes action on our proposed FIP. This is consistent with the requirements of 40 CFR 51.308(e)(iv).

We are also asking if interested parties have additional information regarding the BART factors and EPA's proposed determination, for example our weighing of average costs, incremental costs, visibility improvement, and timing of installation of such controls, and in light of such information, whether the interested parties think the Agency should consider another BART control technology option that could be finalized either instead of, or in conjunction with, BART as proposed. The Agency will take the comments and testimony received, as well as any further SIP revisions submitted by the State, into consideration in our final promulgation. Supplemental information received may lead the Agency to adopt final SIP and/or FIP regulations that reflect a different BART control technology option, or impact other proposed regulatory provisions, which differ from this proposal.

5. Disapproval of the State's PacifiCorp Wyodak Unit 1 NO_x BART Determination and FIP to Address NO_x BART

Wyoming's NO_x BART Determination

During the baseline period, Wyodak Unit 1 was controlled for NO_x emissions with early generation LNBs with emission limits of 0.70 lb/MMBtu (3-hour block) and 0.31 lb/MMbtu (annual). The State determined new LNBs with OFA, existing LNBs with ROFA, new LNBs

with OFA plus SNCR, and new LNBs with OFA plus SCR were technically feasible for controlling NO_x emissions. The State did not identify any technically infeasible control options.

The State did not identify any energy or non-air quality environmental impacts that would preclude the selection of any of the controls evaluated, and there are no remaining-useful-life issues for this source. A summary of the State's NO_x BART analyses for Unit 1 is provided in Table 57 below. Baseline NO_x emissions are 5,744 tpy based on the unit heat input rate of 4,700 MMBtu/hr and 7,884 hours of operation per year. As discussed above, the visibility improvement modeling results in these tables were developed by EPA because Wyoming did not properly follow the BART Guidelines.

Table 57 – Summary of Wyoming's Wyodak Unit 1 NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (30-day Rolling Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Wind Cave National Park) EPA Analysis
LNBs with OFA	0.23	1,483	$1,306,203	$881	--	0.25
LNBs with OFA and SNCR	0.18	2,409	$2,306,728	$958	$1,080	0.40
LNBs with OFA and SCR	0.07	4,447	$18,910,781	$4,252	$8,147	0.72

Based on its consideration of the five factors, the State determined LNBs with OFA was reasonable for NO_x BART for Unit 1. The State determined other control technologies were not reasonable based on the high-cost effectiveness values and low visibility improvement. The

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State determined the NO_x BART emission limit for Wyodak Unit 1 is 0.23 lb/MMBtu (30-day rolling average).

EPA's Conclusions on Wyodak Unit 1 NO_x BART Determination and FIP for NO_x BART

The EPA agrees with the State's analysis pertaining to energy or non-air quality environmental impacts and remaining-useful-life for this source. We disagree with the State's estimate of baseline NO_X emissions of 5,744 tpy because these estimates are based on the unit heat input rate of 4,700 MMBtu/hr and 7,884 hours of operation per year rather than an average of actual annual emissions. EPA finds that baseline NO_x emissions are 4,615 tpy based on the actual annual average for the years 2001-2003. A summary of the EPA's NO_x BART analysis and the visibility impacts is provided in Tables 58 and 59 below.

Table 58 – Summary of EPA's Wyodak's NO_x BART Analysis

Control Technology	Emission Rate (lb/MMBtu) (Annual Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Wind Cave National Park)
New LNBs with OFA	0.19	1,239	$1,272,427	$1,027	--	0.24
New LNBs with OFA and SNCR	0.15	1,914	$3,787,466	$1,979	$3,725	0.38
New LNBs with OFA and SCR	0.05	3,735	$14,386,417	$3,852	$5,822	0.71

Wyodak also impacts one other Class I area. The visibility improvement EPA modeled at the other Class I area is shown in Table 59 below.

Table 59 – Wyodak: Visibility Improvement at Other Class I Areas

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Class I Area	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA/SNCR	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – New LNBs + OFA/SCR
Badlands	0.17	0.23	0.45

EPA does not agree with the State's conclusion that a limit of 0.23 lb/MMBtu is reasonable for NO_x BART for Wyodak Unit 1, which can be achieved with the installation and operation of new LNBs with OFA. We propose to find that Wyoming did not properly follow the requirements of the BART Guidelines in determining NOx BART for this unit. Specifically, we propose to find that Wyoming did not properly or reasonably conduct certain requirements of the BART analysis.

As discussed in detail above, because Wyoming relied on visibility modeling methodologies that are inconsistent with the statutory and regulatory requirements, we do not consider Wyoming's analysis of visibility improvement for the NO_x BART to be reasonable for Wyodak Unit 1. We propose to find that Wyoming's analysis for this Unit is inconsistent with the statutory and regulatory requirement that "the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology."

Also, we are not relying on the State's costs due to reasons stated in section VII.C.3.b of this notice. We propose to find that Wyoming did not properly or reasonably "take into consideration the costs of compliance." Thus, the State's BART analysis for Wyodak Unit 1 does not meet the requirements of the CAA and RHR, and we are proposing to disapprove the analysis and the State's NO_x BART determination. We are proposing a FIP for NO_x BART to fill the gap left by our disapproval, as explained below.

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Our analysis follows our BART Guidelines. With the exception of the NO_x emission limits, the visibility improvement analyses, and the cost-effectiveness analyses, EPA is proposing to find that the Wyoming's regional haze NO_x BART analysis for Wyodak Unit 1 fulfills all the relevant requirements of CAA Section 169A and the RHR.

EPA's NO_x BART analysis and the visibility impacts for Wyodak Unit 1are summarized in Tables 58-59 above and detailed information can be found in the docket.[56] In particular, the cost effectiveness value for new LNB with OFA plus SNCR at this unit is $1,979/ton with a visibility improvement at the most impacted Class I area of 0.38 deciviews. The costs are within the range that EPA in other SIP and FIP actions has considered reasonable and consistent with the BART Guidelines.

Based on our examination of the costs estimates, emission reductions, and the predicted visibility improvement, we propose to find that new LNBs with OFA plus SNCR at an emission limit of 0.17 lb/MMBtu (30-day rolling average) is reasonable and consistent with the CAA and BART Guideline requirements for NO_x BART for Wyodak Unit 1. We are proposing that the FIP NO_x BART emission limit for PacifiCorp Wyodak Unit 1 is 0.17 lb/MMBtu (30-day rolling average).

We have eliminated the highest performing option from consideration – new LNBs with OFA plus SCR. Although the cost-effectiveness and visibility improvement are within the range of other EPA FIP actions, we find that the cumulative visibility improvement of 1.16 deciviews for new LNBs with OFA plus SCR is low compared to the cumulative visibility benefits that will be achieved by requiring SCR at Dave Johnston Unit 3 (2.92 dv), Laramie River Unit 1 (2.12

[56] Detailed supporting information for our cost and visibility improvement analyses can be found in the Docket (see Staudt memos and *EPA BART and RP Modeling for Wyoming,* respectively*)*.

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dv), Laramie River Unit 2 (1.97 dv), Laramie River Unit 3 (2.29 dv), Naughton Unit 1 (3.54 dv) , and Naughton Unit 2 (4.18 dv).

We propose that PacifiCorp meet our proposed emission limit at Wyodak Unit 1, as expeditiously as practicable, but no later than five years after EPA finalizes action on our proposed FIP. This is consistent with the requirements of 40 CFR 51.308(e)(iv).

We are also asking if interested parties have additional information regarding the BART factors and EPA's proposed determination, for example our weighing of average costs, incremental costs, visibility improvement, and timing of installation of such controls, and in light of such information, whether the interested parties think the Agency should consider another BART control technology option that could be finalized either instead of, or in conjunction with, BART as proposed. The Agency will take the comments and testimony received, as well as any further SIP revisions submitted by the State, into consideration in our final promulgation. Supplemental information received may lead the Agency to adopt final SIP and/or FIP regulations that reflect a different BART control technology option, or impact other proposed regulatory provisions, which differ from this proposal.

B. Disapproval of the State's NO_x Reasonable Progress Determinations and Federal Implementation Plan for NO_x Reasonable Progress Determinations and Limits

We are proposing to disapprove the State's reasonable progress determination for PacifiCorp Dave Johnston Unit 1 and Unit 2, and we are proposing a reasonable progress NO_x FIP for these units, as explained below. As noted above, the State provided four-factor analyses that evaluated the required factors. However, due to deficiencies in the control cost estimates, EPA conducted its own cost analyses for Dave Johnston Unit 1 and 2. The cost analysis was done in the same manner as described for BART sources in Section VII.C.

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We concluded that it is also appropriate to consider a fifth factor for these units for evaluating potential reasonable progress control options - the degree of visibility improvement that may reasonably be anticipated from the use of the reasonable progress controls. Our reasonable progress guidance contemplates that states (or EPA in lieu of a state) may be able to consider other relevant factors for reasonable progress sources (see EPA's *Guidance for Setting Reasonable Progress Goals under the Regional Haze Program,* ("Reasonable Progress Guidance"), pp. 2-3, July 1, 2007). We find it appropriate, in certain circumstances, to consider visibility improvement when evaluating potential reasonable progress controls. Thus, in the same manner as described for BART sources in Section VII.C, EPA conducted visibility improvement modeling for Dave Johnston Units 1 and 2.

1. PacifiCorp Dave Johnston - Units 1 and 2

Background

PacifiCorp's Dave Johnston power plant is comprised of four units burning pulverized subbituminous Powder River Basin coal. Units 3 and 4 are subject to BART, as described above. Units 1 and 2 are nominal 106 MW dry bottom wall-fired boilers. Unit 1 began operation in 1958 and Unit 2 in 1960.

Wyoming's NO_x Reasonable Progress Determinations

Unit 1 and Unit 2 are currently uncontrolled for NO_x emissions. The State determined that LNBs, LNBs with OFA, SNCR, and SCR were technically feasible for controlling NO_x emissions. The State did not identify any technically infeasible control options.

The State did not identify any energy or non-air quality environmental impacts that would preclude the selection of any of the controls evaluated, and there are no remaining-useful-life issues for this source. A summary of the State's NO_x reasonable progress analyses for Unit 1

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and Unit 2, along with our visibility modeling results, are provided in Tables 60 and 61 below. Baseline NO_x emissions are 2,256 tpy for Unit 1 and 2,174 tpy for Unit 2 based on 2002 actual emissions. Wyoming did not provide controlled emission rates in their reasonable progress analysis.

Table 60 – Summary of Dave Johnston Unit 1 NO_x Reasonable Progress Analysis

Control Technology	Control Efficiency (%)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Wind Cave National Park) EPA Analysis
LNBs	51	1,150	$631,000	$528	0.37
LNBs with OFA	65	1,466	$962,000	$632	0.49
SNCR	40	902	$2,490,000	$2,659	0.26
SCR	80	1,804	$3,390,000	$1,810	0.58

Table 61 – Summary of Dave Johnston Unit 2 NO_x Reasonable Progress Analysis

Control Technology	Control Efficiency (%)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Wind Cave National Park) EPA Analysis
LNBs	51	1,108	$631,000	$538	0.38
LNBs with OFA	65	1,413	$962,000	$644	0.49
SNCR	40	869	$2,490,000	$2,709	0.28
SCR	80	1,739	$3,390,000	$1,844	0.58

The State estimated that it would take nearly five and a half years for NO_x reduction strategies to become effective. The State determined that roughly two years would be necessary

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for the State to develop the necessary regulations to implement the selected control measures. The State estimated that it would take up to a year for the source to secure the capital necessary to purchase emission control devices and approximately 18 months would be required for the company to design, fabricate, and install SCR or SNCR technology. Because there are two boilers being evaluated at Dave Johnston, the State determined an additional year may be required for staging the installation process.

The State determined that no controls were reasonable for this planning period. The State cited that the four-factor analysis was limited, in that no guidance was provided by EPA for identifying significant sources and EPA did not establish contribution to visibility impairment thresholds (a potential fifth factor for reasonable progress determinations).[57] The State further claims that the State cannot, per Wyoming Statute 35-11-202, establish emission control requirements except through state rule or regulation. Furthermore, the Wyoming statute requires the State to consider the character and degree of injury of the emissions involved. In this case, the State claims it would need to have visibility modeling that assessed the degree of injury caused by the emissions, which the State does not have. The State believes it has taken a strong and reasonable first step in identifying potential contributors to visibility impairment, and that the next step of creating an appropriate rule or regulation will be accomplished in the next SIP revision.

EPA's Conclusions on Dave Johnston Units 1 and 2 NO_x Reasonable Progress Determination and FIP for NO_x Reasonable Progress Controls

The EPA agrees with the State's analysis pertaining to energy or non-air quality environmental impacts and remaining-useful-life for this source. We disagree with the State's

[57] States must consider the four factors as listed above but can also take into account other relevant factors for the reasonable progress sources identified (see EPA's *Guidance for Setting Reasonable Progress Goals under the Regional Haze Program,* ("EPA's Reasonable Progress Guidance"), p. 2-3, July 1, 2007).

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estimate of baseline NO_X emissions of 2,256 tpy for Unit 1 and 2,174 tpy for Unit 2, which were based on 2002 actual emissions. EPA's estimate of baseline NO_x emissions are 2,188 tpy for Unit 1 and 2,161 tpy for Unit 2 based on the actual annual average for the years 2001-2003. A summary of the EPA's NO_x BART analysis and the visibility impacts is provided in Tables 62-65 below.

Table 62 – Summary of EPA's Dave Johnston Unit 1 NO_x Reasonable Progress Analysis

Control Technology	Emission Rate (lb/MMBtu) (Annual Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Wind Cave National Park)
LNBs with OFA	0.20	1,226	$1,187,179	$968	--	0.31
LNBs with OFA and SNCR	0.15	1,466	$2,087,189	$1,423	$3,743	0.35
LNBs with OFA and SCR	0.05	1,947	$6,417,536	$3,296	$9,004	0.44

Dave Johnston Unit 1 also impacts other Class I areas. The visibility improvement EPA modeled at other Class I areas is shown in Table 63 below.

Table 63 – Visibility Improvement Modeled at Other Class I Areas

Class I Area	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – LNBs + OFA	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – LNBs + OFA/SNCR	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – LNBs + OFA/SCR
Badlands	0.17	0.16	0.25
Mt. Zirkel	0.06	0.08	0.13
Rawah	0.10	0.12	0.15

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Rocky Mountain	0.13	0.16	0.22

Table 64 – Summary of EPA's Dave Johnston Unit 2 NO_x Reasonable Progress Analysis

Control Technology	Emission Rate (lb/MMBtu) (Annual Average)	Emission Reduction (tpy)	Annualized Costs	Average Cost Effectiveness ($/ton)	Incremental Cost Effectiveness	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact at Wind Cave National Park)
LNBs with OFA	0.20	1,180	$1,188,797	$1,007	--	0.29
LNBs with OFA and SNCR	0.15	1,425	$2,100,619	$1,474	$3,718	0.33
LNBs with OFA and SCR	0.05	1,916	$6,432,035	$3,357	$8,830	0.42

Dave Johnston Unit 1 also impacts other Class I areas. The visibility improvement EPA modeled at other Class I areas is shown in Table 65 below.

Table 65 – Visibility Improvement Modeled at Other Class I Areas

Class I Area	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – LNBs + OFA	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – LNBs + OFA/SNCR	Visibility Improvement (Delta dv for the Maximum 98th Percentile Impact) – LNBs + OFA/SCR
Badlands	0.14	0.17	0.24
Mt. Zirkel	0.06	0.09	0.12
Rawah	0.09	0.11	0.15
Rocky Mountain	0.13	0.16	0.21

We disagree with the State's reasoning for not adopting reasonable progress controls for Dave Johnston Unit 1 and Unit 2. If the State determined that it needed to adopt a rule or

perform modeling to adequately assess and, if warranted, require reasonable progress controls, the State should have completed these steps before it submitted its regional haze SIP. The RHR does not allow for commitments to potentially implement strategies at some later date that are identified under reasonable progress or for the State to take credit for such commitments.

In addition, the cost effectiveness value for LNBs with OFA at Unit 1 is $968/ton and $1,007/ton at Unit 2. These values are very reasonable and far less than some of the cost effectiveness values the State found reasonable in making its BART determinations. Given predicted visibility improvement of approximately 0.30 deciviews per unit at the most impacted Class I area and the fact that Wyoming's reasonable progress goals will not meet the URP, we find that it was unreasonable for the State to reject these very inexpensive controls. Thus, we are proposing to disapprove the State's NO_x reasonable progress determination for Dave Johnston Unit 1 and Unit 2 and proposing a FIP for NO_x reasonable progress controls as explained below.

Based on our examination of the State's costs estimates, emission reductions, and the predicted visibility improvement, we propose to find that LNBs with OFA at an emission limit of 0.22 lb/MMBtu (30-day rolling average) is reasonable for NO_x reasonable progress controls for Dave Johnston Units 1 and 2. We are proposing that the FIP NO_x reasonable progress emission limit for PacifiCorp Dave Johnston Unit 1 and Unit 2 is 0.22 lb/MMBtu (30-day rolling average).

We propose that PacifiCorp meet our proposed emission limit at Dave Johnston Units 1 and 2 as expeditiously as practicable, but no later than July 31, 2018. This is consistent with the requirement that the SIP cover an initial planning period that ends July 31, 2018.

C. Reasonable Progress Goals

We are proposing to impose reasonable progress controls on Dave Johnston Units 1 and 2, as well as more stringent NO_x BART controls on PacifiCorp Dave Johnston Unit 3 and Unit 4,

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PacifiCorp Naughton Unit 1 and Unit 2, PacifiCorp Wyodak Unit 1, and Basin Electric Laramie River Units 1, 2, and 3, than WRAP assumed in modeling Wyoming's RPGs.

We could not re-run the WRAP modeling due to time and resource constraints, but anticipate that the additional controls would result in an increase in visibility improvement during the 20% worst days. As noted in our analyses, many of our proposed controls would result in significant incremental visibility benefits when modeled against natural background. We anticipate that this would translate into measurable improvement if modeled on the 20% best days as well. While we expect our proposed controls will result in additional visibility improvement, we do not expect that these improvements will result in the State achieving the URP. For some of the reasons discussed in section VII.D.3, in particular, emissions from sources outside the WRAP modeling domain, along with our consideration of the statutory reasonable progress factors, we find it reasonable for the State to not achieve the URP during this planning period. We expect the State to quantify the visibility improvement in its next regional haze SIP revision.

For purposes of this action, we are proposing RPGs that are consistent with the additional controls we are proposing. While we would prefer to quantify the RPGs, we note that the RPGs themselves are not enforceable values. The more critical elements for our FIP are the emissions limits we are proposing to impose, which will be enforceable.

D. Federal Monitoring, Recordkeeping, and Reporting Requirements

The CAA requires that SIPs, including the regional haze SIP, contain elements sufficient to ensure emission limits are practically enforceable.[58] Other applicable regulatory provisions

[58] CAA Section 110(a)(2) states that SIPs "shall (A) include enforceable emission limitations and other control measures, means, or techniques (including economic incentives such as fees, marketable permits, and auctions of emissions rights), as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements of this chapter; (C) include a program to provide for the enforcement of the measures

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are contained in Appendix V to Part 51- Criteria for Determining the Completeness of Plan Submissions.[59] We are proposing to find that the State's regional haze SIP does not contain adequate monitoring, recordkeeping and reporting requirements. Chapter 6.4, Section V of the SIP contains monitoring and reporting requirements that we find inadequate for numerous reasons, summarized as follows: 1) The State's language includes references to WAQSR Chapters that EPA has not approved as part of the SIP and are thus not federally enforceable. These references should be to the appropriate sections in the CFR; 2) Definitions have not been included; 3) The State's language allows for data substitution pursuant to 40 CFR part 75. The data substitution procedures of 40 CFR part 75 were never intended to apply to BART sources; 4) There are numerous language clarifications and rewordings needed; and 5) The State did not include appropriate recordkeeping language.[60]

EPA is proposing to disapprove the State's monitoring, recordkeeping, and reporting requirements in Chapter 6.4 of the SIP. EPA is proposing regulatory language as part of our FIP that specifies monitoring, recordkeeping, and reporting requirements for all BART and reasonable progress sources. For purposes of consistency, EPA is proposing to adopt language that is the same as we have adopted for other states in Region 8.

E. Federal Implementation Plan for the Long-Term Strategy

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described in subparagraph (A), and regulation of the modification and construction of any stationary source within the areas covered by the plan as necessary to assure that national ambient air quality standards are achieved, including a permit program as required in parts C and D of this subchapter; (F) require, as may be prescribed by the Administrator – (i) the installation, maintenance, and replacement of equipment, and the implementation of other necessary steps, by owners or operators of stationary sources to monitor emissions from such sources, (ii) periodic reports on the nature and amounts of emissions and emissions-related data from such sources, and (iii) correlation of such reports by the State agency with any emission limitations or standards established pursuant to this chapter, which reports shall be available at reasonable times for public inspection"

[59] Appendix V part 51 states in section 2.2 that complete SIPs contain: "(g) Evidence that the plan contains emission limitations, work practice standards and recordkeeping/reporting requirements, where necessary, to ensure emission levels"; and "(h) Compliance/enforcement strategies, including how compliance will be determined in practice."

[60] On July 6, 2011, EPA sent an e-mail to the State with detailed comments (that are summarized above) on the State's monitoring, recordkeeping, and reporting requirements in Chapter 6.4, Section V of the SIP. The July 6, 2011 e-mail from Laurel Dygowski, EPA Region 8, to Tina Anderson, State of Wyoming, is included in the Supporting and Related Materials section of the docket.

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We are proposing regulatory language as part of our FIP that specifies NO_x emission limits and compliance schedules for the following sources: PacifiCorp Dave Johnston Units 1- 4, PacifiCorp Jim Bridger Units 1 and 2, PacifiCorp Naughton Unit 1 and Unit 2, PacifiCorp Wyodak Unit 1, and Basin Electric Laramie River Units 1, 2, and 3. We are also proposing monitoring, recordkeeping, and reporting requirements for all BART SIP and FIP sources and for Dave Johnston Units 1 and 2. We are proposing this regulatory language to fill the gap in the LTS that would be left by our proposed partial disapproval of the LTS.

F. Federal Implementation Plan for Coordination of RAVI and Regional Haze Long-Term Strategy

In response to EPA's RAVI rules, Wyoming adopted WAQSR Chapter 9, Section 2. EPA approved WAQSR Chapter 9, Section 2 as part of the SIP on July 28, 2004 (69 FR 44965). As discussed above, the State is required to coordinate the review of its RAVI and regional haze LTS and conduct the reviews together. WAQSR Chapter 9, Section 2(f) requires the State to review its RAVI LTS every three years, which does not coordinate with the five-year review for the State's regional haze LTS. Thus, we are proposing to disapprove the State's SIP because it does not meet the requirements of 40 CFR 51.306(c). We are proposing a FIP in which EPA commits to coordinating the State's RAVI LTS review with the regional haze LTS review. Thus, EPA is committing to provide a review of the State's RAVI LTS every five years in coordination with the State's regional haze LTS review. EPA is proposing that our review of the State's RAVI LTS will follow those items as indicated by 40 CFR 51.306(c).

IX. EPA's Proposed Action

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EPA is proposing to partially approve and partially disapprove a regional haze SIP revision submitted by the State of Wyoming on January 12, 2011. Specifically, we are proposing to disapprove the following:

- The State's NO_x BART determinations for PacifiCorp Dave Johnston Unit 3 and Unit 4, , PacifiCorp Naughton Unit 1 and Unit 2, PacifiCorp Wyodak Unit 1, and Basin Electric Laramie River Units 1, 2, and, 3.
- The State's NO_x reasonable progress determination for PacifiCorp Dave Johnston Units 1 and 2.
- Wyoming's RPGs.
- The State's monitoring and recordkeeping requirements in Chapter 6.4 of the SIP.
- Portions of the State's LTS that rely on or reflect other aspects of the regional haze SIP we are proposing to disapprove.
- The provisions necessary to meet the requirements for the coordination of the review of the RAVI and the regional haze LTS.

We are proposing to approve the remaining aspects of the State's January 12, 2011, SIP submittal. We are also seeking comment on an alternative proposal related to the State's NO_x BART determination for PacifiCorp Jim Bridger Units 1 and 2.

We are proposing the promulgation of a FIP to address the deficiencies in the Wyoming regional haze SIP that we have identified in this proposal. The proposed FIP includes the following elements:

- NO_x BART determinations and limits for PacifiCorp Dave Johnston Unit 3 and Unit 4, PacifiCorp Naughton Unit 1 and Unit 2, PacifiCorp Wyodak Unit 1, and Basin Electric Laramie River Units 1, 2, and 3.

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- NO_x reasonable progress determination and limits for PacifiCorp Dave Johnston Units 1 and 2.
- RPGs consistent with the SIP limits proposed for approval and the proposed FIP limits.
- Monitoring, record-keeping, and reporting requirements applicable to all BART and reasonable progress sources for which there is a SIP or FIP emissions limit.
- LTS elements pertaining to emission limits and compliance schedules for the proposed BART and reasonable progress FIP limits.
- Provisions to ensure the coordination of the RAVI and regional haze LTS.

X. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action is not a "significant regulatory action" under the terms of Executive Order 12866 (58 FR 51735, October 4, 1993) and is therefore not subject to review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011). As discussed in section C below, the proposed FIP applies to only five facilities. It is therefore not a rule of general applicability.

B. Paperwork Reduction Act

This action does not impose an information collection burden under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. Burden is defined at 5 CFR 1320.3(b). Because the proposed FIP applies to just five facilities, the Paperwork Reduction Act does not apply. See 5 CFR 1320(c).

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking

requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of today's proposed rule on small entities, small entity is defined as: (1) a small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of today's proposed rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. The Regional Haze FIP that EPA is proposing for purposes of the regional haze program consists of imposing federal controls to meet the BART requirement for NO_x emissions on specific units at five sources in Wyoming, and imposing controls to meet the reasonable progress requirement for NO_x emissions at one additional source in Wyoming. The net result of this FIP action is that EPA is proposing direct emission controls on selected units at only five sources. The sources in question are each large electric generating plants that are not owned by small entities, and therefore are not small entities. The proposed partial approval of the SIP, if finalized, merely approves state law as meeting Federal requirements and imposes no additional requirements beyond those imposed by state law. *See Mid-Tex Electric Cooperative, Inc. v. FERC*, 773 F.2d 327 (D.C. Cir. 1985)

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We continue to be interested in the potential impacts of the proposed rule on small entities and welcome comments on issues related to such impacts.

D. Unfunded Mandates Reform Act (UMRA)

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104-4, establishes requirements for federal agencies to assess the effects of their regulatory actions on State, local, and Tribal governments and the private sector. Under section 202 of UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures to State, local, and Tribal governments, in the aggregate, or to the private sector, of $100 million or more (adjusted for inflation) in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 of UMRA do not apply when they are inconsistent with applicable law. Moreover, section 205 of UMRA allows EPA to adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including Tribal governments, it must have developed under section 203 of UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

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Under Title II of UMRA, EPA has determined that this proposed rule does not contain a federal mandate that may result in expenditures that exceed the inflation-adjusted UMRA threshold of $100 million by State, local, or Tribal governments or the private sector in any one year. In addition, this proposed rule does not contain a significant federal intergovernmental mandate as described by section 203 of UMRA nor does it contain any regulatory requirements that might significantly or uniquely affect small governments.

E. Executive Order 13132: Federalism

Federalism (64 FR 43255, August 10, 1999) revokes and replaces Executive Orders 12612 (Federalism) and 12875 (Enhancing the Intergovernmental Partnership). Executive Order 13132 requires EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." "Policies that have federalism implications" is defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government." Under Executive Order 13132, EPA may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the federal government provides the funds necessary to pay the direct compliance costs incurred by state and local governments, or EPA consults with state and local officials early in the process of developing the proposed regulation. EPA also may not issue a regulation that has federalism implications and that preempts state law unless the Agency consults with state and local officials early in the process of developing the proposed regulation.

This rule will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities

among the various levels of government, as specified in Executive Order 13132, because it merely addresses the State not fully meeting its obligation to prohibit emissions from interfering with other states measures to protect visibility established in the CAA. Thus, Executive Order 13132 does not apply to this action. In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and state and local governments, EPA specifically solicits comment on this proposed rule from state and local officials.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

Executive Order 13175, entitled *Consultation and Coordination with Indian Tribal Governments* (65 FR 67249, November 9, 2000), requires EPA to develop an accountable process to ensure "meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications." This proposed rule does not have tribal implications, as specified in Executive Order 13175. It will not have substantial direct effects on tribal governments. Thus, Executive Order 13175 does not apply to this rule.

G. Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks

EPA interprets EO 13045 (62 FR 19885, April 23, 1997) as applying only to those regulatory actions that concern health or safety risks, such that the analysis required under section 5-501 of the EO has the potential to influence the regulation. This action is not subject to EO 13045 because it implements specific standards established by Congress in statutes. However, to the extent this proposed rule will limit emissions of NO_x, SO_2, and PM, the rule will have a beneficial effect on children's health by reducing air pollution.

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H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This action is not subject to Executive Order 13211 (66 FR 28355 (May 22, 2001)), because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 ("NTTAA"), Public Law No. 104-113, 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This proposed rulemaking does not involve technical standards. Therefore, EPA is not considering the use of any voluntary consensus standards.

J. Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 (59 FR 7629, February 16, 1994), establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

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We have determined that this proposed action, if finalized, will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population. This proposed rule limits emissions of NO_x from five facilities in Wyoming. The partial approval of the SIP, if finalized, merely approves state law as meeting Federal requirements and imposes no additional requirements beyond those imposed by state law.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 et seq., as added by the Small Business Regulatory Enforcement Fairness Act of 1996, does not apply because this action is not a "major rule" as defined by 5 U.S.C. 804(2).

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Intergovernmental relations, Nitrogen dioxide, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides, Volatile organic compounds.

5/23/13
Date

Shaun L. McGrath
Regional Administrator
Region 8

40 CFR part 52 is proposed to be amended as follows:

PART 52 – [AMENDED]

1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 et seq.

Subpart ZZ – Wyoming

Add section 52.2636 to read as follows:

§52.2636 Federal implementation plan for regional haze.[61]

(a) Applicability. This section applies to each owner and operator of the following emissions units in the State of Wyoming for which EPA proposes to approve the State's BART determination:

FMC Westvaco Trona Plant Units NS-1A and NS-1B (PM and NO_x);

TATA Chemicals Partners (previously General Chemical) Boilers C and D (PM and NO_x);

Basin Electric Power Cooperative Laramie River Station Units 1, 2, and 3 (PM);

PacifiCorp Dave Johnston Power Plant Unit 3 (PM);

PacifiCorp Dave Johnston Power Plant Unit 4 (PM);

PacifiCorp Jim Bridger Power Plant Units 1, 2, 3, and 4 (NO_x and PM);

PacifiCorp Naughton Power Plant Unit 3 (PM and NO_x);

PacifiCorp Naughton Power Plant Unit 1 and Unit 2 (PM); and

PacifiCorp Wyodak Power Plant Unit 1 (PM).

This section also applies to each owner and operator of the following emissions units in the State of Wyoming for which EPA proposes to disapprove the State's BART determination and issue a NO_x BART Federal Implementation Plan:

[61] The proposed regulatory language only reflects our proposed action. If EPA's final action differs from our proposed action, the regulatory language will be amended, as necessary, to reflect the Agency's final decision.

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Basin Electric Power Cooperative Laramie River Station Units 1, 2, and 3;

PacifiCorp Dave Johnston Power Plant Unit 3;

PacifiCorp Dave Johnston Power Plant Unit 4;

PacifiCorp Naughton Power Plant Unit 1 and Unit 2; and

PacifiCorp Wyodak Power Plant Unit 1.

This section also applies to each owner and operator of the following emissions units in the State of Wyoming for which EPA proposes to disapprove the State's reasonable progress determinations and issue a reasonable progress determination NO_x Federal Implementation Plan: PacifiCorp Dave Johnston Power Plant Units 1 and 2.

(b) Definitions. Terms not defined below shall have the meaning given them in the Clean Air Act or EPA's regulations implementing the Clean Air Act. For purposes of this section:

(1) BART means Best Available Retrofit Technology.

(2) BART unit means any unit subject to a Regional Haze emission limit in Table 1 and Table 2 of this section.

(3) CAM means Compliance Assurance Monitoring as required by 40 CFR part 64.

(4) Continuous emission monitoring system or CEMS means the equipment required by this section to sample, analyze, measure, and provide, by means of readings recorded at least once every 15 minutes (using an automated data acquisition and handling system (DAHS)), a permanent record of NO_x emissions, diluent, or stack gas volumetric flow rate.

(5) FIP means Federal Implementation Plan.

(6) Lb/hr means pounds per hour.

(7) Lb/MMBtu means pounds per million British thermal units of heat input to the fuel-burning unit.

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(8) NO_x means nitrogen oxides.

(9) Operating day means a 24-hour period between 12 midnight and the following midnight during which any fuel is combusted at any time in the BART or RP unit. It is not necessary for fuel to be combusted for the entire 24-hour period.

(10) The owner/operator means any person who owns or who operates, controls, or supervises a unit identified in paragraph (a) of this section.

(11) PM means filterable total particulate matter.

(12) RP unit means any Reasonable Progress unit subject to a Regional Haze emission limit in Table 3 of this section.

(13) Unit means any of the units identified in paragraph (a) of this section.

(c) Emissions limitations.

(1) The owners/operators of emissions units subject to this section shall not emit, or cause to be emitted, PM or NO_x in excess of the following limitations:

Table 1
Emission limits for BART units for which
EPA proposes to approve the State's BART determination

Source Name/ BART Unit	PM Emission Limits	NO_x Emission Limits
	lb/MMBtu	lb/MMBtu
FMC Westvaco Trona Plant/Unit NS-1A	0.05	0.35
FMC Westvaco Trona Plant/Unit NS-1B	0.05	0.35
TATA Chemicals Partners (General Chemical) Green River Trona Plant/ Boiler C	0.09	0.28
TATA Chemicals Partners (General Chemical) Green River Trona Plant/ Boiler D	0.09	0.28

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Basin Electric Power Cooperative Laramie River Station/Unit 1	0.03	N/A
Basin Electric Power Cooperative Laramie River Station/Unit 2	0.03	N/A
Basin Electric Power Cooperative Laramie River Station/Unit 3	0.03	N/A
Pacificorp Dave Johnston Power Plant/Unit 3	0.015	N/A
Pacificorp Dave Johnston Power Plant/Unit 4	0.015	N/A
Pacificorp Jim Bridger Power Plant/ Unit 1	0.03	0.07
Pacificorp Jim Bridger Power Plant/ Unit 2	0.03	0.07
Pacificorp Jim Bridger Power Plant/ Unit 3	0.03	0.07
Pacificorp Jim Bridger Power Plant/ Unit 4	0.03	0.07
Pacificorp Naughton Power Plant/ Unit 1	0.04	N/A
Pacificorp Naughton Power Plant/ Unit 2	0.04	N/A
Pacificorp Naughton Power Plant/ Unit 3	0.015	0.07
Pacificorp Wyodak Power Plant/ Unit 1	0.015	N/A

Table 2
Emission limits for BART units for which EPA proposes to disapprove the State's BART determination and implement a FIP

Source Name/ BART Unit	**NO_x Emission Limit (lb/MMBtu)**
Basin Electric Power Cooperative Laramie River Station/Unit 1	0.07
Basin Electric Power Cooperative Laramie River Station/Unit 2	0.07
Basin Electric Power Cooperative Laramie River Station/Unit 3	0.07

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Pacificorp Dave Johnston Power Plant/Unit 3	0.07
Pacificorp Dave Johnston Power Plant/Unit 4	0.12
PacifiCorp Naughton Power Plant/Unit 1	0.07
PacifiCorp Naughton Power Plant/Unit 2	0.07
Pacificorp Wyodak Power Plant/ Unit 1	0.17

Table 3
Emission Limits for RP units for which
EPA proposes to disapprove the State's RP determina tion
and implement a FIP

Source Name/ RP Unit	**NO_x Emission Limit (lb/MMBtu)**
Pacificorp Dave Johnston Power Plant/Unit 1	0.22
Pacificorp Dave Johnston Power Plant/Unit 2	0.22

(2) These emission limitations shall apply at all times, including startups, shutdowns, emergencies, and malfunctions.

(d) Compliance date.

(1) The owners and operators of PacifiCorp Jim Bridger Unit 3 and Unit 4 shall comply with the emission limitations and other requirements of this section by December 31, 2015, for Unit 3 and December 31, 2016, for Unit 4.

(2) The owners and operators of the other BART and RP sources subject to this section shall comply with the emissions limitations and other requirements of this section within five years of the effective date of this rule.

(e) Compliance determinations for NO_x.

(1) For all BART and RP units other than Trona Plant units:

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(i) CEMS. At all times after the compliance date specified in paragraph (d) of this section, the owner/operator of each unit shall maintain, calibrate, and operate a CEMS, in full compliance with the requirements found at 40 CFR part 75, to accurately measure NO_x, diluent, and stack gas volumetric flow rate from each unit. The CEMS shall be used to determine compliance with the emission limitations in paragraph (c) of this section for each unit.

(ii) Method.

(A) For any hour in which fuel is combusted in a unit, the owner/operator of each unit shall calculate the hourly average NO_x concentration in lb/MMBtu and lb/hr at the CEMS in accordance with the requirements of 40 CFR part 75. At the end of each operating day, the owner/operator shall calculate and record a new 30-day rolling average emission rate in lb/MMBtu and lb/hr from the arithmetic average of all valid hourly emission rates from the CEMS for the current operating day and the previous 29 successive operating days.

(B) An hourly average NO_x emission rate in lb/MMBtu or lb/hr is valid only if the minimum number of data points, as specified in 40 CFR part 75, is acquired by both the pollutant concentration monitor (NO_x) and the diluent monitor (O_2 or CO_2).

(C) Compliance with tons-per-year emission limits shall be calculated on a rolling 12-month basis. At the end of each calendar month, the owner/operator shall calculate and record a new 12-month rolling average emission rate from the arithmetic average of all valid hourly emission rates from the CEMS for the current month and the previous 11 months and the report the result in tons.

(D) Data reported to meet the requirements of this section shall not include data substituted using the missing data substitution procedures of subpart D of 40 CFR part 75, nor shall the data have been bias adjusted according to the procedures of 40 CFR part 75.

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(2) For all Trona Plant BART units:

(i) CEMS. At all times after the compliance date specified in paragraph (d) of this section, the owner/operator of each unit shall maintain, calibrate, and operate a CEMS, in full compliance with the requirements found at 40 CFR part 60, to accurately measure NO_x, diluent, and stack gas volumetric flow rate from each unit, including the CEMS quality assurance requirements in appendix F of 40 CFR part 60. The CEMS shall be used to determine compliance with the emission limitations in paragraph (c) of this section for each unit.

(ii) Method.

(A) For any hour in which fuel is combusted in a unit, the owner/operator of each unit shall calculate the hourly average NO_x concentration in lb/MMBtu and lb/hr at the CEMS in accordance with the requirements of 40 CFR part 60. At the end of each operating day, the owner/operator shall calculate and record a new 30-day rolling average emission rate in lb/MMBtu and lb/hr from the arithmetic average of all valid hourly emission rates from the CEMS for the current operating day and the previous 29 successive operating days.

(B) An hourly average NO_x emission rate in lb/MMBtu or lb/hr is valid only if the minimum number of data points, as specified in 40 CFR part 60, is acquired by both the pollutant concentration monitor (NO_x) and the diluent monitor (O_2 or CO_2).

(C) Compliance with tons-per-year emission limits shall be calculated on a rolling 12-month basis. At the end of each calendar month, the owner/operator shall calculate and record a new 12-month rolling average emission rate from the arithmetic average of all valid hourly emission rates from the CEMS for the current month and the previous 11 months and report results in tons.

(f) Compliance determinations for particulate matter.

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Compliance with the particulate matter emission limit for each BART and RP unit shall be determined from annual performance stack tests. Within 60 days of the compliance deadline specified in section (d), and on at least an annual basis thereafter, the owner/operator of each unit shall conduct a stack test on each unit to measure particulate emissions using EPA Method 5, 5B, 5D, or 17, as appropriate, in 40 CFR part 60, Appendix A. A test shall consist of three runs, with each run at least 120 minutes in duration and each run collecting a minimum sample of 60 dry standard cubic feet. Results shall be reported in lb/MMBtu and lb/hr. In addition to annual stack tests, the owner/operator shall monitor particulate emissions for compliance with the BART emission limits in accordance with the applicable Compliance Assurance Monitoring (CAM) plan developed and approved by the State in accordance with 40 CFR part 64.

(g) Recordkeeping. The owner/operator shall maintain the following records for at least five years:

(1) All CEMS data, including the date, place, and time of sampling or measurement; parameters sampled or measured; and results.

(2) Records of quality assurance and quality control activities for emissions measuring systems including, but not limited to, any records required by 40 CFR part 75. Or, for Trona Plant units, records of quality assurance and quality control activities for emissions measuring systems including, but not limited to appendix F of 40 CFR part 60.

(3) Records of all major maintenance activities conducted on emission units, air pollution control equipment, and CEMS.

(4) Any other CEMS records required by 40 CFR part 75. Or, for Trona Plant units, any other CEMs records required by 40 CFR part 60.

(5) Records of all particulate stack test results.

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(6) All data collected pursuant to the CAM plan.

(h) Reporting. All reports under this section shall be submitted to the Director, Office of Enforcement, Compliance and Environmental Justice, U.S. Environmental Protection Agency, Region 8, Mail Code 8ENF-AT, 1595 Wynkoop Street, Denver, Colorado 80202-1129.

(1) The owner/operator of each unit shall submit quarterly excess emissions reports for NO_x BART and RP units no later than the 30th day following the end of each calendar quarter. Excess emissions means emissions that exceed the emissions limits specified in paragraph (c) of this section. The reports shall include the magnitude, date(s), and duration of each period of excess emissions, specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the unit, the nature and cause of any malfunction (if known), and the corrective action taken or preventative measures adopted. The owner/operator shall also submit reports of any exceedances of tons-per-year emission limits.

(2) The owner/operator of each unit shall submit quarterly CEMS performance reports, to include dates and duration of each period during which the CEMS was inoperative (except for zero and span adjustments and calibration checks), reason(s) why the CEMS was inoperative and steps taken to prevent recurrence, and any CEMS repairs or adjustments. The owner/operator of each unit shall also submit results of any CEMS performance tests required by 40 CFR part 75. Or, for Trona Plant units, the owner/operator of each unit shall also submit results of any CEMs performance test required appendix F of 40 CFR part 60 (Relative Accuracy Test Audits, Relative Accuracy Audits, and Cylinder Gas Audits).

(3) When no excess emissions have occurred or the CEMS has not been inoperative, repaired, or adjusted during the reporting period, such information shall be stated in the quarterly reports required by sections (h)(1) and (2) above.

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(4) The owner/operator of each unit shall submit results of any particulate matter stack tests conducted for demonstrating compliance with the particulate matter BART limits in section (c) above, within 60 calendar days after completion of the test.

(5) The owner/operator of each unit shall submit semi-annual reports of any excursions under the approved CAM plan in accordance with the schedule specified in the source's title V permit.

(i) Notifications.

(1) The owner/operator shall submit notification of commencement of construction of any equipment which is being constructed to comply with the NO_x emission limits in paragraph (c) of this section.

(2) The owner/operator shall submit semi-annual progress reports on construction of any such equipment.

(3) The owner/operator shall submit notification of initial startup of any such equipment.

(j) Equipment operation. At all times, the owner/operator shall maintain each unit, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

(k) Credible Evidence. Nothing in this section shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with requirements of this section if the appropriate performance or compliance test procedures or method had been performed.

Add section 52.2637 to read as follows:

§52.2637 Federal implementation plan for reasonable attributable visibility impairment long-term strategy.

This document is a prepublication version, signed by EPA Region 8 Administrator, Shaun McGrath on 5/23/13. We have taken steps to ensure the accuracy of this version, but it is not the official version.

EPA-R8-2014-0028860002650

As required by 40 CFR 41.306(c), EPA will ensure that the review of the State's reasonably attributable visibility impairment long-term strategy is coordinated with the regional haze long-term strategy under 40 CFR 51.308(g). EPA's review will be in accordance with the requirements of 40 CFR 51.306(c).

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