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August 4, 2009

David A. Finley, Administrator
Wyoming Division of Air Quality
Herschler Building
122 W. 25th Street
Cheyenne, Wyoming 82002

Re: Comments to BART Application Analysis AP-6040; Jim Bridger Power Plant

Dear Mr. Finley,

Please accept this letter as PacifiCorp's written comments in the above captioned matter. These written comments are in addition to any oral comments that PacifiCorp may offer during the public hearing for this plant.

I. Background

On May 28, 2009, the Wyoming Air Quality Division (the "**Division**") issued a Public Notice and Notice of Public Hearing (the "**Notice**") along with its BART Application Analysis AP-6042 (the "**Application Analysis**") for PacifiCorp's Jim Bridger Power Plant located in Sweetwater County, Wyoming. The Notice and Application Analysis are in response to separate BART permit applications submitted by PacifiCorp covering each of the four Jim Bridger Power Plant units. The Division has indicated it received the original BART permit applications on January 16, 2007, as supplemented by additional filings received by the Division on October 16, 2007, December 5, 2007, March 31, 2008, and February 2, 2009, (collectively the "**BART Permit Application(s)**").

PacifiCorp's obligation to submit the BART Permit Applications resulted from federal requirements mandating the state of Wyoming to prepare a State Implementation Plan ("**SIP**") to include, among other things, emission limits representing BART for eligible sources along with schedules for compliance. 40 C.F.R. § 51.308(e); see also the final regional haze rule entitled Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations, 70 Fed. Reg. 39,104 (July 6, 2005) ("**Regional Haze Final Rule**"). The federal requirements, in turn, led to the state of Wyoming passing its own BART regulations which are found at Wyoming Dept. of Env'tl. Quality Air Quality Div. Standards and Regs. ("**WAQSR**") Ch. 6, § 9. In developing the Regional Haze Final Rule, EPA also prepared "guidelines" to be used by states in making BART determinations for certain electric generating units ("**EGUs**"). These guidelines are contained in 40 C.F.R. § 51 Appendix Y and are incorporated into Wyoming state regulations at WAQSR Ch. 6, § 9(c) ("**Appendix Y**").

II. Regional Haze and BART Process

The Wyoming Regional Haze SIP must contain the following elements: (i) Reasonable progress goals; (ii) Calculations of baseline and natural visibility conditions; (iii) Long-term strategy for regional haze; (iv) Monitoring strategy and other implementation plan requirements; and (v) emission limits representing BART for eligible sources. 40 CFR §51.308(d)(1 – 4) & (e). Thus, determining BART under Section 308(e) is but one part of an overall effort to deal with regional haze. For states like Wyoming that have elected to adopt an SO₂ emissions trading program under

40 CFR §51.309, however, there is no requirement to include BART determinations for SO₂ emissions in the Regional Haze SIP as long as the market trading program is being met. Still, the Division required eligible sources in Wyoming to complete a BART application even for SO₂ emissions.

BART is defined as “an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant that is emitted by an existing stationary facility.” WAQSR Ch. 6, § 9(b). Each BART determination is intended to result in a source reducing its impact on affected mandatory Class I Federal areas no later than five years after EPA approves the Wyoming Regional Haze SIP. WAQSR Ch. 6, § 9(e)(viii). BART determinations must take into account the following elements: (i) technology available; (ii) costs of compliance; (iii) energy and non-air quality environmental impacts of compliance; (iv) any pollution control equipment in use at the source; (v) remaining useful life of the source; and (vi) visibility impacts. 40 C.F.R. § 51.308(e)(1)(ii)(A).

Appendix Y contemplates a five-step process in determining BART which collectively must take into account each of the elements noted in the foregoing paragraph:

- Step 1: Identify all available retrofit control technologies
- Step 2: Eliminate technically infeasible options
- Step 3: Evaluate cost effectiveness of remaining control technologies
- Step 4: Evaluate impacts and document results
- Step 5: Evaluate visibility impacts

III. Permit Applications

Because BART is determined on a unit-by-unit basis rather than on a plant-wide basis, PacifiCorp submitted separate BART Permit Applications for each of its four units at the Jim Bridger Power Plant. Given that the Division has provided a single Notice and single Application Analysis covering all four units, PacifiCorp is likewise providing this single set of written comments for all four units.

It is worth noting that PacifiCorp already has taken significant steps to plan for and permit the installation of many of the BART controls proposed in the BART Permit Applications at all four Jim Bridger Power Plant units. PacifiCorp has taken these steps in anticipation of the Division’s BART determinations and also because of the time, scope and complexity of permitting and installing new emission controls required by BART and other reasons across most of its coal-fired power plants in Wyoming, Utah and Arizona within a relatively short time frame.

IV. General Comments

PacifiCorp offers the following general comments which provide foundational support for the unit-specific comments below. In general:

- **Cost Metrics** -- The Division incorrectly states that Appendix Y mentions only two metrics for use in evaluating the cost-benefit relationship of different emission control technologies: i.e., “cost effectiveness and incremental cost effectiveness.” Similarly, the Division incorrectly states that the “dollars per deciview” method proposed by PacifiCorp “is not commonly used.” See Application Analysis at pages 13, 19 and 25. To the contrary, Appendix Y states explicitly that a proper evaluation of the costs of compliance should include: “total annualized costs (\$), cost effectiveness (\$/ton), and incremental cost effectiveness (\$/ton), *and/or any other cost-effectiveness measures (such as \$/deciview)*. (Emphasis added.) Appendix Y, § VI. E1(4) at 588. Thus, any

BART determination that is limited to use of only a cost effectiveness and incremental cost effectiveness analyses may be unacceptably narrow.

- Cost Effectiveness – Appendix Y contains presumptive NO_x BART limits for certain EGUs differentiated by boiler design and type of coal burned. Appendix Y observes that “most EGUs can meet these presumptive NO_x limits through the use of current combustion control technology, *i.e.*, the careful control of combustion air and low-NO_x burners.” Appendix Y § IV.E.5 at 590. In setting such limits, EPA expected that 75% of all EGUs across the country will be able to meet presumptive BART limits with current combustion control technology at a cost of \$100 - \$1,000 per ton of pollutant removal. EPA further expects that “all but a very few” of the remaining 25% of EGUs should be able to meet presumptive BART limits through the use of advanced combustion controls like Rotating Overfire Air for less than \$1,500 per ton of pollutant removal. 70 Fed. Reg. at 39,135. Thus, any BART determination requiring a source to install post-combustion controls like Selective Catalytic Reduction (“SCR”) or spend more than \$1,500 per ton is contrary to Appendix Y.
- Power Plants More Than 750 MW – Appendix Y indicates that “States must follow the [Appendix Y] guidelines in making BART determinations on a source-by-source basis for 750 megawatt (MW) power plants . . .” 40 C.F.R. Part 51, Appendix Y at § I.F, 566. Wyoming rules impose similar requirements for power plants greater than 750 megawatts like the Jim Bridger Power Plant. WAQSR Ch. 6, § 9(c)(ii).
- Post-Combustion Controls – EPA *never* contemplated the use of post-combustion controls to meet presumptive BART limits at tangentially-fired boilers. The preamble to the Regional Haze Final Rules states that, “[f]or all types of boilers other than cyclone units, the [presumptive BART] limits . . . are based on the use of current combustion control technology. Current combustion control technology is generally, but not always, more cost-effective than post-combustion controls such as SCRs The types of current combustion control technology options assumed include low-NO_x burners, overfire air and coal reburning.” 70 Fed. Reg. at 39,134. In other words, it is nearly impossible to show under Appendix Y that anything but combustion controls should be required as BART. This is consistent with the fact that, to PacifiCorp’s knowledge, no other state has ever proposed SCR as BART for an EGU of any size. As one recent example, the state of Oregon determined that SCR is not BART at the Boardman plant in Oregon.
- Visibility Improvement – There is no single approach mandated by Appendix Y for determining visibility improvement. See, for example, Appendix Y, § IV.D, Step 5 at 586 which states as follows: “The [CALPUFF dispersion modeling technique] is an approach you *may* use . . .” (emphasis added). Appendix Y further indicates that states “have flexibility in setting absolute thresholds, target levels of improvement, or *de minimis* levels since the deciview improvement must be weighed among five factors, and [states] are free to determine the weight and significance to be assigned to each factor.” Appendix Y, § IV.D, Step 5 at 586. Thus, a state may consider a number of factors in determining the visibility improvement from various controls options and it is not limited to simply comparing the three-year averaged 98th percent days for the pre- and post-control runs. In addition, “each of the modeling options may be supplemented with source apportionment data or source apportionment modeling.” Appendix Y at § IV.E, 587 – 588. Therefore, a BART determination that only considers a comparison of 98th percentile three year averages may be too narrow to satisfy Appendix Y and support a BART determination.

- Modeling – It is worth noting that the visibility model used to determine deciview impacts at Class I areas contains an inherent bias or exaggeration in terms of modeling expected deciview impacts for various emission controls. This exaggeration results from the model assuming that a particular source operates at its maximum operating capacity 24 hours a day and 365 days each year, and also that each unit at a facility operates in exactly the same manner as the others. Of course, no source operates 100% of the time and no one unit at a facility operates exactly like the others. Assuming that they do results in modeled visibility impacts and visibility improvements that are above realistic expectations. Although PacifiCorp is not asserting that the state’s modeling effort is contrary to required modeling protocols, PacifiCorp does maintain that the Division should consider the inherent exaggeration in visibility monitoring as an additional element in deciding whether to take the extreme action of ordering SCR as BART at any particular source.
- NOx Emissions – On average, NOx emissions during both the 20% best and worst days are not as significant a contributor to regional haze in Wyoming as are other emissions. See generally the following website at <http://vista.cira.colostate.edu/dev/web/AnnualSummarydev/Composition.aspx>. The Division should consider the comparatively low impact of NOx emissions in general in deciding whether to take an extreme action such as ordering SCR as BART at any particular source. In other words, if an extreme action such as ordering SCR as BART does not meaningfully reduce regional haze concerns overall or in regard to a specific Class I area when considering all source of visibility impairment, then sufficient justification does not exist to order a source to take that extreme action.
- Perceptibility – PacifiCorp submitted credible studies with its BART Permit Applications indicating that only differences of approximately 1.5 to 2.0 deciviews is perceptible to the human eye and that deciview changes less than 1.5 cannot be distinguished by the human eye. Therefore, any BART determinations should consider the perceptibility of the modeled or expected change, particularly in deciding whether to take an extreme action such as ordering SCR as BART at any particular source. In other words, if an extreme action such as ordering SCR as BART does reduce visibility impairment in a way perceptible to the human eye, then sufficient justification does not exist to order a source to take that extreme action.

V. BART Conclusions: NOx Emissions

Jim Bridger Units 1 - 4

Subject to the General Comments noted above and for the reasons contained in the BART Permit Applications for each of the Jim Bridger Power Plant units, PacifiCorp supports the Division’s conclusion that low-NOx burners (“LNB”) with advanced overfire air (“OFA”) and an emission limit of 0.26 lb/MMBtu (30-day rolling average) is BART for Jim Bridger Power Plant Units 1 - 4. PacifiCorp acknowledges that this rate is lower than the applicable presumptive BART limit of 0.28 lb/MMBtu and notes that its BART Permit Applications for these units describe why this lower rate is justified. In addition, PacifiCorp offers the following additional comments in support of this conclusion:

Costs of Compliance – The Division should rely on all available cost-benefit metrics in support of its BART conclusion for the Jim Bridger Power Plant Units 1 - 4, including the “cost per dV reduction” and the “cost per reduction in number of days above 0.5dV” metrics as described in the Jim Bridger Power Plant BART Permit Applications.

Presumptive BART – For the reasons stated in PacifiCorp’s most recent filing as part of its BART Permit Applications for Jim Bridger Units 1 – 4 dated January 29, 2009 and received by the Division on February 2, 2009 (incorporated herein by this reference), the presumptive BART limit for Jim Bridger Units 1 – 4 is not 0.15 lb/MMBtu and the Division’s reference to that limit at page 49, paragraph 3 of the Application Analysis is not correct. The correct presumptive BART limit for Jim Bridger Units 1 – 4 is 0.28 lb/MMBtu.

Other – PacifiCorp supports the Division’s conclusion that SCR is not BART for Jim Bridger Units 1 - 4. Not only are the costs of compliance for SCR above the maximum presumptive \$1,500 BART threshold as contained in Appendix Y, the costs of compliance are not reasonable using any or all of the applicable cost-benefit metrics. Also, Appendix Y clearly does not contemplate the use of post-combustion controls like SCR as BART in any case. Moreover, the modeled visibility improvement associated with SCR does not justify the use of such technology as BART. In addition, PacifiCorp’s comments regarding SCR as BART for its Naughton Unit 3 are incorporated herein by reference as additional reasons why SCR is not BART at the Jim Bridger Power Plant.

VI. BART Conclusions: PM Emissions

Jim Bridger Units 1 – 4

PacifiCorp supports the Division’s conclusions regarding BART for PM emissions at Jim Bridger Units 1 – 3.

VII. BART Conclusions: SO₂ Emissions

Jim Bridger Units 1 – 4

PacifiCorp supports the Division’s conclusions regarding BART for SO₂ emissions at Jim Bridger Units 1 – 4 and, in doing so, PacifiCorp notes that the requirement to participate in the Regional SO₂ Milestone and Backstop Regional Trading Program is equivalent to being ordered to install the SO₂ emission controls contained in PacifiCorp’s BART Permit Applications for the Naughton units. This is because the Backstop Trading Program assumes that emission sources will achieve reductions equivalent to presumptive BART limits for SO₂.

VIII. Long-Term Strategy Conclusions: NO_x Emissions

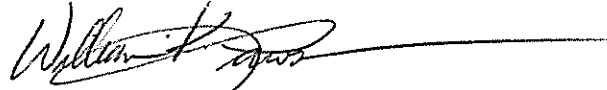
The Division has proposed, as a requirement of its Long-Term Strategy under the Regional Haze SIP, neither of which has been released, the extremely aggressive requirement of installing SCR at Jim Bridger Unit 3 (2015) and Jim Bridger unit 4 (2016), along with an obligation for PacifiCorp to submit permit applications by 2015 for similar add-on NO_x emission controls to be installed at Jim Bridger Units 1 and 2 by 2023. Because BART for NO_x emissions at the Jim Bridger Power Plant units is LNB with separated OFA and an emission limit of 0.26 lb/MMBtu, PacifiCorp acknowledges the Division’s conclusion that the next opportunity for the Division to require further NO_x emission reductions due to Regional Haze would be under the state’s Long-Term Strategy when that is proposed for public comment, made final by the state of Wyoming, and accepted by EPA as part of the Regional Haze SIP. Indeed, the Long-Term Strategy is intended to be complete with “enforceable emission limits, compliance schedules and other measures as necessary.” 40 CFR §308(d)(3).

In light of the above, it is premature to use a BART Application Analysis to propose emission reduction requirements under a Long-Term Strategy which has not yet been released. PacifiCorp is willing, however, to evaluate the proposed reductions and discuss them further with the

Division to determined whether the Division can support the need for these requirements in the Long-Term Strategy when it is released and to determine whether the Long-Term Strategy as part of the Regional Haze SIP will be approved by EPA as appropriate. In the mean time, PacifiCorp intends shortly to begin investigating the air permit process allowing the installation of SCR at an emission rate of 0.07 lb/MMBtu (30-day rolling average) at Jim Bridger Unit 3 and Unit 4.

Please feel free to contact us with any questions.

Sincerely,



William K. Lawson

cc: Mike Jenkins, Cathy Woollums