



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101
23 JAN 2009

Ms. Shelley Kaderly
Air Quality Division Administrator
Nebraska Department of Environmental Quality
P.O. Box 98922
Lincoln, NE 68509-8922

RE: Omaha Public Power District (OPPD) Nebraska City Station PSD construction permit comments

Dear Ms. Kaderly:

On December 4, 2008, the United States Environmental Protection Agency (EPA) Region 7 received notification of the Nebraska Department of Environmental Quality's (the State) intent to modify the Prevention of Significant Deterioration (PSD) construction permit for Omaha Public Power District's Nebraska City Station Unit 1 (NCS1) that is subject to Best Available Retrofit Technology (BART). The permitting action allows for the replacement of NCS1's existing burners with new low NO_x burners, supported by an overfire air port system. The facility is a publicly owned electric utility and is located at 7264 L Road, Nebraska City, Nebraska.

Enclosed are EPA's comments on the permitting action. Since the BART and PSD comments are distinct, they are broken out into two sections in the enclosed: Regional Haze (BART) and PSD. EPA appreciates the opportunity to review the draft permit and provide the following comments; however, it is difficult for EPA to fully assess and comment on the draft permit without the ability to concurrently review a draft State Implementation Plan (SIP) demonstrating all components of the State's Regional Haze Program. EPA is providing the following comments with the caveat that clarified, edited, or additional comments may be made when the final SIP is submitted for review.

The State has proposed a NO_x emission limit of 0.23 lb/MMBtu for NCS1. EPA agrees this is the presumptive emission limit for NO_x under Regional Haze BART guidance. However, as detailed in the enclosed, EPA has found that the draft BART analysis does not adequately justify the level of control for SO₂ the State has proposed. Please consider these comments as constructive to the continued development of your Regional Haze SIP. Please contact me if you have any questions or comments regarding this letter.

Sincerely,

Becky Weber
Division Director
Air & Waste Management Division

Enclosure

cc: W. Clark Smith, Permitting Section Supervisor

**Regional Haze (BART) and Prevention of Significant Deterioration
Permit Comments**

Regional Haze (BART)

1. Obligations under the Regional Haze Rule

The permit application fact sheet implies that the State is only obligated to address visibility protection through the application of BART, on BART subject sources, and reasonable progress only if Nebraska source emissions are identified in another State's Regional Haze SIP. The State further asserted that as no other states have identified a "need for reasonable progress reductions from Nebraska", the application of BART is the primary element of the State's Regional Haze Program.

The State is obligated to address visibility protection through the application of BART, on BART subject sources, and reasonable progress if Nebraska source emissions are identified in another State's Regional Haze SIP but the State's obligations do not end there. It should be clear that the State does not need to be specifically named by another state in order for the State to be obligated to establish a long-term strategy in its own Regional Haze SIP. As noted in 40 CFR 51.308(d)(3) the State must submit a long-term strategy that addresses regional haze visibility impairment for each mandatory Class I Federal area located outside the State which may be affected by emissions from the State.

It should also be noted that the State participated in a regional planning process lead by the Central Regional Air Planning Association (CENRAP). States that have submitted Regional Haze SIPs and participated in the CENRAP consultation process utilized the modeling produced by CENRAP to established their goals for reasonable progress toward achieving natural visibility conditions, and determine what additional controls may be needed to achieve those goals (Missouri, for example). The modeling data was based on emissions reduction data that projected emissions sources with the installation of "on the books" (ie. permanent and enforceable through rulemaking) and "on the way" (expected to be adopted to enforceable levels in SIPs for rules such as Regional Haze) control technologies. The "on the books" and "on the way" data included presumptive BART control installation at NCS1. The State has the opportunity to undertake its own modeling effort if it disputes the CENRAP modeling results or feels that it may provide a more representative modeling demonstration that SO2 control at NCS1 is not necessary for other States to achieve their visibility improvement goals. As noted in 40 CFR 51.308(d)(3)(ii), the State must ensure it has included all measures needed to achieve its apportionment of emissions reduction obligations agreed upon through the regional planning process.

In addition to the CENRAP modeling leading EPA to consider that BART SO₂ controls would apply to NCS1, EPA relied on its IPM modeling results for the Clean Air Interstate Rule, the Clean Air Mercury Rule and Clean Air Visibility Rule (CAIR-CAMR-CAVR). Even though the State is not a "CAIR State" and the CAMR rule has been vacated, the parsed IPM results for 2015 and 2020 suggest that EPA expected scrubber retrofits would be installed at NCS1 and used that data in determining the boundary conditions for regional scale CAIR modeling. In the modeling other States are relying on Nebraska to achieve SO₂ reductions at NCS1 in order to meet their own State's visibility goals.

2. Presumptive BART

2.1 Definition of "In Existence"

As you know, the State requested clarification as to whether recently permitted units, such as Unit 2, should be included in the total plant capacity for purposes of determining whether OPPD is a power plant "having a total generating capacity in excess of 750 megawatts." In the November 2008 response, EPA acknowledged that the Act and the BART regulations do not provide an explicit date for including new units in the calculations for "presumptive BART", but stated EPA's belief that it is a reasonable interpretation to assume that if the plant is greater than 750 megawatts at the time the BART determination is made by the state (i.e. at the time the state places the BART determination on public notice) then any unit at the plant greater than 200 megawatts is subject to presumptive BART.

In the fact sheet, the State indicates that EPA's response letter is vague in that it did not address "whether it is sufficient to have commenced or begun actual construction on Unit 2, or whether Unit 2 must be operational." As NDEQ pointed out in its request for clarification letter, the definition of "in existence" under 40 CFR 51.300 reads:

"In existence" means that the owner or operator has obtained all necessary preconstruction approvals or permits required by Federal, State or local air pollution emissions and air quality laws or regulations and either has (1) begun, or caused to begin, a continuous program of physical on-site construction of the facility or (2) entered into binding agreements or contractual obligations, which cannot be cancelled or modified without substantial loss to the owner or operator, to undertake a program of construction of the facility to be completed in a reasonable time.

Therefore, EPA believes it is a reasonable interpretation to assume that if the units are in existence and the plant is greater than 750 megawatts at the time the BART determination is made by the state, then any unit at the plant greater than 200 megawatts is subject to presumptive BART. EPA concluded in that letter that the State's decision regarding the

appropriateness of the presumptive BART limits for Unit 1 should be made after careful and well-reasoned consideration of the five factors, and the basis for the State's determination fully explained.

2.2 Presumptive Emission Limits

For 750 MW power plants and above, the burden is on the State to justify the conclusion that the presumptive limits are not appropriate. Where the costs of control and the visibility benefits are in the range of the assumptions used by EPA in establishing the presumptions (which they are for NCS1 on a \$/ton basis), EPA has concluded that certain controls are highly cost effective and provide substantial visibility benefits. For a currently uncontrolled EGU greater than 200 megawatts in size, but located at a power plant smaller than 750 megawatts in size, the presumptive limits are generally cost effective and provide significant visibility improvement. There may be compelling reasons for the State to adopt either less control or greater control than the presumptive levels but as discussed further below, the State's analysis has not provided the justification to do so.

In addition, the document "Setting BART SO₂ Limits for Electric Generating Units: Control Technology and Cost Effectiveness" lists NCS1 in its Appendix B. As such, it can be shown that EPA considered NCS1 when establishing what the presumptive level for SO₂ should be nationwide and what should be considered cost effective control for those limits.

3. Cost effectiveness metric \$/deciview

In the BART determination and the permit application fact sheet the State uses a metric of \$/dv to establish that controls are not cost effective. The State asserts that an annual cost of nearly \$80 million/yr/dv is an order of magnitude greater than what other facilities are proposing to spend on BART controls.

The State generally concluded that wet and dry scrubbers are technologically feasible, and provided detailed cost effectiveness estimates (in cost/ton) that are within the range determined by EPA as reasonable for BART. The State provided a reasonable overview of the cost of compliance and other energy and non-air quality impacts of SO₂ controls. Despite this, the State concludes that SO₂ controls are not appropriate based on a \$/dv-improved metric, upon which it appears to rely as the sole basis for eliminating any further consideration of add-on SO₂ controls. The State argues that even though SO₂ can be effectively controlled for around \$1,636 per ton removed (including the cost of replacing the ESP with a baghouse), these controls provide an improvement of only 0.437 dv at an annualized cost of \$34,720,000, or \$79,450,800 per deciview improved. As a

consequence, the State dismisses further consideration of scrubbers for SO₂ control. In contrast, EPA's BART rulemaking record strongly suggests that states should find scrubbers to be cost effective BART control for units of a size similar to Nebraska City^{1 2}
3

EPA has concerns with the State's use of the \$/dv metric. Those concerns are:

- A) The BART guidelines do allow States the option of considering the \$/dv metric in evaluating cost effectiveness, but given the significant difficulties in developing a meaningful method for calculating \$/dv, EPA does not recommend it for use as the sole factor in making a BART determination and would likely not approve a SIP based on that basis.
- B) Given the limitations of the approach, \$/dv should be used, when the State chooses to do so, only as a supplement to \$/ton in evaluating cost effectiveness. In keeping with the BART guidelines, the cost of compliance and degree of visibility factors should be considered along with all of the 5 factors for final decisions on level of control.
- C) Cost estimates must be reasonable; EPA recommends that the State base cost estimates on the OAQPS Cost Manual and explain and justify assumptions and conclusions used in developing alternatives.
- D) Even when used only as a supplement to \$/ton, a \$/dv analysis is likely to be meaningless if the analysis does not take into account the visibility impacts at multiple Class I areas or ignores the total improvement (i.e., the frequency,

¹ 40 CFR Part 51, Appendix Y, Section IV.E.4. Sulfur dioxide limits for utility boilers

... For a currently uncontrolled EGU greater than 200 MW in size, but located at a power plant smaller than 750 MW in size, such controls are generally cost-effective and could be used in your BART determination considering the five factors specified in CAA section 169A(g)(2). While these levels may represent current control capabilities, we expect that scrubber technology will continue to improve and control costs continue to decline. You should be sure to consider the level of control that is currently best achievable at the time that you are conducting your BART analysis.

² "...while States are not required to follow these guidelines for EGUs located at power plants with a generating capacity of less than 750 MW, based on our analysis detailed below, we believe that States will find these same presumptive controls to be highly-cost effective, and to result in a significant degree of visibility improvement, for most EGUs greater than 200 MW, regardless of the size of the plant at which they are located. A State is free to reach a different conclusion if the State believes that an alternative determination is justified based on a consideration of the five statutory factors. Nevertheless, our analysis indicates that these controls are likely to be among the most cost effective controls available for any source subject to BART, and that they are likely to result in a significant degree of visibility improvement. (70 FR 39131)"

³ "Having considered the comments received, we have determined that there is ample data to support the determination that the BART presumptive limits outlined in today's action are readily achievable by new wet or semi-dry FGD systems across a wide range of coal types and sulfur contents based on proven scrubber technologies currently operational in the electric industry (70 FR 39132).

magnitude, and duration of the modeled changes in visibility). For example the BART determination only examines visibility improvement calculated in a "worst day" scenario. It has been suggested that the State would see more benefit in the visibility improvement calculation if it were to consider multiple day and multiple condition effects of reduced SO₂ emissions.

3.1 Cost comparison to other facilities

In the BART determination document NCS1 is compared to several other units across the nation in an effort to demonstrate that the estimated cost of control at NCS1 is an order of magnitude greater than what other facilities are proposing to spend on BART controls (\$/dv metric). However, in the document NCS1 is compared to units at other facilities that are not of the same type (United Taconite, MN and CEMEX Lyons, CO) or units at other facilities that already have flue gas desulfurization controls (Xcel Sherco, MN). A cost comparison with these types of facilities does not demonstrate the skewed financial picture that may have been intended. The State could provide a cost comparison with units the same type as NCS1, without previous control measures, in the same power pool, etc., in order to better demonstrate the playing field of control costs. The State may also consider that it is likely that the other utilities on the list experience the same elevated labor and material costs described by NCS, so their costs may be comparable. As a consequence, the comparison is informative but not persuasive in distinguishing NCS1 as an outlier or one which demonstrates that NCS1's costs are out of the ordinary.

4. Visibility improvement calculations

The BART determination cites an article published in the Journal of Air & Waste Management Association (Henry, 2002) as noting that "perceptibility of a change in deciviews varies with background conditions, and under optimum (pristine) conditions, can be as low as 1.5 to 2 dv." The State suggests that because the incremental reduction in visibility impairment expected from installing SO₂ control is 0.437 dv, it is not a perceptible change and it is therefore not reasonable. EPA explains in its "Summary of Comments and Responses on the 2001 and 2004 Proposed Guidelines for the Best Available Retrofit Technology (BART) Determinations under the Regional Haze Regulations" that a change in 1.0 dv or less may be perceptible especially in some Class 1 areas that are sensitive to pollution. Therefore, the State should not assume a visibility improvement of less than 1.0 dv as insignificant to install control. Moreover, the question of whether the predicted visibility benefits, resulting from controls at a source is perceptible should not by itself be the determining factor. In addition, the State should explain how the resulting visibility improvement does or does not justify the corresponding level of control based up the State's overall strategy.

The BART determination (supplemental information) and permit application fact sheet reference computations of visibility improvement and cost effectiveness only for SO₂ controls set to emissions limits of 0.15 lbs/MMBtu and 0.1 lbs/MMBtu. It is likely that

the facility could demonstrate a greater reduction in visibility impact (and increased cost effectiveness) if it were to consider the true pollutant emissions removal ability of the SO₂ control technology instead of assigning the control level that would just achieve the presumptive level of pollution reduction. It is not EPA's intent to require analysis of each possible level of efficiency for a control technology, but it is important that in analyzing the technology, that the most stringent emission control levels the technology is capable of achieving are taken into account. An unrealistically low assessment of the emission reductions potential of a certain technology could result in inflated cost effectiveness figures and artificially low assessments of visibility improvement.

The State evaluated the improvements in visibility that will result from each control strategy, however, the State did not demonstrate the cumulative improvements in visibility that could result from combined reductions (from both NO_x and SO₂ control). The BART determination discusses that low NO_x burner and overfire air technology for NO_x control could result in a 0.31 dv incremental reduction and that scrubber technology for SO₂ control could result in a 0.437 dv incremental reduction at just one Class I area (Hercules Glade). It could be effective for the State to consider the incremental reductions as a cumulative improvement resulting from both technologies (0.31 dv + 0.437 dv = 0.747 dv), particularly in any \$/dv analysis the State may wish to engage in.

5. Use of construction permits to enforce BART emissions limits

As you are aware, the State must provide for public notice and opportunity for comment, and EPA must review and approve of any proposed changes to federally approved enforceable emission limits contained in the SIP. While use of construction permits may provide for adequate enforceability of the BART emission limits, it is recognized that minor changes to permits often occur during construction and operation of the units. If changes were made to the construction permit which affect, in any manner, the permit requirements related to the BART emission limits, the source could not rely on such changes until NDEQ requested and EPA approved them into the SIP. This restriction applies even if the primary purpose of the permit revision is not to change BART obligations. Since there is no discretion to change the limits without a corresponding SIP change, NDEQ may wish to consider utilizing a rulemaking or state enforceable agreement, incorporated into and approved as part of the SIP, to ensure the BART emission limits are enforceable in accordance with Section 110(a)(2)(A) of the Clean Air Act.

PSD

1. Commencement of Construction timeline discrepancies

The draft PSD permit states: "Construction shall commence on the installation of the required BART equipment within eighteen (18) months of Regional Haze SIP approval."

~~New source review - PSD requires the commencement of construction within 18 months~~
of the issuance of the permit. If approval of the SIP is not accomplished within a short
period of time and OPPD chooses to delay construction for nearly 18 months after the
Regional Haze SIP approval, OPPD risks not having a valid PSD permit. This paragraph
should be edited to state that construction shall commence on the installation within 18
months of the issuance of the PSD construction permit.