



United States Department of the Interior



FISH AND WILDLIFE SERVICE

National Wildlife Refuge System

Branch of Air Quality

7333 W. Jefferson Ave., Suite 375

Lakewood, CO 80235-2017

IN REPLY REFER TO:

FWS/ANWS-AR-AQ

October 29, 2012

Mr. Terry L. O'Clare, P.E., Director
Division of Air Quality
North Dakota Department of Health
918 E. Divide Avenue, 2nd Floor
Bismarck, North Dakota 58501-1947

Dear Mr. O'Clare:

On September 14, 2012, the State of North Dakota, Division of Air Quality provided its Supplemental Evaluation of the Coal Creek Station NO_x BART determination. The Division and Great River Energy are to be commended on providing additional extensive and credible analyses for the above evaluation. The additional information is comprehensive and has added value to the overall BART determination. The U.S. Fish and Wildlife Service, Branch of Air Quality, in cooperation with the National Park Service, Air Resources Division, is providing the enclosed questions and comments for your consideration.

This letter acknowledges that the U.S. Department of Interior, U.S. Fish and Wildlife Service, has conducted a substantive review of the draft Regional Haze SIP supplement in fulfillment of the requirements identified in 40 CFR 51.308(i). Please note, that only the U.S. Environmental Protection Agency can make a final determination regarding the document's completeness and, therefore, ability to receive federal approval from EPA.

We compliment you on your hard work and dedication to the significant improvement in our nation's air quality related values and visibility. If you have any questions or comments regarding these comments, please contact Tim Allen at (303) 914-3802.

Sincerely,

Meredith A. Bond, DEPUTY CHIEF
Sandra V. Silva
for *[Signature]* Chief, Branch of Air Quality

Enclosure



**U. S. Fish and Wildlife Service Comments on the
North Dakota Division of Air Quality
Supplemental Evaluation of NO_x BART Determination for Coal Creek Station Units 1 & 2
October 29, 2012**

The U. S. Fish and Wildlife Service (FWS) appreciates the opportunity to comment on the North Dakota Division of Air Quality's (DAQ) Supplemental Evaluation of NO_x BART Determination for Coal Creek Station Units 1 and 2, dated July 2012. The DAQ and Great River Energy (GRE) are to be commended on providing additional extensive and credible analyses in the above document. The additional information is comprehensive and has added value to the BART determination. In this document, we provide our evaluation as to the validity of the various conclusions without adding new data to that which has already been presented by DAQ and the U. S. Environmental Protection Agency (EPA).

As justification not to install Selective Non-Catalytic Reduction (SNCR) for Units 1 and 2, pages 1 and 33 of the Barr Engineering Company document entitled, "Coal Creek Station Units 1 and 2 – Supplemental Best Available Retrofit Technology Refined Analysis for NO_x Emissions" stated that installation of SNCR would have an imperceptible improvement in visibility that is far less than one-half of what EPA has determined to be perceptible to the human eye. Accepting that logic in its Supplemental Evaluation document on page 15, DAQ sustained the concept that the amount of visibility improvement is insignificant. It is incorrect to dismiss a control strategy on the basis that the resulting improvement is not perceptible or significant. EPA states in the preamble to its BART Guidelines, "Even though the visibility improvement from an individual source may not be perceptible, it should still be considered in setting BART because the contribution to haze may be significant relative to other source contributions in the Class I areas. Thus, we disagree that the degree of impairment should be contingent upon perceptibility. Failing to consider less-than-perceptible contributions to visibility impairment would ignore the CAA's intent to have BART requirements apply to sources that contribute to, as well as cause, such impairment."¹

Nevertheless, Appendix Y of the Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations provides that the fifth factor in making BART determinations relates to the degree of improvement in visibility which may reasonably be anticipated to result from the use of a given technology.² Appendix Y further prescribes a quantitative analysis in terms of cost per deciview of visibility improvement to arrive at a conclusion.³ Data to develop such a quantitative cost per deciview of visibility improvement are available in the various GRE BART determination reports, but they were not presented as a

¹ See Federal Register at 70 FR 30129, July 6, 2005; middle column

² See 40 CFR Part 51, Appendix Y, section I.C.2.(e).

³ Ibid., See section IV.E.1.(4).

justification to not install SNCR on Units 1 and 2 by DAQ. This justification should be provided.

Our position is that such a calculation should include the cumulative impact on all affected Class I areas, rather than just the nearest Class I area (Lostwood National Wildlife Refuge). We continue to believe that it is appropriate to consider both the degree of visibility improvement in a given Class I area, as well as the cumulative effects of improving visibility across all of the affected Class I areas. It simply does not make sense to use the same metric to evaluate the effects of reducing emissions from a BART source that impacts only one Class I area as for a BART source that impacts multiple Class I areas. Additionally, it does not make sense to evaluate impacts at one Class I area, while ignoring other impacts at Class I areas that are similarly significantly impaired. When this analysis is completed DAQ may make a determination as to whether the cost per deciview of visibility improvement is reasonable using as a yardstick the cost of visibility improvement relative to other BART actions taken nationwide. The above reasoning is codified in 40 CFR Part 51, Appendix Y as follows: “A reasonable range would be a range that is consistent with the range of cost effectiveness values used in other similar permit decisions over a period of time.”⁴ If the cost of control options (e.g., SNCR) that achieve adequate and responsible visibility improvement remains reasonable after presumptive BART is achieved, adequate and responsible visibility improvement should remain an active consideration before the BART analysis is concluded.

The DAQ reconsideration of various estimates in the BART determination improved the overall analysis. The Golder Associates analysis of the ability to sell post-SNCR ash would seem to justify the use of some estimated percentage of ash that cannot be sold. Use of the 30% estimate for lost ash sales may be as reasonable as any for the cost analysis. It is appropriate to give deference to DAQ’s environmental concerns about disposing of unsalable ash. The 1,155 lb/hr of urea reagent seemed to be reasonably justified by URS Corporation. The capital cost estimate for SNCR installation of \$20/kilowatt used by DAQ seems reasonable when compared to National Park Service NO_x BART data for several BART determinations that have been proposed nationally. DAQ acceptance of an SNCR control efficiency of 20% would seem justified, given URS Corporation’s site-specific work, along with the Electric Power Research Institute’s report entitled, “Low-Baseline NO_x Selective Non-Catalytic Reduction Demonstration”. Adding a cost analysis using the original baseline emission rate of 0.22 lb of NO_x per million BTU, but also adding the costs related to the Dry Fining process and other interim improvements would provide an additional data point for consideration.

If the installation of SNCR is not ultimately selected for NO_x control in lieu of the Dry Fining process and low NO_x coal-and-air nozzles with close-coupled and separated overfire air (LNC3+), the proposed NO_x permit limit of 0.17 lb/MMBtu may not be sufficiently stringent,

⁴ Ibid., See section IV.D.6.f.

given that Unit 2 was shown to attain a 0.153 lb/MMBtu emission rate. The 0.17 lb/MMBtu emission limit may have been chosen because it is the presumptive level of NO_x control for this type of unit. An analysis should be presented to determine an emission limit that is statistically attainable for enforcement purposes and if that limit is less than 0.17 lb/MMBtu, the proposed limit should be reduced.

The \$3,305 cost per ton estimate for installation of SNCR and LNC3+ on Unit 1 should be adjusted downward as a result of reflecting a lower retrofit factor and using the original baseline emission rate of 0.22 lb of NO_x/MMBtu pursuant to EPA's comments. This would put the cost per ton estimate in a range that compares favorably with combustion controls combined with SNCR proposed to be installed on other facilities as found in the National Park Service compilation of BART proposals nationwide. This information helps to confirm that DAQ's cost estimate is in a proper range, but at the same time indicates that the cost might also be considered reasonable for BART on a cost per ton basis.⁵ The FWS rejects the concept of adopting a specific cost ceiling above which a BART alternative is dismissed. All of the references to cost are relevant considerations, but the particular circumstance of the source (financially and with respect to the magnitude of necessary visibility improvements to be achieved now and in the future) bears heavily on acceptable cost ranges. In addition, the FWS believes that cost effective control options that result in emission control greater than presumptive BART (e.g., 0.17 lb of NO_x/MMBtu) should be given equal consideration to lower-cost options that achieve presumptive BART.

There is validity to the consideration of adding SNCR to Coal Creek Station Units 1 and 2 based on the fact that other competing plants in North Dakota (Basin Electric Power - Leland Olds Plant, Great River Energy - Stanton Plant and Minnkota Power - MR Young Plant) have proposed SNCR for NO_x control. Appendix Y takes economic effects into consideration by stating, "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."⁶

Finally, we commend DAQ for its proposal to conduct pilot scale testing to answer questions for tail-end Selective Catalytic Reduction (SCR) on both soluble alkalis and ash characteristics (e.g., size, stickiness). Considering the recent drop in natural gas prices and the February 27, 2012 letter from Johnson Matthey Catalysts (LLC) to EPA Region 8 in which it stated that "JMC believes that low-dust and tail-end SCR configurations applied to North Dakota lignite fired boilers would also be technically feasible," we recommend that DAQ also re-evaluate the economic feasibility of these options (including regenerative SCR).

⁵ Ibid.

⁶ Ibid., See section IV.E.3.2.