



HUNTON & WILLIAMS LLP
1900 K STREET, N.W.
WASHINGTON, D.C. 20006-1109

TEL 202 • 955 • 1500
FAX 202 • 778 • 2201

NORMAN W. FICHTHORN
DIRECT DIAL: 202-955-1673
EMAIL: nfichthorn@hunton.com

October 28, 2009

Dr. Anita Lee (Air-3)
U.S. Environmental Protection Agency Region IX
75 Hawthorne Street
San Francisco, California 94105-3901

Comments of the Utility Air Regulatory Group on EPA's Advance Notice of Proposed Rulemaking on Assessment of Anticipated Visibility Improvements at Surrounding Class I Areas and Cost Effectiveness of Best Available Retrofit Technology for Four Corners Power Plant and Navajo Generating Station (74 Fed. Reg. 44,313 (Aug. 28, 2009) (Docket No. EPA-R09-OAR-2009-0598))

Dear Dr. Lee:

These comments are submitted on behalf of the Utility Air Regulatory Group ("UARG") on the above-referenced advance notice of proposed rulemaking ("ANPR") under the Clean Air Act ("CAA" or "Act").¹ The ANPR addresses certain aspects of pending determinations of best available retrofit technology ("BART") emission limits for electric generating units ("EGUs") at two coal-fired power plants, the Four Corners Power Plant ("Four Corners" or "FCPP") in New Mexico and the Navajo Generating Station ("NGS") in Arizona. BART determinations are made under the Act's visibility protection provisions as part of the CAA program to achieve reasonable progress toward the national goal of preventing future, and remedying existing, impairment of visibility in mandatory Class I federal areas where the impairment results from manmade air pollution. UARG submits these comments because the BART ANPR addresses several issues of importance to the implementation of the CAA

¹ UARG is an ad hoc, unincorporated association of individual electric utility companies, other electric generators, and national trade associations. UARG participates in proceedings arising under the Act that may affect UARG members.

HUNTON & WILLIAMS

Dr. Anita Lee
October 28, 2009
Page 2

visibility program generally. UARG's comments support the comments filed in this proceeding by Arizona Public Service Company ("APS") and the Salt River Project Agricultural Improvement and Power District ("SRP"), the operators of Four Corners and NGS, respectively. SRP and APS's parent company, Pinnacle West Capital Corporation, are members of UARG.

Although states, through their state implementation plans under the Act, ordinarily determine BART emission limits for sources that are subject to the BART requirement, EPA asserts authority under its Tribal Authority Rule to make BART determinations for sources, including Four Corners and NGS, that are located within the borders of the Navajo Nation and to incorporate the resulting BART emission limits into an enforceable federal implementation plan ("FIP"). *See* 74 Fed. Reg. at 44315 col. 2. In the ANPR, EPA does not propose specific BART emission limits for the EGUs at Four Corners and NGS. Rather, EPA describes "[t]he specific purpose of this ANPR" as being

for EPA to collect additional information that we may consider in modeling the degree of anticipated visibility improvements in the Class I areas surrounding FCPP and NGS and for determining whether BART controls are cost effective at this time. EPA is also requesting any additional information that any person believes the agency should consider in promulgating a FIP establishing BART for FCPP and NGS.

Id. at 44314 col. 1.

Although the ANPR does not present specific proposed BART emission limits for public comment, it contains statements indicating that EPA is seriously considering proposing to determine that the BART emission limits for nitrogen oxides ("NOx") at these EGUs should be based on post-combustion NOx control technology, specifically selective catalytic reduction ("SCR"). In UARG's view, nothing in the ANPR supports proposed BART limits based on

Dr. Anita Lee
October 28, 2009
Page 3

SCR. To the contrary, as reflected in documents in the record and as discussed in detail in the comments submitted by APS and SRP, the BART analyses prepared by those companies at EPA's request demonstrate that NO_x BART limits for the plants should be based on combustion controls only, consistent with EPA's BART rules.

With respect to issues raised by the ANPR that have potentially broad applicability, UARG has concerns with several EPA statements in the document -- and with omissions by EPA of information important to the BART determinations. These comments address the following issues:

- The ANPR's failure to recognize the presumptive BART emission limits for NO_x that EPA established through notice-and-comment rulemaking -- limits that, for most categories of coal-fired EGUs that are subject to BART (including those units at Four Corners and NGS that are subject to BART presumptive limits), are *not* based on SCR or other post-combustion controls but instead on combustion controls only;
- The ANPR's failure to address the need to consider incremental cost-effectiveness of emission control options in making any BART determination -- and the fact that consideration of incremental cost-effectiveness reinforces the conclusion that BART for NO_x should be based on combustion controls, consistent with the EPA-established presumptive limits in the BART rules;
- The ANPR's failure to recognize that EPA's Control Cost Manual is only a beginning point for analyzing costs and cost-effectiveness in a BART analysis -- and that individual, site-specific factors must be considered;
- The ANPR's use of an unsupported and seriously flawed "back-calculation" method for estimating background ammonia concentrations in the ambient air -- a key factor in modeling visibility impacts in BART analyses;
- The ANPR's unsupported inclusion of hydrogen chloride ("HCl") and hydrogen fluoride ("HF") as visibility-impairing fine particulate matter ("PM") for regional haze BART analyses -- notwithstanding the scientific evidence that HCl and HF in fact do not contribute to fine PM concentrations that affect regional haze visibility; and

Dr. Anita Lee
October 28, 2009
Page 4

- The ANPR's proposal of novel, alternative metrics for measuring visibility impairment and improvement in Class I areas -- metrics that do not meaningfully reflect human perceptibility of visibility changes and that seem to be suggested to try to make potential SCR-based NOx BART emission limits appear to be cost-effective when in fact they are not.

I. The ANPR Disregards the EPA-Established Presumptive BART Limits for NOx in the BART Rules.

The CAA's definition of BART and EPA's BART rules require the agency making the BART determination to consider several factors: the costs of compliance, the energy and non-air quality environmental impacts of compliance, existing pollution control technology in use at the source, the source's remaining useful life, and the degree of visibility improvement that may reasonably be anticipated to result from use of the BART control technology. CAA § 169A(b)(2)(A), (b) (last sentence); 40 C.F.R. § 51.301 (definition of BART). For fossil fuel-fired generating power plants with total generating capacity above 750 megawatts ("MW"), EPA has statutory authority to establish guidelines for making BART determinations. *See* CAA § 169A(b)(2). In its BART rulemaking, EPA weighed the BART factors in setting presumptive BART limits for NOx emissions from EGUs with greater than 200 MW capacity at above-750-MW power plants. *See* Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations: Final Rule, 70 Fed. Reg. 39104, 39134 col. 1-39136 col. 1, 39171 col. 3-39172 col. 2 & Table 1.

As a general matter, the presumptive limits section of EPA's BART rules provides that BART emission limits for coal-fired EGUs of greater than 200 MW at power plants of greater than 750 MW should be set at the presumptive NOx emission rates listed for specific boiler types at 70 Fed. Reg. at 39172 Table 1: "You should require such utility boilers to meet the following [presumptive] NOx emission limits, unless you determine that an alternative control level is justified based on consideration of the statutory factors." *Id.* at 39171 col. 3. In setting

Dr. Anita Lee
October 28, 2009
Page 5

the NOx presumptive limits, EPA concluded that the presumptive limits “are extremely likely to be appropriate for all greater than 750 MW power plants subject to BART.” *Id.* at 39131 col. 3. EPA found that those presumptive limits reflect “highly cost-effective controls” and “would result in significant improvements in visibility and help to ensure reasonable progress toward the national visibility goal” based on the Agency’s own analysis of appropriate limits for EGUs. *Id.*; *see also id.* (noting that, even for those above-200-MW units that are located at power plants of *less* than 750 MW, these presumptive limits likely will represent BART because they generally are highly cost-effective and will “result in a significant degree of visibility improvement”). In discussing its presumptive-BART analysis for NOx, EPA concluded that, except in the special case of cyclone units,² combustion controls in general are “more cost-effective than post-combustion controls such as SCRs.” *Id.* at 39134 col. 1.

The BART rules’ presumptive limits for NOx are premised on EPA’s determination that “[m]ost EGUs can meet these presumptive NOx limits through the use of current combustion control technology, *i.e.* the careful control of combustion air and low-NOx burners.” *Id.* at 39172 col. 1. In addressing possible individual cases in which a facility is unable to meet its presumptive limit with “current combustion control technology,” the rules recommend “consider[ation] [of] whether *advanced combustion control technologies* such as rotating opposed fire air should be used to meet these limits,” *id.* (emphasis added), but conspicuously omit any direction or even suggestion that post-combustion controls be considered, let alone required, as BART. Indeed, with two limited exceptions, the rules make no mention of post-combustion NOx controls as BART. Those two exceptions concern: (1) cyclone units, for which SCR is the basis for presumptive controls due to those units’ unusually high uncontrolled NOx emission rates; and (2) units that already have post-combustion controls

² Neither Four Corners nor NGS has cyclone units.

HUNTON & WILLIAMS

Dr. Anita Lee
October 28, 2009
Page 6

installed and in use for at least part of the year, for which year-round use of those controls is presumptively BART. *See id.* at 39171 col. 3, 39172 col. 1; *see also id.* at 39136 col. 1 (“For [non-cyclone] units, we are not establishing presumptive limits based on the installation of SCR. Although States may in specific cases find that the use of SCR is appropriate, we have not determined that SCR is generally cost-effective for BART across unit types.”). These exceptions prove the rule: NO_x BART emission limits are to be based on combustion -- not post-combustion -- controls.³

This part of the BART rules reflects a key principle that applies here: In determining NO_x BART for coal-fired EGUs above 200 MW at power plants above 750 MW (other than cyclone units and units that already have post-combustion controls), the NO_x control options that must be considered as candidates for BART are those that are necessary to achieve the presumptive BART limit for NO_x. Thus, for example, where current combustion control technology is inadequate to meet the presumptive NO_x limit, the BART assessment is to examine whether advanced combustion controls will meet that limit (and whether those controls are appropriately determined to be BART after application of all the BART factors). If combustion controls will meet the presumptive limit, there is, by definition, an exceedingly strong presumption that post-combustion controls are *not* BART. If that were not the case, then there would have been no point to EPA’s establishment of presumptive limits based on its analysis and determination, after public notice-and-comment rulemaking, that combustion controls are BART.

³ Although some aspects of EPA’s BART rules were challenged in the U.S. Court of Appeals for the D.C. Circuit, *see Utility Air Regulatory Group v. EPA*, 471 F.3d 1333 (D.C. Cir. 2006) (affirming the rule against challenges by an environmental organization and two industry organizations), no one challenged the presumptive NO_x emission limits. Thus, any challenge to the validity of those limits is precluded by the CAA. *See* CAA § 307(b)(2), (e).

In short, if EPA, Federal Land Managers, or others were to take the position that NOx BART limits for non-cyclone units should be based on post-combustion controls, that party would have to present an especially compelling case for making that sharp departure from the EPA-established presumptive limits. The BART analyses and the comments on this ANPR that APS and NGS have submitted show that the above-200-MW EGUs at those plants are able and prepared to meet their applicable presumptive NOx limits using combustion controls. No basis exists to impose a BART emission limit on those units that would require post-combustion controls.

II. The ANPR Fails To Address Incremental Cost-Effectiveness of BART Control Options Even Though EPA's BART Rules Call for Consideration of That Factor.

The ANPR discusses and presents information on the average annual costs of BART control options at Four Corners and NGS, and the associated average cost-effectiveness metrics expressed in dollars-per-ton-removed of the relevant emissions. *See* 74 Fed. Reg. at 44316 col. 3-44322 col. 2 and accompanying tables. Yet the ANPR fails to discuss or even mention the critically important calculation of incremental cost-effectiveness, which, EPA's BART rules explain, "compares the costs and performance level of a control option to those of the next most stringent [control] option." 70 Fed. Reg. at 39167 col. 2. In describing the BART-determining agency's responsibility to assess cost-effectiveness, the BART rules explain: "In addition to the average cost effectiveness of a control option, you should also calculate incremental cost effectiveness." *Id.*

Thus, it is critical for EPA, in developing any proposed BART emission limits for the EGUs at issue, to evaluate the incremental cost-effectiveness of BART control options to determine whether, for example, an SCR-based BART limit could be deemed cost-effective in comparison to the NOx combustion controls that satisfy EPA's BART presumptive limits. As explained in detail in the comments filed by APS and SRP, the BART analyses presented by

those companies demonstrate that SCR-based emission limits cannot be considered cost-effective under the BART rules, either in terms of average costs or in terms of incremental costs.

III. Contrary to EPA's BART Rules, the ANPR Fails To Take Account of Site-Specific Control Cost Factors.

In applying the BART cost factor in a BART determination for a given facility, site-specific factors that influence control costs must be considered. That principle is reflected in the D.C. Circuit's *American Corn Growers* decision, where the court observed that costs and other factors in a BART determination must be addressed "on a source-specific basis." *Am. Corn Growers Ass'n v. EPA*, 291 F.3d 1, 6 (D.C. Cir. 2002). That principle is also reflected in EPA's BART rules, which state, for example, that "one or more of the available control options may be eliminated from consideration because they are demonstrated to be technically infeasible or to have unacceptable energy, cost, or non-air quality environmental impacts on a case-by-case (or site-specific) basis." 70 Fed. Reg. at 39164 col. 2. Moreover, although EPA requires the BART determination to take into account relevant cost information in "referenced source[s]" "such as" the EPA OAQPS [Office of Air Quality Planning and Standards] Control Cost Manual, "[t]he cost analysis should also take into account any site-specific design or other conditions . . . that affect the cost of a particular BART technology option" at a given facility. *Id.* at 39166 col. 3. Moreover, the BART determination should take into account

additional information . . . used for the cost calculations, including any information supplied by vendors that affects . . . assumptions regarding purchased equipment costs, equipment life, replacement of major components, and any other element of the calculation that differs from the *Control Cost Manual*.

Id. at n.15. Thus, although the Control Cost Manual may serve as a starting point for control cost estimates for an individual source, it is not definitive or determinative in any given case.

Dr. Anita Lee
October 28, 2009
Page 9

Indeed, EPA emphasized that the BART rules permit “flexibility” as to which elements of costs to include and the methodology for estimating costs:

We believe that the Control Cost Manual provides a good reference tool for cost calculations, but if there are [cost] elements or sources that are not addressed by the Control Cost Manual or there are additional cost methods that could be used, we believe that these could serve as useful supplemental information.

Id. at 39127 col. 2.

Thus, it is contrary to EPA’s own rules for the Agency to suggest, as it does in the ANPR (*see, e.g.*, 74 Fed. Reg. at 44318 cols. 1-3, 44320 cols. 1-3, 44322 cols. 1-3), that the Control Cost Manual is in some way binding, that cost elements not included in that document may not properly be considered in a BART determination, and that no cost estimation methods other than those found in the Control Cost Manual are permitted for BART analyses. Likewise, it would be inconsistent with the statutory scheme and the *American Corn Growers* decision to disallow consideration of costs that relate to site-specific factors on the grounds that those costs do not necessarily align with those in the Control Cost Manual. In developing its proposed BART determinations, therefore, EPA must avoid limitations -- whether express or implied -- on the consideration of site-specific cost factors or the use of alternative or supplemental cost calculation methods.

IV. EPA’s Use of Its Seriously Flawed “Back-Calculation” Method for Estimating Background Ammonia Concentrations Is Unsupported and Should Be Rejected.

In the ANPR, EPA notes that information on background ammonia concentrations “is important because [ammonia] is a precursor to particulate ammonium sulfate and ammonium nitrate which degrades visibility.” 74 Fed. Reg. at 44326 col. 1. Yet, as EPA also notes, “[v]ery little monitored ammonia data is available.” *Id.* Despite the acknowledged importance of ambient background ammonia data to visibility analyses and despite the current paucity of

Dr. Anita Lee
October 28, 2009
Page 10

such data, it appears EPA has declined to consider a proposal by SRP (discussed in SRP's comments on the ANPR) to conduct ambient ammonia monitoring in the vicinity of NGS to better inform the Agency's assessment of potential visibility improvements from BART control options. At the same time, EPA has reversed its earlier approvals of use in visibility modeling of background ammonia values proposed by APS and SRP in favor of higher values that EPA has now derived from a "back-calculation" method. Under this new method, "EPA estimated a lower bound on the amount of ammonia that must have been present to combine with gaseous sulfate and nitrate in order to form the measured [ambient] particulate sulfate and nitrate." *Id.* at col. 2. This method yielded "higher values for ammonia background concentration," "higher modeled visibility impacts" of plant emissions, and "larger percent visibility improvement of [modeled NO_x] control[]" options." *Id.* at 44328 col. 1.

EPA's method is not scientifically credible and should be rejected. The attached study by Robert Paine, Ivar Tombach, and Eric S. Edgerton ("Review of EPA's 'Back Calculation' Method for Deriving Background Ammonia Concentrations Used in CALPUFF Modeling," July 2, 2009)⁴ provides a detailed technical analysis of the back-calculation method. That study concludes (at page 8):

The assessments above [in this study] lead to the conclusion that background ammonia concentrations calculated using the "back calculation" method are unrealistically high and not technically defensible. A comparison of the EPA method application against observed ammonia measurements confirms the extreme positive bias of the EPA method.

Further, the comments filed by APS and SRP on the BART ANPR, and reports attached to those comments, describe additional technical analyses that undermine any basis for use of the

⁴ UARG's comments incorporate this report by reference.

