United States Department of the Interior

NATIONAL PARK SERVICE
Air Resources Division
P.O. Box 25287
Denver, CO 80225

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IN REPLY REFER TO:

N3615 (2350)

February 10, 2012

George Aburn, Director
Air and Radiation Management Administration
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, Maryland 21230

Dear Mr. Aburn:

On November 18, 2011, we received Maryland's draft State Implementation Plan to address regional haze. We appreciate the opportunity to work with the State through the initial evaluation, development, and review of this plan. Cooperative efforts such as these ensure that, together, we will continue to make progress toward the Clean Air Act's goal of natural visibility conditions at all of our most pristine National Parks and wilderness areas for future generations.

The National Park Service (NPS), in consultation with the U.S. Fish and Wildlife Service (FWS), has conducted a substantive review of the proposed Regional Haze Rule implementation plan in fulfillment of your requirements under the federal regulations 40 CFR 51.308(i)(2). Please note, however, that only the U.S. Environmental Protection Agency (EPA) can make a final determination regarding the document's completeness and, therefore, ability to receive federal approval from EPA.

Our enclosed comments recommend improvements to the draft plan. The Maryland Healthy Air Act provides certainty for emissions reductions from electric generating units in Maryland at a time when implementation of federal requirements for emissions reductions are uncertain, and we recognize that the Act accomplishes greater total emissions reductions than would be realized from implementation of BART at individual sources subject to BART. Some of the analyses of Best Available Retrofit Technology (BART), however, are incomplete. Our enclosed comments request clarification of assumptions.

Again, we appreciate the opportunity to work closely with the State of Maryland to improve visibility in our Class I areas. For further information regarding our comments, please contact Pat Brewer at (303) 969-2153.

Sincerely,

Susan Johnson
Acting Chief, Policy, Planning and Permit Review Branch

Enclosures

cc:
Jackie Lewis
US EPA Region III
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1650 Arch Street (3AP00)
Philadelphia, Pennsylvania 19103-2029

Comments on Maryland Draft Regional Haze State Implementation Plan

February 10, 2012

The National Park Service appreciates this opportunity to review and comment on the draft Maryland Regional Haze State Implementation Plan (SIP).

General Comments:

We commend the Maryland Healthy Air Act for securing specific reductions in sulfur dioxide (SO_2) and nitrogen oxide (NO_x) from electric generating units (EGU) in Maryland at a time when implementation of the Clean Air Interstate Rule and the Cross State Air Pollution Rule is uncertain. However, we recommend many of the BART assumptions and analyses be clarified,

Specific Comments:

Chapter 5: Baseline, Natural, and Current Visibility Conditions
While the reader is referred to Appendix H, it would be very helpful to briefly summarize in Chapter 5 the pollutant contributions to visibility impairment on the 20% best and 20% worst visibility days at the seven eastern Class I areas (similar to data presented in Figure 12.1). Such discussion would clarify the emissions control strategies that are being pursued (currently not explained until Chapter 12). Discussion of the role of anthropogenic NO_x emissions, particularly for wintertime visibility and the contribution of nitrate to visibility on the 20% best as well as 20% worst days would also be helpful.

Chapter 9: Best Available Retrofit Technology (BART)

Documentation of the five factor analyses performed for BART control options for the EGU and non-EGU BART sources is incomplete.

Each BART source should have enforceable emissions limits[1], preferably set on a 30-day rolling average, that reflects the capability of the technology.

9.6 Non-EGU BART Source Synopsis

9.6.1 Independent/St. Lawrence Cement
According to MDE:

> Holcim (St Lawrence Cement) is required to install SNCR in order to comply with the Maryland ozone transport limit. Maryland considers the current controls and the future installation of SNCR as sufficient and considers them BART for this facility.

Is use of SNCR required year-round?

[1] Section 51.308.(e)(2)(i)(B)

9.6.2 Mettiki Coal, LLC

Even if Mettiki Coal is exempt as not BART-eligible because it began operation in 1978, the source is a candidate to consider controls under reasonable progress.

9.6.3 New Page/Westvaco/Luke Paper

Page/Westvaco/Luke Paper: Chapter 4.2.2 on consultation with Virginia indicates that Luke Paper worked with MANE-VU to determine presumptive controls for industrial boilers. It would be helpful to repeat these presumptive levels in Chapter 9.6.3 to provide context for the BART limits proposed by Luke Paper.

9.8 EGU Alternative Measures to BART for SO2 and NO_X

MDE states:

> The Maryland Healthy Air Act (HAA), which required extensive SO_2 and NO_X (and subsequent PM) controls on the facilities identified as containing BART units, went into effect in 2007. The emissions reductions the Healthy Air Act will far exceed the emissions reductions under BART. The electric generating units controlled under the HAA are all within the areas of influence for regional haze; 300 km of Shenandoah National Park and Brigantine Wildlife Refuge; and are in close proximity to one another (within 200 km radius). The HAA reduces SO_2 and NO_X emissions from applicable units by 85% and 75%, respectively, from the 2002 baseline emissions. The overall reductions from Maryland's Healthy Air Act exceed presumptive BART for SO_2 by 60,805 tons and presumptive BART for NO_X by 16,184 tons primarily because the HAA controls additional ***non-BART units***. (emphasis added)
>
> The haze rule presumes that facilities that have or will have SCR or SNCR technology for NO_X control should run these controls year-round. The annual NO_X caps set by the HAA require that all the EGU facilities ***listed above*** run year round SCR/SNCR. (emphasis added)

Please clarify which specific EGU sources are required to run SCR/SNCR year round.

While we are generally supportive of Maryland's approach, we are advising you of comments made by EPA to Wisconsin regarding trading among BART and non-BART boilers[2]:

> Since the BART guidelines do not address trades that involve sources not subject to BART, issues like this must be addressed in accordance with EPA's economic incentive program (EIP) policy, particularly the guidance on emissions averaging and on single source caps. This guidance is available at http://www.epa.gov/ttncaaa1/t1/memoranda/eipfin.pdf. A central tenet of this policy is that credits may only be granted for surplus emission reductions. As stated on page 38 of this policy, reductions may not be considered surplus except to the extent that the EIP (in this case, either emissions averaging or a source-specific emission cap) "results in more reductions than would have occurred without the program."

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[2] Comments on Draft Wisconsin Regional Haze Plan Dated July 1, 2011 from Cheryl L. Newton, Director, Air and Radiation Division, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 5 to Bill Baumann, Acting Chief, Bureau of Air, Wisconsin Department of Natural Resources

> The EIP policy also requires that emission caps covering multiple units provide an environmental benefit. Specifically, on page 52, the EIP policy states, "In terms of emission reductions, environmental benefit is measured from an emissions baseline that represents the emissions that would have occurred if the EIP were not implemented."

Thus, if Maryland wishes to include all of the boilers either in a collective mass cap, the limit must set to provide an environmental benefit relative to a scenario in which the BART boilers are operating BART controls. EPA recommends providing environmental benefit by limiting emissions to 10 percent below the level that would be required with unit-by-unit limits.

> Further complexity arises from requirements that will be established to meet the SO_2 air quality standard. The EIP, on page 35, states that "you may not claim programmatic EIP emission reductions that result from any emission reduction or limitation of a criteria pollutant precursor that you require to attain or maintain a NAAQS." As stated in the preamble for the promulgation of the air quality standard (cf. 76 FR 35573, published June 22, 2010), EPA expects the infrastructure SIPs, due in June 2013, to provide enforceable emission limits that provide for attainment and maintenance of the SO_2 standards. Therefore, depending on circumstances at the time of EPA rulemaking, inclusion of the non-BART boiler in a multi-boiler cap may necessitate conducting modeling to determine the level of emissions that provides for attainment, and then reducing the cap at most to that level.

We suggest that MDE explain how the MDE proposal addresses the concerns expressed above by EPA.

The Maryland Healthy Air Act set a goal for SO_2 reduction across all participating sources of 85%, considerably less than the BART presumptive limit of 95% control. We also suggest that MDE show how it arrived at these values: "The overall reductions from Maryland's Healthy Air Act exceed presumptive BART for SO_2 by 60,805 tons and presumptive BART for NO_X by 16,184 tons…"

The primary rational for MDE's proposal appears to reside in section "**9.8.1 Sulfur Dioxide and Nitrogen Oxides**," excerpted below:

> EPA demonstrated in a technical support document (TSD),[3] presented in Appendix G-3, that EGU emission levels predicted via federal statute satisfied the BART requirements. The table below shows the total Maryland EGU emission levels predicted by the TSD for 2015[4] and the corresponding EGU emission levels after the institution of the Healthy Air Act.

Pollutant	2015 MD EGU Emission EPA TSD	2015 MD EGU Emissions With HAA Caps
NOX	24,000	23,000
SO2	84,000	43,000

[3] EPA Docket Number: OAR-2003-0053-YYYY, dated March, 2005
[4] 10 Table I-2 of the TSD

> The HAA requires reductions in Nitrogen Oxide (NO_X), Sulfur Dioxide (SO_2) and Mercury emissions from large coal burning power plants. The expected emission reductions for 2015 were calculated using the emissions estimates consistent with annual allocations under the Healthy Air Act implementing regulation. The program does not allow trading of emission allowances.
>
> Given the decision by EPA that the TSD emission levels will satisfy BART and that Maryland's Healthy Air Act reduces NO_X and SO_2 emissions far beyond the TSD; Maryland considers the Healthy Air Act and the resultant SO_2 and NO_X emissions rate limits/controls as representative of an alternative program to the Best Available Retrofit Technology for the EGUs affected by the Healthy Air Act which includes Maryland's BART eligible units.

We understand the origin of the values in the "2015 MD EGU Emission EPA TSD" column, but cannot reconcile the values in the "2015 MD EGU Emissions With HAA Caps" column with the "Grand Total" "Emission Limit" values at the bottom of MDE Tables 9-8 and 9-9.

As noted above, documentation of the BART decisions is incomplete, especially the justification for not installing scrubbers at the CPSG Crane and Wagner plants (p79-81). For example, at **Crane**, MDE states:

> Currently Crane Unit 2 has in place: an over-fire air system (OFA) for reduction of NO_X emissions, an add-on NO_X control system which is selective non-catalytic reactor (SNCR)...

Our review of EPA's Clean Air markets Database (CAMD) does not show SNCR—please clarify.

MDE goes on to say:

> Since use of Powder River Basin (PRB) coal resulted in a control of ~88% of SO_2 emissions no add-on SO_2 controls were considered. Additionally Crane already has SNCR in place for controlling NO_X emissions which offers a control efficiency of 80% compared to baseline NO_X levels.

According to CAMD, annual NO_X emissions during the 2002 baseline were 4,323 tons @ 0.804 lb/mmBtu. Average 2010 – 2011 emissions were 1,383 tons/yr @ 0.434 lb/mmBtu, 68% and 40% reductions, respectively. Annual SO_2 emissions during the 2002 baseline were 14,415 tons @ 2.716 lb/mmBtu. Average 2010 – 2011 emissions were 3.680 tons/yr @ 1.156 lb/mmBtu, 74% and 57% reductions, respectively. Please explain the differences we are seeing between CAMD data and MDE estimates of emission reductions.

At **Wagner**, MDE states:

> The table in Wagner's report, Table 5-4, indicates the incremental cost effectiveness of proceeding with WFGD from the current emissions signature exceeds $47 million/dv. Therefore, this option is not considered BART due to its high cost for a small visibility improvement.

However, the values presented are unsupported and based upon use of CueCost which EPA has explicitly disapproved for use in BART analyses.

MDE then "concluded that the current controls will satisfy BART for visibility improvement as the 3-year average eighth highest delta deciview impact is 1.24 dv at Shenandoah National Park and improves to 0.87 dv with the current controls." MD has erred by not considering cumulative

benefits.[5] The tables below were derived from the Wagner BART analysis and show that the cumulative benefits of adding wet scrubbing are 2.84 dv. Even if we use the CueCost estimate of $31,410,000 annualized cost, the cost/dv of improvement is a very reasonable $11.1 million/dv.

	Base Case		Current Case		Wet Scrubber Case	
	Days > 0.5 dv	Average 98th % dv	Days > 0.5 dv	Average 98th % dv	Days > 0.5 dv	Average 98th % dv
Shenandoah	77	1.24	52	0.87	1	0.21
Brigantine	49	0.77	25	0.57	0	0.14
Otter Creek	13	0.39	8	0.29	0	0.05
Dolly Sods	18	0.45	8	0.32	0	0.06
James River Face	23	0.51	11	0.37	0	0.06
Totals	180	3.36	104	2.42	1	0.52

Improvements	Base Case vs Wet Scrubber		Current Case vs Wet Scrubber	
	Days > 0.5 dv	Average 98th % dv	Days > 0.5 dv	Average 98th % dv
Shenandoah	76	1.03	51	0.66
Brigantine	49	0.63	25	0.43
Otter Creek	13	0.34	8	0.24
Dolly Sods	18	0.39	8	0.26
James River Face	23	0.45	11	0.31
Totals	179	2.84	103	1.9

Mirant—Chalk Point

According to MDE:

> In December 2009 Chalk Points Units 1 and 2 installed a common FGD system that reduces SO_2 emissions by up to 98%.

Although MDE shows that Chalk Point units #1 & #2 share a common Flue Gas Desulfurization (FGD) system, CAMD shows no FGD on these units, and the company BART analysis states:

> Units 1 and 2 have recently been equipped with a common Flue Gas Oesulfurization (FGO) System to control sulfur dioxides ($S0_2$) emissions. When the FGR system is in operation the Units exhaust to a common 400 foot stack when the FGO is not in operation the Units exhaust to a common 700 foot stack.

Please clarify the existence and operation of any FGD on units #1 & #2. Furthermore, CAMD data indicates annual SO_2 reductions of 88% - 94% for these units.

[5] In its January 21, 2011 letter to the Nebraska Department of Environmental Quality, EPA stated that "a $/dv analysis is likely to be less meaningful 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, magnitude, and duration of the modeled changes in visibility)."

As for additional NO_X controls, MDE states:

> Cost of compliance for SCR technology being installed at Unit 2 would be $14,288 per ton based on the EPA Control Cost Manual and the cost data for the installation of the SCR on Chalk Point Unit 1. That of Unit 3 is projected to be $95,066 per ton for the installation of SNCR technology because of its 5% average annual cycling usage. For Unit 2, installation of SCR would bring the emissions rate from 0.35 lb/mmBTU down to 0.10 lb/mmBTU and for unit 3 installation of SNCR would bring the emissions rate from 0.14 lb/mmBTU down to 0.10 lb/mmBTU.

Our review of the company BART submittal indicates that it did not use the EPA Control Cost Manual method applicable to SCR and that it used incorrect amortization periods. And, the assumed SCR emission rate is double the 0.05 lb/mmBtu assumed by EPA in its analysis of the San Juan Generating Station.

Mirant—Morgantown

According to MDE:

> Based on the controls already in use it is concluded that, for Morgantown Units 1 and 2, "the control equipment installed and the units' existing emission rates meet or exceed BART control requirements and presumptive emission limits. Therefore no additional BART analysis is required.

CAM data indicates that Unit #1 is not achieving presumptive BART SO_2 reductions.

Chapter 10: Reasonable Progress

The MANE-VU Reasonable Progress Analysis identifies several source categories that are significant contributors to SO_2 emissions in the MANE-VU region While we concur that Maryland has demonstrated greater SO_2 reductions under the Maryland Healthy Air Act than proposed in the MANE-VU "ask" for the 167 stacks and low sulfur fuel, we still recommend that Maryland consider what specific sources in the State are in the major contributing source categories and whether controls are reasonable for these specific sources.

Chapter 12 Long Term Strategy

Section 12.3 details the emissions reductions that were included in the 2018 Beyond On The Way (BOTW) emissions inventory and modeling. It is a comprehensive list of the extensive emissions reductions requirements across source categories. It important to clearly state that these inventory assumptions were made in 2007 projecting what might be implemented by 2018. Section12.3.1 details the state rules and consent decrees that were known at the time the inventory was developed. It is no longer a complete list of requirements for Electric Generating Units (EGU). Please state this. Also make clear that assumptions made for CAIR are assumed to be at least as stringent as the Cross State Air Pollution Rule.

Section 12.4 detailed assumptions made for the Best and Final emissions inventory. It is important to clearly state that this inventory included controls that had not been implemented and are not federally enforceable.