



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

REGION 1

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BOSTON, MASSACHUSETTS 02114-2023

SEP 17 2009

Barbara Kwetz  
Director  
Planning and Evaluation Division  
Bureau of Waste Prevention  
Department of Environmental Protection  
One Winter Street  
Boston, Massachusetts 02108

Dear Ms Kwetz:

Previously, we received your draft version of the Massachusetts Regional Haze State Implementation Plan (SIP). On March 24, 2009, EPA provided written comments on this draft with the exception of the BART (Best Available Retrofit Technology) section.

On July 31, 2009, we received Massachusetts draft BART chapter of the Regional Haze SIP. You will find our comments on this draft in the Enclosure.

EPA has concerns with Massachusetts' draft BART determinations for the residual oil-fired units. Rather than refining the analyses used in the source-by-source BART determinations, EPA recommends that Massachusetts analyze an "alternative to BART" strategy.

Specifically, Massachusetts regulation 310 CMR 7.29 is designed to achieve emission reductions from BART-eligible sources, as well as large non-BART sources. Significant emission reductions from the additional non-BART sources, in conjunction with emission reductions from the applicable BART sources, may result in greater overall emission reductions compared to source-by-source BART determinations.

If you have any questions on these comments, please contact Anne McWilliams at (617) 918-1697.

Sincerely,

A handwritten signature in black ink that reads "Anne Arnold".

Anne Arnold, Manager  
Air Quality Planning Unit

Enclosure

cc: Aimee Powelka (MA DEP)  
Eileen Hiney (MA DEP)

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**Enclosure**  
**EPA Comments on Massachusetts'**  
**BART Chapter of the Draft Regional Haze SIP (August 2009)**

**E. Overview of Massachusetts BART-Eligible Sources**

1) On page 8, Massachusetts indicates that the cumulative impact of all of the sources with a visibility impact below 0.1 dv results in a visibility impact below the EPA recommended impact threshold of 0.5 dv. EPA recommends that Massachusetts clarify that this cumulative modeling includes all sources in the MANE-VU domain with a visibility impact below 0.1 dv and is not limited to only Massachusetts sources. It may also be useful to indicate the number of sources included in the modeling.

2) EPA recommends that the last paragraph on page 8 be revised as follows:

“Trigen – Kneeland has been added to this list, despite its modeled impact of 0.146 ddv (0.127 ddv from NO<sub>3</sub>) using the MM5 modeling platform, due to two significant errors in the 2002 input data used by MANE-VU to screen facilities for their impact on visibility.”

3) For Table 5 on page 10, there is no text relating to superscript 3 in the fifth column heading “Subject to Presumptive BART?<sup>3</sup>”. Perhaps it is meant to reference footnote 3 which appears back on page 2. However, it would be easier to follow if the note appeared on the same page as the table.

**F. Energy and Non-Air Quality Environmental Impacts, Remaining Useful Life, and Federal Enforceability**

4) On page 12, Massachusetts states that it will promulgate a BART regulation. A draft of this regulation, however, has not been provided for review. EPA recommends that Massachusetts move forward as expeditiously as practicable to adopt this rule. This regulation must be submitted to EPA as a SIP revision to ensure federal enforceability.

**G. Massachusetts BART Determinations for SO<sub>2</sub>**

5) On page 12, the last paragraph should be amended to reference Mystic Station Unit 7 (rather than Unit 2). Also, the last sentence on this page is inconsistent with the data in Table 6.

6) Table 8 on page 16 presents summary \$/ton information for the use of 0.5% and 0.3% sulfur content by weight #6 residual oil fuel for several units. Because there is a lot of variability in the information presented, we would like to see the analyses that resulted in these cost estimates.

Massachusetts states that the differences in the \$/ton cost estimates from the various EGUs could be a result of using different oil price dates. This reasoning could explain differences in the absolute price of the fuel oil. However, it does not explain why there is such a variation in the incremental cost of using 0.3% sulfur content fuel oil from one facility to the next. For example, for Mystic Station Unit 7, there is no significant difference (zero variability) in the \$/ton estimate for 0.5% vs. 0.3% sulfur content fuel oil (\$4270 vs. \$4259/ton), while for Brayton Point Unit 4, there is more than 50% variability in the cost effectiveness estimates between the use of the two fuels (\$3041 vs. \$4658/ton).

In addition, it should be noted that a similar analysis from another state yielded a much lower \$/ton estimate for the use of both 0.5% and 0.3% sulfur content residual fuel oil (\$1900/ton).

7) On page 25, Massachusetts indicates that Mystic Station Unit 7 and Brayton Point Unit 4 can burn both oil and natural gas. Therefore, EPA recommends that in its BART determination, Massachusetts should consider the use of natural gas as the primary fuel for these units, with No. 6 fuel oil being used as the secondary fuel, with a constraint on the number of gallons burned per year. This measure should also be considered for other units, where possible.

8) In the 4<sup>th</sup> paragraph on page 17, Massachusetts proposes that BART for oil-fired EGUs be the restriction of sulfur content in No. 6 fuel oil to 0.5% sulfur by weight, beginning March 31, 2014. However, on page 15, Massachusetts states that 35% of the available residual fuel stock is less than 0.3 percent sulfur by weight and 39% of the residual fuel stock is 0.3 to 1 percent sulfur by weight. As also noted by Massachusetts, BART controls are required "as expeditiously as practicable." Therefore, it is unclear why it is not possible to require the use of 0.5% sulfur by weight residual oil prior to March 31, 2014.

#### **H. BART for NO<sub>x</sub> Emissions from EGUs & ICI Boilers**

9) For low capacity sources, such as Brayton Point Unit 4, Mystic Station Unit 7, and Salem Harbor Unit 4, Massachusetts is proposing to cap the facility's annual NO<sub>x</sub> emissions. The proposed caps are greater than the EPA de minimus threshold of 250 tpy. EPA has concerns with this approach given that an annual cap does not ensure emission reductions during the days of greatest visibility impairment at Class I areas.

10) For Mystic Station Unit 7, Massachusetts is proposing a NO<sub>x</sub> emissions cap of 3,580.617 tpy as BART. However, according to the Clean Air Markets Division (CAMD) database, between 2002 and 2008, the highest level of NO<sub>x</sub> emissions from Unit 7 was 926.2 tpy in 2003. (See Table 1 below.) In addition, on pages 25-26, Massachusetts indicates that the cost-effectiveness analysis for SCR and SNCR for this unit was based on 2007-2008 average operating conditions of 478 tpy NO<sub>x</sub>. Therefore, a NO<sub>x</sub> cap of 3,580 tpy does not appear to be justified as BART for this unit.

Table 1: Annual NOx Emissions from Mystic Unit 7<sup>1</sup>

Year	NOx Emission (tpy)
2002	804.5
2003	926.2
2004	690.8
2005	519.6
2006	334.3
2007	684.4
2008	271.9

11) When calculating the annual emissions caps for Salem Harbor Unit 4 and Brayton Point Unit 4, Massachusetts used the currently permitted NOx emission limits of 0.28 and 0.27 lb/MMBtu (24-hour average), respectively. It is not clear why the emission rate for both units was not set to the MANE-VU recommended limit of 0.25 lb NOx/MMBtu?

#### **I. BART for PM10 Emissions from BART-Eligible EGUs & ICI Boilers**

12) For Table 14 on page 28, Massachusetts should clarify the difference between the information presented in the column labeled “2002 PM Emissions (tpy)” and the column labeled “2002 PM Emissions (tpy)\*”.

13) Table 14 indicates that several facilities currently operate electrostatic precipitators (ESPs) and on page 28, Massachusetts indicates that no additional controls are warranted for PM. However, if these current controls are considered BART, then they must be made federally enforceable. Massachusetts should include more information about the current requirements. For example, what are the permit limits? Are these limits federally enforceable? If not, how will they become federally enforceable? How do these limits compare to the MANE-VU recommended limits of 0.02 – 0.04 lb/MMBtu?

#### **J. BART for VOC Emissions from Petroleum Storage**

14) Massachusetts should revise its discussion regarding the three VOC sources. Currently, the discussion states that reductions expected to occur by January 1, 2010 at Gulf Oil-Chelsea are sufficient to satisfy BART requirements, while “no further controls at Exxon Mobile-Everett and Global Petroleum-Revere will be required to satisfy BART, given the minor impact of VOC point sources on regional haze.” It is not clear how Massachusetts arrived at differing conclusions for these similar sources. Furthermore, Massachusetts has not sufficiently explained why these VOC sources merit BART review.

The BART Guidelines (40 CFR Part 51, Appendix Y) state that visibility pollutants include SO<sub>2</sub>, NOx and particulate matter, and that states should exercise judgment in

<sup>1</sup> Data extracted from the Clean Air Markets Division database: <http://camdataandmaps.epa.gov/>

deciding whether VOC and ammonia impair visibility in an area. Specifically, Section II.A.3 of the Guidelines states:

“... You (the state) need not provide a formal showing of an individual decision that a source of VOC or ammonia emissions is not subject to BART review. Because air quality modeling may not be feasible for individual sources of VOC or ammonia, you should also exercise your judgment in assessing the degree of visibility impacts due to emissions of VOC and emissions of ammonia or ammonia compounds. You should fully document the basis for judging that a VOC or ammonia source merits BART review, including your assessment of the source’s contribution to visibility impairment.”

Finally, if Massachusetts does determine that these VOC sources merit BART review, then the discussion should include an explanation of how any necessary controls are, or will be made, federally enforceable. The current discussion does not indicate how, or if, the 2 mg/l requirement at Gulf Oil-Chelsea is federally enforceable.