

. MEMORANDUM 7/24/2007

**PM2.5 Annual Standard:
Planning Options and Issues**

Background:

In 1997, the U.S. EPA adopted standards (an annual average standard of 15 ug/m³ and a daily average standard of 65 ug/m³) for small particulate matter known as PM_{2.5} to protect public health. Implementation of these standards was delayed several years due to various challenges, but in 2000 they came into effect. Based on an analysis of ambient monitoring data conducted by EPA for our region, in 2005 the Washington region was designated as a non-attainment for PM_{2.5} and required to submit an attainment plan (State Implementation Plan, or SIP) to EPA by April, 2008.

MWAQC's FY 2007 and FY 2008 work programs were designed to produce the PM_{2.5} SIP to meet the EPA requirements by next April. The region would need to meet the standard by the end of calendar year 2009.

A recent review of ambient monitoring data for PM_{2.5} data in our region indicates that we may actually be meeting both the daily and the annual average EPA PM_{2.5} standards promulgated in 1997, raising the possibility of changing course and instead of preparing a SIP, seeking redesignation as an attainment area for PM_{2.5}.

However, in 2006, EPA completed a review of the PM_{2.5} health standard as part of its periodic air quality standards' review process, and concluded that one of the two standards (the 24-hour or daily average standard) should be tightened from 65 ug/m³ to 35 ug/m³. Current data analysis indicates the region is not meeting this new daily average standard. In addition, because EPA's Clean Air Scientific Advisory Committee (CASAC) advised that the annual standard should also be tightened but the EPA Administrator elected not to do so, several states, including Maryland and the District of Columbia, have legally challenged whether the annual average standard should be lower. A review of recent data indicates that the region would not meet the annual average standard advocated by EPA's CASAC, and does not meet the daily average standard, albeit by a small margin.

From a regulatory standpoint, however, the region is not required to meet the new daily standard until EPA acts to designate the region as a non-attainment area – such a designation is not expected until 2009 at the earliest, with an attainment date in 2013 at the earliest. It will also take significant additional time for the legal challenge to the annual average standard to be addressed by the courts. Thus the legally applicable PM_{2.5} standards are those promulgated in 1997.

The various standards are summarized below.

PM2.5 Standards: Old and New

	1997 Standards		2006 Standards	
	Annual	24-hour	Annual	24-hour
PM2.5 (Fine Particles)	15 µg/m3 Annual arithmetic mean, averaged over 3 years	65 µg/m3 24- hour average, 98th percentile, averaged over 3 years	15 µg/m3 Annual arithmetic mean, averaged over 3 years	35 µg/m3 24- hour average, 98th percentile, averaged over 3 years

For those areas that have data indicating potential attainment of the PM2.5 standard, EPA has established a “Clean Data Policy” which permits a state to submit data that demonstrates attainment of the standard. EPA would then review this data submission and make a determination. If EPA concurs that the region has in fact attained the standard, additional time is provided to formally seek redesignation as an attainment area, and submit a “maintenance” plan to demonstrate how the area will maintain the standard for 10 additional years. The region would be relieved of needing to produce an attainment SIP by the April, 2008 deadline as well. The transportation conformity process would continue under the current interim PM2.5 mobile budgets until a SIP or maintenance plan is submitted and those budgets are found adequate for conformity.

MWAQC and the states thus are faced with a determination of whether to proceed with preparation of a SIP as currently planned, or to change course and begin the process to seek redesignation as an attainment area.

SIP Option

MWAQC and the states could decide to continue with the current effort to prepare a SIP that would be submitted to EPA by the April, 2008 deadline. Doing so however, would require recognition that the region meets the current applicable PM2.5 standards and thus is submitting an attainment plan this is proactively adopting measures to reduce PM2.5 levels lower than the 1997 annual standard. The staff has already developed critical pieces of the SIP and could meet the SIP deadline without difficulty.

Redesignation Request and Maintenance Plan

MWAQC and the states could decide to submit a redesignation request and a maintenance plan to EPA by the April, 2008 deadline. A maintenance plan may contain new control measures to assure that there will be no exceedances of the annual PM2.5 standard in the ten years after redesignation. A maintenance plan is not as stringent as a state implementation plan with respect to attainment modeling, analysis of Reasonably Available Control Measures, contingency plans and permitting of major sources.

Clean Data Policy

EPA's Clean Data Policy for PM_{2.5} allows states to request EPA to determine attainment based on the monitors' data. If granted, the region's requirements to submit a SIP by the April 5, 2008 deadline would be suspended temporarily. A plan would be required, although there is not post April 5, deadline. EPA recommends that the request letter be submitted prior to December 2008.

Policy Issues:

1. Region's monitors show attainment of annual PM_{2.5} standard in 2005 and 2006. The City of Alexandria maintains that there are elevated PM_{2.5} emissions from the Potomac River Power Plant causing public health problems. City of Alexandria wants DEQ to do local area modeling analysis.

While much of this matter revolves around local permitting issues in discussion between the City, the permittee (Mirant), and Virginia Department of Environmental Quality, Alexandria believes that modeling analyses underway may illustrate that the region could exceed the current annual average standard, particularly if changes to the stack height and certain operational rules change the dispersion pattern of the PM_{2.5} from a more localized area to a larger region.

EPA's view is that the region is in attainment for the annual PM_{2.5} standard for 2005 and 2006. The local problem in Alexandria is a permitting issue that should be handled by Virginia DEQ; it is not a regional air quality issue.

2. EPA revised the PM_{2.5} standards in 2006. EPA tightened the daily, 24-hour standard by reducing acceptable levels by almost half; however, they kept the old annual standard in disregard of the Clean Air Scientific Advisory Committee's (CASAC) advice to reduce the annual standard to make it more protective of public health. Maryland, the District of Columbia and other states are suing EPA for ignoring CASAC's advice. Maryland plans to put new control measures in either the SIP or in an "aggressive" Maintenance Plan.

Technical Issues:

1. A Maintenance Plan requires development of two new inventories, an interim and an out-year. The out-year inventory should be 10 years from the date EPA redesignates the region. A Maintenance plan would require resources, primarily to develop the new inventories. The SIP inventories are already prepared for 2002 and 2009.
2. A Maintenance plan sets two new out-year mobile budgets. They may not be for the same years as inventories already used in conformity (2020, 2030). PM_{2.5} direct emissions will increase after 2020. Out-year mobile budgets will need to be developed to accommodate this increase.
3. The permitting requirements (New Source Review or NSR) are more stringent for nonattainment areas than attainment areas. **Nonattainment** NSR permits are required for new major sources or sources making a major modification in a nonattainment area. All nonattainment NSR programs have to require 1) the installation of the lowest achievable emission rate (LAER), and 2) emission offsets.

Prevention of Significant Deterioration (PSD) permits are required for new major sources or a major source making a modification in an **attainment** area. PSD permits require: 1) installation of the Best Available Control Technology (BACT), 2) an air quality analysis, and 3) an additional impacts analysis.

Options

- 1. Continue on SIP course and write a SIP for a standard the region does not yet meet, such as the 2006 daily standard of 35 ug/m³, or for an annual standard recommended by the Science Advisors. MWAQC could approve requesting an attainment determination from EPA under the Clean Data Policy, and then submit a SIP at a date later than April 5, 2008.**

- 2. Follow the Clean Data route and submit a redesignation request and maintenance plan. This is legally acceptable, although it delays action on setting mobile budgets and preparing a plan. The NSR requirements are weaker under a maintenance plan, so this route would lead to less stringent requirements on new sources in the future and would be less protective of public health. Additional control measures could be adopted in the maintenance plan to make it more protective of public health.**

Attachments:

- A. Comparison of PM_{2.5} Planning Options and Clean Data Policy**

- B. PM_{2.5} Standards and Observed Data for Metropolitan Washington Region**

Attachment A
Comparison of PM2.5 Planning Options and Clean Data Policy

#1	#2	Delay
SIP OPTION	REDESIGNATION REQ	CLEAN DATA POLICY
Submit Attainment SIP	Request Redesignation & Submit Maintenance Plan	Request Determination of attainment based on Clean Data
Deadline by 4/5/08	Deadline before 4/5/08	Deadline Soon, prior to 4/5/08
EPA Action 6 months for completeness determination; 90 d. adeq determination; 18 mos apprv	EPA Action 18 months to redesignate after request & plan received	EPA Action Determination that area has attained the standard is published in FR
DISCUSSION	DISCUSSION	DISCUSSION
<p>Inventories</p> <p>Inventories for 2002 and 2009 are prepared (base yr and attainment yr)</p> <p>Guidance/ Requirement Complies w/ requirement to submit plan, but to develop new inventories for maintenance</p> <p>Attainment Modeling Photochemical modeling is done</p> <p>Control Measures CAIR and HAA are expected to provide enough benefits to keep region in attainment; May add more measures</p> <p>New Source Review (NSR) NSR is required</p>	<p>Inventories</p> <p>Need 3 inventories: 2005, interim year and 10-year outyear</p> <p>Guidance/ Requirement Complies w/ EPA Guidance for Redesignation**</p> <p>Attainment Modeling Modeling not required but useful to determine projected downward trends.</p> <p>Control Measures</p> <p>May add new measures to make Maintenance Plan more aggressive</p> <p>New Source Review (NSR) After redesignation, PSD permitting is required; NSR no longer required. PSD permits require emissions ceilings</p>	<p>Inventories</p> <p>No plan due by 4/15/08 if Determination of attainment appears in FR before date. <i>(query to EPA re this)</i></p> <p>Guidance/ Requirement Complies w/ Clean Data Policy for PM2.5 *</p> <p>Attainment Modeling Requirements suspended for attainment modeling, RACM, RFP, contingency measures</p> <p>Control Measures</p> <p>Requirement suspended</p> <p>New Source Review (NSR) NSR required until area redesignated to attainment; then PSD establishes emissions ceilings</p>

<p>MOBILE BUDGETS Required for 2002 & 2009</p> <p>Timing & Resources Stay on same schedule</p>	<p>MOBILE BUDGETS Required for interim year & Out-year. The 2020 out-year is expected to present a problem for conformity</p> <p>Timing & Resources Difficult to complete inventories on time.</p>	<p>MOBILE BUDGETS Same as Maintenance Plan, but more time to develop</p> <p>Timing & Resources No penalty for failure to submit if plan isn't done by 4/5/08.</p>
--	--	---

*Clean Data Policy for Fine Particle National Ambient Air Quality Standards , Stephen Page, EPA Dec. 14, 2004.

**Procedures for Processing Requests to Redesignate Areas to Attainment," John Calcagni, EPA, Sept.4, 1992.

SIP requirements are in the Clean Air Act Amendments, §110

Attachment B
PM2.5 Standards and Observed Data for Metropolitan Washington Region

PM 2.5	Annual	Daily
EPA 1997	15 ug/m3	65 ug/m3
Science Advisors	13 ug/m3	35 ug/m3
EPA 2006	15 ug/m3	35 ug/m3
OBSERVED		
2005	14.8 ug/m3	37 ug/m3
2006	14.8 ug/m3	36 ug/m3