

Implementation of the Proposed Particulate Matter Standards



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Items to be Addressed

- History of Particulate Matter Standards
- Status of PM_{2.5} NAAQS
- Other Proposed Changes to PM AAQSSs
- What is PM_{2.5} Implementation
- How/when will it happen
- What control measures may be required
- Summary/Recommendations
- Some acronyms in this presentation
 - NAAQS
 - RACT
 - RACM
 - RFP

Let's Start With Some History

- 1971 -- First PM NAAQS
 - Regulated TSP (particles up to 45 μm)
 - Included 24 hr and annual average standards
- 1987 – PM₁₀ NAAQS Promulgated
 - Regulated particles up to 10 μm
 - Replaced TSP as the PM NAAQS
 - PM₁₀ became designated as coarse PM
- 1997 – PM_{2.5} NAAQS promulgated
 - PM_{2.5} referred to “fine” particles
 - PM₁₀ retained as the “coarse” PM standard
- Legal Challenges delayed Implementation until 2002

Status of PM_{2.5} NAAQS

- Legal challenges resolved in 2002
- PM_{2.5} monitoring program ramp-up from 1999 through 2001
- First 3-year period available 2001-2003
 - Formed the basis for initial PM_{2.5} attainment designations
 - Initial attainment designations released in December 2004
- NC – attainment/unclassifiable except for Davidson, Guilford and Catawba Counties (CLT next?)
- SC -- attainment/unclassifiable except for GSP (unclassifiable)
 - Due to insufficient data from Downtown Greenville monitor
 - Updated 3-yr (2003-2005) PM_{2.5} data indicates potential (24-hour average) nonattainment at monitor

Before We Discuss Implementation

- EPA has **proposed** additional changes to the PM standard
 - Published in FR on 17 January 2006
- Reduce 24-hr PM_{2.5} standard from 65 µg/m³ to 35 µg/m³
 - Comments solicited on range from 25 to 65 µg/m³
- Retain annual standard at 15 µg/m³
 - Comments solicited on reducing standard to 12 µg/m³
- Earlier discussions addressed attainment impacts of the proposed changes to standard

And There's More

- Proposed Thoracic Coarse PM Standard
 - $PM_{10-2.5}$
- Focus is on resuspended dust from traffic on paved roads
- Excludes wind-blown dust and PM generated by agricultural and mining activities
- Proposed 24-hour average standard = $70 \mu\text{g}/\text{m}^3$

We're Not Done Yet

- Once PM_{10-2.5} standard is finalized, EPA proposes to revoke the current 24-hr PM₁₀ standard
 - Some exceptions apply
- When PM_{10-2.5} standard is promulgated, EPA also proposes to revoke the annual PM₁₀ standard
- EPA recently solicited comments
 - on the proposed 70 µg/m³ 24-hr PM_{10-2.5} standard
 - on whether to revoke the 24-hr PM₁₀ standard

And....Finally

- EPA also recently solicited comments on adding a new “sub-daily” PM_{2.5} standard
 - Intended to address visibility impairment
- So as can be seen there is a lot of implementation to be taking place in the near future
- Now We Can Discuss PM_{2.5} Implementation

What is PM Implementation

- Once a new NAAQS is promulgated, States must develop a plan to address areas that are not attaining the standard.
- These are part of the greater State Implementation Plan (SIP)
 - Plans are due to EPA within 3-years of NAAQS promulgation
 - For PM_{2.5}, the implementation plans are due April 2008
- To be approved, the plans must successfully demonstrate how a nonattainment area will be brought into attainment, and
- Actions must occur and proper demonstrations in-place by prescribed deadlines

PM_{2.5} Implementation Rule

- PM_{2.5} implementation plans due to EPA by April 2008
- Plan must demonstrate PM_{2.5} attainment by 2010
 - Rule provides for 5-year attainment extension
- Implementation plans must include RACM and RACT
- States must consider precursor pollutants
 - Including SO₂
 - NO_x, VOC and NH₃ may also need to be controlled if deemed to be contributing to the PM_{2.5} nonattainment designation (i.e., if determined to be precursor pollutants)
- Integration with NSR rule (eg. LAER vs. BACT)
- Consideration of benefits from other initiatives (such as CAIR)

PM_{2.5} Implementation – Defining Problem Areas (otherwise referred to as the name game)

- Using Design Values, only (no classification system)
 - Flexible control option selections based on specific source of PM_{2.5} problem
- Two-tier system based on design value
 - Moderate and serious Nonattainment
 - Serious NA areas would qualify for the 5-year attainment extension
 - Serious NA areas would be required to implement RACM and RACT measures
 - Tiered system could also include lower thresholds for defining a major source under NSR
 - Resulting in more permit actions triggering LAER

PM_{2.5} Implementation – More Name Game

- Rural Transport Nonattainment Area –
 - Cannot be near or even an extended part of a urbanized metropolitan area
 - Would apply if it is determined that locally-generated emissions do not significantly contribute to the nonattainment issue
 - Problem must be transport-based
 - Relieves an area of burdensome control requirements
 - Nonattainment NSR rules would still apply

Consideration of Overlapping Programs

- In determining what measures to invoke in PM_{2.5} nonattainment areas EPA/States will consider:
 - CAIR
 - Acid rain program
 - Motor vehicle/diesel engine standards
 - NO_x SIP Call measures
 - Local Programs – Clean Smokestacks Bill
- States can use modeling to propose *no action required* if local/regional programs provide sufficient emissions reductions

How Will Improvement Be Tracked

- OK – the SIPs are in place and approved by EPA. Control measures are being implemented. Will someone check to make sure that the program is indeed working?
- YES – EPA will require states to develop RFPs – Reasonable Further Progress milestones
 - Actually part of approved SIP
 - Milestones address incremental improvement based on a schedule to demonstrate attainment as promised
 - Progress is defined in terms of emissions reductions (not actual ambient air quality improvement)
 - 2002 proposed to be base year for defining emissions reductions

Tracking Improvement (continued)

- RFP requirement considered approved for areas demonstrating attainment by 2010.
 - Major milestone is that attainment-level emission reductions must be shown by 2009
- More detailed RFPs required for areas needing the 5-year attainment extension
 - Would include submittal of 3-year rolling emissions information to EPA
 - Would be expected to show a linear progression toward achieving total targeted emission reduction levels
 - EPA to consider multi-pollutant reduction provisions for RFP plans
- Get ready for more detailed/comprehensive emission inventory requirements

What is RACT and RACM

- RACT = Reasonably Available Control Technology
 - Definition: lowest emissions limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility
- RACM = Reasonable Available Control Measures
- RACT focuses on stationary sources while RACM addresses emission reduction measures associated with transportation-related projects/improvements

More on RACT

- States determine the emissions threshold level for RACT requirements to apply
 - Current thought is RACT evaluations for all sources of PM_{2.5} (or its precursors) greater than 100 tpy
 - Alternate options under consideration are for either 50 tpy threshold, threshold based on severity of nonattainment area or only imposing RACT requirements for sources located in areas requiring an attainment extension.

RACT – Impact to Industry

- If RACT is imposed for your source:
- May require consideration of RACT measures for $PM_{2.5}$ as well as the precursor pollutants (SO_2 , NO_x , VOC and ammonia)
- VOC and NH_3 RACT would only apply in certain areas
- If required to include VOC RACT and source is subject to MACT, then RACT = MACT
- Measures taken to comply with other programs (i.e., NO_x SIP call or CAIR) could be used to demonstrate compliance with RACT

Conclusion

- EPA currently placing a large emphasis on characterizing and controlling PM emissions
- Sources in PM_{2.5} nonattainment areas need to monitor development of implementation rules carefully
- Question using 2002 as base year for emission reductions?
- Prepare for possible control technology demonstrations over the next 5 years
- Expect more emission inventory requirements