December 2005 Proposal to Revise the National Ambient Air Quality Standards for Particle Pollution

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Overview

• On December 20, 2005, EPA proposed revisions to the National Ambient Air Quality Standards (NAAQS) for particle pollution.

• The proposed revisions would strengthen a fine particle standard important for both health and visibility, and would improve and refocus the coarse particle standards on those particles that are associated with public health concerns.

• The proposed revisions address two categories of particle pollution:
  – fine particles (PM$_{2.5}$), which are 2.5 micrometers in diameter and smaller; and
  – inhalable coarse particles (PM$_{10-2.5}$), which are smaller than 10 micrometers in diameter but larger than PM$_{2.5}$.

• Simultaneously, EPA proposed amendments to its national air quality monitoring requirements, including those for monitoring particle pollution. The proposed changes include the design of a network to monitor PM$_{10-2.5}$.

• For more information on both proposals and the RIA:
  – http://www.epa.gov/air/particles/actions.html
Current PM NAAQS Review – Schedule

• Rulemaking on PM NAAQS:
  – *Proposal* signed on December 20, 2005 (as required by consent agreement)
  – *Public comment* period: 90 days, ends April 17, 2006
  – *Public Hearings* to be held March 8 in Philadelphia, Chicago and San Francisco
  – *Final Rule* to be signed by September 27, 2006 (required by consent agreement)

  – Proposal includes simultaneous rulemakings
    • PM NAAQS, Federal Reference Method, & Data Handling (Part 50)
    • Air Monitoring Regulations: Requirements for Reference and Equivalent Methods, Network Design Requirements (Parts 53 & 58)

  – Upcoming and related rulemakings:
    • Advance Notice of Proposed Rulemaking on Transition Issues (published 2/9/06)
    • Exceptional & Natural Events (to be signed March 1, 2006)
PM$_{2.5}$ – Primary 24-hour Standard

- Under the proposal, EPA would revise the level of the 24-hour standard from the current level of 65 $\mu$g/m$^3$ to 35 $\mu$g/m$^3$.
  - EPA is proposing this change based on its assessment of a significantly expanded body of scientific information.
    - Studies show health effects at and below the level of the current standard

- EPA also is considering alternative levels for the 24-hour standard, between the range of 35 and 30 $\mu$g/m$^3$ and is soliciting public comment on these levels.

- In addition, the Agency will take comment on alternative approaches for selecting the level of the standard, and on levels as high as the current level of 65 $\mu$g/m$^3$ and as low as 25 $\mu$g/m$^3$. 
PM$_{2.5}$ – Primary Annual Standard

• EPA is proposing to retain the current **annual standard** at **15 µg/m$^3$**
  – EPA is proposing to retain this standard based on its assessment of several expanded, re-analyzed and new studies that have increased the Agency’s confidence in associations between long-term PM$_{2.5}$ exposure and serious health effects, including heart and lung-related death.

• EPA is considering and is seeking public comment on lower alternatives for the annual standard including 14 and 13 µg/m$^3$.

• In addition, the Agency will take comment on alternative views including a standard as low as 12 µg/m$^3$. 
PM$_{2.5}$ – Secondary Standards

• The proposal would set the secondary standards for both the annual and 24-hour standards at levels identical to the primary standards

• EPA also is taking comment on whether to set a separate PM$_{2.5}$ standard, designed to address visibility (principally in urban areas)
  – At levels within a range of 20 to 30 µg/m$^3$, and
  – On averaging times within a range of four to eight daylight hours
### Potential Timeline if PM$_{2.5}$ NAAQS are Revised

<table>
<thead>
<tr>
<th>Milestone</th>
<th>1997 PM$_{2.5}$ Primary NAAQS</th>
<th>2006 PM$_{2.5}$ Primary NAAQS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promulgation of Standard</td>
<td>July 1997</td>
<td>Dec. 2006</td>
</tr>
<tr>
<td>Effective Date of Designations</td>
<td>April 2005</td>
<td>April 2010</td>
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<tr>
<td>SIPs Due</td>
<td>April 2008</td>
<td>April 2013</td>
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<tr>
<td>Attainment Date</td>
<td>April 2010 (based on 2007-2009 monitoring data)</td>
<td>April 2015 (based on 2012-2104 monitoring data)</td>
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<tr>
<td>Attainment Date with Extension</td>
<td>Up to April 2015</td>
<td>April 2020</td>
</tr>
</tbody>
</table>
Summary of Counties Violating the PM2.5 Primary Standards
Current and Projected 2015

<table>
<thead>
<tr>
<th>Standard Options</th>
<th>Current National</th>
<th>Current East</th>
<th>Current West</th>
<th>Projected with CAIR/CAVR/CAMR* National</th>
<th>Projected with CAIR/CAVR/CAMR* East</th>
<th>Projected with CAIR/CAVR/CAMR* West</th>
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</thead>
<tbody>
<tr>
<td>15/65—current standard</td>
<td>116</td>
<td>102</td>
<td>14</td>
<td>32</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>15/35</td>
<td>191</td>
<td>141</td>
<td>50</td>
<td>76</td>
<td>30</td>
<td>46</td>
</tr>
<tr>
<td>14/35</td>
<td>235</td>
<td>185</td>
<td>50</td>
<td>96</td>
<td>50</td>
<td>46</td>
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<tr>
<td>15/30</td>
<td>326</td>
<td>264</td>
<td>62</td>
<td>178</td>
<td>116</td>
<td>62</td>
</tr>
</tbody>
</table>

* See Technical Support Document for details on projection method used here (i.e., Speciated Modeled Attainment Test--SMAT).
Counties Projected to Exceed the PM2.5 NAAQS in 2015
Based on EPA Modeling*
Annual **15 ug/m3** and 24-Hour **65 ug/m3**

*EPA models assume implementation of CAIR/CAMR/CAVR, mobile source and other federal rules and existing state programs. Air quality is expected to be better than shown. This approach does not forecast actions states will take to meet current PM standards. Also note that modeled air quality forecasts are subject to a number of uncertainties.
Counties Projected to Exceed the PM2.5 NAAQS in 2015
Based on EPA Modeling*
Annual 15 ug/m3 and 24-Hour 35 ug/m3

Legend
- Annual and 24-hour PM2.5 Nonattainment: 25
- 24-hour Only PM2.5 Nonattainment: 44
- Annual PM2.5 Only Nonattainment: 7
- Total Nonattainment: 76
- Counties Projected to attain: 115

*EPA models assume implementation of CAIR/CAMR/CAVR, mobile source and other federal rules and existing state programs. Air quality is expected to be better than shown. This approach does not forecast actions states will take to meet current PM standards. Also note that modeled air quality forecasts are subject to a number of uncertainties.
Interim RIA (January 2006)

- Focused on PM$_{2.5}$ NAAQS only
- Conducted “illustrative” analyses for 5 areas predicted to violate one or more NAAQS alternatives by 2015: Atlanta, Chicago, NY/Philadelphia, San Joaquin, Seattle
- Focused on local controls for current NAAQS and proposed alternative (after CAIR/CAMR/CAVR + mobile source rules)
- Projected only to 2015
- Did not produce national cost-benefit numbers due to limitations in time, available information, and technical capabilities
Final RIA (September 2006)

- Major focus on PM$_{2.5}$
- Will project nationwide costs and benefits
- Will project to 2020 (full attainment year)
- Will still give preference to local controls for achieving reductions beyond CAIR/CAMR/CAVR + mobile, except in analysis for most stringent alternatives
Inhalable Coarse PM – Moving from PM$_{10}$ to PM$_{10-2.5}$

- EPA’s current standards for coarse particles (PM$_{10}$) were set in 1987.

- These standards – a 24-hour standard of 150 µg/m$^3$, and an annual standard of 50 µg/m$^3$ -- apply to particles 10 micrometers in diameter and smaller.

- The proposed revisions would change the definition of standard so that it covers only particles between 10 and 2.5 micrometers in diameter also known as PM$_{10-2.5}$ or “inhalable coarse particles.”
**PM$_{10-2.5}$ Standards**

- The proposed **new PM$_{10-2.5}$ standard** would be a **24-hour standard**, at 70 µg/m$^3$.

- EPA is not proposing an annual standard for PM$_{10-2.5}$.
  - There is not sufficient scientific evidence to support a long-term standard for coarse particles

- Under the proposal, the **secondary** 24-hour standard for PM$_{10-2.5}$ would be identical to the primary standard.
Inhalable Coarse PM – Moving from PM\textsubscript{10} to PM\textsubscript{10-2.5}

• EPA proposes to qualify coarse PM to include:
  – Any ambient mix of PM\textsubscript{10-2.5} that is dominated by resuspended dust from high-density traffic on paved roads and PM generated by industrial sources and construction sources.
  – This definition \textit{excludes} any ambient mix of PM\textsubscript{10-2.5} that is dominated by rural windblown dust and soils and PM generated by \textit{agricultural} and \textit{mining} sources.
  – Agricultural sources, mining sources, and other similar sources of crustal material shall not be subject to control in meeting this standard.

• The indicator is not defined or limited to any specific geographic area, but includes a mix of PM\textsubscript{10-2.5} in any location that is dominated by these sources.
Inhalable Coarse PM – Moving from PM$_{10}$ to PM$_{10-2.5}$

- With the proposed indicator, each area in the country would fall into one of these two categories:
  1. the majority of the ambient mix of PM$_{10-2.5}$ in an area is resuspended dust from high-density traffic on paved roads and PM generated by industrial sources and construction sources; or
  2. the majority of the ambient mix is rural windblown dust and soils and PM generated by agricultural and mining sources.

- Monitoring only required in MSAs with urbanized areas of 100,000 people or more.
  - Zero to 5 required monitors per MSA based on population and estimated historical concentrations.
  - Total of about 225-250 monitors required in approximately 150 MSAs.
Revoking the Current $PM_{10}$ Standard

• EPA is proposing to revoke the current 24-hour $PM_{10}$ standard, except in urbanized areas that have both:
  1) one or more violating $PM_{10}$ monitors; and
  2) a population of 100,000 or more.
  – This standard would remain in place in these areas until the Agency has completed attainment and nonattainment designations for $PM_{10-2.5}$.
  – EPA is taking comment on whether the 24-hour $PM_{10}$ standard should be retained in areas with a population less than 100,000 but where the majority of the ambient mix of $PM_{10-2.5}$ is generated by high density traffic on paved roads, industrial sources, and construction sources.

• The Agency is proposing to immediately revoke the current annual $PM_{10}$ standard in all areas.
  – Current scientific evidence does not show significant public health risks associated long-term exposure to coarse particles.
EPA is proposing to revoke the current 24-hour PM$_{10}$ standard everywhere except in urbanized areas that have a minimum population of 100,000 and that contain a monitor which violates the 24-hour PM$_{10}$ standard based on the most recent three years of data. These include:

- **Current PM$_{10}$ Nonattainment and Maintenance Areas**
- **Other counties with violating monitors**
Current $\text{PM}_{10}$ Nonattainment Areas where EPA Proposes to Revoke the 24-Hour PM10 Standard
### Potential Timeline if PM\textsubscript{10-2.5} Standard is Finalized

<table>
<thead>
<tr>
<th>Milestone</th>
<th>2006 PM\textsubscript{10-2.5} NAAQS</th>
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</thead>
<tbody>
<tr>
<td>Effective date of Standard</td>
<td>Dec. 2006</td>
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<tr>
<td>State Recommendations to EPA</td>
<td>July 2012 (based on 2009-2011 monitoring data)</td>
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<tr>
<td>Final Designations</td>
<td>May 2013</td>
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<td>SIPs Due</td>
<td>July 2016</td>
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<td>Attainment Date</td>
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<td>Attainment Date with Extension</td>
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