Primary National Ambient Air Quality Standards (NAAQS) for PM_{10}

Outreach Meeting with the Agricultural Community
February 17, 2011

NAAQS Background: Requirements for Health Standards

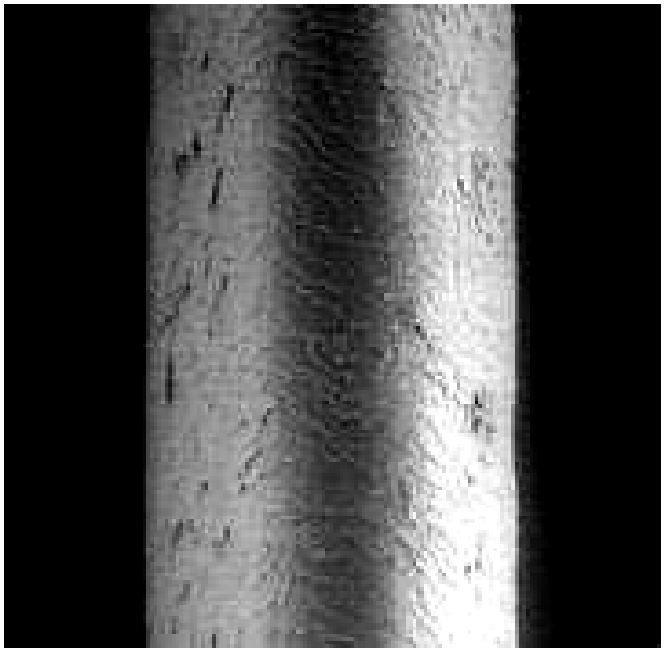
- **Health standards are called "primary standards."**
- **Law requires EPA to set primary standards that** the Administrator judges are requisite to protect the public health with an adequate margin of safety.
  - "Requisite" means sufficient but not more than necessary.
- **Congress requires that the NAAQS**, and the scientific information on which they are based, **be reviewed every five years – and retained or revised as appropriate.**
  - **This requirement specifies that an independent scientific review committee (this is the Clean Air Scientific Advisory Committee) complete a review of the science and standards, and recommend to the Administrator any "new standards and revisions of existing … standards as may be appropriate."**
- In setting standards:
  - EPA is required to engage in "reasoned decision making" to translate scientific evidence into standards.
  - **EPA may not consider cost in setting standards (this has been upheld by the Supreme Court).** But cost can be – and is – considered in developing the control strategies to meet the standards (implementation phase).

Health Effects Linked to Coarse Particle Exposure

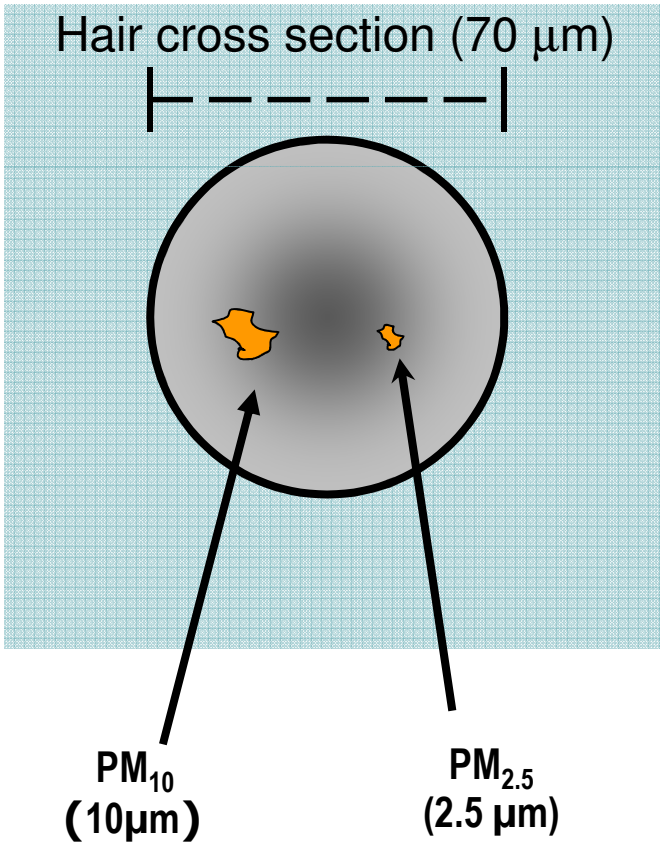
- Studies have linked exposure to coarse particles in the outdoor air (also called particulate matter or PM) to a variety of important adverse health effects, including:
  - Premature death
  - Hospital visits related to cardiovascular disease, such as heart attack and stroke
  - Changes in heart rhythm
  - Hospital visits related to respiratory disease, such as asthma
- A variety of factors make people more susceptible to PM health effects, including:
  - Pre-existing diseases (such as heart or lung disease, including asthma) or conditions (such as obesity)
  - Life stage (i.e., children, older adults)
  - Low socioeconomic status

Particulate Matter

- A complex mixture of extremely small particles and liquid droplets



Human Hair (70 µm diameter)



Source: M. Lipsett, California Office of Environmental Health Hazard Assessment

PM NAAQS Review Process to Date

- **Existing 24-hour PM_{10} standard of 150 micrograms per cubic meter (ug/m^3) was issued in 1987**
  - **Has been reviewed twice since then, in 1997 and in 2006.**
  - **24-hour standard was retained both times; a previous annual standard was revoked in 2006, based on science.**
- **Current review began in 2007** for both fine and coarse particles.
- Review is thorough and extensive, with opportunities for public comment at each of the following steps:
  - **Integrated Science Assessment (conducted by EPA's Office of Research & Development):**
    - An extensive synthesis and assessment of the most policy-relevant science about PM and its effects on health and the environment (finalized December 2009).
  - **Risk/Exposure Assessment (conducted by EPA's Office of Air Quality Planning & Standards):**
    - An assessment of exposures and health risks associated with the current standards and potential alternative standards.
    - The PM risk assessment focused on fine particles, not coarse particles (finalized June/July 2010).
  - **Policy Assessment (conducted by EPA's Office of Air Quality Planning & Standards)**:
    - An EPA staff assessment of policy *options* that could be supported by the available scientific evidence and air quality analyses.
    - Includes staff conclusions about the current standard and possible alternative standards for the Administrator to consider. Second draft released June 2010; final draft still to be issued.
- Drafts of each document have been reviewed by the Clean Air Scientific Advisory Committee (CASAC) and the public has had an opportunity to comment on them.
  - Final documents take into consideration comments from both CASAC and the public.

Second Draft Staff Policy Assessment and CASAC Recommendations on PM_{10} Standard

- **After its review, the CASAC recommended that the current 24-hour PM_{10} standard be revised in order to increase public health protection.** The CASAC said that:
  - Available evidence, while limited, is sufficient to call into question the level of protection provided by the current standard.
  - Recommended a 98th percentile form in conjunction with a level from 75 to 65 $\mu g/m^3$.
- **Staff conclusions in the 2nd draft Policy Assessment note that scientific evidence could support either retaining or revising the current PM_{10} standard** (150 $\mu g/m^3$ level and "one-expected-exceedance" form).
  - **Retaining the standard** would place more weight on uncertainties and limitations in the evidence that tend to call into question the causal nature of the relationship between coarse particles and death and disease.
  - **Revising the standard** - changing the form and setting the level within a range from 85 to 65 $\mu g/m^3$ -- would place more weight on the positive associations between coarse particles and incidence of death and disease in locations that would likely have met the current standard.
    - It's important to note that the conclusions in the second draft staff policy assessment do not support revising the level of the standard without also revising the form.
    - On average, standard levels in the upper part of the identified range (above 75 $\mu g/m^3$), in conjunction with a 98th percentile form, could be generally equivalent to the current standard.
- **<u>No decisions have been made at this time</u>**.

Next Steps

- **Finalize Staff Policy Assessment:**
- **Propose Rule (required even when an existing standard is retained):**
  - 90-day public comment period
- **Issue Final Rule**
- For more information:
  - http://www.epa.gov/ttn/naaqs/standards/pm/s_pm_index.html
  - http://www.epa.gov/pm

PM10 Monitoring Requirements

- Existing network consists of about 800 monitors in 373 counties.
- Monitoring requirements focus on populated areas.
- The number of monitors EPA requires depends on the population size and the concentration of PM10.
  - The more people, and the higher concentrations (compared to the standards), the more monitors are required.
  - Example: An MSA with a population of 100,000 to 250,000 would have to have 1 to 2 monitors if PM10 concentrations are high; if they are low, no monitors are required.
  - States have discretion to add other monitors to meet state-level objectives/goals.

A multi-pollutant monitoring station

Implementing the PM10 Standard: State Requirements

- **States with nonattainment areas are required to submit a plan** demonstrating how they will meet the PM10 air quality standard by their attainment dates. These dates depend on a nonattainment area's classification -- ***moderate* or *serious***.
  - Moderate areas have six years from designation to meet the standards.
  - Serious areas have 10 years from designation to meet the standards.
- **For *moderate* areas,** state plans have to include control measures that are determined to be reasonable in terms of availability and implementation cost. These measures are known as "Reasonably Available Control Measures."
- If a *moderate* nonattainment area cannot meet the standard by its deadline, the area will be reclassified as a *serious nonattainment* area.
- **For *serious* areas,** state plans have to include more stringent – and more effective – controls know as "Best Available Control Measures." These control measures are determined on a case-by-case basis for all PM10 sources in the nonattainment area.