US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

July 13, 2006

Statement of
William Wehrum
Acting Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency

Testimony before the
Senate Environment and Public Works Committee,
Subcommittee on Clean Air, Climate Change and Nuclear Safety

Hearing on
EPA's Proposed Revisions to the
National Ambient Air Quality Standards for Particulate Matter
and
Revisions to Ambient Air Monitoring Regulations

Good morning and thank you for the opportunity to discuss our current review of the National Ambient Air Quality Standards (NAAQS) for particulate matter (PM). As you know, the NAAQS for PM and other criteria pollutants are central to the Clean Air Act's regime for protecting public health and the environment from air pollution. The Clean Air Act requires that every five years EPA review the NAAQS and revise them as may be appropriate. We are now engaged in this review of the PM NAAQS, and I am pleased to be here today to talk to you about the review, the resulting proposal to revise aspects of the PM standards, and the process for aiding state, local and tribal jurisdictions in meeting any revised standards.

As context for the current PM NAAQS review, I will begin by noting the impressive progress this nation has made in combating air pollution and the critical role the NAAQS process has played in achieving that success. Since enactment of the Clean Air Act in 1963, Congress has committed the federal government to work with state and local jurisdictions to ensure that the American people have clean air to breathe. And we have made great progress in cleaning up air pollution even as our economy has grown. Between 1970 and 2005, gross domestic product increased 195 percent, vehicle miles traveled increased 178 percent, energy consumption increased 48 percent, and U.S. population grew by 42 percent. During the same time period, total emissions of the six principal air pollutants dropped by 53 percent. From 1990 to 2002, air toxics emissions declined by 42 percent.

The NAAQS process has been the linchpin of our success in reducing concentrations of criteria air pollutants. The Clean Air Act establishes a two-step process for addressing such pollutants. First, it requires that we set and periodically review and revise as appropriate NAAQS to protect public health and welfare. "Primary" NAAQS must be set at a level requisite to protect public health with an adequate margin of safety, and "secondary" NAAQS must be set at a level requisite to protect public welfare from adverse effects (including effects relating to visibility, soils, vegetation, water, crops, climate, and man-made

materials.) Both types of NAAQS are to be based on the latest available scientific information. Compliance costs may not be considered in setting the standards. In the second step of the NAAQS process, the statute calls on the states, with EPA assistance, to develop and implement plans for attaining and maintaining the primary and secondary standards. At this second step, cost and other factors may be considered in designing implementation plans that make good environmental and economic sense.

Of the many air pollutants regulated by EPA, fine particles likely pose the greatest threat to public health due to the number of people exposed. Studies in the peer-reviewed literature have found that these microscopic particles, which can reach the deepest regions of the lungs, are associated with premature death, aggravation of heart and respiratory disease, asthma attacks, lung cancer, and chronic bronchitis. Estimates based on the literature indicate the possibility that thousands of premature deaths occur each year at current PM levels in some of the country's largest urban areas. PM's impacts also lead to increased hospitalizations, emergency room and doctor visits, lost work days, lost school days, and increased use of medication, among other adverse effects.

Many of EPA's recent regulations to reduce air pollution are designed in large part to reduce fine particles. In particular, EPA's 2004 Clean Air Nonroad Diesel Rule and 2005 Clean Air Interstate Rule will significantly reduce levels of fine particles in many communities.

The Bush Administration is committed to using the best science available in reviewing the PM NAAQS and deciding whether the standards should be revised. Since the last review of the PM NAAQS, a large number of peer-reviewed studies relevant to assessing the health and welfare effects of PM have become available. For this review, EPA evaluated studies that addressed a wide range of issues including PM toxicology, epidemiology, physics, chemistry, and measurement; sources and emissions; environmental effects and exposure. Approximately 2000 studies were referenced in EPA's assessment of the potential health and environmental impacts of particles. EPA's assessment encompassed a review of the strengths and limitations of an extensive body of toxicological and epidemiological evidence evaluating potential morbidity and/or mortality effects. They also included a critical review of potential welfare effects related to PM, including effects on visibility, vegetation and ecosystems, and man-made materials. Considered together, the studies significantly advanced our understanding of PM's effects on public health and welfare and reduced the scientific uncertainty associated with some important aspects of the science.

In assessing potential human health effects, EPA considered a wide range of epidemiologic studies evaluating short-and long-term exposures to particles in single and multiple cities. These studies addressed a variety of health endpoints including respiratory and cardiovascular effects, which in some cases lead to premature mortality. As part of our assessment, we also considered impacts on potentially susceptible or vulnerable subpopulations. A number of such population subgroups have been identified, including individuals with preexisting heart or lung disease, children, and the elderly.

EPA's assessment of the relevant studies was set forth in a "criteria document," which was completed in October 2004. Drawing on what EPA considers to be the most reliable, relevant studies, EPA also performed a risk assessment to estimate the degree to which various approaches to revising the standards would affect the public health risks posed by PM. In addition, EPA's technical staff prepared a "staff paper" to bridge the gap between this

US EPA ARCHIVE DOCUMENT

science assessment and the policy judgments required in making decisions on the NAAQS. It provided an integration of the most policy-relevant scientific information (namely, the information relating to possible indicator, averaging time, form, and level of potential standards), presented and interpreted the major findings of the risk assessment, and included staff-identified ranges of policy options and alternative standards for the Administrator to consider.

In keeping with their importance to the review and revision process, the criteria document, staff paper and risk assessment were developed with extensive involvement of representatives of the scientific community, industry, public interest groups and the general public. We held many public meetings with the Clean Air Scientific Advisory Committee (CASAC) ---a statutorily-mandated group of independent scientific and technical experts appointed by the Administrator to review criteria documents and existing NAAQS and make recommendations as appropriate – to receive their comments on successive drafts of the criteria document, staff paper and risk assessment.

Based on the results of this extensive scientific review and assessment process and considering the policy implications of that assessment, EPA Administrator Steven Johnson signed a proposal on December 20, 2005 to revise the PM NAAQS to better protect public health and welfare from the harmful effects of PM. The proposed suite of standards reflected the Administrator's best provisional judgment regarding the application of the scientific information about how ambient levels of PM impacts public health and environment. In our proposal, we also sought public comment on alternative standards in recognition of the range of standards that the scientific record could support.

Since issuing the proposal, the Agency has made additional efforts to involve the public in this important rulemaking. On March 8, 2006, we held all-day public hearings in Chicago, Philadelphia and San Francisco. In addition, there was a 90-day period from January 17, 2006-April 17, 2006 during which the public could submit written comments to the agency. Before coming to a final decision on the PM NAAQS, EPA will review and analyze the issues, evidence, and arguments raised in oral and written comments. We are now in the midst of this process.

We recognize that additional scientific studies on the health effects of PM have been published since the PM criteria document was completed. As a continuation of the scientific review process, EPA has been conducting a survey of the scientific evidence reported in the recent literature with emphasis placed on specific studies that are most relevant to the proposed PM NAAQS decision. The survey will ensure that before making a final decision, the Administrator is fully aware of the new science that has developed. We intend to provide the public with an opportunity to review the results of the survey prior to making a final decision on revising the PM NAAQS. After our review is complete, the Administrator will make final decisions regarding revisions to the PM NAAQS. We are scheduled to issue a final rule reflecting those decisions by September 27, 2006.

While EPA may not consider compliance costs in setting NAAQS, the Agency typically prepares a Regulatory Impact Analysis (RIA) for NAAQS rules to provide information to States and the public on the controls, disbenefits and costs that meeting the NAAQS would likely entail. In the case of the current PM NAAQS review, EPA will provide a national-scale assessment of costs and benefits in the RIA for any revised $PM_{2.5}$ standards. We will share

US EPA ARCHIVE DOCUMENT

the results of our national-scale assessment with you as soon as they are available. In the RIA, EPA will ensure that all information presented clearly distinguishes between the costs and benefits of those efforts necessary to meet current standards and additional—i.e. incremental—costs and benefits that will be incurred as a result of efforts to reach attainment with any revised standards. The RIA will also examine the extent to which controls applied to attain the current standards by 2015 would also be effective to help attain alternative, more stringent standards by 2020.

Proposed Revisions of the PM NAAQS

The proposed revisions of the PM NAAQS address two categories of particles: fine particles, or $PM_{2.5}$, which are 2.5 micrometers in diameter or smaller and inhalable coarse particles, or $PM_{10\text{-}2.5}$, which are smaller than 10 micrometers in diameter but larger than $PM_{2.5}$. We have had specific NAAQS for $PM_{2.5}$ since 1997 and for particles 10 micrometers and smaller, or PM_{10}, since 1987. (We also have had NAAQS for various types of particles, of which both fine and coarse PM are subsets, since the inception of the NAAQS in 1971.) Based on the latest scientific information, we proposed specific revisions to the current PM standards and requested comments on a range of alternative standards for both fine and inhalable coarse particles. The proposed revisions address changes to both the primary standards to protect public health and the secondary standards to protect public welfare including visibility impairment.

With respect to primary standards to protect public health, EPA proposed :

1. Lowering the level of the 24-hour fine particle standard from the current level of 65 micrograms per cubic meter (µg/m^3) to 35 µg/m^3. We requested comment on retaining the current level of the standard (65 µg/m^3); on levels between 25 and 65 µg/m^3; and on alternative approaches for selecting the level of the standard.
2. Retaining the level of the annual fine particle standard at 15 µg/m^3. We requested public comment on a range of levels from15 µg/m^3 down to12 µg/m^3.
3. Establishing a new indicator for inhalable coarse particles – $PM_{10\text{-}2.5.}$ Reflecting the available science on PM health effects, the proposed new $PM_{10\text{-}2.5}$ standard would include any ambient mix of $PM_{10\text{-}2.5}$ which is dominated by resuspended dust from high-density traffic on paved roads and PM generated by industrial sources and construction sources, and excludes any ambient mix of $PM_{10\text{-}2.5}$ which is dominated by rural windblown dust and soils and PM generated by agricultural and mining sources. We proposed setting a 24-hour standard for inhalable coarse particles at 70 µg/m^3 (98th percentile). Under the proposed regulations, agricultural sources, mining sources, and other similar sources of crustal materials would not be subject to control in meeting the standard. We further proposed monitoring siting criteria which would determine which monitoring results could be used for comparison with the proposed $PM_{10\text{-}2.5}$ NAAQS. We requested comment on selecting a level down to 50 µg/m^3 (98th percentile) or below and/or selecting an unqualified $PM_{10\text{-}2.5}$ indicator. We also asked for comment on whether we should retain the current 24-hour PM_{10} standard in place of the proposed $PM_{10\text{-}2.5}$ standard or whether we should not establish a coarse PM standard at this time pending the development of a coarse fraction monitoring network and further research on the health effects of coarse particles.

US EPA ARCHIVE DOCUMENT

We also proposed that the secondary standards for both fine and coarse particles be identical to the primary, health-based standards. We requested comment on setting a sub-daily (4 – 8 hour averaging time) $PM_{2.5}$ standard to address visibility impairment, within the range of 20 – 30 µg/m^3 (with a form within the 95th percentile).

Inhalable coarse particles, or $PM_{10-2.5}$, is a subset of the type of PM controlled by existing standards for PM_{10}. Issuance of a standard for $PM_{10-2.5}$ would thus raise the issue of what should happen to the current PM_{10} standards. We proposed that the current annual PM_{10} standards should be revoked in all areas based on our view that the current scientific evidence does not support setting a standard for long-term exposure of inhalable coarse particles. In light of our proposal to adopt a 24-hour primary standard for $PM_{10-2.5,}$ which would address short-term exposure, we proposed to revoke the current 24-hour PM_{10} standard, except in areas that have at least one monitor that is located in an urbanized area with a minimum population of 100,000 people and that has measured a violation of the 24-hour PM_{10} standard based on the most recent three years of data. In essence, we proposed to retain the current 24-hour PM_{10} standard only in areas which could be in violation of the proposed $PM_{10-2.5}$ standard, in light of the proposed monitoring siting criteria.

In a separate rule that is partially tied to the proposal to revise the PM NAAQS, we proposed revisions to the ambient air monitoring requirements for PM and other criteria pollutants. The proposed changes support the proposed revisions to the PM NAAQS, including new minimum monitoring network requirements for inhalable coarse particles ($PM_{10-2.5}$) and criteria for approval of applicable sampling methods. These proposed changes would also establish a new nationwide network of monitoring stations that take an integrated, multi-pollutant approach to ambient air monitoring in support of multiple objectives. The proposed amendments would modify the current requirements for ambient air monitors by focusing requirements on populated areas with air quality problems. The purpose of these proposed changes is to enhance ambient air quality monitoring to better serve current and future air quality management and research needs.

Implementation of the PM NAAQS

The Clean Air Act gives states the lead in implementing NAAQS standards. In the case of any revised PM NAAQS, implementation would be governed by subpart 1 of part D of title I, which provides states with the most flexibility in determining when and how to achieve attainment of the standards.

If the PM NAAQS are revised, EPA will work with states to ensure a smooth transition between current standards and any revised standards so that their control efforts are as cost-effective as possible. As a first step, in conjunction with our December 2005 proposal to revise the NAAQS, EPA issued an advanced notice of proposed rulemaking (ANPR) in January 2006 identifying and seeking comment on a number issues related to the transition between current PM standards and the proposed revisions to fine particle standards and proposed new coarse particle standards. In the ANPR, EPA laid out for both proposed fine and coarse PM standards possible timelines for designations of areas as in attainment or nonattainment of the standards, submittal of State Implementation Plans (SIPs), and attainment dates. As EPA explained in the ANPR, we would likely designate areas as in attainment or nonattainment of any revised fine particle standard no later than December

US EPA ARCHIVE DOCUMENT

2009, and designations would become effective in April 2010. Assuming designations took effect then, states and other implementing agencies would likely have until April 2013 to submit their attainment demonstrations and SIP revisions. For any areas designated as nonattainment for a revised fine PM standard, the initial attainment date would be "as expeditiously as practicable, but no later than five years from the date of designation," or April 2015. Some areas might also qualify for an extension of the attainment deadline by up to five years, or April 2020. Assuming the ANPR timeline were followed, any additional controls needed for attainment would likely phase in between 2013 and 2015 or up to 2020 for areas that qualify for an extension.

As for any transition from a PM_{10} to a $PM_{10\text{-}2.5}$ standard, since the deployment of the necessary monitoring network would take several years, it is likely that nonanttainment designations for any new $PM_{10\text{-}2.5}$ standard would not occur until 2013 at the earliest. Submittal of nonattainment area SIPs would follow in 2016, and attainment dates would be no later than 2018, or 2023 in the case of areas that qualified for the maximum five year extension. In the ANPR, EPA also shared its preliminary thinking about how to address some of the key New Source Review issues related to the proposed coarse PM standard.

We issued the ANPR as a companion piece to the PM NAAQS proposal so that we could give our state, local and tribal partners insight into, and an opportunity to help shape, any transition to revised standards. We believe any actions a state or other jurisdiction takes to meet the 1997 PM NAAQS would be helpful in meeting any revised PM NAAQS. We understand that many states and local governments are concerned about facing another round of designations for a NAAQS. I assure you that we are committed to working through this process with them.

Attaining both the current fine particle standards and any possible revised fine particle standards will involve a combination of national, regional, and local emissions control measures. EPA has already established several national regulations to reduce emissions contributing to fine particle pollution from gasoline and diesel engines. In addition, in May 2005, EPA finalized the Clean Air Interstate Rule, with emissions caps requiring significant reductions in sulfur dioxide (SO2) and nitrogen oxides (NOx) emissions from electric generating units in the Eastern U.S. in 2010 and 2015. Both SO2 and NOx can contribute to particle formation. States are now evaluating a range of local emission reduction strategies to address emissions from additional stationary, mobile, and area sources.

The Administration is committed to working with Congress to pass Clear Skies legislation to improve upon our CAIR and CAMR rulemakings. The President's Clear Skies Act would require a 70 percent annual cut in power plant pollution (NOx, SOx and mercury) nationwide when fully implemented. The legislation would expand the successful "cap and trade" approach used in the Title IV Acid Rain Program, which has obtained significant pollution reductions sooner than expected, achieved nearly full compliance, and did not significantly impact the price of electricity for American consumers and businesses. In similar fashion, Clear Skies would significantly improve air quality, maintain energy diversity, keep electricity prices affordable for Americans, and encourage more reinvestment and new jobs in urban communities. Legislation is preferred over administrative rulemaking because it fends off litigation and delay, and it would allow creation of a nationwide program rather than just a regional one.

US EPA ARCHIVE DOCUMENT

Conclusion

In conclusion, the latest science tells us that current levels of particle pollution in some of the country's largest urban areas continue to threaten public health. The Clean Air Act tells us how to proceed in setting the standards and offers flexibility in how to implement those standards. We are sensitive to the concerns that members of this Committee and others have raised about the challenges in meeting any revised PM NAAQS. We are committed to setting the standards based on science and implementing them based on common sense.

US EPA ARCHIVE DOCUMENT