

Review of the Particulate Matter Standard



Under the Clean Air Act, EPA is required to review the National Ambient Air Quality Standards every five years to ensure that they reflect the latest scientific and medical information. Those standards then become the goal that drives every other key requirement in nationwide effort to clean up the air.

The Current (1997) Standards

In July 1997, after an extensive scientific review, EPA adopted a new standard for fine particulate matter, known as PM_{2.5}. Fine particulate matter is emitted by processes that burn fossil fuels and the 1997 PM standards were the first to target combustion sources of air pollution. The auto, oil, trucking, steel, coal, manufacturing, and electric utility industries staunchly opposed the PM_{2.5} standards. They were joined by a battalion of conservative think tanks who opposed the standards as too costly. Industry attacked the scientific studies underlying the standards as “junk science” and demanded a review of the data. They filed suit to overturn the standards in federal court.

As a result of the controversy, President Clinton directed EPA to immediately initiate the next five-year review of the standards. The Health Effects Institute, an industry-government partnership, was tasked to undertake a million dollar audit and review of the key long-term studies. Congress funded a \$50 million per year research program and directed the National Academy of Sciences to set priorities for research and to evaluate progress. A monitoring network was established to measure fine particle concentrations in cities across the country.

In 2005, EPA and the States designated “nonattainment” areas based on the 1997 standards, the first step in developing clean-up plans.

Scientific Research

Since 1996, over 3,000 new scientific studies have been published on various aspects of particulate matter. The American Cancer Society and Harvard Six City long-term community health studies were extensively audited, replicated, and ultimately reaffirmed: *long-term exposure to particulate pollution shortens lives by a year or more*. The short-term epidemiological studies were also reanalyzed and reviewed by the Health Effects Institute, with little change to the ultimate conclusions: *short-term increases in fine particle pollution are followed by an increase in illness and deaths*.

In March, 2004 the National Research Council of the National Academy of Sciences issued their fourth and final report essentially confirming the serious risk from exposure to fine particles, including the most dangerous risk, premature death.

Legal Challenges

In February, 2001, the Supreme Court issued a unanimous decision confirming that the only basis under law for the standards was the protection of human health.

The American Lung Association, Environmental Defense, the Sierra Club, the Natural Resources Defense Council, and the Clean Air Task Force sued EPA for their failure to comply with the Clean Air Act requirements to complete a review of the science and the standards every five years. A consent decree in 2003 set a schedule, but the schedule was revised in 2004. The current schedule requires EPA to issue a proposed rulemaking for the standards on December 20, 2005, and a final rulemaking on or before September 27, 2006.

Extensive Scientific Review

EPA set up a 22-member PM review panel of the Clean Air Scientific Advisory Committee (CASAC) with representatives from industry and academia to provide advice to the agency on the review of the standards. The CASAC met 17 times over a 7-year period to thoroughly review the key documents. Public comment, including extensive involvement by industry, states, and the public health community was provided at each juncture.

Scientists in EPA's Office of Research and Development developed a document, *Air Quality Criteria for Particulate Matter*—a 2,000-page compilation and evaluation of post-1996 scientific research on the health and welfare effects of particulate matter. This Criteria Document was the most extensively vetted in EPA history. Six drafts of various chapters underwent public comment and peer review before the CASAC signed off on the conclusions: *particulate air pollution causes adverse effects to human health and welfare at levels below the current standards.*

Based on the Criteria Document, staff scientists in EPA's Office of Air Quality Planning and Standards developed a "Staff Paper" and risk assessment that translated the science into terms that can be used for making policy decisions. CASAC and the public reviewed three drafts of the Staff Paper and risk assessment, and provided additional advice on coarse particles following the publication of the final version. The final Staff Paper included recommendations to the EPA Administrator for lowering the current fine particle standards and establishing new standards for coarse particles. The EPA Administrator relies on the scientific assessments in the Criteria Document and on the information and recommendations in the Staff Paper, to propose revisions to the standards.

As a result of the new science, the terms of the debate have shifted. The question is no longer whether to rescind the fine particle standards, or even whether to retain the existing standards. The question is now: how much lower must the standards be to protect public health, including the health of susceptible populations, with an adequate margin of safety.