

July 17, 1997

FACT SHEET

EPA'S REVISED OZONE STANDARD

Today's Action...

- ◆ Today the EPA announces new national ambient air quality standards (NAAQS) for ground-level ozone, the primary constituent of smog. After a lengthy scientific review process, including extensive external scientific review, EPA has determined that these changes are necessary to protect public health and the environment.
- ◆ EPA is phasing out and replacing the previous 1-hour primary ozone standard (health-based) with a new 8-hour standard to protect against longer exposure periods.
- ◆ In establishing the 8-hour standard, EPA is setting the standard at 0.08 parts per million (ppm) and defines the new standard as a "concentration-based" form, specifically the 3-year average of the annual 4th-highest daily maximum 8-hour ozone concentrations.
- ◆ EPA also replaces the previous secondary standard (to protect the environment, including agricultural crops, national parks, and forests) with a standard identical to the new primary standard.
- ◆ The 0.12 ppm 1-hour standard will not be revoked in a given area until that area has achieved 3 consecutive years of air quality data meeting the 1-hour standard. The purpose of retaining the current 1-hour standard is to ensure a smooth, legal, and practical transition to the new standard.

Background

Scientific Assessment Process for National Ambient Air Quality Standards

- ◆ When EPA reviews a national ambient air quality standard, such as ozone, it develops a "criteria document" that represents a compilation and scientific assessment of all the health and welfare information available for that pollutant.
- ◆ EPA also develops a "staff paper" compiled by technical staff to help translate the science into terms that can be used in making policy decisions. It represents staff interpretations of the information in the "criteria document" and it makes recommendations to the EPA Administrator on any revisions needed to the standards to protect public health and welfare.

- ◆ Both the "criteria document" and "staff paper" are part of an extensive scientific assessment process that includes an extremely rigorous scientific peer review and public comment process. Before these documents become the basis for any policy decisions, they undergo repeated, detailed reviews by the scientific community, industry, public interest groups, the general public, and the Clean Air Scientific Advisory Committee -- a Congressionally mandated group of independent scientific and technical experts. As part of its mandate, the Clean Air Scientific Advisory Committee also makes recommendations to EPA on the adequacy of the standards.
- ◆ Based on the scientific assessments and taking into account the recommendations of the Clean Air Scientific Advisory Committee, the EPA Administrator must judge whether it is appropriate to propose revisions to standards.

Scientific Review of the Ozone Standard

- ◆ The ozone standard, when it was last revised in 1979, was set at 0.12 ppm for 1 hour and was expressed as a "1-expected-exceedance" form. Critics have charged that this form of standard could cause areas to "flip-flop" in and out of attainment based on relatively minor ozone exceedances due to variability in meteorological conditions.
- ◆ Since the late 1980's, more than 3,000 new studies have been published on the health and ecological effects of ozone, as well as on ozone monitoring and ambient air quality levels. Many new health studies show that health effects occur at levels lower than the previous standard and that exposure times longer than one hour (reflected in the previous standard) are of concern.
- ◆ EPA completed its last extensive assessment of the scientific information for ozone in May 1989, and reaffirmed the existing standard in March 1993.
- ◆ On February 3, 1994, EPA published in the Federal Register an accelerated schedule outlining the steps it intended to take (issue draft "criteria document," hold meetings of the Clean Air Scientific Advisory Committee, etc.) to ensure a comprehensive assessment of these new studies. The schedule called for EPA to make a final decision on whether to revise the ozone standards by mid-1997.
- ◆ The Clean Air Scientific Advisory Committee reviewed the "criteria document" at meetings in July 1994 and March 1995, and reviewed a final draft in September 1995. Based on comments from the public and the Clean Air Scientific Advisory Committee, EPA revised the "criteria document." In July 1996, EPA completed and made public its final "criteria document."

- ◆ EPA submitted drafts of the "staff paper" at public meetings of the Clean Air Act Scientific Advisory Committee held in March 1995, September 1995, and March 1996. Based on comments from the public and the Clean Air Scientific Advisory Committee, EPA revised the "staff paper." In June 1996, EPA completed and made public its final "staff paper."
- ◆ The Clean Air Scientific Advisory Committee sent closure letters to EPA on both the "criteria document" and "staff paper" concluding that these documents provided an adequate basis for the Administrator to make a decision about revisions to the primary and secondary ozone standards.
- ◆ On June 12, 1996, EPA issued an advanced notice of proposed rulemaking on ozone and particulate matter standards. The Agency announced that the schedule for both reviews was the same, explained the linkages between the two air pollutants, and gave advance notice of key issues. In addition, EPA held public meetings in St. Louis and Philadelphia on the health and environmental effects associated with ozone and particulate matter and on the implementation of possible revised standards.
- ◆ On December 13, 1996, EPA published a proposal to revise the ozone standard. EPA asked for public comment on a proposed standard set at 0.08 ppm, based on the 3-year average of the annual 3rd-highest daily maximum 8-hour ozone concentrations. The Agency also solicited comments on alternative standards at the 0.07 and 0.09 ppm levels and on alternative concentration-based forms.
- ◆ In January 1997, EPA held public hearings on the proposed standards in Salt Lake City, Chicago, Boston and Durham, NC.
- ◆ In addition to traditional methods of soliciting public comment, EPA set up email addresses and toll-free phone number to encourage extensive public participation and input into the process. EPA received more than 50,000 comments on the ozone standards.
- ◆ The Agency carefully reviewed and analyzed these comments before reaching its final decision on the standards.

What are the Ozone Effects of Concern?

- ◆ Based on recent studies, the scientific review highlighted several health effects for which the previous ozone standard did not provide adequate protection.
 - ◆ Exposure to ambient ozone concentrations has been linked to increased hospital admissions for respiratory ailments, such as asthma. Studies conducted in the northeastern United States and Canada show that ozone air pollution is associated with 10-20 percent of all of the summertime

respiratory-related hospital admissions. Repeated exposure to ozone can make people more susceptible to respiratory infection and lung inflammation, and can aggravate preexisting respiratory diseases, such as asthma.

- ◆ Children are most at risk from exposure to ozone because they are active outside, playing and exercising, during the summertime when ozone levels are at their highest. For example, summer camp studies in the eastern U.S. and southeastern Canada have reported significant reductions in lung function in children active outdoors. Adults who are outdoors and moderately active during the summer months, such as construction workers and other outdoor workers, are also among those most at risk. These individuals, as well as those with respiratory illnesses, such as asthma, can experience a reduction in lung function and increased respiratory symptoms, such as chest pain and cough, when exposed to relatively low ozone levels during periods of moderate exertion.
- ◆ Long-term exposures to ozone can cause repeated inflammation of the lung, impairment of lung defense mechanisms, and irreversible changes in lung structure, which could lead to premature aging of the lungs and/or chronic respiratory illnesses such as emphysema and chronic bronchitis.
- ◆ The scientific review also highlighted concerns associated with ozone effects on vegetation for which the previous ozone standard did not provide adequate protection. These include reduction in agricultural and commercial forest yields, reduced growth and decreased survivability of tree seedlings, increased tree and plant susceptibility to disease, pests, and other environmental stresses, and potential long-term effects on forests and ecosystems.

Summary of the Final Rule

Primary Standard

- ◆ EPA concluded that the 1-hour primary standard did not adequately protect the public from adverse health effects. Therefore, EPA replaces the previous standard with an 8-hour standard set at 0.08 ppm; an area will attain the standard when the 3-year average of the annual 4th-highest daily maximum 8-hour concentrations is less than or equal to 0.08 ppm.
- ◆ As the Clean Air Scientific Advisory Committee unanimously recommended, EPA is changing the ozone standard averaging time to 8-hours. Although 1- to 3-hour and 6- to 8-hour ozone exposures can be addressed through 1-hour or 8-hour standards, the 8-hour standard is more directly associated with the health effects of most concern cited in recent 6- to 8-hour exposure studies. These

studies were conducted at more typical exercise levels and at lower exposure levels (0.08 ppm) than the 1-hour studies.

- ◆ EPA is changing the form of the standard from an expected-exceedance form to a concentration-based form because it more directly relates to ozone concentrations associated with health effects; it avoids exceedances, regardless of size, from being counted equally in the attainment tests.
- ◆ In November 1996, EPA proposed that the annual 3rd-highest daily maximum 8-hour concentrations, averaged over 3 years, be the basis to determine whether or not an area was in attainment with the standards. After carefully examining public comment on the issue, EPA changed the form of the standard from the annual 3rd- to 4th- highest daily maximum concentration. This form will provide greater stability in the designation of areas, consistent with providing strong public health protections.
- ◆ In setting the 8-hour standard at 0.08 ppm, the EPA recognizes that since there is no discernible threshold below which no adverse health effects occur, no level would eliminate all risk. Thus, a zero-risk standard is not possible, nor is it required by the Clean Air Act. The selected 0.08 ppm level is based on the judgment that at this level public health will be protected with an adequate margin of safety.
- ◆ The new 8-hour standard will become effective 60 days after promulgation, while the existing 1-hour standard, for most purposes, will remain in effect until EPA determines that an area has air quality meeting the 1-hour standard.
- ◆ EPA will continue to use conventional rounding when assessing monitoring data.

Secondary Standard

- ◆ EPA believes attainment of the new primary standard will substantially protect vegetation. Therefore, EPA is setting the secondary standard identical to the primary standard. Although the Agency is not setting a separate seasonal secondary standard at this time, the Agency is committed to enhancing rural ozone monitoring, working in conjunction with other federal agencies, and considering long-term cumulative effects of ozone on plants as additional information becomes available.

For more information...

- ◆ Anyone with a computer and a modem can download the new standard and this fact sheet from the Clean Air Act Amendments bulletin board of EPA's electronic Technology Transfer Network (TTN) by calling (919) 541-5742 (look under "Recently Signed Rules"). For further information about how to access the board, call (919) 541-5384. The TTN can also be accessed through EPA's homepage on the Internet. The address is: <http://ttnwww.rtpnc.epa.gov>

- ◆ For technical questions about this rule, contact Dr. David McKee at EPA's Office of Air Quality Planning and Standards at (919) 541-5288.