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I. Background

A. 1997 Revision of the O₃ NAAQS

On July 18, 1997, in accordance with sections 108 and 109 of the Act, EPA completed its review of the NAAQS for O₃ by promulgating revised primary and secondary standards (1997 final rule). These standards were based on EPA's review of the available scientific evidence linking direct exposures to ambient O₃ to adverse health and welfare effects at levels allowed by the then current O₃ standards. The revised

primary and secondary standards were each set at a level of 0.08 ppm, with an 8-hour averaging time and a form based on the 3-year average of the annual fourth-highest daily maximum 8-hour average O₃ concentrations measured at each monitor within an area.¹ The new primary standard was established to provide increased protection to the public, especially children and other at-risk populations, against a wide range of O₃-induced respiratory health effects due to inhalation exposures, including decreased lung function, primarily in children active outdoors; increased respiratory symptoms, particularly in highly sensitive individuals; hospital admissions and emergency room visits for respiratory causes, among children and adults with pre-existing respiratory disease such as asthma; inflammation of the lung; and possible long-term damage to the lungs. The new secondary standard was established to provide increased protection to the public welfare against direct O₃-induced effects on vegetation, such as agricultural crop loss, damage to forests and ecosystems, and visible foliar injury to sensitive species.

1. Legislative Requirements

Two sections of the Act govern the establishment, review, and revision of NAAQS. Section 108 (42 U.S.C. 7408) directs the Administrator to identify certain pollutants which "may reasonably be anticipated to endanger public health or welfare" and to issue air quality criteria for them. These air quality criteria are to "accurately reflect the latest scientific knowledge useful in indicating the kind and extent of all identifiable effects on public health or welfare which may be expected from the presence of [a] pollutant in the ambient air * * *."

Section 109 (42 U.S.C. 7409) directs the Administrator to propose and promulgate "primary" and "secondary" NAAQS for pollutants identified under section 108. Section 109(b)(1) defines a primary standard as one "the attainment and maintenance of which, in the judgment of the Administrator, based on [the] criteria and allowing an adequate margin of safety, are requisite to protect the public health." A secondary standard, as defined in section 109(b)(2), must "specify a level of air quality the attainment and maintenance of which in the judgment of the Administrator, based on [the] criteria, [are] requisite to protect the public welfare from any known or anticipated

adverse effects associated with the presence of [the] pollutant in the ambient air." ²

Section 109(d)(1) of the Act requires periodic review and, if appropriate, revision of existing air quality criteria and NAAQS. Section 109(d)(2) requires appointment of an independent scientific review committee to review criteria and standards and recommend new standards or revisions of existing criteria and standards, as appropriate. The committee established under section 109(d)(2) is known as the Clean Air Scientific Advisory Committee (CASAC), a standing committee of EPA's Science Advisory Board.

2. Review of Air Quality Criteria and Standards for O₃

An overview of the last review of the O₃ air quality criteria and standards is presented in section I.C of the preamble to the 1997 final rule. In summary, the 1997 review was initiated in August 1992 with the development of a revised Air Quality Criteria Document for Ozone and Other Photochemical Oxidants (henceforth, the "Criteria Document"). Multiple drafts of the Criteria Document were reviewed by CASAC and the public, resulting in a final Criteria Document (U.S. EPA, 1996a) that reflected CASAC and public comments.³ The EPA also prepared a staff paper, Review of National Ambient Air Quality Standards for Ozone: Assessment of Scientific and Technical Information (henceforth, the "Staff Paper").⁴ Multiple drafts of the Staff Paper were also reviewed by CASAC and the public, resulting in a final Staff Paper (U.S. EPA, 1996b) that reflected CASAC and public comments.⁵

On November 27, 1996 EPA announced its proposed decision to

² Welfare effects as defined in section 302(h) (42 U.S.C. 7602(h)) include, but are not limited to, "effects on soils, water, crops, vegetation, man-made materials, animals, wildlife, weather, visibility, and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being."

³ In a November 28, 1995 letter from the CASAC chair to the Administrator, CASAC advised that the final draft Criteria Document "provides an adequate review of the available scientific data and relevant studies of ozone and related photochemical oxidants" (Wolff, 1995a).

⁴ The Staff Paper evaluates policy implications of the key studies and scientific information in the Criteria Document, identifies critical elements that EPA staff believes should be considered, and presents staff conclusions and recommendations of suggested options for the Administrator's consideration.

⁵ In separate letters from the CASAC chair to the Administrator, CASAC advised that the primary standard and secondary standard sections of the final draft Staff Paper provide "an adequate scientific basis for making regulatory decisions" concerning the O₃ standards (Wolff, 1995b, 1996).

¹ The form of a standard refers to the air quality statistic that is used to determine whether an area attains the standard.