

levels that would otherwise occur in the absence of man-made pollution. The relationship between ground-level O<sub>3</sub> and UV-B radiation, as well as the health effects associated with exposure to UV-B radiation and consideration of the UV-B radiation-related health risks associated with changes in ground-level O<sub>3</sub> are discussed in section II.B below. In response to the remand on the health benefits issue, EPA's assessment of the net adverse health effects of ground-level O<sub>3</sub> is discussed in section II.C below, as a basis for today's decision on the primary O<sub>3</sub> NAAQS, summarized in section II.D below.

#### *D. Related Stratospheric O<sub>3</sub> Program*

In the 1970s, scientists first grew concerned that certain chemicals could damage the earth's protective stratospheric O<sub>3</sub> layer, and these concerns were validated by the discovery of thinning of the O<sub>3</sub> layer over Antarctica in the southern hemisphere. Because of the risks posed by stratospheric O<sub>3</sub> depletion and the global nature of the problem, leaders from many countries decided to work together to craft a workable solution. Since 1987, over 175 nations have signed a landmark environmental treaty, the Montreal Protocol on Substances that Deplete the Ozone Layer. The Protocol's chief aim is to reduce and eventually eliminate the production and use of man-made O<sub>3</sub> depleting substances, such as CFCs. By agreeing to the terms of the Montreal Protocol, signatory nations ratifying the Protocol—including the United States—commit to take actions to protect the stratospheric O<sub>3</sub> layer and to reverse the damage due to the use of O<sub>3</sub> depleting substances.

In 1990, Congress amended the Act by adding title VI (sections 601–618) to address the issue of stratospheric O<sub>3</sub> depletion.<sup>12</sup> Most importantly, the amended Act required the gradual end to the production of certain chemicals that deplete the O<sub>3</sub> layer.<sup>13</sup> In addition, the Act requires EPA to develop and implement regulations for the responsible management of O<sub>3</sub> depleting substances in the United States. The EPA has developed several regulatory programs under these authorities that include: ending the production and

import of O<sub>3</sub> depleting substances (57 FR 33754, July 30, 1992) and identifying safe and effective alternatives (59 FR 13044, March 18, 1994), ensuring that refrigerants and halon fire extinguishing agents are recycled properly (58 FR 28660, May 14, 1993), banning the release of O<sub>3</sub> depleting refrigerants during the service, maintenance, and disposal of air conditioners and other refrigeration equipment (60 FR 40420, August 8, 1995), and requiring that manufacturers label products either containing or made with the most harmful O<sub>3</sub> depleting substances (58 FR 8136, February 11, 1993). Because of their relatively high O<sub>3</sub> depletion potential, several man-made compounds, including CFCs, carbon tetrachloride, methyl chloroform, and halons were targeted first for phaseout. The EPA continues to develop additional regulations for the protection of public health and the environment from effects associated with the depletion of the stratospheric O<sub>3</sub> layer.

Besides implementing and enforcing stratospheric O<sub>3</sub> protection regulations in the U.S., EPA continues to work with other U.S. government agencies and international governments to pursue ongoing changes to the Montreal Protocol and other treaties. These refinements to the Protocol and other treaties are based on ongoing scientific assessments of O<sub>3</sub> depletion that are coordinated by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO), with cooperation from EPA and other agencies around the globe (UNEP, 1998; and WMO, 1998).

In addition to these regulatory and scientific activities, EPA maintains several education and outreach projects to help protect the American public from the health effects of overexposure to ultraviolet (UV) radiation. Chief among these projects is the UV Index, a tool that provides a daily forecast of the next day's likely UV levels across the United States.<sup>14</sup> The UV Index, which EPA launched in partnership with the National Weather Service, serves as the cornerstone of EPA's SunWise School Program, the goal of which is to educate young children and their caregivers about the health effects of overexposure to the sun, as well as simple steps that people can take to avoid overexposure.<sup>15</sup>

<sup>14</sup> Information about the UV Index is available from the EPA Stratospheric Ozone Hotline at (800) 296-1996 or at <http://www.epa.gov/sunwise/uvindex.html>.

<sup>15</sup> Information about EPA's SunWise School Program is available at <http://www.epa.gov/sunwise/>.

#### *E. Summary of Proposed Response to Remand*

On November 14, 2001, EPA proposed a response to the D.C. Circuit remand (66 FR 52768; henceforth, "proposed response") to consider any potential beneficial effects of ground-level O<sub>3</sub> in shielding the public from potentially harmful, but naturally occurring, UV-B radiation from the sun. *ATA I*, 175 F.3d at 1051–53. Based on its review of the air quality criteria and NAAQS for O<sub>3</sub> completed in 1997, and its additional assessment of potential beneficial effects of ground-level O<sub>3</sub>, EPA provisionally determined that the information linking (a) Changes in patterns of ground-level O<sub>3</sub> concentrations likely to occur as a result of programs implemented to attain the 1997 O<sub>3</sub> NAAQS to (b) changes in relevant patterns of exposure to UV-B radiation of concern to public health is too uncertain at this time to warrant any relaxation in the level of public health protection previously determined to be requisite to protect against the demonstrated adverse respiratory effects of direct inhalation exposure to O<sub>3</sub> in the ambient air.<sup>16</sup> Further, the proposed response presented the Agency's view that even when using plausible but highly uncertain assumptions about likely changes in patterns of ground-level O<sub>3</sub> concentrations, associated changes in UV-B radiation exposures of concern would likely be very small from a public health perspective. Thus, EPA proposed not to change the O<sub>3</sub> NAAQS set in 1997 at a level of 0.08 ppm, with a form based on the 3-year average of the annual fourth-highest daily maximum 8-hour average O<sub>3</sub> concentrations measured at each monitor within an area.

The proposed response solicited public comments on EPA's proposed decision not to change the 1997 O<sub>3</sub> NAAQS, and on various specific aspects of EPA's review and rationale. The EPA received ten comments on the proposed response from industry, public interest groups, and local and State governments. Significant comments are addressed throughout section II below and more fully in a separate Response to Comments (U.S. EPA, 2002).

## **II. Rationale for Final Response To Remand on the Primary O<sub>3</sub> Standard**

Today's action presents the Administrator's final response to the remand, in which the Court directed EPA to determine ozone's net adverse effect on public health and not

<sup>16</sup> The D.C. Circuit upheld EPA's determination that the 1997 O<sub>3</sub> NAAQS was requisite to protect against demonstrated adverse respiratory effects in *ATA III*.

<sup>12</sup> Title VI replaced the provisions regarding stratospheric O<sub>3</sub> depletion enacted in 1977. 42 U.S.C. 7671.

<sup>13</sup> Both the Act and the Montreal Protocol, however, provide for limited "essential use exemptions" for the continued production and import of very small quantities of CFCs and other O<sub>3</sub> depleting substances needed for certain essential uses, for example, for metered dose inhalers used by people with asthma and other respiratory diseases.