Children's Health Protection Advisory Committee

4 September 2007

Stephen L. Johnson, Administrator
United States Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

RE: Proposed NAAQS for Ozone

Dear Administrator Johnson:

The Children's Health Protection Advisory committee (CHPAC) appreciates the opportunity to provide comments to you on the EPA's proposed revisions to the National Ambient Air Quality Standard (NAAQS) for 8-hour exposure to ozone. We commend you for publicly declaring that the current ozone standard of 0.08 ppm is not sufficient to protect public health, and for specifying the proposed standard to three significant digits, instead of the current two (Federal Register Vol. 72, No. 132, July 11, 2007). We believe, however, that the proposed range (0.070-0.074 ppm) does not adequately protect the 73.7 million children in the U.S. (America's Children: Key National Indicators of Well-being, 2007) from ozone-related harm.

As pediatricians, public health and environmental professionals drawn from academia, government, industry and public interest organizations, we would like to again express our unanimous opinion that the 8 hour ozone standard should be set at the lowest level offered by the Clean Air Scientific Advisory Committee (CASAC), 0.060 ppm, in order to adequately protect the health of children with an appropriate margin of safety (CHPAC letter, March 23, 2007). This opinion is based on the existing scientific studies of children, which demonstrate serious adverse health effects of ozone exposure, including exacerbation of asthma with attendant increases in medication use, hospitalization, and missed school days, and impairment of normal lung development. It is also based on consideration of the evidence that disruption of lung development may result in permanent health consequences in children exposed to ozone.

Nearly nine percent (6.5 million) of our nation's children are currently diagnosed with asthma, and in 2004, children were hospitalized 198,000 times, missed an estimated 12.8 million days of school, and 186 children died from asthma (CDC FASTTATS; http://www.cdc.gov/nchs/data/ad/ad381.pdf). Animal evidence showing that ozone disrupts normal lung function and structure in a way that predisposes to asthma (Plopper et al., 2007) lends further biological plausibility to the studies showing causation of asthma and disrupted lung function in children. With such a high proportion of the nation's children in a sensitive state due to asthma, the need to choose a standard that protects public health with an adequate margin of safety is heightened. We believe that a standard in the proposed range of 0.070 to 0.074 does not provide an adequate margin of safety. Furthermore, only the lowest value (0.070 ppm) is a part of CASAC's recommended range. We would like to present further justification for our original recommendation to choose the lowest value of the CASAC's recommended range (0.060 ppm).

Children are especially susceptible to ozone exposures because they have higher levels of physical activity, higher ventilation rates, and more frequent outdoor activities on average than adults in the same setting. Furthermore, the lungs undergo extensive development during childhood and adolescence, making children especially vulnerable to permanent alteration in lung function and chronic lung disease later in life if their normal development is disturbed. Epidemiological studies have shown that exposure to levels of ozone below the current standard during this critical period is associated with adverse respiratory effects, including impairment of lung development (Tager et al, 2005; Kunzli et al., 1999; Galizia and Kinney, 1999), and asthma exacerbation (Tolbert et al,. 2000; Gent et al. 2003).

Several studies also demonstrate significant adverse effects occurring in children below the range of values proposed by the agency. The incidence of new asthma diagnoses among active children was associated with daytime average ozone levels from 0.056 to 0.069 ppm (McConnell, 2002,). Infants had higher incidence of disordered breathing associated with ozone in a study with a mean 8-hour ozone exposure of 0.055 ppm (Triche et al., 2006). Moreover, in adults exposed to ozone levels below the current standard and the proposed range for the revised standard, there is evidence of serious health effects, including premature mortality (Bell et al., 2005, 2006; Levy et al., 2005).

We are concerned that, in determining the range of the proposed standard, too much emphasis has been placed on the chamber studies, including the Adams study indicating effects in a subset of healthy adults at levels of 0.060 ppm (Adams, 2006), and not enough on the epidemiology studies. Chamber studies do not provide adequate insight into critical responses to low level ozone exposures among children and other vulnerable subgroups. While such studies have the ability to more tightly control exposure, they do not measure the effects of chronic exposures, and they are limited by small sample size and the inability to include vulnerable subpopulations, including infants and moderately to severely asthmatic children, as subjects. Thus, over-reliance on chamber studies may mean the standard does not reflect the dose-response

characteristics of chronic effects nor the most sensitive subpopulations, and may therefore be set too high.

While recognizing that achieving full compliance with a tighter standard may be challenging for some geographical areas, we fully support your stated commitment to consider implementation issues separately from the setting of this standard, which is to be based solely on the merits of the health science. It is especially important, in tightening ozone standards, that EPA make an effort to help states and localities achieve compliance, and we urge the Agency to consider new national controls and programs that would result in the reduction of ozone precursors.

In conclusion, considering the documented serious effects of ozone on children's health, the committee unanimously recommends that the Administrator lower the 8-hour ozone standard to 0.060 ppm. We thank you in advance for considering our recommendations, and would be happy to discuss these comments with you or your staff.

Sincerely,

Melanie A. Marty, Ph.D., Chair
Children's Health Protection Advisory Committee

Cc:

William Wehrum, Designated Assistant Administrator, U.S. EPA Office of Air and Radiation
Steven Page, Director, U.S. EPA Office of Air Quality Planning and Standards
Lydia Wegman, Director, U.S. EPA Office of Air Quality Planning and Standards, Health and Environmental Impacts Division
William H. Sanders, III, Dr.P.H., Acting Director, Office of Children's Health Protection and Environmental Information

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