UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460

OFFICE OF THE ADMINISTRATOR
SCIENCE ADVISORY BOARD

September 29, 2006

EPA-CASAC-LTR-06-003

Honorable Stephen L. Johnson
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Subject: Clean Air Scientific Advisory Committee Recommendations Concerning the Final National Ambient Air Quality Standards for Particulate Matter

Dear Administrator Johnson:

We, the seven members of the Clean Air Scientific Advisory Committee (CASAC or Committee), are writing to express our serious scientific concerns regarding the public health and welfare implications of EPA's final primary (health effects) and secondary (welfare effects) National Ambient Air Quality Standards (NAAQS) for airborne particulate matter (PM). As you know, the CASAC is mandated by the Clean Air Act to provide scientific advice on the setting of these standards that are intended to protect both public health and public welfare, and in the case of the protection of public health, to do so with "an adequate margin of safety." The Committee has conscientiously fulfilled its duty in providing our best scientific advice and recommendations to the Agency. Regrettably, however, EPA's final rule on the NAAQS for PM does not reflect several important aspects of the CASAC's advice.

In its letter dated June 6, 2005, the CASAC recommended that the 24-hour standard for $PM_{2.5}$ be decreased from 65 micrograms per cubic meter ($\mu g/m^3$) to 30–35 $\mu g/m^3$. We are pleased with the Agency's decision in the final PM NAAQS rule to decrease the daily primary $PM_{2.5}$ standard to a level consistent with the CASAC's recommendation (35 $\mu g/m^3$), as this decrease will provide additional health protection in some cities. In addition, we recommended a decrease in the annual primary $PM_{2.5}$ standard from 15 $\mu g/m^3$ to 13–14 $\mu g/m^3$. However, the CASAC is concerned that EPA did not accept our finding that the annual $PM_{2.5}$ standard was not protective of human health and did not follow our recommendation for a change in that standard.

The CASAC recommended changes in the annual fine-particle standard because *there is clear and convincing scientific evidence that significant adverse human-health effects occur in response to short-term and chronic particulate matter exposures at and below 15 $\mu g/m^3$, the level of the current annual $PM_{2.5}$ standard.* The CASAC affirmed this recommended reduction in the annual fine-particle standard in our letter dated March 21, 2006 concerning the proposed rule for the PM NAAQS, in which 20 of the 22 members of the CASAC's Particulate Matter

Review Panel — including all seven members of the chartered (statutory) Committee — were in complete agreement. While there is uncertainty associated with the risk assessment for the $PM_{2.5}$ standard, this very uncertainty suggests a need for a prudent approach to providing an adequate margin of safety. *It is the CASAC's consensus scientific opinion that the decision to retain without change the annual $PM_{2.5}$ standard does not provide an "adequate margin of safety … requisite to protect the public health" (as required by the Clean Air Act), leaving parts of the population of this country at significant risk of adverse health effects from exposure to fine PM.*

Significantly, we wish to point out that the CASAC's recommendations were consistent with the mainstream scientific advice that EPA received from virtually every major medical association and public health organization that provided their input to the Agency, including the American Medical Association, the American Thoracic Society, the American Lung Association, the American Academy of Pediatrics, the American College of Cardiology, the American Heart Association, the American Cancer Society, the American Public Health Association, and the National Association of Local Boards of Health. *Indeed, to our knowledge there is* no *science, medical or public health group that disagrees with this very important aspect of the CASAC's recommendations.* EPA's recent "expert elicitation" study (*Expanded Expert Judgment Assessment of the Concentration-Response Relationship Between $PM_{2.5}$ Exposure and Mortality,* September 21, 2006) only lends additional support to our conclusions concerning the adverse human health effects of $PM_{2.5}$.

Furthermore, the CASAC was completely surprised at the decision in the final PM NAAQS to revert to the use of PM_{10} as the indicator for coarse particles. In our September 15, 2005 letter, the CASAC recommended a new indicator of $PM_{10-2.5}$, which EPA put forward in its proposed rule for the PM NAAQS. The option of retaining the existing daily PM_{10} standard of 150 $\mu g/m^3$ was not discussed during the advisory process, and in fact the CASAC views this as highly-problematic since PM_{10} includes both fine and coarse particulate matter. The Committee acknowledges the need for the Agency to increase its understanding of the health risks of coarse particles and is concerned that ongoing dependence on PM_{10} sampling as an imprecise measure of coarse particulate matter will provide inadequate information on coarse PM concentrations, compositions and exposures in both urban and rural areas. However, the CASAC agrees that having a standard for PM_{10} is better than no standard at all for coarse particles, and was pleased with the Agency's decision against offering exemptions to specific industries (*i.e.*, agricultural, mining) in its regulation of coarse particles.

With respect to the secondary PM standard, the decision was made "to revise the current PM secondary standards by making them identical in all respects to the revised suite of primary PM standards." In our June 6, 2005 letter, the CASAC affirmed the recommendation of Agency staff regarding a separate secondary fine particle standard to protect visibility. This sub-daily secondary $PM_{2.5}$ standard is a better indicator of visibility impairment than the 24-hour primary standard. The CASAC wishes to emphasize that continuing to rely on primary standards to protect against all PM-related adverse environmental and welfare effects assures neglect, and will allow substantial continued degradation, of visual air quality over large areas of the country.

In summary, the Agency has rejected the CASAC's expert scientific advice with regard to lowering the level of the annual primary fine particle ($PM_{2.5}$) standard and establishing a new

coarse particle ($PM_{10-2.5}$) standard — both of which are consistent with the recommendations of the nationally-recognized science, medical and public health groups such as those cited above — and, in addition, EPA has not followed our advice in setting a separate secondary $PM_{2.5}$ standard. We note that, since the CASAC's inception in the late 1970s, the Agency has always accepted the Committee's scientific advice with regard to final NAAQS decisions. In view of this, we question whether you have appropriately given full consideration to CASAC's expert scientific advice — obtained through open, public processes — in your final decisions on the PM NAAQS.

The CASAC shares a common goal with EPA to protect the public health and welfare. We earnestly hope that the Agency's future consideration of the CASAC's scientific advice with respect to standard-setting for the criteria air pollutants will prove more fruitful in achieving that very important goal.

Sincerely,

/Signed/

Rogene Henderson, Ph.D.
Chair, Clean Air Scientific Advisory Committee
Scientist Emeritus
Lovelace Respiratory Research Institute
Albuquerque, NM

/Signed/

Mr. Richard L. Poirot
Environmental Analyst
Vermont Agency of Natural Resources
Waterbury, VT

/Signed/

Ellis Cowling, Ph.D.
University Distinguished Professor At-Large
North Carolina State University
Raleigh, NC

/Signed/

Frank Speizer, M.D.
Edward Kass Professor of Medicine
Channing Laboratory
Harvard Medical School
Boston, MA

/Signed/

James D. Crapo, M.D.
Professor, Department of Medicine
National Jewish Medical and Research Center
Denver, CO

/Signed/

Barbara Zielinska, Ph.D.
Research Professor
Desert Research Institute
Reno, NV

/Signed/

Frederick J. Miller, Ph.D.
Cary, NC
Consultant