

**Summary Minutes of the
U.S. Environmental Protection Agency
Advisory Council on Clean Air Compliance Analysis
Public Meeting
May 8, 2008
SAB Conference Center
1025 F Street, NW, Washington, D.C. 20004**

Committee Members: Dr. James K. Hammitt, Chair
Dr. David Allen
Dr. Dallas Burtraw
Dr. Shelby Gerking
Dr. Fintan Hurley
Dr. Wayne Gray
Dr. F. Reed Johnson
Dr. Michael Kleinman
Dr. Rebecca Parkin
Dr. David Popp
Dr. Kathy Kiel
Dr. Virginia McConnell
Dr. Chris Walcek
Dr. Aaron Cohen, Invited Expert
Dr. John Evans, Invited Expert
Dr. H. Christopher Frey, Invited Expert
Dr. Ronald Wyzga, Invited Expert

Date and Time: May 8, 2008, 8:30 am – 5:00 pm Eastern time

Purpose: The Council discussed the interpretation and application of the Particulate Matter- Mortality Expert Elicitations results, as shown in the benefits assessment for fine particles (PM_{2.5}) standard promulgated in 2006 by EPA.

SAB Staff: Dr. Holly Stallworth, Designated Federal Officer

Other EPA Staff: Jim Democker, Lisa Conner, Bryan Hubbell, Harvey Richmond, Amy Lamson, Brian Heninger

Other: Jim Newmann, Industrial Economics
Henry Roman, Industrial Economics
Deborah Shprentz, American Lung Association
Aaron Lovell, IWP

THURSDAY, MAY 8, 2008

Meeting Summary

The discussion followed the issues and general timing as presented in the meeting agenda (posted at <http://yosemite.epa.gov/sab/sabproduct.nsf/MeetingCal/ABC3904D8E9E512E852573FA006014AC?OpenDocument>).

Dr. Holly Stallworth, Designated Federal Officer (DFO), opened the meeting with a statement that the Advisory Council on Clean Air Compliance Analysis is a federal advisory committee whose meetings and deliberations meet the requirements of the Federal Advisory Committee Act.

Dr. Hammitt reviewed the agenda and discussed the purpose of the meeting, then turned the floor over to Mr. Harvey Richmond of EPA's Office of Air Quality Planning and Standards (OAQPS). Mr. Richmond was the first of three OAQPS speakers who presented slides shown in "Characterizing the Uncertainty in Estimated Benefits of Reduced PM-Mortality using Expert Elicitation" posted at <http://yosemite.epa.gov/sab/sabproduct.nsf/MeetingCal/ABC3904D8E9E512E852573FA006014AC?OpenDocument>. Mr. Richmond described the background on expert elicitation at EPA and the elements of an elicitation.

Ms. Lisa Conner of OAQPS then described the process for selecting experts, the elicitation question, the factors discussed with the experts, the discussion with the experts of long-term and short-term effects, and the experts' views on factors that contribute to uncertainty. Ms. Conner's presentation may be found in slides 7 – 17 at the above URL.

Dr. Bryan Hubbell of OAQPS then summarized the experts' use of various studies on PM and mortality, listing the studies cited by the experts and the frequency with which they were cited. Dr. Hubbell described the results of the elicitation, specifically the concentration – response function between particulate matter and mortality for each expert. Dr. Hubbell emphasized the requirements for experts to specify both a functional form for the mortality impact per unit change in annual average PM_{2.5} as well as an uncertainty distribution ranging from the 5th to the 95th percentile for the slope of that function. Dr. Hubbell described how the results of the elicitation were applied to the benefits assessment using BenMAP software. The experts' judgments were translated into a continuous log-linear function, a piecewise log-linear function and, for Expert K, a piecewise log-linear function with probabilistic thresholds. Dr. Hubbell then presented the probability distributions that the experts gave for their effect estimates and discussed how the experts' views on causality (whether they believed the observed relationship was conditioned on an assumption of causality) were incorporated. Dr. Hubbell contrasted the experts' mortality impact functions with those derived from the epidemiology literature and

showed a plot of cumulative probability functions for health and welfare benefits for each expert contrasted with two prior studies. Dr. Hubbell showed a series of tables presented in the Executive Summary to the regulatory impact analysis for the 2006 PM_{2.5} standard. Finally, Dr. Hubbell showed various options for presenting the results that were not used in EPA's regulatory impact analysis.

Throughout the morning, Council members asked questions of various OAQPS speakers and discussed issues related to the benefits assessment. Council members had questions about the pre-elicitation workshop, the criteria used for selecting experts, the possibilities of anchoring bias and expert over-confidence, the need to pass the clairvoyance test and confounding effects. In discussing how the elicitation results should be presented, one panelist expressed a strong preference for slide 51 as the best summary of results. It was generally agreed that the need to combine results depends upon the extent of agreement among the experts. Where there is a strong consensus, it is less important to show individual results. One member noted that if EPA's goal is to show the range of opinion and the extent of uncertainty, then it made sense to use individual results. But if EPA's goal is to show the general consensus, then it made sense to combine results. Members discussed the advantages and disadvantages of the algorithms for combining results shown in slide 59. One panelist stressed that experts were needed who could both provide coefficients as well as translate their judgment into probability statements. Another panelist stressed the need to emphasize that uncertainty is only about the magnitude of net benefits, not whether benefits were positive or negative. Panelists returned to the discussion of the criteria for nominations and the possible influence of the views of the nominators.

For the remainder of the day, the Council discussed their responses to the charge questions. The discussion of charge questions generally covered the issues captured in the preliminary individual comments (posted at <http://yosemite.epa.gov/sab/sabproduct.nsf/MeetingCal/ABC3904D8E9E512E852573FA006014AC?OpenDocument>) and thus will not be repeated here. Not found in the individual comments, however, was the Council's concern about the striking differences between the benefits assessment (found in Chapter 5 of the regulatory impact analysis) and the Executive Summary and Press Release for the 2006 PM standard. Members noted that the Executive Summary and Press Release emphasized the differences among experts as well as the 5th and 95th percentiles in the face of a strong consensus on central tendency. One member said the Executive Summary and Press Release should stress that the differences among experts was limited to the magnitude of the effect of PM on mortality, not whether such an effect existed.

The Council Chair asked each group of members assigned to a charge question (as shown on the agenda) to provide a single synthesized draft to the DFO by May 15.

Respectfully Submitted:

/Signed/ Holly Stallworth
Designated Federal Officer

Certified as True:

/Signed/ James K. Hammitt

Chair

NOTE AND DISCLAIMER: The minutes of this public meeting reflect diverse ideas and suggestions offered by Committee member during the course of deliberations within the meeting. Such ideas, suggestions and deliberations do not necessarily reflect consensus advice from the panel members. The reader is cautioned to not rely on the minutes to represent final, approved, consensus advice and recommendations offered to the Agency. Such advice and recommendations may be found in the final advisories, commentaries, letters or reports prepared and transmitted to the EPA Administrator following the public meetings.