

Summary Minutes of the
Clean Air Scientific Advisory Committee
Particulate Matter Review Panel
Public Meeting
Carolina Inn, Chapel Hill, North Carolina
April 1 - 2, 2009

Committee Members: Dr. Jonathan Samet, Chair
Dr. Lowell Ashbaugh
Professor Ed Avol
Dr. Joseph Brain
Dr. Wayne Cascio
Dr. Ellis Cowling
Dr. Douglas Crawford-Brown (by phone)
Dr. James Crapo
Dr. Christopher Frey
Dr. David Grantz
Dr. Joseph Helble
Dr. Philip Hopke
Dr. Rogene Henderson
Dr. Donna Kenski
Dr. Helen Suh
Dr. William Malm
Dr. Tom Moore
Dr. Robert Phalen
Dr. Kent Pinkerton
Mr. Richard Poirot
Dr. Ted Russell
Dr. Frank Speizer
Dr. Sverre Vedal (by phone)

Date and Time: April 1, 2009: 8:30 am – 4:30 pm
April 2, 2009: 8:00 am – 2:00 pm

Purpose: The Clean Air Scientific Committee Review Panel (CASAC) reviewed the *Integrated Science Assessment for Particulate Matter* (ISA, First External Review Draft, December 2008) and consulted on two planning documents: *Particulate Matter National Ambient Air Quality Standards: Scope and Methods Plan for Health Risk and Exposure Assessment* and *Particulate Matter National Ambient Air Quality Standards: Scope and Methods Plan for Urban Visibility Impact Assessment*.

SAB Staff: Dr. Holly Stallworth, Designated Federal Officer

Other:

Tom Grahame, Department of Energy
Julie Goodman, Gradient
W. Ollison, American Petroleum Institute (API)
Doug Johns, EPA
Ted Steichen, API
John Jansen, Southern Company
Mary Ross, EPA
Zachary Pekar, EPA
James Brown, EPA
Michael Buser, USDA
Jeff Arnold, EPA
Marc Pitchford, NOAA
Karen Martin, EPA
John Vandenberg, EPA
Dan Greenbaum, Health Effects Institute (HEI)
N. Moustakis, HEI
Harvey Richmond, EPA
Roger McClellan, R&M
Larry Gephart, Exxon Mobil
Cindy Langworthy, Huntong an dwilliams
Anne Smith, CRA
Ellen Kirrane, EPA
Barbara Buckley, EPA
Crystal Bowman, EPA
Tom Luben, EPA
Bryan Hubbell, EPA
Jason Sacks, EPA
Wig Zamore, Mystic View Task Force
Bryan Baldwin, Southern Co.
Greg Welleres, Harvard Univresity
Neal Fann, EPA
Michelle Bell, Yale University
Tim Sullivan, EES Environmental
T. Huang, Duke University
Connie Meachen, EPA
George Thurston, New York University (NYU)
Debra Walsh, EPA
Kathleen Belanger, Yale University
John Hannon, EPA
Kaz Ito, NYU
Richard Martin, API
Deborah Shprentz, American Lung Association (ALA)
Susan Stone, EPA
William Wilson, EPA
Tim Benner, EPA

Vicki Sandiford, EPA
Marc Jackson, ILS
Michael Kleinman, University of California, Irvine
Jeffrey Herrich, EPA
Kurt Blasé, Blasé Law Group
Josie Gaskey, The Annapolis Center
Dennis Kotchman, EPA
Tim Watkins, EPA
Ellen Post, Abt Associates
Beth Hassett-Sipple, EPA
Pradeep Rajan, EPA
David Heinold, AECOM
Souced Benromdhane, EPA
Stephen Graham, EPA
Phil Lorang, EPA
Jan Laughlin, Conoco Phillips
Charles Weiss, Georgetown University
Ellen Kirrane, EPA
Erin Hines, EPA
Connie Meachan, EPA
Leland Deck, Stratus Consulting

Attachments:

The meeting agenda, charge questions, presentations, public comments, and panelists' pre-meeting written comments may be found posted at the meeting website: <http://yosemite.epa.gov/sab/sabproduct.nsf/bf498bd32a1c7fdf85257242006dd6cb/19fc01f0be2812228525752400548d9e!OpenDocument&Date=2009-04-01>.

Meeting Summary

The discussion followed the issues and general timing as presented in the meeting agenda posted at the URL above.

WEDNESDAY, APRIL 1, 2009

Opening of Public Meeting

Dr. Holly Stallworth, Designated Federal Officer (DFO), opened the meeting with a statement that the CASAC Particulate Matter Review Panel is a federal advisory committee whose meetings and deliberations meet the requirements of the Federal Advisory Committee Act.

Dr. Samet reviewed the agenda and purpose of the meeting and each member introduced himself. Ms. Lydia Wegman of EPA Office of Air Quality Planning and Standards then

presented the “Background and Schedule for Review of the Particulate Matter NAAQS” and described the recent court ruling in the U.S. Circuit that remanded EPA’s 2006 primary and secondary annual fine PM standard in response to a lawsuit brought by the states and environmental groups. Following Ms. Wegman, members of the EPA National Center for Environmental Assessment (NCEA) presented highlights of the draft ISA. This presentation, posted at the meeting website, was a general overview of the entire ISA. Panelists engaged NCEA in a discussion of the causal framework, climate effects, and other topics.

In the public comment period, Ms. Deborah Shprentz presented comments on behalf of the American Lung Association (ALA), emphasizing ALA’s disagreement with EPA’s conclusion of “likely causal” to describe the long-term effects of PM_{2.5} on cardiovascular mortality and morbidity. ALA preferred a determination that this relationship is “causal.” Ms. Annette Rohr then presented comments on behalf of the Electric Power Research Institute (EPRI), emphasizing EPRI’s contention that the ISA failed to adequately discuss the implications of PM composition for risk to health. Following Ms. Rohr, Mr. George Wolfe presented comments on behalf of the Alliance of Automobile Manufacturers, emphasizing the importance of east-west differences, publication bias and the role of PM components. Mr. Dan Greenbaum of the Health Effects Institute complimented NCEA on the ISA’s causality framework, but added that the ISA needed to place positive results from a study in the context of other negative results. Dr. Anne Smith presented comments on behalf of the Utility Air Regulatory Group, questioning the reliability of visual air quality preference studies. Mr. Chris Long of the Engine Manufacturers Association commented that the ISA left out negative and inconclusive findings of diesel studies. Dr. Julie Goodman, on behalf of the American Petroleum Institute, emphasized uncertainty and commented that the ISA did not adequately demonstrate epidemiological studies that support the assertion of no threshold. All public comments are posted on the meeting website.

After the morning break, panelists turned their attention to charge question 9 on environmental effects. Panelists emphasized the need for more detail on climate and the possibility of choosing an optical indicator. They also issued cautions about the reliability of models for background levels. One member commented the section on visibility was too western-centric and rural-centric, particularly in light of consideration of an urban visibility standard. In reference to the ISA framework presented in Chapter 1, panelists were generally very complimentary. There was some debate about the possibility of adopting percentages for various levels of confidence in the same manner as the Intergovernmental Panel on Climate Change. With respect to Chapter 2, the ISA summary, panelists called for more discussion of climate and welfare effects as well as PM components.

After lunch, panelists discussed Chapter 3 - Source to Exposure and were generally quite complimentary. One member requested that the ISA be more critical of the Federal Reference Methods for monitoring. Another member expressed a desire to see a table that crosswalks emissions and the sources of all NAAQS because a number of them are precursors of PM. Mixed opinions were expressed about Annex A. On the subject of

modes of action (Chapter 5), panelists were also generally approving . One panelist said more attention should be paid to inflammation and epigenetic changes. In reference to Chapter 6 – Health Effects, panelists had mixed opinions, with one panelist expressing concern about the selective highlighting of positive results. Another panelist thought Chapter 6 did an excellent job of putting together toxicological, epidemiological and clinical studies. Panelists questioned the description of cardiovascular morbidity as having a stronger relationship with PM than respiratory morbidity. Panelists disagreed with the ISA’s conclusions about lung cancer, particularly since epidemiological evidence links lung cancer to one or more indicators of air pollution exposure. In addition, particles are known to be carriers of carcinogens into the lungs. With respect to Chapter 8 – Susceptibility and Vulnerability, panelists expressed various concerns. One panelist thought the chapter needed to say more about weight of evidence and strength of association. Another panelist thought the chapter was full of sweeping generalizations.

The day concluded with panelists working in subgroups to draft consensus responses to charge questions.

THURSDAY, APRIL 1, 2009

On the second day of the meeting, the Panel reviewed the draft letter to the Administrator (posted at the meeting website) composed by the subgroups assigned to the ISA charge questions. Dr. Samet requested specific revisions of various members and promised to revise and edit as needed.

As shown in the agenda, representatives from the EPA Office of Air Quality Planning and Standards (OAQPS) then presented highlights of PM NAAQS: Scope and Methods Plan for Health Risk Assessment. Slides for this presentation may be found posted at the meeting website.

In the public comment session, Ms. Deborah Shprentz presented comments on behalf of ALA, emphasizing ALA’s support for EPA’s decision to use the BenMAP model, while encouraging EPA to expand its list of morbidity endpoints. Dr. Mike Busar of the U.S. Department of Agriculture made a presentation on PM sampler errors. Mr. Dave Heinold, on behalf of the American Petroleum Institute, talked about the possibility of policy relevant background results being unrealistically low. Mr. Tom Grahame, U.S. Department of Energy, commended EPA for its criteria for determining causality and discussed how exposure information for PM_{2.5} constituents explains differing results among epidemiological studies. Mr. Wig Zamore, of the Mystic View Task Force, presented slides depicting traffic in the Boston area as correlated with excess lung cancer and heart attack deaths.

The Panel discussed its responses to charge questions on the Scope and Methods Plan for Health Risk Assessment. Among the issues discussed was the lack of detail, the treatment of PM₁₀, the use of filtered 2005-2007 air quality data and the elements of the policy relevant background. Mixed opinions were expressed about EPA’s use of a “model-based rollback” approach for estimating the air quality concentrations that meet

the current or potential alternative PM_{2.5} standards. With respect to the health risk assessment, panelists discussed the generally ambitious nature of doing a national scale assessment as well as the feasibility of including birth outcomes in the quantitative risk assessment. EPA's deterministic sensitivity analysis-based approach to uncertainty was discussed as was the feasibility of including reproductive hazards. Dr. Samet promised to draft a short letter on the Scope and Methods Plan for Health Risk Assessment to share with the Panel.

After lunch, the Panel heard EPA representatives, as listed in the agenda, give a presentation on EPA's PM NAAQS: Scope and Methods Plan for Urban Visibility Impact Assessment. Slides from this presentation are posted at the meeting website. In the public comment session, Dr. Anne Smith, on behalf of the Utility Air Regulatory Group, presented slides critiquing EPA's methodology for determining public preferences for visual air quality. Dr. Ivar Tombach, on behalf of the Southern Company, criticized EPA's use of the term "urban visibility" and cautioned against using fine PM concentrations as a general surrogate for visibility. Mr. Dave Heinold, on behalf of the America Petroleum Institute presented information on visual perception as it relates to various wavelengths and intensities. All public comments are posted on the meeting website.

In discussing the visibility plan, panelists had mixed opinions on the possibility of trying to monetize public preferences for visibility. Comments were generally favorable about the use of an optical standard (while acknowledging this was not EPA's plan). One panelist cautioned against omitting the role of PM_{10-2.5} in estimating urban light extinction. Another panelist recommended some discussion on sample scenes, time of day, relative position and so on. There was general agreement on the need for other welfare endpoints besides visibility. One panelist criticized the usual practice of segregating visibility effects from health effects inasmuch as visibility has a well-known effect on individual well-being and psychological health.

At the conclusion of the meeting, Dr. Stallworth explained next steps: that Dr. Samet would draft a short letter on the Health Risk Assessment Plan; Dr. Frey would draft a short letter on the Urban Visibility Impact Assessment; and the ISA letter would be revised with edits received from panelists. All three draft letters would be discussed at a forthcoming teleconference to be scheduled and announced in the Federal Register.

Respectfully Submitted:

Holly Stallworth, Ph.D. /s/
Designated Federal Officer

Certified as True:

Jonathan Samet, M.D., M.S. /s/
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.