

**U.S. Environmental Protection Agency
Clean Air Scientific Advisory Committee (CASAC)
CASAC Particulate Matter (PM) Review Panel**

**Summary Meeting Minutes of the CASAC PM Review Panel
Public Advisory Teleconference**

Friday, February 3, 2006 – 1:00 to 5:00 p.m. Eastern Time

EPA Science Advisory Board (SAB) Staff Office, Washington DC

**CASAC PM Review Panel Teleconference to Consider Providing the Agency
with Additional Advice and Recommendations Concerning EPA's Proposed Re-
visions to the PM National Ambient Air Quality Standards (NAAQS)**

Panel Members: See CASAC PM Review Panel Roster – Appendix A

Agenda: See Meeting Agenda – Appendix B

Purpose: The purpose of this public teleconference meeting was for the CASAC Particulate Matter (PM) Review Panel to consider providing the Agency with additional advice and recommendations concerning EPA's proposed revisions to the PM National Ambient Air Quality Standards (NAAQS).

Attendees:

Chair:	Dr. Rogene Henderson
CASAC Members:	Dr. Ellis Cowling Dr. James Crapo Dr. Frederick Miller Mr. Richard Poirot Dr. Frank Speizer Dr. Barbara Zielinska
Panel Members:	Dr. Philip Hopke Dr. Jane Koenig Dr. Petros Koutrakis Dr. Allan Legge Dr. Paul Lioy Dr. Morton Lippmann Dr. Joe Mauderly Dr. Roger McClellan Dr. Gunter Oberdorster Dr. Robert Rowe Dr. Jonathan Samet Dr. Sverre Vedal Mr. Ronald White Dr. Warren White Dr. George Wolff

EPA SAB Staff: Mr. Fred Butterfield, CASAC Designated Federal Officer (DFO)

Other EPA Staff: John Bachmann, OAR, OAQPS
Ron Evans, OAR, OAQPS
Robert Fegley, ORD, OSP
Les Grant, ORD, NCEA-RTP
Tim Hanley, OAR, OAQPS
Beth Hassett-Sipple, OAR, OAQPS
Karen Martin, OAR, OAQPS
Harvey Richmond, OAR, OAQPS
Mary Ross, OAR, OAQPS
Erika Sasser, OAR, OAQPS
Linda Tuxen, ORD, NCEA
John Vandenberg, ORD, NCEA
Lydia Wegman, OAR, OAQPS
William Wehrum, OAR
William Wilson, ORD, NCEA-RTP
Margaret Zawacki, OAR, OTAQ

Meeting Summary

The discussion followed the issues and general timing as presented in the meeting agenda (Appendix B).

Convene Meeting, Call Attendance, Introduction and Administration

Mr. Fred Butterfield, Designated Federal Officer (DFO) for the CASAC, opened the meeting and the teleconference line, called attendance, and welcomed all attendees. He noted that the CASAC is a Federal advisory committee chartered under the Federal Advisory Committee Act (FACA) to provide advice and recommendations to the EPA Administrator. Consistent with FACA regulations, its deliberations are held as public meetings and teleconferences for which advance notice is given in the *Federal Register*. The DFO is present at all such meetings to assure compliance with FACA requirements. He mentioned that there were nine (9) individuals who had signed-up in advance to provide an oral public statement today (although one scheduled public speaker did not call-in). Mr. Butterfield said a transcript of this teleconference is not being taken; however, summary minutes were taken (by the DFO) for this teleconference meeting. The minutes will be certified by the CASAC (and PM Review Panel) Chair and made available on the SAB Web site (<http://www.epa.gov/sab>). All Panelists have earlier submitted documentation with respect to possible financial conflicts-of-interest, which was reviewed by a SAB staff member prior to the meeting and found to be satisfactory.

Purpose of Meeting and Welcome

Dr. Rogene Henderson, CASAC and PM Review Panel Chair, welcomed Panel members and briefly stated the purpose of the meeting (see above).

Opening Remarks from EPA

Mr. Bill Wehrum, Acting EPA Assistant Administrator, Office of Air and Radiation (OAR) thanked the PM Panel members for their advice and recommendations to date during this current review of the NAAQS for particulate matter, and offered brief opening remarks in which he discussed the importance of rigorous science analyses informing the policy-setting regulatory process.

Overview of EPA's Proposed Rule for PM NAAQS

Dr. Karen Martin of the Office of Air Quality Planning and Standards (OAQPS), within OAR, gave extended opening remarks, in which she presented a brief overview of key elements of the PM NAAQS proposal, focusing on the following three (3) key elements:

1. The science upon which the proposed standards are based;
2. The approaches to using the science as a basis for the Administrator's consideration of alternative standards (that is, approaches to putting the science into a policy-relevant framework); and
3. The policy judgments, informed by the science, that are required of the Administrator in determining whether, and if so, how, it is appropriate to revise the NAAQS — including, in particular, the judgments that formed the basis for the proposed primary annual PM_{2.5} standard that is not consistent with the majority views of the PM Panel.

Dr. Martin stressed the importance of clearly distinguishing between science and related policy judgments, both in how EPA explains its proposed decisions and in how the CASAC provides its advice to the Agency, adding that this distinction is important because it is widely recognized that even when individuals hold the same general view of the science (whether they are scientists or risk managers), they can hold appreciably different views on the key policy judgments that lead to the choice of a particular standard. Dr. Martin also pointed-out that there was an absence of clear thresholds for adverse human health effects with respect to short-term exposure to airborne particulate matter. (A copies of the talking point's for Dr. Martin's presentation are located in the FACA file for this meeting.)

Public Comment Period

Mr. Butterfield, CASAC DFO, facilitated the formal public comment period. (See Appendix C for a summary listing of all public speakers; copies of public commenters' oral statements are located in the FACA file for this meeting.) PM Panel members were permitted to ask follow-up questions after each public speaker had finished delivering his or her oral public statement.

Summary of the CASAC PM Review Panel's Discussion Regarding its Review of EPA Staff Recommendations Concerning the NAAQS for Particulate Matter

Major points from PM Panel members' deliberations with respect to this advisory activity include the following:

- The PM Panel acknowledged that the EPA has chosen to accept its advice on some revisions of the PM NAAQS. Generally, members of the Panel were pleased to see that the

proposed revision to the level of 24-hour PM_{2.5} standard was within the range of that recommended by most members of the PM Panel (although members of the Panel recognized that, as a policy judgment, the high end of the CASAC's suggested range was chosen.) However, the Panel also noted with disappointment that some of its scientific recommendations were *not* accepted. Specifically, for the level of the proposed annual PM_{2.5} NAAQS, the Agency proposed going outside the range of levels of 13–14 µg/m³ recommended by the CASAC and has chosen to retain the annual standard level at its current level of 15 µg/m³, which was contrary to what the all but two of the 22 members of the PM Panel had advised.

- Various members of the PM Panel reiterated and elaborated on the scientific basis for the Panel's earlier recommendation, noting in particular that, the Agency's risk assessment indicating reduced health risks at annual PM_{2.5} levels below the current standard was a key component in the PM Panel's recommendation to lower the current annual level. In addition, Panelists commented that there is evidence that effects of long-term PM_{2.5} concentrations occurring at or below the current annual standard level of 15 µg/m³. Members suggested additional studies to bolster these scientific viewpoints for inclusion in the CASAC's letter to the Administrator pursuant to this teleconference. While acknowledging the uncertainties involved in setting an appropriate, health-protective level for the annual standard, the PM Panel's position is that the epidemiologic evidence, supported by emerging mechanistic understanding, indicates adverse effects of PM_{2.5} at current annual average levels below 15 µg/m³.
- With respect to the proposed 24-hour thoracic coarse (PM_{10-2.5}) NAAQS, the Panel was pleased to see that the indicator for coarse thoracic particles of concern to public health took into account some of the various approaches that the PM Panel identified for consideration. However, the PM Panel is concerned that the Agency might have misunderstood some of the CASAC's previously-furnished advice — specifically, with regard to the issues of: monitoring; the source of toxic components in coarse thoracic particles; and the setting of secondary PM_{10-2.5} NAAQS at the same level as the primary PM_{10-2.5} standard. Members of the PM Panel recommend that the proposed 24-hour PM_{10-2.5} primary standard be accompanied by monitoring of particles in both urban and rural areas to aid in informing future health effects studies on rural dusts, and strongly urged EPA to expand the scientific knowledge of the toxicity of rural dusts rather than exempting specific industrial sectors such as those involved in mining or agriculture from regulation. In addition, serious consideration should also be given to a secondary PM_{10-2.5} at a level similar to the proposed primary standard.
- As to a proposed secondary PM_{2.5} NAAQS to protect visibility, PM Panel members noted that EPA, in its Final PM Staff Paper, and with the concurrence of the majority of PM Panel members, had recommended a sub-daily standard for PM_{2.5} with a level in the 20 to 30 µg/m³ range for a four- to eight-hour (4-8 hr) mid-day time period with a 92nd to 98th percentile form. However, the proposed rule for PM NAAQS recommended relying on the proposed 24-hour primary standard of 35 µg/m³ as a surrogate for visibility protection. In response to this, CASAC members provided several cautions with respect to the Agency's proposed visibility standard, which was outside the range recommended in the EPA staff paper and by most of the PM Panel, including: (1) using the 24-hour primary standard as a proxy introduces error and uncertainty in protecting visibility; (2) expanded

deployment of continuous PM_{2.5} monitors is consistent with setting a sub-daily standard to protect visibility; and (3) linking the visibility standard to the primary (human health-related) NAAQS is not reasonable, in that the primary standard may change in ways that make it even less appropriate for visibility concerns. Accordingly, members of the PM Panel recommended that the sub-daily secondary standard to protect visibility, as recommended both in the PM Staff Paper and by the majority of Panelists, be reconsidered.

- PM Panel members also raised the issue of the consideration of more-recent scientific information in the setting of the PM standards. Dr. Martin noted that the Agency will evaluate new PM-related scientific studies and make the Administrator aware of these; however, she noted that EPA will not necessarily base the PM NAAQS on this recently-published research.

Summary and Next Steps

Dr. Henderson thanked the members of the PM Panel for their participation in today's teleconference to consider providing the Agency with additional advice and recommendations concerning EPA's proposed revisions to the PM NAAQS. In addition, she requested that Panel members provide her with their individual and/or sub-group inputs on the draft letter to the EPA Administrator concerning this unsolicited advisory activity as soon as practicable, but by no later than close of business next Friday, February 10 (with a copy to Mr. Butterfield, the DFO). The DFO will circulate an initial draft of the CASAC's letter/report for PM Panel members' review and comments as soon as possible thereafter.

Mr. Butterfield also thanked all participants on today's public advisory conference call. The DFO adjourned the meeting at approximately 4:30 p.m. on February 3, 2006.

Respectfully Submitted:

Certified as True:

/s/

/s/

Fred A. Butterfield, III

Rogene F. Henderson, Ph.D.

Fred A. Butterfield, III
CASAC DFO

Rogene F. Henderson, Ph.D.
CASAC Chair

Appendix A – Roster of the CASAC Lead Review Panel

**U.S. Environmental Protection Agency
Science Advisory Board (SAB) Staff Office
Clean Air Scientific Advisory Committee (CASAC)
CASAC Particulate Matter Review Panel**

CHAIR

Dr. Rogene Henderson*, Scientist Emeritus, Lovelace Respiratory Research Institute, Albuquerque, NM

MEMBERS

Dr. Ellis Cowling*, University Distinguished Professor-at-Large, North Carolina State University, Colleges of Natural Resources and Agriculture and Life Sciences, North Carolina State University, Raleigh, NC

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

Dr. Philip Hopke, Bayard D. Clarkson Distinguished Professor, Department of Chemical Engineering, Clarkson University, Potsdam, NY

Dr. Jane Q. Koenig, Professor, Department of Environmental Health, School of Public Health and Community Medicine, University of Washington, Seattle, WA

Dr. Petros Koutrakis, Professor of Environmental Science, Environmental Health, School of Public Health, Harvard University (HSPH), Boston, MA

Dr. Allan Legge, President, Biosphere Solutions, Calgary, Alberta

Dr. Paul J. Liroy, Associate Director and Professor, Environmental and Occupational Health Sciences Institute, UMDNJ - Robert Wood Johnson Medical School, NJ

Dr. Morton Lippmann, Professor, Nelson Institute of Environmental Medicine, New York University School of Medicine, Tuxedo, NY

Dr. Joe Mauderly, Vice President, Senior Scientist, and Director, National Environmental Respiratory Center, Lovelace Respiratory Research Institute, Albuquerque, NM

Dr. Roger O. McClellan, Consultant, Albuquerque, NM

Dr. Frederick J. Miller*, Consultant, Cary, NC

Dr. Gunter Oberdörster, Professor of Toxicology, Department of Environmental Medicine, School of Medicine and Dentistry, University of Rochester, Rochester, NY

Mr. Richard L. Poirot*, Environmental Analyst, Air Pollution Control Division, Department of Environmental Conservation, Vermont Agency of Natural Resources, Waterbury, VT

Dr. Robert D. Rowe, President, Stratus Consulting, Inc., Boulder, CO

Dr. Jonathan M. Samet, Professor and Chair, Department of Epidemiology, Bloomberg School of Public Health, Johns Hopkins University, Baltimore, MD

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

Dr. Sverre Vedal, Professor, Department of Environmental and Occupational Health Sciences, School of Public Health and Community Medicine, University of Washington, Seattle, WA

Mr. Ronald White, Research Scientist, Epidemiology, Bloomberg School of Public Health, Johns Hopkins University, Baltimore, MD

Dr. Warren H. White, Visiting Professor, Crocker Nuclear Laboratory, University of California - Davis, Davis, CA

Dr. George T. Wolff, Principal Scientist, General Motors Corporation, Detroit, MI

Dr. Barbara Zielinska*, Research Professor, Division of Atmospheric Science, Desert Research Institute, Reno, NV

SCIENCE ADVISORY BOARD STAFF

Mr. Fred Butterfield, CASAC Designated Federal Officer, 1200 Pennsylvania Avenue, N.W., Washington, DC, 20460, Phone: 202-343-9994, Fax: 202-233-0643 (butterfield.fred@epa.gov) (Physical/Courier/FedEx Address: Fred A. Butterfield, III, EPA Science Advisory Board Staff Office (Mail Code 1400F), Woodies Building, 1025 F Street, N.W., Room 3604, Washington, DC 20004, Telephone: 202-343-9994)

* Members of the statutory Clean Air Scientific Advisory Committee (CASAC) appointed by the EPA Administrator

Appendix B – Meeting Agenda

**U.S. Environmental Protection Agency
Clean Air Scientific Advisory Committee (CASAC)
CASAC Particulate Matter (PM) Review Panel**

Public Teleconference Meeting

Friday, February 3, 2006 – 1:00 to 5:00 p.m. Eastern Time

**EPA Science Advisory Board (SAB) Staff Office
1025 F. Street, N.W., Washington, DC 20004**

CASAC PM Review Panel Teleconference to Consider Providing the Agency with Additional Advice and Recommendations Concerning EPA's Proposed Revisions to the PM National Ambient Air Quality Standards (NAAQS)

Meeting Agenda

Friday, February 3, 2006

1:00 p.m.	Convene Teleconference; Call Attendance; Introductions and Administration	Mr. Fred Butterfield, CASAC DFO
1:10 p.m.	Purpose of Meeting	Dr. Rogene Henderson, Chair
1:15 p.m.	Opening Remarks from EPA	Mr. Bill Wehrum, Acting Assistant Administrator, Office of Air and Radiation
1:20 p.m.	Overview of EPA's Proposed Rule for PM NAAQS	Dr. Karen Martin, Office of Air Quality Planning and Standards (OAQPS)
1:50 p.m.	Public Comment Period	Mr. Butterfield (Facilitator)
2:20 p.m.	Members' Discussion and Deliberation	CASAC PM Review Panel Members

Discussion Topics

- 1. Fine Particles (PM_{2.5}) Annual Primary (Health-Related) Standard**

Lead Discussants

Dr. Frank Speizer

Discussion Topics (Continued)

Lead Discussants

2. Interpretation of the Inhalable Coarse Particles (PM_{10-2.5}) 24-Hour Primary and Secondary Standards	Mr. Rich Poirot
3. Visibility-Based Secondary (Welfare-Related) PM Standard	Mr. Poirot, Dr. Ellis Cowling
4. Other Discussion Topics	TBD
4:50 p.m. Summary and Next Steps	Dr. Henderson
5:00 p.m. Adjourn Meeting	Mr. Butterfield

Appendix C –List of Public Speakers

List of Public Speakers

**U.S. Environmental Protection Agency
Clean Air Scientific Advisory Committee (CASAC)
CASAC Particulate Matter (PM) Review Panel**

**CASAC PM Review Panel Teleconference to Consider Providing the Agency with
Additional Advice and Recommendations Concerning EPA’s Proposed (12/20/2005)
Revisions to the PM National Ambient Air Quality Standards (NAAQS)**

Public Teleconference Meeting ❖ February 3, 2006

EPA Science Advisory Board (SAB) Staff Office, 1025 F. Street, N.W., Washington, DC 20004

#	Speaker’s Name	Organizational Affiliation(s)	Organization(s) Represented (i.e., comments offered on behalf of)
1	Dr. William Rom	New York University (NYU)	American Thoracic Society (ATS)
2	Ms. Deborah Shprentz	Consultant	American Lung Association (ALA)
3	Mr. Philip Johnson	Northeast States for Coordinated Air Use Management (NESCAUM)	same
4	Dr. Jean Ospital	South Coast [California] Air Quality Management District (SCAQMD)	same
5	Dr. John Balbus	Environmental Defense	same
6	Mr. Robert Connery	Holland & Hart LLP	National Cattlemen’s Beef Association (NCBA)
7	Dr. Bart Ostro	California Office of Environmental Health Hazard Assessment (OEHHA)	same
8	Mr. Wig Zamore	Somerville [Massachusetts] Transportation Equity Partnership (STEP) and Mystic View Task Force (MVTF)	same