

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

**Summary Meeting Minutes of the CASAC's Public Advisory Meeting**

**Tuesday, August 28, 2007 – 9:00 a.m. to 5:30 p.m. Eastern Time  
Wednesday, August 29, 2007 – 8:30 a.m. to 4:00 p.m. Eastern Time**

**Marriott at Research Triangle Park, 4700 Guardian Drive, Durham, North Carolina 27703**

**Meeting to Conduct a Peer-Review of EPA's 2<sup>nd</sup> Draft Lead  
Human Exposure and Health Risk Assessments Document**

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

Agenda: See Meeting Agenda – Appendix B

Purpose: The purpose of this public meeting was for the CASAC Lead Review Panel to conduct a peer review of the Agency's *Lead Human Exposure and Health Risk Assessments for Selected Case Studies, Draft Report (2<sup>nd</sup> Draft Lead Exposure and Risk Assessments, July 2007)*.

Attendees:

Chair:	Dr. Rogene Henderson
CASAC Members:	Dr. Ellis Cowling Dr. James Crapo (via phone) Dr. Douglas Crawford-Brown Mr. Richard Poirot Dr. Armistead (Ted) Russell Dr. Frank Speizer
Panel Members:	Dr. Bruce Fowler Dr. Andrew Friedland (via phone) Mr. Sean Hays Dr. Bruce Lanphear Dr. Samuel Luoma (via phone) Dr. Frederick J. Miller Dr. Paul Mushak Dr. Michael Newman Dr. Michael Rabinowitz (via phone) Dr. Joel Schwartz Dr. Ian von Lindern
EPA SAB Staff:	Mr. Fred Butterfield, CASAC Designated Federal Officer (DFO) Dr. Anthony Maciorowski, Deputy Director, SAB Staff Office

EPA SAB Staff: Ms. Kyndall Barry, DFO  
(Continued)

Other EPA Staff: Dr. Tim Benner, ORD, OSP  
Mr. Kevin Cavender, OAR, OAQPS  
Mr. Mark Corrales, OA, OPEI  
Ms. Bridgid Curry, OA, OPEI  
Mr. Chuck French, OAR, OAQPS  
Dr. Karen Martin, OAR, OAQPS  
Dr. Deirdre Murphy, OAR, OAQPS  
Mr. David Orlin, OGC, ARLO  
Mr. Tom Pace, OAR, OAQPS  
Dr. Zachary Pekar, OAR, OAQPS  
Mr. Harvey Richmond, OAR, OAQPS  
Mr. Mark Schmidt, OAR, OAQPS  
Ms. Lydia Wegman, OAR, OAQPS

### Meeting Summary

The discussion followed the issues and general timing as presented in the meeting agenda (Appendix B). The following were the principal conclusions from the meeting that will be emphasized in the CASAC's letter to the EPA Administrator:

- EPA needs to substantially lower the level of the primary Lead NAAQS from the current level of  $1.5 \mu\text{g}/\text{m}^3$ . Furthermore, the Agency has not presented any data or analyses in its 2<sup>nd</sup> Draft Lead Exposure and Risk Assessments document that leads the CASAC to reconsider its previous recommendation that the upper limit of this revised NAAQS for Lead should be  $0.2 \mu\text{g}/\text{m}^3$  with a monthly averaging time.
- The Agency needs population-based risk assessments in urban areas of national significance and should undertake several additional case studies.
- EPA should aim to protect of 90–95% of the population from decreased IQ resulting from elevated blood lead (Pb-B) levels as a consequence to ambient exposures to recent airborne lead.
- The hybrid dust model should be used, where airborne lead exposures are converted to blood lead levels, then Pb-B to IQ decrements.
- The preferred form of the concentration-response (C-R) function is a two-piece linear model with concurrent (“current”) Pb-B levels and sensitivity analyses rather than long-term average (“lifetime”) Pb-B levels.
- The Agency should consider revising the lead reference method to allow sample collection by  $\text{PM}_{10}$  rather than TSP samplers.
- The CASAC Lead Review Panel is very pleased that there will be a Final Lead Staff Paper for the Panel's review in late 2007.

**TUESDAY, AUGUST 28, 2007**Convene Meeting, Call Attendance, Introduction and Administration

Mr. Fred Butterfield, Designated Federal Officer (DFO) for the CASAC, opened the meeting and the teleconference line at 9:00 a.m., called attendance, and welcomed all attendees. He noted that 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. Meeting minutes were taken (by DFOs from the SAB Staff Office) for this teleconference. The minutes will be certified by the CASAC (and Lead 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.

Dr. Tony Maciorowski, Deputy Director, SAB Staff Office, thanked the members of the CASAC Lead Review Panel for taking part in this review. He also thanked the managers and staff from the Agency's Office of Air Quality Planning and Standards (OAQPS), within EPA's Office of Air and Radiation (OAR).

Purpose of Meeting and Welcome by EPA's National Center for Environmental Assessment

Dr. Rogene Henderson, CASAC and Lead Review Panel Chair, briefly stated the purpose of the meeting, which was to provide a peer review of OAQPS' 2<sup>nd</sup> Draft Lead Exposure and Risk Assessments document.

Ms. Lydia Wegman, Director, Health and Environmental Impacts Division, OAQPS, gave a brief welcome from the Agency and also thanked the members of the Lead Panel for their participation in this review. She then informed the Panel of the recent (August 24, 2007) court-ordered modification to the Lead NAAQS Review process, in that the Agency must now issue a Final Lead Staff Paper by November 1, 2007. This is in addition to the Final Lead Risk Assessment (October 30, 2007) and the Lead Policy Assessment in the form of an Advance Notice of Proposed Rule (ANPR) (November 30, 2007). The ANPR will translate the risk assessment analyses and other scientific evidence presented in the Lead Staff Paper into a range of Agency views on the Lead NAAQS for CASAC and public consideration and comment. The Chair and members of the Lead Panel were please to hear that OAQPS would be issuing a Final Lead staff Paper.

Summary Presentation on 2<sup>nd</sup> Draft Lead Exposure and Risk Assessments Document

Dr. Karen Martin, OAQPS' Ambient Standards Group Leader, and her staff (Dr. Zachary Pekar and Dr. Deirdre Murphy) provided a summary presentation on EPA's 2<sup>nd</sup> Draft Lead Exposure and Risk Assessments document. Panel members engaged Dr. Martin and her OAQPS staff colleagues with questions and answers throughout this overview presentation. (A hard-copy of the OAQPS presentation is located in FACA file for this meeting.)

### Public Comment Period

Mr. Butterfield facilitated the formal public comment period. (A summary listing of the public speakers is found in Appendix C.)

- Ms. Kathleen Logan Smith, Executive Director, Missouri Coalition for the Environment – Ms. Smith’s three main points were as follows: (1) the current level of the primary Lead NAAQS of  $1.5 \mu\text{g}/\text{m}^3$  is inadequate to protect public health; (2) the Agency should lower the primary Lead NAAQS to  $0.2 \mu\text{g}/\text{m}^3$  or less; and (3) EPA should reduce the Lead NAAQS averaging time to monthly. (A hard-copy of the comments from Ms. Maxine Lipeles, Director of the Interdisciplinary Environmental Clinic at the Washington University School of Law — with which the Missouri Coalition for the Environment is affiliated, and which tracked closely with Ms. Smith’s oral public comments — is located in the FACA file for this meeting.)
- Dr. Teresa Bowers, Gradient Corporation – Speaking on behalf of the Association of Battery Recyclers (ABR), Dr. Bowers principal points were as follows: (1) There are mathematical errors in the calculation of indoor dust lead levels near the facility in the primary smelter case study that result in the over-prediction of dust lead levels, blood lead (Pb-B) levels, the percentage of blood lead levels attributable to recent air, IQ decrements, and the percentage of IQ decrement attributable to recent air; (2) The near-facility indoor dust lead regression model for the primary smelter case study should be based on concurrent average air lead (*e.g.*, monthly average) rather than on annual average air lead from several years previously, because air lead varies throughout the year, and dust lead has a relatively short residence time in the house; (3) The apportionment of lead in indoor dust between air and other sources in the urban hybrid model is incorrect, and results in predicted dust lead levels from non-air sources that are lower than those predicted by EPA's other modeling approaches and lower than observed; (4) The ranges of blood lead–air lead slopes calculated for the recent air category are too broad as a result of errors in the dust prediction equations; (5) Inconsistencies in the calculations of source contribution to Pb-B levels show that these estimates are unstable and should not be used to set policy; (6) There are still potential errors in the Pb-B to IQ slope estimates for lifetime average blood lead levels based on Lanphear *et al.*, 2005; (7) The locations of several of the air monitoring stations for the primary lead smelter case study are incorrect; and (8) Gradient cannot reproduce EPA’s dataset of 189 monitors used to determine the air lead ratios for Urban Sites; all data used in the Agency’s Risk Assessment should be publicly available. (A hard-copy of Dr. Bower’s comments is located in the FACA file for this meeting.)

There was opportunity for questions for the presenter from the members of the Lead Panel following each of public commenter’s presentation.

## Summary of CASAC Lead Review Panel Discussion and Deliberations re: the 2<sup>nd</sup> Draft Lead Exposure and Risk Assessments Document

Chair Dr. Henderson then led the Lead Panel members through a review of the “key findings and recommendations” presented in each section of the draft report and its appendices. Panel members discussed a number of issues, including the following: the emphasis of the urban model (as opposed to primary and secondary smelter); use of blood Pb biokinetic models, (e.g., the Integrated Exposure Uptake Biokinetic (IEUBK) model for lead in children vs. the Leggett model); the need for more monitoring data and the use of current monitoring stations (total suspended particles vs. PM<sub>10</sub>). Furthermore, the Agency should aim to protect of 90–95% of the population from decreased IQ resulting from elevated blood lead (Pb-B) levels as a consequence to ambient exposures to recent airborne lead. With the discussion of each chapter in the document, Dr. Henderson requested specific Panel members take the lead in drafting portions of the CASAC’s letter to the Administrator.

### **Ecological Risk Assessment**

The Lead Panel reached consensus in its discussions of the Ecological Risk Assessment that it would recommend that the Agency set the secondary standard equal to the primary (due to the “lack of relevant data”). Some suggestions for the future resolution of the paucity of ecological-related lead data and an incentive to do research: improved network of monitors in national parks, expand Pb monitoring to urban areas and critical ecological systems like the Great Lakes. The Lead Panel briefly conversed on the preferred type of monitor, total suspended particle vs. PM<sub>10</sub>, with the latter being preferred. In addition, the Panel requested that EPA revise and finalize the ecological portion of the “pilot-phase” lead risk assessment on the basis of Lead Panel members’ individual review comments found in the appendix of the CASAC’s March 2007 letter to the Administrator.

### **Chapter 2: Design of Exposure and Risk Assessments**

In discussing Chapter 2, the Lead Panel moved to a strong endorsement of the urban case study as the basis of the NAAQS as opposed to the primary- or secondary-smelter cases. Additional topics included: the inability of the general urban study to capture the variability of the urban population (e.g., the proximity of monitors to the road, type of road, location of residences, and socio-economic status); the potential for monitors to underestimate air-lead emissions; the need to see the total number of children affected (in all case studies); and the need to estimate the biases of the urban model and develop into uncertainty estimates. Other critical points identified by the Lead Panel included the desirability of quantifying blood lead effects (e.g., cardiovascular, neurological, behavioral, etc.) and the need for completeness in the Agency’s quantitative risk assessments.

### **Chapter 3: Exposure Assessment**

The Lead Panel then moved on to discussions of Chapter 3 and Appendices C through J. The Panel’s recommendations for the Exposure Assessment included: use of a hybrid dust model (where airborne lead exposures are converted to blood lead levels, then Pb-B to IQ losses) with a geometric standard deviation (GSD) of 2.0 or 2.1, on the basis of the National Health and Nutrition Examination Survey data; the preference of the Leggett biokinetic model over

the IEUBK; and a proposal to expand the urban case study. Considering the cumulative, multimedia impacts lead can produce; the Panel urged the Agency to strive for consistency across its program offices, specifically OAR, the Office of Pollution Prevention and Toxics (OPPT), and Superfund.

Mr. Butterfield, DFO, adjourned the meeting for the day at approximately 5:25 p.m. on August 28, 2007.

## **WEDNESDAY, AUGUST 28, 2007**

### Reconvene Meeting, Call Attendance

Mr. Butterfield reopened the meeting and the teleconference at 8:35 a.m., called attendance, and welcomed all attendees back to the second day of the meeting.

### Re-cap of Previous Day's Meeting

Dr. Henderson had no substantive comments, other than to suggest that the Lead Panel move directly into the agenda for the second day of the public meeting.

### Additional Public Comment Period

There were no public commenters on the second day of the Lead Panel's meeting.

### Additional NCEA-RTP Comments

Dr. Martin did not have any additional comments.

## Summary of CASAC Lead Review Panel Discussion and Deliberations re: the 2<sup>nd</sup> Draft Lead Exposure and Risk Assessments Document (Continued)

### **Chapter 4: Risk Assessment**

After a brief "revisit" of the Chapter 3 discussion, the Panel moved into its consideration of Chapter 4 of the document. Of the three concentration-response (C-R) functions presented — *i.e.*, log-linear with a cutpoint, log-linear with low-exposure linearization, and two-piece linear — the Lead Panel endorsed the two-piece linear function with a hinge point closer to 7.5 µg/dL than the value used by Agency staff. This was found to be the best indicator of IQ change and most consistent with recent epidemiologic studies. The Panel also indicated a strong preference for the concurrent ("current") Pb-B levels and sensitivity analyses rather than long-term average ("lifetime") Pb-B levels, because this best mirrors the empirical data and is more reflective of short-term effects.

The Lead Panel's discussions returned to data availability and whether the CASAC could recommend a specific type of measurement for the future. There are more PM<sub>10</sub> monitors than TSP monitors in the nation and these have the ability to capture particles that can con-

tribute to inhalation and ingestion (although they currently do not analyze for Pb). The Panel challenged the Agency to develop the correlation between TSP and PM<sub>10</sub> monitors.

Summary, Wrap-up, Next Steps and Closing Remarks

The Chair thanked all members of the Lead Panel for their participation in this meeting. She asked that, by no later than next Tuesday, September 4, all assigned lead discussants/writers for each of the chapters and charge questions work with their colleagues on the Lead Panel in developing their inputs to the CASAC's draft letter to the Administrator, with a copy to both her as the Chair and to Fred Butterfield as DFO. In addition, the Chair requested that Panel members send her and the DFO their initial or revised individual review comments on the 2nd Draft Lead Exposure and Risk Assessments, which will be appended to the CASAC's final letter/report for this meeting, by the same date.

Mr. Butterfield, DFO, adjourned the meeting at approximately 1:30 p.m. on August 29, 2007.

Respectfully Submitted:

Certified as True:

/s/

/s/

*Fred A. Butterfield, III*

*Rogene Henderson, Ph.D.*

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Fred A. Butterfield, III  
CASAC DFO

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Rogene Henderson, Ph.D.  
CASAC Chair

Date: November 2, 2007

**NOTE AND DISCLAIMER:** The minutes of this public advisory meeting reflect diverse ideas and suggestions offered by committee members during the course of deliberations within the meeting. Such ideas, suggestions, and deliberations do not necessarily reflect definitive consensus advice from the members of this panel. The reader is cautioned to not rely on the minutes 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.

## Appendix A – Roster of the CASAC Lead Review Panel

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

#### CHAIR

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

#### MEMBERS

**Dr. Joshua Cohen**, Research Associate Professor of Medicine, Tufts University School of Medicine, Institute for Clinical Research and Health Policy Studies, Center for the Evaluation of Value and Risk, Tufts New England Medical Center, Boston, MA

**Dr. Deborah Cory-Slechta**, Professor of Environmental Medicine, Department of Environmental Medicine, University of Rochester School of Medicine and Dentistry, Rochester, NY

**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 [M.D.]\***, Professor, Department of Medicine, National Jewish Medical and Research Center, Denver, CO

**Dr. Douglas Crawford-Brown\***, Director, Carolina Environmental Program; Professor, Environmental Sciences and Engineering; and Professor, Public Policy, Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC

**Dr. Bruce Fowler**, Assistant Director for Science, Division of Toxicology and Environmental Medicine, Office of the Director, Agency for Toxic Substances and Disease Registry, U.S. Centers for Disease Control and Prevention (ATSDR/CDC), Chamblee, GA

**Dr. Andrew Friedland**, Professor and Chair, Environmental Studies Program, Dartmouth College, Hanover, NH

**Dr. Robert Goyer [M.D.]**, Emeritus Professor of Pathology, Faculty of Medicine, University of Western Ontario (Canada), Chapel Hill, NC

**Mr. Sean Hays**, President, Summit Toxicology, Allenspark, CO

**Dr. Bruce Lanphear [M.D.]**, Sloan Professor of Children's Environmental Health, and the Director of the Cincinnati Children's Environmental Health Center at Cincinnati Children's Hospital Medical Center and the University of Cincinnati, Cincinnati, OH

**Dr. Samuel Luoma**, Senior Research Hydrologist, U.S. Geological Survey (USGS), Menlo Park, CA

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

**Dr. Paul Mushak**, Principal, PB Associates, and Visiting Professor, Albert Einstein College of Medicine (New York, NY), Durham, NC

**Dr. Michael Newman**, Professor of Marine Science, School of Marine Sciences, Virginia Institute of Marine Science, College of William & Mary, Gloucester Point, VA

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

**Dr. Michael Rabinowitz**, Geochemist, Marine Biological Laboratory, Woods Hole, MA

**Dr. Armistead (Ted) Russell\***, Georgia Power Distinguished Professor of Environmental Engineering, Environmental Engineering Group, School of Civil and Environmental Engineering, Georgia Institute of Technology, Atlanta, GA

**Dr. Joel Schwartz**, Professor, Environmental Health, Harvard University School of Public Health, Boston, MA

**Dr. Frank Speizer [M.D.]\***, Edward Kass Professor of Medicine, Channing Laboratory, Harvard Medical School, Boston, MA

**Dr. Ian von Lindern**, Senior Scientist, TerraGraphics Environmental Engineering, Inc., Moscow, ID

**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](mailto:butterfield.fred@epa.gov))

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

## Appendix B – Meeting Agenda

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

### Public Advisory Meeting

**Tuesday, August 28, 2007 – 9:00 a.m. to 5:30 p.m. Eastern Time  
Wednesday, August 29, 2007 – 8:30 a.m. to 4:00 p.m. Eastern Time**

*Marriott at Research Triangle Park, 4700 Guardian Drive, Durham, NC 27703*

**Purpose: Conduct a Peer Review of EPA's 2<sup>nd</sup> Draft Lead  
Human Exposure and Health Risk Assessments**

### Meeting Agenda

#### Tuesday, August 28, 2007

9:00 a.m.	<b>Convene Meeting; Call Attendance; Introductions and Administration</b>	Mr. Fred Butterfield, CASAC Designated Federal Officer (DFO)
9:05 a.m.	<b>Welcome &amp; Opening Remarks from EPA Science Advisory Board (SAB) Staff Office</b>	Dr. Tony Maciorowski, Deputy Director
9:10 a.m.	<b>Purpose of Meeting and Overview of Meeting Agenda</b>	Dr. Rogene Henderson, Chair
9:15 a.m.	<b>Welcome from EPA's Office of Air Quality Planning and Standards (OAQPS)</b>	Ms. Lydia Wegman, Director, Health and Environmental Impacts Division, OAQPS
	<b>Summary Presentation on 2<sup>nd</sup> Draft Lead Human Exposure and Health Risk Assessments</b>	Dr. Karen Martin, Dr. Deirdre Murphy & Dr. Zach Pekar, OAQPS
10:00 a.m.	<b>Formal Public Comment Period</b>	Mr. Butterfield (Facilitator)
10:30 a.m.	<b>Break*</b>	
10:45 a.m.	<b>CASAC Lead Review Panel Discussion on Draft (Pilot-Phase) <i>Ecological Risk Assessment</i> (December 2006)</b>	Dr. Henderson, Panel Members (Dr. <u>Ellis Cowling</u> , Mr. <u>Rich Poirot</u> , and Drs. Andrew Friedland, Samuel Luoma & Michael Newman)

Notes:

\*Periodic breaks will be taken as necessary and at the call of the Chair.

**Tuesday, August 28, 2007** (continued)

10:45 a.m.	<b>CASAC Lead Review Panel Discussion on Draft (Pilot-Phase) <i>Ecological Risk Assessment</i> (December 2006)</b>	Dr. Henderson, Panel Members (Dr. <u>Ellis Cowling</u> , Mr. <u>Rich Poirot</u> , and Drs. Andrew Friedland, Samuel Luoma & Michael Newman)
11:30 a.m.	<b>Lead Panel Discussion in Response to Charge Questions on 2<sup>nd</sup> Draft Lead Human Exposure and Health Risk Assessments, Chapter 2: <i>Design of Exposure and Risk Assessments</i>; and Appendices A &amp; B</b>	Dr. Henderson, Panel Members (Drs. <u>James Crapo</u> , <u>Ted Russell</u> & Robert Goyer)
12:00 p.m.	<b>Lunch at Hotel</b>	
1:00 p.m.	<b>Lead Panel Discussion on 2<sup>nd</sup> Draft Lead Human Exposure and Health Risk Assessments, Chapter 2 and Appendices A &amp; B (continued); discussion of Section 4.1.1., <i>Concentration-Response Functions</i> (from Chapter 4: <i>Risk Assessment</i>)</b>	Dr. Henderson, Panel Members (Drs. <u>James Crapo</u> , <u>Ted Russell</u> & Robert Goyer [Chapter 2]; Drs. <u>Fred Miller</u> & Bruce Lanphear [Chapter 4])
2:30 p.m.	<b>Lead Panel Discussion on 2<sup>nd</sup> Draft Lead Human Exposure and Health Risk Assessments, Chapter 3: <i>Exposure Assessment</i>; and Appendices C–J</b>	Dr. Henderson, Panel Members (Drs. <u>Douglas Crawford-Brown</u> , <u>Ian von Lindern</u> , Paul Mushak, Bruce Fowler, Michael Rabinowitz & Mr. Sean Hays)
3:00 p.m.	<b>Break*</b>	
3:15 p.m.	<b>Lead Panel Discussion on 2<sup>nd</sup> Draft Lead Human Exposure and Health Risk Assessments, Chapter 3 and Appendices C–J (continued)</b>	Dr. Henderson, Panel Members
5:15 p.m.	<b>Summary, Wrap-Up and Next Steps</b>	Dr. Henderson
5:30 p.m.	<b>Adjourn Meeting for the Day</b>	Mr. Butterfield

**Wednesday, August 29, 2007**

8:30 a.m.	<b>Reconvene Meeting; Call Attendance</b>	Mr. Butterfield
8:35 a.m.	<b>Re-cap of Previous Day's Meeting</b>	Dr. Henderson
8:40 a.m.	<b>Public Comment Period**</b>	Mr. Butterfield (Facilitator)

Notes:

\*Periodic breaks will be taken as necessary and at the call of the Chair.

\*\*The purpose of the public comment period on the second day of the meeting is to permit any members of the public who were unable to provide their oral comments on the first day with an opportunity to do so.

**Wednesday, August 29, 2007 (continued)**

8:50 a.m.	<b>Additional OAQPS Comments</b>	Dr. Martin
9:00 a.m.	<b>Lead Panel Discussion on 2<sup>nd</sup> Draft Lead Human Exposure and Health Risk Assessments, Chapter 3 and Appendices C–J (continued)</b>	Dr. Henderson, Panel Members
10:00 a.m.	<b>Break*</b>	
10:15 a.m.	<b>Lead Panel Discussion on 2<sup>nd</sup> Draft Lead Human Exposure and Health Risk Assessments, Chapter 3 and Appendices C–J (continued)</b>	Dr. Henderson, Panel Members
10:45 a.m.	<b>Lead Panel Discussion on 2<sup>nd</sup> Draft Lead Human Exposure and Health Risk Assessments, Chapter 4: <i>Risk Assessment</i>; and Appendices L &amp; M</b>	Dr. Henderson, Panel Members (Drs. <u>Frank Speizer</u> , <u>Fred Miller</u> , Deborah Cory-Slechta, Bruce Lanphear & Joel Schwartz)
12:00 p.m.	<b>Lunch at Hotel</b>	
1:00 p.m.	<b>Lead Panel Discussion on 2<sup>nd</sup> Draft Lead Human Exposure and Health Risk Assessments, Chapter 4 and Appendices L &amp; M (continued)</b>	Dr. Henderson, Panel Members
2:30 p.m.	<b>Break*</b>	
2:45 p.m.	<b>Lead Panel Discussion on 2<sup>nd</sup> Draft Lead Human Exposure and Health Risk Assessments, Chapter 4 and Appendices L &amp; M (continued)</b>	Dr. Henderson, Panel Members
3:30 p.m.	<b>Summary, Wrap-Up, Next Steps and Closing Remarks</b>	Dr. Henderson
4:00 p.m.	<b>Adjourn Meeting</b>	Mr. Butterfield

## List of Public Speakers

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 EPA Science Advisory Board (SAB) Staff Office  
 Clean Air Scientific Advisory Committee (CASAC)  
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**Purpose: Conduct a Peer Review of EPA’s 2<sup>nd</sup> Draft Lead  
 Human Exposure and Health Risk Assessments**

#	Speaker’s Name	Organizational Affiliation(s)	Organization(s) Represented (i.e., comments offered on behalf of)
1	Ms. Kathleen Logan Smith	Executive Director, Missouri Coalition for the Environment	same
2	Dr. Teresa S. Bowers	Gradient Corporation	Association of Battery Recyclers (ABR)