

**Summary Minutes of the Clean Air Scientific Advisory Committee (CASAC)
Carbon Monoxide NAAQS Review Panel
Public Meeting: March 22-23, 2010
Marriott at Research Triangle Park, NC**

Panel Members: Dr. Joseph Brain, Chair
Dr. Paul Blanc
Dr. Thomas Dahms
Dr. Russell Dickerson (by phone)
Dr. Milan Hazucha
Dr. Joel Kaufman (by phone)
Dr. Michael Kleinman
Dr. Francine Laden
Dr. Arthur Penn
Dr. Beate Ritz (by phone)
Dr. Paul Roberts
Dr. Stephen Thom

Unable to Participate: Dr. Laurence Fechter
Dr. H. Christopher Frey
Dr. Armistead (Ted) Russell
Dr. Anne Sweeney

SAB Staff: Ms. Kyndall Barry
Dr. Anthony Maciorowski

EPA Staff: Tim Benner, Souad Benromdhane, Stephen Graham, Erin Hines, Doug Johns, Meredith Lassiter, David McKee, Karen Martin, Connie Meacham, Deirdre Murphy, Lucas Neas, David Orlin, Beth Osterling-Owens, Ines Pagan, Jean Richmond-Bryant, Pradeep Rojan, Mary Ross, Kristen Simmons, Lydia Wegman

Public Participants: Jon Heuss, Air Improvement Resource, Inc.; Ted Johnson, TRJ Environmental; Harvey Richmond, retired EPA

Purpose: The CO Panel was convened to review the Agency's review the *Second Draft Risk and Exposure Assessment to Support the Review of the Carbon Monoxide Primary NAAQS* and the *Policy Assessment for the Review of the Carbon Monoxide National Ambient Air Quality Standards: First External Review Draft*.

Attachments: The meeting agenda, charge questions, presentations, public comments and preliminary review comments from the panel members may be found on the meeting website:

<http://yosemite.epa.gov/sab/sabproduct.nsf/MeetingCal/7C566DB673C1B98E852576CF0052DC5B?OpenDocument>

Meeting Summary

The discussion followed the issues and general timing as presented in the agenda, with a few modifications.

Monday, 22 March 2010

Ms. Kyndall Barry, Designated Federal Officer (DFO), opened the meeting with a statement that the CASAC CO NAAQS Review Panel will operate under the Federal Advisory Committee Act, whose meetings and deliberations take place in public with advance notice and opportunities for public participation. The DFO noted that Mr. Jon Heuss would be presenting comments on behalf of the Alliance of Automobile Manufacturers during the public comment period. Dr. Anthony Maciorowski, Deputy Director of the SAB Staff Office, welcomed all attendees to the meeting and thanked the Panel for their work on this review. He also thanked the Agency staff for their participation in the meeting. Dr. Joe Brain, the Panel Chair, reviewed the agenda and described the report format of the Panel's response to the charge on the 2nd draft REA and PA.

In the introductory presentation, Ms. Lydia Wegman of EPA's Office of Air and Radiation (OAR) gave an overview of the Agency's NAAQS review process. The CO review is on the following court-ordered schedule for completion: final Risk/Exposure Assessment (REA) by 28 May 2010; a final Policy Assessment (PA) in the Summer (2010); a Notice of Proposed Rulemaking by 28 October 2010; and final rule by 13 May 2011. Ms. Wegman noted that there would not be a second draft of the Policy Assessment. The purpose of the PA is to link the scientific evidence and the risk and exposure-based information, and present options for consideration. The PA presents as broad a spectrum of options that can be supported by the science, and she asked the Panel to comment on the range and its appropriateness. Dr. Maciorowski raised a key point regarding the Panel's recommendation of the level for the standard: the Panel should comment on the science that supports a level and the Panel should emphasize the science that supports its recommendations.

Drs. Deirdre Murphy and Stephen Graham then walked the Panel through the presentation entitled, "CO NAAQS Review: Draft Risk and Exposure Assessment." The presentation highlighted some of the important modifications to the REA from first to second draft, and the key results and uncertainties associated with the population exposure and dose estimate for the selected set of endpoints and at-risk, coronary heart disease (CHD) population. Staff also presented an example of how the REA results were utilized in the Policy assessment. Denver and Los Angeles remained the two study areas in the REA, but the second draft included a number of key additions: micro-environmental contributions to exposure, expansion of the modeling domain and number of monitors, and increased number of persons simulated. APEX was used to simulate population exposures and COHb dose levels for five air quality scenarios ranging from "as-is" to "just meeting" the current standards. Staff's conclusion from their analyses was that most persons, approximately 95%, of those simulated had COHb levels of less than one percent due to endogenous production. Panelists voiced concern over aspects of the method EPA used in the REA as well as the conclusions EPA staff reached based on the analyses. Specifically, the Panel felt the endogenous model was not reflective of the actual human populations. Panelists reiterated their concern that the Agency continued to exclude substantial numbers of persons that would immediately be impacted by CO emissions like pregnant women, persons with sickle cell disease and anemics.

During the public comment period, Mr. Jon Heuss presented comments on both the REA and PA on behalf of the Alliance of Automobile Manufacturers (AAM). AAM commended the Agency for significant improvement from the first to second draft REA and for the overall quality of the document. AAM agrees with the Agency's focus on the controlled human exposure studies. Mr. Heuss concluded with a statement that based on the evidence presented in both the REA and PA it was clear the current standards are sufficiently protective.

Following the public comment period, Dr. Brain led the Panel through its discussion of the REA. Two issues recurred in the Panel's review of the REA and were identified as critical needs for the CO review: expanding the at-risk population to include persons with cardiovascular disease, anemias, sickle cell disease, fetuses and pregnant women as well as strategies to minimize the uncertainties in exposure estimates resulting from sparse CO monitor-coverage and data-quality issues. Panelists continued to be concerned with the Agency's over-reliance on the older data sets produced during the classic, controlled human exposure studies despite the abundance of newer, epidemiologic studies at statutorily-relevant CO levels.

At the conclusion of the Panel's discussions on the REA, Dr. Brain laid out the process by which the Panel's consensus report would be developed and the format of the report. The Chair and the DFO would compile the language submitted by the workgroups into a single letter. Tuesday's discussion would start with the draft REA letter before moving on to address the PA charge questions.

Drs. Inez Pagan, Meredith Lassiter, and Pradeep Rajan walked the Panel through the presentation entitled, "CO NAAQS Review: Draft Policy Assessment." The purpose of the PA is to "bridge the gap" between the scientific information and the judgments required of the Administrator in determining whether it is appropriate to retain or revise the carbon monoxide standards. The PA builds upon the key scientific and technical information contained in the Agency's final ISA, as well as the REA, to answer the overarching question: are the current standards adequate? EPA staff derived maximum COHb levels for a simulated population using several air quality scenarios: one with the 8-hr standard unchanged and two alternative forms of the standard, 3-ppm and the 99th percentile (or fourth highest) daily maximum averaged across three years. Similar analyses were also performed for the 1-hr standard. The presentation concluded with the statement that "the data provides support for retaining or revising the current 8-hr standard." Panelists engaged EPA staff in discussions to better understand the potential statutory implications of the retaining the current standards versus the alternative standards being considered.

During the Panel's PA review, Dr. Maciorowski clarified a key point in the science and policy discussion: the Clean Air Scientific Advisory Committee serves to provide scientific and technical advice to the Administrator. Any advice and/or recommendations should be based on the science, especially as it relates to the science and analyses that support a range of a NAAQS. The Panel found that the PA was missing definitions of the basic elements of an air quality standard: indicator, averaging time, form and level. Although CO emissions are down below the current 8-hr standard across the U.S., there was agreement that the epidemiological evidence shows that health effects are occurring even at the current (in-compliance) exposure levels. The Panel noted that the epidemiologic data is suggestive that a revision downward in the standard may be warranted. There was further reiteration that the population at-risk has been underestimated due to the CAD designation.

Tuesday, 23 March 2010

The Panel resumed discussion of the PA on the second day. Doubtful that new controlled human exposure studies are forthcoming; Panelists agreed that there needed to be a better way to look at the epidemiological studies in the CO review. A strong sentiment resounded to model the strategies used in the PM and NO_x reviews, whereby meta analyses and more sophisticated re-analytical approaches were used to help develop concentration-response based on epidemiologic data. The Panel also merited an environmental/social justice parameter in the CO review: persons with low SES may not enjoy the same level of protection from the primary standard due to their living and working in close proximity to roadways, where monitoring for CO and other criteria pollutants has not been established. Finally, the Panel recommended EPA summarize the data gaps which have prohibit the true evaluation of a secondary standard and acknowledge the possible connection between CO and climate change.

The Panel then discussed the draft letters on the REA and PA. The Chair and the DFO compiled the language submitted from the workgroups into two letters, which were projected onto the screen and discussed by the Panel. By the end of the session, the Panel reached consensus on the major points as required by FACA and approved the intent of the letter. Editorial changes to the letter would be handled by the Chair and the workgroup leads. The DFO noted that draft letters with final review comments will be posted on the meeting website prior to the final review and approval by the statutory CASAC on April 19th.

Respectfully Submitted:

/s/

Ms. Kyndall Barry
Designated Federal Officer

Certified as True:

/s/

Dr. Joseph Brain, Chair
CASAC Carbon Monoxide
NAAQS Review Panel

NOTE AND DISCLAIMER: The minutes of this public 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 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.