

**Summary Minutes of the U.S. EPA Clean Air Scientific Advisory Committee (CASAC)  
Carbon Monoxide NAAQS Review Panel  
Public Teleconference Meeting on 8 April 2008**

Panel Members: See Panel Roster provided in Attachment A.

Date and Time: Tuesday, April 8, 2008, 1:00 PM – 3:30 PM

Location: by phone

Purpose: To conduct a consultation on EPA's *Draft Plan for Review of the Primary NAAQS for Carbon Monoxide* (March 2008).

Attendees: Chair: Dr. Rogene Henderson

CASAC Members: Dr. Ellis Cowling  
Dr. James Crapo  
Dr. Douglas Crawford-Brown  
Dr. Donna Kenski  
Dr. Jonathan Samet

Panel Members: Dr. Thomas Dahms  
Dr. Russell Dickerson  
Dr. Milan Hazucha  
Dr. Michael Kleinman  
Dr. Arthur Penn  
Dr. Beate Ritz  
Dr. Paul Roberts  
Dr. Stephen Thom

EPA SAB Staff: Ms. Kyndall Barry, Designated Federal Officer  
Dr. Vanessa Vu, Director

Other EPA Staff:

Office of Air and Radiation:

Ms. Lydia Wegman  
Dr. Karen Martin  
Dr. John Langstaff  
Dr. Dave McKee  
Mr. Harvey Richmond  
Ms. Rhonda Thompson

Office of Research and Development:

Dr. Mary Ross  
Dr. Tom Long  
Mr. Tom McCurdy

Attachments: CO Panel Roster; agenda; Federal Register Notice announcing the meeting; “Overview of the Integrated Plan for the Carbon Monoxide NAAQS Review” presentation by NCEA and OAQPS; individual comments by the CASAC and Panel members; and public comments.

### **Meeting Summary**

The discussion followed the issues and general timing as presented in the agenda, with a few modifications. Ms. Kyndall Barry convened the meeting and explained the CASAC CO Primary NAAQS Review Panel will operate under the Federal Advisory Committee Act. Dr. Vanessa Vu, Director SAB Staff Office, welcomed all attendees to the meeting and thanked the Panel for their individual comments as developed for the consultation. Dr. Rogene Henderson, the Panel Chair, moderated the introduction of the Panel. The Panelists in attendance briefly described their area of expertise, research interests, and prior work with CASAC. Dr. Henderson explained the purpose of the meeting was for the Panel to conduct a consultation on the Agency’s draft review plan.

An overview of the Agency’s new NAAQS review process was then presented by Ms. Lydia Wegman. Ms. Wegman informed the Panel that a deadline lawsuit had been filed against the Agency for the CO Primary NAAQS review, but that the court had not issued a schedule at the time of the meeting. The presentation included the following review schedule proposed by the Agency, which may be shortened pending a response from the court: the final Integrated Science Assessment by May 2010; final Risk/Exposure Assessment by January 2011; Notice of Proposed Rulemaking by February 2011; and final rule by July 2012. Dr. Mary Ross then summarized the activities that have taken place in the current CO NAAQS review; she also described the organization of the draft Integrated Review Plan (IP). During the public comment period, Jesse Marquez, Adriana Maciel, and Sofia Carrillo of the Coalition for a Safe Environment presented their respective remarks on the draft CO IP (see Attachment F).

For the consultation on EPA’s *Draft Plan for Review of the Primary NAAQS for Carbon Monoxide* (March 2008), the chapter review assignments were divided amongst the Panel. However, all panelists had the opportunity to comment on all sections of the IP.

The following issues recurred in the Panel’s discussions: the inadequacy of current, ambient air data (i.e. monitoring networks, detection levels, etc.); endogenous CO production and effects; consideration of “hot spots” and near-source environments for future case studies; averaging time of the standard; welfare effects associated with CO; and the appropriateness of a multi-pollutant approach for the CO review because of its interaction with other criteria pollutants. The Panel sought clarification on a few points including the Agency’s decision to rescind the secondary (welfare) standard for CO; the methodology for the risk and exposure assessments, to which the Agency asserted that effects are evaluated on a case-by-case basis for each criteria pollutant; the planned use of epidemiological studies for the CO review; and the use of animal exposure studies.

Dr. Henderson thanked everyone for their participation and requested members' revised comments by Tuesday, April 15<sup>th</sup>. Ms. Barry adjourned the meeting at 3:19 PM (EDT).

Respectfully Submitted:

*/signed/*

Ms. Kyndall Barry  
Designated Federal Officer

Certified as True:

*/signed/*

Dr. Rogene Henderson, Chair  
Clean Air Scientific  
Advisory Committee

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.

**U.S. Environmental Protection Agency  
Clean Air Scientific Advisory Committee  
CO Primary NAAQS Review Panel**

**CASAC MEMBERS**

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

**Dr. Ellis B. Cowling**, University Distinguished Professor At-Large Emeritus, 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. Douglas Crawford-Brown**, Professor Emeritus and Director Emeritus, Department of Environmental Sciences and Engineering and UNC Institute for the Environment, University of North Carolina at Chapel Hill, Chapel Hill, NC

**Dr. Donna Kenski**, Data Analysis Director, Lake Michigan Air Directors Consortium, Rosemont, IL

**Dr. Armistead (Ted) Russell**, Professor, Department of Civil and Environmental Engineering, Georgia Institute of Technology, Atlanta, GA

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

**PANEL MEMBERS**

**Dr. Thomas Dahms**, Professor and Director, Anesthesiology Research, Department of Anesthesiology and Critical Care, Saint Louis University School of Medicine, St. Louis, MO

**Dr. Russell R. Dickerson**, Professor and Chair, Department of Atmospheric and Oceanic Science, University of Maryland, College Park, MD

**Laurence Fechter, Ph. D.**, Research Scientist and Professor, Loma Linda VA Medical Center and Loma Linda University School of Medicine, Loma Linda, CA

**Dr. Milan Hazucha**, Professor, University of North Carolina at Chapel Hill, Chapel Hill, NC

**Dr. Michael T. Kleinman**, Professor, University of California – Irvine, Irvine, CA

**Dr. Arthur Penn**, Professor, Louisiana State University, Baton Rouge, LA

**Dr. Beate Ritz**, Professor, University of California – Los Angeles, Los Angeles, CA

**Dr. Paul T. Roberts**, Executive Vice President and Chief Scientific Officer, Sonoma Technologies, Inc., Petaluma, CA

**Dr. Stephen R. Thom**, Professor and Chief of Service, Institute for Environmental Medicine, University of Pennsylvania, Philadelphia, PA

**SCIENCE ADVISORY BOARD STAFF**

**Ms. Kyndall Barry**, Designated Federal Officer, 1200 Pennsylvania Avenue, NW  
1400F, Washington, DC, Phone: 202-343-9868, Fax: 202-233-0643, ([barry.kyndall@epa.gov](mailto:barry.kyndall@epa.gov))

**U.S. Environmental Protection Agency  
Clean Air Scientific Advisory Committee (CASAC)  
Carbon Monoxide Primary NAAQS Review Panel  
Agenda: Public Teleconference Meeting**

**Tuesday, April 8, 2008 – 1:00 to 5:00 p.m. Eastern Time**

**Advisory Meeting to Conduct a Consultation on  
EPA's Draft Plan for Review of the Primary NAAQS for Carbon Monoxide**

1:00 p.m.	Convene Teleconference	Ms. Kyndall Barry, DFO
1:05 p.m.	Welcome	Dr. Vanessa Vu, Director EPA SAB Staff Office
1:10 p.m.	Introductory Remarks	Dr. Rogene Henderson, Chair
1:15 p.m.	Overview of the Draft Plan from EPA's National Center for Environmental Assessment and Office of Air Quality Planning & Standards	Dr. Mary Ross, NCEA Dr. Karen Martin, OAQPS
1:30 p.m.	Public Comment Period	Ms. Barry (Facilitator)
1:45 p.m.	Panel Discussion	Chair and Panel
	<b><u>Topic</u></b>	<b><u>Discussant(s)</u></b>
	▪ <b>Key Policy-relevant Issues</b>	<u>Dr. James Crapo</u> Dr. Ellis Cowling
	▪ <b>Science Assessment</b>	Dr. Jon Samet <u>Dr. Thomas Dahms</u> Dr. Milan Hazucha Dr. Michael Kleinman Dr. Stephen Thom
	▪ <b>Risk/Exposure Assessment</b>	<u>Dr. Donna Kenski</u> Dr. Russell Dickerson Dr. Arthur Penn Dr. Beate Ritz Dr. Paul Roberts
	▪ <b>Policy Assessment/Rulemaking</b>	<u>Dr. Rogene Henderson</u> Dr. Douglas Crawford-Brown
4:30 p.m.	Summary and Next Steps	Dr. Henderson
5:00 p.m.	Adjournment	Ms. Barry

Attachment C: Federal Register Notice announcing the meeting

[Federal Register: March 11, 2008 (Volume 73, Number 48)]

[Notices]

[Page 12998]

From the Federal Register Online via GPO Access [wais.access.gpo.gov]

[DOCID:fr11mr08-63]

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ENVIRONMENTAL PROTECTION AGENCY

[FRL-8540-8]

Science Advisory Board Staff Office; Clean Air Scientific Advisory Committee (CASAC) Notification of a Public Teleconference of the Carbon Monoxide NAAQS Review Panel

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

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SUMMARY: The Environmental Protection Agency (EPA or Agency) Science Advisory Board (SAB) Staff Office announces a public teleconference of the Clean Air Scientific Advisory Committee (CASAC) Carbon Monoxide (CO) National Ambient Air Quality Standards (NAAQS) Review Panel (CASAC Panel) to conduct a consultation on EPA's Draft Integrated Plan for Review of the Primary National Ambient Air Quality Standards for Carbon Monoxide (March 2008).

DATES: The CASAC Panel will meet by public telephone from 1 p.m. to 5 p.m. (Eastern Time) on Tuesday, April 8, 2008.

FOR FURTHER INFORMATION CONTACT: Any member of the public who wishes to obtain further information concerning this public teleconference may contact: Ms. Kyndall Barry, Designated Federal Officer (DFO), EPA Science Advisory Board (1400F), U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, NW., Washington, DC 20460; via telephone/voice mail: (202) 343-9868; fax: (202) 233-0643; or e-mail at: [barry.kyndall@epa.gov](mailto:barry.kyndall@epa.gov). General information concerning the CASAC or the EPA SAB can be found on the EPA Web site at: <http://www.epa.gov/sab/>.

SUPPLEMENTARY INFORMATION:

Background: The Clean Air Scientific Advisory Committee (CASAC) was established under section 109(d)(2) of the Clean Air Act (CAA or Act) (42 U.S.C. 7409) as an independent scientific advisory committee. CASAC provides advice, information and recommendations on the scientific and technical aspects of air quality criteria and national ambient air quality standards (NAAQS) under sections 108 and 109 of the Act. The CASAC is a Federal advisory committee chartered under the Federal Advisory Committee Act (FACA), as amended, 5 U.S.C., App. The Panel will comply with the provisions of FACA and all appropriate SAB Staff Office procedural policies.

Section 109(d)(1) of the CAA requires that the Agency periodically review and revise, as appropriate, the air quality criteria and the NAAQS for the six ``criteria'' air pollutants, including carbon monoxide. EPA is currently reviewing the primary (health-based) NAAQS for CO. The current primary NAAQS for CO was first promulgated in 1971 and retained in 1985 and 1994. The

purpose of this public teleconference meeting of the CASAC CO Review Panel is to provide consultative advice on the Agency's Draft Integrated Plan for Review of the Primary National Ambient Air Quality Standards for Carbon Monoxide (March 2008). Background information about the CASAC CO review activities and about the formation of the CASAC CO Panel was published in the Federal Register on October 12, 2007 ([72 FR 58078-58080](#)).

Availability of Meeting Materials: The Draft Integrated Plan for Review of the Primary National Ambient Air Quality Standards for Carbon Monoxide (March 2008) will be available on the EPA's Web site at:

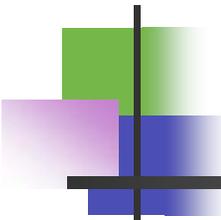
[http://www.epa.gov/ttn/naaqs/standards/co/s\\_co\\_index.html](http://www.epa.gov/ttn/naaqs/standards/co/s_co_index.html). For questions and information regarding the Agency's draft document, please contact Ms. Chris Trent at (919) 541-5337 or [trent.chris@epa.gov](mailto:trent.chris@epa.gov). The agenda and other materials for this CASAC teleconference will be posted on the SAB Web site at: <http://www.epa.gov/sab/> prior to the meeting.

Procedures for Providing Public Input: Interested members of the public may submit relevant written or oral information for consideration on the topics included in this advisory activity. Oral Statements: In general, individuals or groups requesting an oral presentation at a public teleconference will be limited to three minutes per speaker, with no more than a total of 30 minutes for all speakers. Interested parties should contact Ms. Barry, DFO, in writing (preferably via e-mail), by April 1, 2008, at the contact information noted above, to be placed on the list of public speakers for this meeting.

Written Statements: Written statements should be received in the SAB Staff Office by the same date, so that the information may be made available to the CASAC Panel for its consideration prior to this teleconference. Written statements should be supplied to the DFO in the following formats: One hard copy with original signature and one electronic copy via e-mail (acceptable file formats: Adobe Acrobat PDF, MS Word, WordPerfect, MS PowerPoint, or Rich Text files in IBM-PC/Windows 98/2000/XP format).

Accessibility: For information on access or services for individuals with disabilities, please contact Ms. Barry at the phone number or e-mail address noted above, preferably at least ten days prior to the meeting, to give EPA as much time as possible to process your request.

Dated: March 4, 2008.  
Anthony F. Maciorowski,  
Deputy Director, EPA Science Advisory Board Staff Office.  
[FR Doc. E8-4825 Filed 3-10-08; 8:45 am]



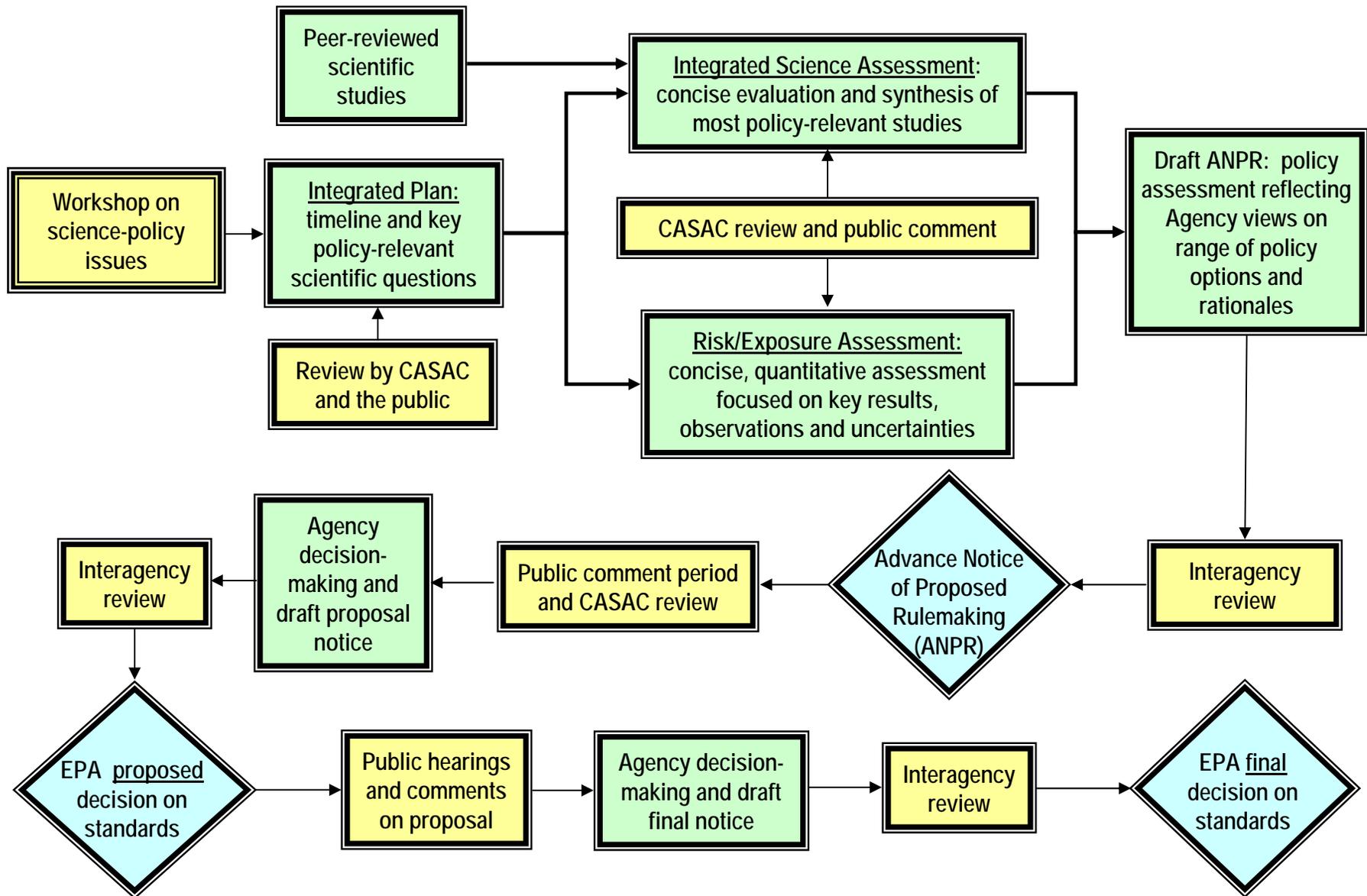
# EPA's Review of the Carbon Monoxide (CO) National Ambient Air Quality Standards (NAAQS)

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## Draft Integrated Review Plan

**CASAC Consultation**  
**April 8, 2008**

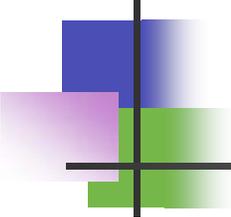
# New NAAQS Review Process



# Schedule for the Current Review

Major Milestones		Projected Completion Date	Projected CASAC Review Date
Workshops to Discuss Key Policy-Relevant Issues		January 2008	
Integrated Review Plan	Draft	March 2008	April 2008
	Final	May 2008	
Integrated Science Assessment	First Draft	June 2009	August 2009
	Second Draft	January 2010	March 2010
	Final	May 2010	
Risk/Exposure Assessment	Plan	July 2009	August 2009
	First Draft	February 2010	March 2010
	Second Draft	September 2010	November 2010
	Final	January 2011	
Policy Assessment/ Rulemaking	ANPR	February 2011	April 2011
	Proposed	October 2011	
	Final	July 2012	

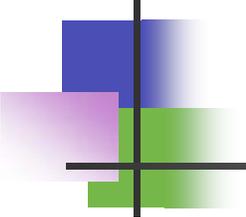
\*Indicates that a single CASAC meeting will address both documents



## Overarching Questions

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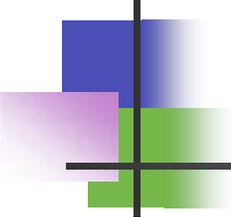
- In light of newly available information, is the current primary standard *requisite* to protect public health with an *adequate margin of safety*?
- If not, what revisions are appropriate in terms of *indicators, averaging times, levels and forms*?
- In light of newly available information, is a new secondary standard *requisite* to protect public welfare from any known or anticipated adverse effects?



# Integrated Review Plan Workshop

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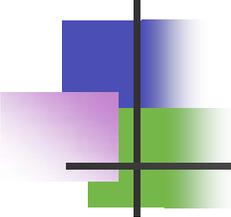
- A workshop was held on January 28-29, 2008 to inform the development of the draft integrated review plan
- Broad discussions of:
  - Key policy-relevant issues around which EPA would structure the review
  - Recommendations regarding the design and scope of the review
  - New and emerging scientific evidence
    - to inform our understanding of the key-policy relevant issues
    - to inform our ability to characterize and/or reduce the uncertainties identified in the last review



# Integrated Review Plan Workshop: Focus on Primary Standard

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- Participants included a wide range of external and internal experts representing a variety of areas of expertise (e.g., epidemiology, human and animal toxicology, atmospheric science, risk/exposure analysis, statistics)
- Two panel sessions addressed:
  - Planning for the review of the health effects evidence
    - Interpretation of epidemiologic and experimental evidence
    - Time periods of exposure
    - Sensitive subpopulations and health endpoints
    - Mechanistic evidence and biological plausibility
    - Integration of health evidence
  - Risk characterization
    - Critical factors for quantitative exposure assessment
    - Evidence and issues related to quantitative risk assessment



# Draft Integrated Review Plan: Organization of Document

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1. Introduction (including regulatory history)
2. Review Schedule
3. Key Policy-Relevant Issues
4. Science Assessment
5. Risk/Exposure Assessment
6. Policy Assessment/Rulemaking

Attachment E: 4/7/2008 Preliminary Comments from CASAC CO Primary NAAQS Review Panel on EPA's *Draft Plan for Review of the Primary NAAQS for Carbon Monoxide* (March 2008)

**Comments received:**

Dr. Douglas Crawford-Brown

Dr. Ellis Cowling

Dr. Thomas Dahms

Dr. Russell Dickerson

Dr. Milan Hazucha

Dr. Rogene Henderson

Dr. Michael T. Kleinman

Dr. Beate Ritz

Dr. Paul Roberts

Dr. Jonathan M. Samet

Dr. Stephen R. Thom

## **Dr. Douglas Crawford-Brown**

### **Review of EPA's Draft Plan for Review of the Primary NAAQS for Carbon Monoxide**

The document is intended solely to provide the general structure of a review, rather than details as to how this will be carried out. As a result, the following comments are general in nature and may change as the actual plan is formalized.

My most general comment is that the draft plan contains all of the relevant sections that must be completed to produce a full review. The authors have therefore not left out any major considerations. However, throughout the document, the authors raise a series of questions that will be addressed in each section without providing a succinct statement as to the role the answers to these questions will play in specific policy considerations. As a result, the reader is left unclear as to how any specific answer to any specific question might push the discussion of a NAAQS decision in any particular direction. Perhaps this was intentional on the part of the authors: trying not to judge how a particular answer might inform a final decision. But it leaves the reader unclear as to the intent behind specific questions, other than providing a scientific base on which any manner of decision might be based.

The authors raise the issue of co-pollutants, which will be important in using epidemiological studies. It is not clear, however, how these co-pollutants will be analyzed. Is the plan to treat them as confounders and then work to extract this confounding from any slope factors developed? Is the intent to examine the effect of CO exposures on the sensitivity of individuals to the co-pollutants, and the effect of the co-pollutants on the sensitivity of individuals to CO? The document doesn't give much of a hint as to how this issue will be treated. There is a sense at several points in the document that clinical, controlled studies might form the basis for any effects measures, which could avoid this issue, but this sense is never made fully concrete. There also is a hint that the assessment might stop at exposure or at blood levels, which again would avoid this issue (much as in the case of the early Pb standards). It would be good if some clarity on this issue could be provided.

On Page 3-2, the authors ask whether new data might indicate that effects occur at exposures lower than those previously found to induce effects. This question is too one-sided. It presumes that the only thing new data can do is push the assumed threshold for effects to lower values. New data might suggest that previous data suggesting a lower threshold were incorrect, and that the threshold is in fact higher than thought.

On Page 4-1, the authors mention a formal framework for integrating health effects, found in the second draft of the NO<sub>x</sub> document. The reader should not need to go to that document to at least find a summary of this framework, and in any event that document provides no such summary framework and so readers will come away from it with different conceptions of what the framework might be when applied to CO. More clarity is needed on precisely what this framework consists of.

On Page 4-2, the authors state that welfare effects will be noted if any are found during the search. However, the literature that is mentioned as forming the basis for the search, rooted only in human health sciences, is not the appropriate set of disciplines to locate papers on welfare effects. So I cannot see how the literature review will constitute a “hard look” at the relevant science on welfare effects.

Around Pages 4-7 and 4-8, the authors discuss the need to perform analyses of spatial and temporal variability. There is no description, however, of the role of these analyses in any specific decision on exposure, exposure-response, risk, etc. I certainly agree that analysis of variability is needed, but without a clear statement as to the purpose of the analyses, and the questions they are intended to support, it will not be possible to determine whether appropriate statistical methods and databases are being used.

The same problem arises on Page 4-8 when the authors discuss uncertainty analyses. They mention, for example, uncertainty in extrapolating between area monitors and personal exposures. However, no insight is provided as to why this uncertainty would be important for specific questions to be addressed (I agree it IS important, but the document doesn't give a hint as to why).

On Page 4-9, at the bottom, the authors list a series of effects that will be considered. While I agree with this list, no hint is given as to how it was compiled based on past studies. Clarity is needed here.

On Page 4-12, developmental and birth outcomes are mentioned as chronic effects. Why are they only considered chronic effects? Surely such effects might occur with shorter-term exposures during critical developmental periods.

On Page 4-12, the authors raise the issue as to whether CO might stand as a surrogate for exposure to the mixture of pollutants from vehicles. I could not find any explanation as to why they might want to know this. The CO NAAQS doesn't stand as a surrogate for control on exposures to these other pollutants.

On that same page, the authors mention the exposure-response curve for CO. They formulate the question as one of determining the shape of that curve. But they don't formulate it as an issue of uncertainty ABOUT the shape of that curve, or how different curves would produce different NAAQS results. That bullet needs to be rethought.

At the bottom of Page 4-14, the authors ask for any medical conditions or medications that make an individual susceptible. I suspect that there might also be activities (e.g. running near roadways) that make them susceptible.

On Page 4-15, the authors ask about the extent to which the elderly and fetuses are more susceptible. This seems to me to beg the question, which should be about the extent to which they DIFFER in susceptibility one way or the other. If the authors want to restrict the question to increased susceptibility, they need to include a justification for this (perhaps in past literature suggesting increased susceptibility in these groups).

On Page 5-3, the authors first introduce the idea of using 2.1 % COHb as an effects threshold. But no justification is given for this. I realize it is analogous to the approach in Pb exposures, and that the figure of 2.1 % is based on past decisions at the EPA, but this needs to be explained so the reader has some context for the decision here.

On Page 5-4, it would be good to know why the CO NAAQS review in 1999 was put on hold and never completed.

Some material is missing in the incomplete bullet at the top of Page 5-6.

The final bullet on that page considers the relationship between the 1 and 8 hour exposures. But no explanation is given as to why this is of interest (I agree it is, but the document should state the reason).

On Page 5-8, it is not clear whether temporal variability will be used to estimate a rolling average for exposures, or whether the timeline will be discretized and averages calculated only in the discrete intervals. These generally give slightly different results with differing degrees of variability.

On the bottom of Page 5-10, the authors ask whether a given factor contributes to uncertainty in a way that over-or-under-states the risk/exposure. But a given factor could be neutral on average, neither systematically under-or-over-stating the risk/exposure.

On Page 5-11, the authors state that the ideal way to assess uncertainty due to model formulation is to compare model results against data. No further clarification of this comment is given. I note first that such an approach requires assumptions as to the validity of the data, especially in geographic areas with high degrees of spatial variability. And I can see how this can be used to assess the quality of one model, but don't see how it is to be used to compare the degrees of belief in competing models in characterizing uncertainty due to model formulation.

In that same paragraph, the authors speak of partitioning uncertainty into model components. Is some form of contribution to variance intended here? I assume it is, but this is not stated.

Section 6 is too generic to justify any further statements here. It would be of interest only if the reader were provided a succinct statement of the policy questions to be addressed and how these are related to the answers to specific questions asked in the previous sections.

The Morgan and Henrion 1990 reference appears to be missing from the References section even though it is called out in the text.

## **Dr. Ellis Cowling**

### **Individual Comments on the March 2008 Draft Plan for Review of the Primary National Ambient Air Quality Standard for Carbon Monoxide**

#### **Very General Comments on these NAAQS Review Processes**

Before dealing with the details of my specific assignment during the April 8, 2008 CASAC Consultation on the Primary (public-welfare based) NAAQS for Carbon Monoxide (CO), I would like to offer a few general comments about these periodic NAAQS Review processes and the changes that are being made in both the organization and focus of these reviews.

As described on pages 1-2 of the “Draft Plan” for review of the primary NAAQS for CO, the Clean Air Act of 1970 established two general goals for management of air quality in the United States -- protection of human health and protection of public welfare. Section 108 of the CAA directs the Administrator of EPA to identify and list “air pollutants” that “in his judgment may reasonably be anticipated to endanger public health and welfare” and to issue air quality criteria for those that are listed – hence the term “Criteria Pollutants.”

Section 109 of the CAA further directs the Administrator of EPA to propose and promulgate “Primary” National Ambient Air Quality Standards to protect public health and “Secondary” National Ambient Air Quality Standards to protect public welfare.

A secondary standard, as defined in Section 109, must “specify a level of air quality the attainment and maintenance of which, in the judgment of the Administrator, based on such criteria, is required to protect the public welfare from any known or anticipated adverse effects associated with the presence of [the] pollutant in the ambient air ...” The welfare effects of concern include, but are not limited to “effects on soils, water, crops, vegetation, man-made materials, animals, wildlife, weather, visibility and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being.”

So far, the several Administrators of EPA since 1970 have:

- 1) Identified six specific “Criteria Pollutants” – carbon monoxide, ozone and other photochemical oxidants, sulfur dioxide, oxides of nitrogen, particulate matter, and lead – which have thus been designated officially as requiring development and implementation of National Ambient Air Quality Standards;
- 2) Emphasized protection of public health as the principal (and overwhelmingly important) *de facto* focus of concern within the Agency, and public welfare as a (rarely openly acknowledged) but distinctly less important *de facto* focus of concern;
- 3) Established Secondary (public-welfare-based) NAAQS standards for all six criteria pollutants that almost always were identical in form (including level, indicator, statistical

form, and averaging time) to the Primary (public- health based) NAAQS standards for each of these six criteria pollutants;

- 4) Developed a long-standing tradition of dealing with these six specific air pollutants mainly on a “one-at-a-time” basis rather than collectively – i.e., without strong attention to the frequent interactions and simultaneous occurrence of some of these pollutants as mixtures within the air in various parts of our country;
- 5) Maintained a reluctant attitude about the concepts of ecologically based “Critical Loads and Critical Levels” developed in Europe as possible alternative or additional approaches to air-quality management in the US; and
- 6) Maintained a long-standing general focus on the related concepts of:
  - a) “attainment counties and non-attainment counties,”
  - b) “attainment demonstrations” based on mathematical modeling of a limited number of exceedance events under extreme weather conditions, and
  - c) “local anthropogenic sources” as opposed to “both local and regional biogenic and anthropogenic sources of emissions.”

In recent years, in contrast to several of the six ideas listed above, EPA has shown increased willingness to think more holistically – and in more fully integrated ways – about both the policy-relevant science and the practical arts of air quality management aimed at protection of both public welfare and public health. These shifts in both emphasis and approach have included:

- 1) Participation with other federal agencies and international bodies in discussions about the “One Atmosphere,” “Critical Loads–Critical Levels,” and “Multiple-Pollutant–Multiple Effects” concepts;
- 2) Adoption of the “NO<sub>x</sub> SIP Call” in 1999 and both the “Clean Air Interstate Rule” (CAIR) and the “Clean Air Mercury Rule” (CAMR) in 2005 with their more balanced perspectives about both regional (interstate) and local sources of emissions and interactions among NO<sub>x</sub>, SO<sub>x</sub>, VOCs, “air toxics,” and mercury in the formation, accumulation, and biological effects of “ozone and other photochemical oxidants,” and fine, coarse, thoracic, and secondary aerosol particles;
- 3) Recognition of both fine and coarse PM as complex and geographically variable mixtures of sulfate-, nitrate-, and ammonium-dominated aerosols; natural biogenic and anthropogenic organic substances; heavy metals including cadmium, copper, zinc, lead, and mercury; and some other miscellaneous substances;
- 4) More frequent discussion about of the occurrence and both ecologically-important and public-health impacts of mixtures of air pollutants; and, most recently
- 5) Making the unprecedented decisions (at least in the case of the NAAQS reviews for oxides of nitrogen and sulfur) to:
  - A) Separate the preparation and review of documentation, the required CASAC and public reviews, and the final decision-making processes for the Secondary (public-

welfare-based) National Ambient Air Quality Standards from the (previously always dominating) Primary (public-health-based) NAAQS review processes, and

- B) Prepare and publish a single draft plan for integrated [simultaneous] of two different criteria pollutants (NO<sub>x</sub> and SO<sub>x</sub>), and
- 6) Identify in advance a set of Key Policy-Relevant Questions that will be the primary focus of attention in the design and completion of all four major components of the new NAAQS review processes:
  - A) An Integrated Review Plan (IRP),
  - B) An Integrated Science Assessment (ISA),
  - B) A Risk/Exposure Assessment (REA), and
  - C) A Policy Assessment/Rulemaking document developed in the form of an Advanced Notice of Proposed Rule Making (ANPR).

All six of these adjustments in focus of attention, documentation requirements, and sequential procedures are being undertaken with the intention to:”

“... improve the efficiency of the process while ensuring that the Agency’s decisions are informed by the best available science and timely advice from CASA and the public” ... and

“... help the agency meet the goal of reviewing each NAAQS on a 5-year cycles as required by the Clean Air Act without compromising the scientific integrity of the process.”

### **Need for Policy Relevancy as the Dominant Concern in NAAQS Review Processes**

In a May 12 2006 summary letter to Administrator Johnson, CASAC Chair, Dr. Rogene Henderson, provided the following statement of purpose for these periodic NAAQS review processes.

“CASAC understands the goal of the NAAQS review process is to answer a critical scientific question: *“What evidence has been developed since the last review to indicate if the current primary and/or secondary NAAQS need to be revised or if an alternative level or form of these standards is needed to protect public health and/or public welfare?”*

During the past 18 months, CASAC has participated in reviews of three of the existing six criteria pollutants – particulate matter, ozone, and lead. CASAC has also joined with senior EPA administrators in a “top-to-bottom review” and the resulting recently-completed revision of the NAAQS review processes. These two experiences have led to a seemingly slight but important need for rephrasing and refocusing of this very important “critical scientific question:”

***“What scientific evidence and/or scientific insights have been developed since the last review that either support or call into question the current public-health based and/or the***

*current public-welfare based NAAQS, or if alternative levels, indicators, statistical forms, or averaging times of these standards are needed to protect public health with an adequate margin of safety and to protect public welfare?”*

With regard to the important distinction in purpose of the primary (public health) and secondary (public welfare) NAAQS standards, it is noteworthy that in all five cases in which a secondary NAAQS standard has been established, the secondary standard has been set “Same as Primary.”

Thus, a second very critical scientific question that needs to be answered for CO as well as the other criteria air pollutants is:

*“What scientific evidence and/or scientific insights have been developed since the last review to indicate whether, and if so, what particular ecosystem components or other air-quality-related public welfare values, are more or less sensitive than the populations of humans for which primary standards are established and for this reason may require a different level, indicator, statistical form, or averaging time of a secondary standard in order to protect public welfare.”*

I hope these two “critical scientific questions” will be borne in mind carefully as CASAC joins with the various relevant parts of the Environmental Protection Agency in completing the upcoming reviews of both the primary and secondary National Ambient Air Quality Standards for CO, NO<sub>x</sub>, SO<sub>x</sub>, PM, ozone, and lead.

We now have the considerable advantage that a much more complete focus can be achieved in the Integrated Science Assessment than has historically been achieved in the encyclopedic Criteria Documents that have been prepared during the years since 1970.

**Thus, I recommend that every chapter of the soon to be completed Integrated Science Assessment, the Risk/Exposure Assessment, and the Policy Assessment/Rule Making documents for CO contain a summary section composed almost entirely of a series of very carefully crafted statements of Conclusions and Scientific Findings that:**

- 1) Contain the distilled essence of the most important topics covered in each chapter, and**
- 2) Are as directly relevant as possible to the two Critically Important Scientific Questions written in bold italic type above.**

**In this connection, I call attention once again to the attached “Guideline for Formulation of Statements of Scientific Findings to be Used for Policy Purposes.”** These guidelines were developed and published in 1991 by the Oversight Review Board for the National Acid Precipitation Assessment Program. They are the best guides that I know of for formulation of scientific findings to be used for policy purposes.

## GUIDELINES FOR FORMULATION OF SCIENTIFIC FINDINGS

### TO BE USED FOR POLICY PURPOSES

The following guidelines in the form of checklist questions were developed by the NAPAP Oversight Review Board to assist scientists in formulating presentations of research results to be used in policy decision processes.

- 1) **IS THE STATEMENT SOUND?** Have the central issues been clearly identified? Does each statement contain the distilled essence of present scientific and technical understanding of the phenomenon or process to which it applies? Is the statement consistent with all relevant evidence – evidence developed either through NAPAP research or through analysis of research conducted outside of NAPAP? Is the statement contradicted by any important evidence developed through research inside or outside of NAPAP? Have apparent contradictions or interpretations of available evidence been considered in formulating the statement of principal findings?
- 2) **IS THE STATEMENT DIRECTIONAL AND, WHERE APPROPRIATE, QUANTITATIVE?** Does the statement correctly quantify both the direction and magnitude of trends and relationships in the phenomenon or process to which the statement is relevant? When possible, is a range of uncertainty given for each quantitative result? Have various sources of uncertainty been identified and quantified, for example, does the statement include or acknowledge errors in actual measurements, standard errors of estimate, possible biases in the availability of data, extrapolation of results beyond the mathematical, geographical, or temporal relevancy of available information, etc. In short, are there numbers in the statement? Are the numbers correct? Are the numbers relevant to the general meaning of the statement?
- 3) **IS THE DEGREE OF CERTAINTY OR UNCERTAINTY OF THE STATEMENT INDICATED CLEARLY?** Have appropriate statistical tests been applied to the data used in drawing the conclusion set forth in the statement? If the statement is based on a mathematical or novel conceptual model, has the model or concept been validated? Does the statement describe the model or concept on which it is based and the degree of validity of that model or concept?
- 4) **IS THE STATEMENT CORRECT WITHOUT QUALIFICATION?** Are there limitations of time, space, or other special circumstances in which the statement is true? If the statement is true only in some circumstances, are these limitations described adequately and briefly?
- 5) **IS THE STATEMENT CLEAR AND UNAMBIGUOUS?** Are the words and phrases used in the statement understandable by the decision makers of our society? Is the statement free of specialized jargon? Will too many people misunderstand its meaning?
- 6) **IS THE STATEMENT AS CONCISE AS IT CAN BE MADE WITHOUT RISK OF MISUNDERSTANDING?** Are there any excess words, phrases, or ideas in the statement which are not necessary to communicate the meaning of the statement? Are there so many caveats in the statement that the statement itself is trivial, confusing, or ambiguous?
- 7) **IS THE STATEMENT FREE OF SCIENTIFIC OR OTHER BIASES OR IMPLICATIONS OF SOCIETAL VALUE JUDGMENTS?** Is the statement free of influence by specific schools of scientific thought? Is the statement also free of words, phrases, or concepts that have political, economic, ideological, religious, moral, or other personal-, agency-, or organization-specific values, overtones, or implications? Does the choice of how the statement is expressed rather than its specific words suggest underlying biases or value judgments? Is the tone impartial and free of special pleading? If societal value judgments have been discussed, have these judgments been identified as such and described both clearly and objectively?
- 8) **HAVE SOCIETAL IMPLICATIONS BEEN DESCRIBED OBJECTIVELY?** Consideration of alternative courses of action and their consequences inherently involves judgments of their feasibility and the importance of effects. For this reason, it is important to ask if a reasonable range of alternative policies or courses of action have been evaluated? Have societal implications of alternative courses of action been stated in the following general form?:

"If this [particular option] were adopted then that [particular outcome] would be expected."

- 9) **HAVE THE PROFESSIONAL BIASES OF AUTHORS AND REVIEWERS BEEN DESCRIBED OPENLY?** Acknowledgment of potential sources of bias is important so that readers can judge for themselves the credibility of reports and assessments.

### **My Assignment in this CASAC Consultation on the Draft Plan for Review of the NAAQS Primary Standard for Carbon Monoxide**

My specific assignment in preparation for the April 8, 2008 CASAC Consultation on the Draft Plan for review of the NAAQS for CO, as outlined in Chairman Rogene Henderson's memo of 7 March 2008, is -- *Key Policy-Relevant Issues*. Rogene also asked Jim Crapo to deal with these same issues. Thus, I am very much looking forward to comparing notes with Jim during our Consultation on April 8 – especially since he knows so much more than I do about public health effects of CO and other Criteria Pollutants.

These Key Policy-Relevant Questions are summarized on pages 3-1 through 3-3 in Section 3.2 and are presented as a series of thirteen major policy-focused "Issues to be considered in the current review". In addition, several other detailed questions are presented in the several Sub-sections of Chapter 4. In most cases, however, these more detailed questions are focused mainly on scientific issues rather than policy issues and, I presume, will be dealt with adequately by other members of our CASAC Carbon Monoxides Panel.

I see the decision to develop "Key Policy-Relevant Policy Questions" as a part of these Draft Plans for NAAQS reviews as a major step forward. I am also very satisfied with the particular set of 13 such questions listed in Chapter 3 of this Draft Plan. Of course they all relate to the effects of CO on public health – which is the principal focus of this NAAQS review.

In addition, however, I also note that Section 1.3 – History of Reviews of the NAAQS for CO -- indicates that identical primary and secondary NAAQS standards for CO were promulgated in 1971 and that the decision was made in 1985 to revoke the secondary standard. The rationale for this decision was not included in this "History" section,

But Section 1.4 – Scope of the Review – also indicates that

“ ... relevant scientific information on human exposures and health effects associated with exposures to ambient concentrations of CO will be assessed. The possible influence of other atmospheric pollutants on the interpretation of the role of CO in health effects studies will be considered. This will include other pollutants with the potential to co-occur in the environment (e.g., NO<sub>2</sub>, SO<sub>2</sub>, O<sub>3</sub>, and PM). The review will also assess any relevant scientific information associated with known or anticipated public welfare effects that may be identified.”

Thus, because of my keen scientific interest in the welfare effects of criteria pollutants, I believe it is essential that both current and past scientific literature be examined closely to determine if:

- A) There are significant public-welfare effects that are caused by ambient concentrations of CO acting alone or in combination with other criteria pollutants. – and thus, in essence to determine if the 1985 decision to revoke the secondary NAAQS standard for CO is valid in the context of current scientific knowledge --especially about the effects of CO on the health of both domestic and wild animals, and perhaps also on crop, forest, and ornamental plants, insects, and microorganisms as well.
  
- B) There are significant interactions of ambient concentrations of CO with other co-occurring Criteria Pollutants in terms of their potential to cause either additive, competitive, or no significant interactions with regard to the effects of CO on both public health and public welfare, and
  
- C) Since CO is a chemical precursor of ozone in ambient air, to determined if there are significant contributions of ambient concentrations of CO from both locally occurring, regional, and even far distant wild fires that contribute to the accumulation of ozone near the ground in urban, suburban, rural, and even remote regions of our country.

I suggest this last issue for inclusion in the First Draft Integrated Science Assessment for CO as a result of the discovery by Wotawa and Trainer during the 1994 and 1995 Nashville-Middle Tennessee Ozone Study by the Southern Oxidants Study -- where a coherent plume containing extraordinarily high concentrations of CO were observed for several days about 50 miles east of Nashville and could be traced to wild fires in the Northwest Territories of Canada that persisted over a six-week period.

Wotawa, G. and M. Trainer. 2000. The influence of Canadian forest fires on pollutant concentrations in the United States. *Science* 288:324-328.

## Dr. Thomas Dahms

### Section 3. Key policy-relevant Issues

#### 3.2 Issues to be considered in the current review

- Better understanding of effects on subpopulations

It is my understanding that previous documents were unable to establish any non-toxicological effects of CO on the respiratory system unlike 4 other regulated pollutants. In the 2000 AQC for CO lungs were implicated as being involved in the decrease in exercise performance with CO exposure in healthy individuals with no evidence that this was due to an effect on the lungs. (Table 6-12 page 6-50). There needs to be a determination as to whether or not CO effects the lungs. If there is no effect of CO on the lungs, this area of investigation should be dropped as it is only distracting to the users of this document.

- Alternate dose indicators other than COHb

Is there insight to be gained from data on mechanism by which CO has metabolic effects on tissues? Are there long lived markers of exposure that could be used to support the use of COHb? The suggested use of %O<sub>2</sub>Hb would merely be a mathematical manipulation. A supposition was made in the 2000 that the hypoxia from altitude and the hypoxia resulting from CO would be additive. Evidence for this should be evaluated as it could place a significant number of residents who reside at altitude at risk when exposed to CO.

#### 3.2.2. Evidence needed for revision of standard

##### a. evidence of effects at levels lower than current standard

- Q: do exposure estimates suggest that exposures of concern occur?

This statement implies that if sufficient exposures do not occur that the current level is not supported. If this is the case how does EPA set standards that allow a reasonable margin of safety?

- Q: do health effects evidence and air quality/exposure assessment provide support for considering different exposure indices or averaging times?

This would have to be based on modeling of real time exposures. Is there data available to support such a change?

- Q: what range of levels is supported?

What guidance is provided for the data necessary to support recommending a range of levels?

- Q: what is the range of forms supported

How does this statement pertain to atmospheric CO?

## **Section 4. Science Assessment**

### 4.2.2 Literature Search

Will only peer reviewed material be included in the database? [The previous AQC documents in this field have unreferenced material in them. It is not clear how this material should be used by the authors of the ISA.]

It is not clear how this data base will be made available to the authors of the ISA. Will articles not referred to by the authors be in this literature data base? This is implied by the way it is written.

### **Specific Comments**

Page 4-1, line 29. "Emphasis will be placed on studies conducted at or near CO concentrations found in ambient air". [Given the uncertainty in CO dosimetry and the falling atmospheric levels of CO, should this statement provide better guidance?]

Page 4-2, line 1. Multiple studies have been carried out in the most sensitive population for CO. Therefore this language does not provide the ISA authors clear direction.

Page 4-5. line 1. This statement implies that if the data is unique that the paper(s) should be included even though they do meet the other stringent criteria? It also implies that confirmatory data is of less importance which is clearly not the case.

Page 4-6. lines 4-10. The toxicology experiments and the health effects experiments often used exposures that result in relatively rapid increases in concentrations of COHb. Hardly any of these experimental exposures would meet the guidelines as written in the draft. Alternate guidance should be provided..

Page 4-6. line 25. How does the inclusion of non-peer reviewed material provide any assurance of quality?

Page 4-7. line 21. What do current atmospheric levels of CO have to do with setting levels of acceptable human exposure? It should not matter if atmospheric levels have decreased, there should remain a level(s) that should not be exceeded. If atmospheric levels are decreasing, the issue becomes one of how to alter enforcement not alter criteria setting. If atmospheric levels are decreasing it will become more difficult to demonstrate epidemiological effects of CO in the US and Canada.

Page 4-8. line 5... This section clearly identifies key questions that the ISA needs to attempt to answer.

Page 4-9. line 14. The original CFK model includes endogenously produced CO in the factors considered for predicting increments in COHb.

Page 4-10. line 4-6. Endogenous formation of CO in all mammals is not new information. What is potentially new is that there exists the potential for regional/tissue differences in partial pressure of CO due to local endogenous production, i.e., non-heterogenous distribution of CO. The task should be to determine the tissue levels of CO (partial pressure of CO) that would exist when hemoxygenase is activated. These local endogenous levels of CO in addition to increased exogenously derived levels could generate local levels of COHb that would produce health effects in sensitive tissue not predicted by the current methods of assessing effective exposure.

Page 4-14. lines 7-8 and line 22. Based on what is well documented in the structural changes in coronary vessels of patients with ischemic disease, the document fails to request such a brief description of the pathophysiology. Without this information the reader will not be able to understand how any mechanism identified in response to lines 7-8 fails to function in those subjects with ischemic heart disease.

## Dr. Russell Dickerson

Comments EPA's *Draft Plan for Review of the Primary National Ambient Air Quality Standard for Carbon Monoxide* for the teleconference on April 8, 2008

Three noteworthy topics: The current monitoring program is inadequate but could easily be improved; CO plays a major role in the budgets of other criteria pollutants and other environmental problems and thus a secondary standard warrants serious consideration; the process by which the scientific judgment of the CASAC and its focus groups is used in forming policy needs careful consideration - especially in light of the recent problems with PM<sub>2.5</sub> and ozone standards.

On page 4-7, we may be asking the wrong questions. It might be better to ask "how can current monitoring methods for CO be modified to provide information adequate to determine CO exposure, statistics of ambient concentrations, to evaluate models, etc?" CO, even at concentrations well below the NAAQS, is responsible for a large fraction of the OH reactivity and thus production of HO<sub>2</sub>, H<sub>2</sub>O<sub>2</sub>, and O<sub>3</sub> over the US, but emissions inventories and monitoring methods are inadequate. Direct investigation of HO<sub>x</sub> chemistry has quantified the role of CO as responsible for 10's of percents of the total OH reactivity (e.g., Ren et al., 2005; Ren et al., 2008). The ratio of emissions of CO/NO<sub>x</sub> (based on road-side research grade measurements) has decreased dramatically, but MOBILE6 CO/NO<sub>x</sub> emission ratios have not followed this trend - they are too high now. MOBILE6 indicates a ratio of 15:1 while current measurements show 5-8 (Bishop and Stedman, 2008; Parrish, 2006). In other words, current CO monitors as employed can not determine the concentration of CO much of the time, but with relatively minor modifications, these monitors can be improved such that the detection limits are essentially always sufficient for ambient CO mixing ratios [Dickerson and Delany, 1988; Parrish et al. 2000). The Maryland Dept. of the Environment operates one at Piney Run, MD. The manufacturers of CO analyzers have indicated a willingness to improve the instruments for commercial sales.

The atmospheric chemistry and physics of CO are relatively simple and well understood, making it enormously useful as a tracer. Improved monitors would provide data useful to

- evaluate emissions inventories
- investigate the epidemiology of CO
- evaluate chemical transport models (such as CMAQ) for ozone and PM<sub>2.5</sub>
- determine the impact of CO emissions on the large scale composition of the atmosphere and climate.

Although the EPA did not complete the review which started in 1997, a revised CD was prepared and reviewed. That CO CD recommended changes in monitoring technique to provide data

useful to models. Ambient concentrations are typically below 300 ppb and commercial CO analyzers can be easily modified to improve the resolution from 200 to 20 ppb. While current monitors are adequate to demonstrate compliance with the NAAQS, ambient concentrations are frequently below detection limits.

Global atmospheric composition, the oxidizing capacity of the troposphere, and climate forcing should be considered in formulating a secondary standard for CO to protect public welfare. In addition to its direct health effects, the environmental effects of CO include:

- A core precursor to ozone.
- As a precursor to the oxidants that form PM<sub>2.5</sub>.
- An impact on the large-scale composition, and oxidizing capacity of the atmosphere.
- A role in global radiative balance and climate.

I am not clear on the new review procedures, but the comment by Dr. Henderson “The CASAC is a science advisory body and we cannot give the EPA our advice if the scientific analyses of the EPA staff are obscured from us,” needs substantial discussion.

## References

- Parrish, D.D., Critical evaluation of US on-road vehicle emission inventories, *Atmospheric Environment*, 40, 2288-2300, 2006.
- Dickerson, R. R., and A. C. Delany (1988), Modification of a commercial gas filter correlation CO detector for enhanced sensitivity, *J. Atmos. Ocean Technol.*, 5, 424-431.
- Bishop, G. A., and D. H. Stedman, A Decade of On-road Emissions Measurements, *Environ Sci. Technol.*, 2008.
- Ren, X.R., et al., Hydroxyl and Peroxy Radical Chemistry in a Rural Area of Central Pennsylvania: Observations and Model Comparisons, *J. Atmos. Chem.*, 2005.
- Ren, X.R., et al., HO<sub>x</sub> chemistry during INTEX-A 2004: Observation, model calculation, and comparison with previous studies, *J. Geophys. Res.*, 2008.

## **Dr. Milan Hazucha**

The Plan for Review (Plan) is structured around a series of critical activities/tasks clustered into four key components that have to be accomplished in developing the ISA and Annexes for CO. Generally, the ISA and supporting ANNEX documents approach has been successfully used in the development of recent NAAQS documents. The Plan review schedule as proposed is reasonable.

One of the changes from the previous approaches to NAAQS reviews is the proposed elimination of a staff paper. The staff paper served as a compendium, an extended summary of the ISA, generally incorporating answers to questions raised in a respective review plan. In the absence of staff paper the ISA should include a Chapter where each of the questions raised in the Plan will be briefly, in a couple of sentences or a short paragraph, answered. This will help to quickly identify the areas which may have not been addressed or overlooked as well as identify the gaps in the current scientific knowledge and database(s).

Apart from eliminating the staff paper, I think that only minor adjustments, most likely specific in nature, will be required to the proposed Plan. My suggestions for changes/modifications in Chapter 4 are listed below.

Page 4-4, line 5: Include ISI Web of Knowledge database in the search list. Of all mentioned databases, ISI is the most comprehensive database and includes publications not found in other databases.

Page 4-4, line 19: Delete “pertinent”. We do not know yet how pertinent those studies are.

Page 4-4: Will EPA consider potentially pertinent studies published in a foreign language? Will they be translated by EPA?

Page 4-5 line 4: List of conditions should be expanded to add “Sufficient statistical power”

Page 4-5, line 9: Insert after the word “issues “ the following text “fully discussed in Annexes” .

Page 4-5. Change the subtitle to read “Criteria for Selecting Pertinent Field and Epidemiological Studies.”

Page 4-5, line 24-27: Suggest to change the sentence to read:” Certain findings of the studies conducted in the U.S. may be generally discussed .....”.

Page 4-6, line 4: Change subtitle to “Criteria for Selecting Human Laboratory, Clinical and Animal Toxicological Studies.”

Page 4-6, 2<sup>nd</sup> para: There is no discussion about selection criteria for animal studies.

Page 4-6, line 8-10: It is highly unlikely that any of the mechanisms can be elucidated under atmospherically relevant conditions. The sentence should be deleted or reworded.

Page 4-7, l. 24: Insert “and temporal “ between the words spatial and variability.

Page 4-8: One of the questions that should be included in this section is: “What is the effect of averaging time on health risk assessment?”

Page 4-10, l. 28: Reword. The time to onset of angina is not an endpoint for healthy individuals.

Page 4-11, lines 1-6: The, this aim is identical to the preceding one. Delete.

Page 4-11, line 7-9. The answer is none to inconsequential at relevant ambient exposure conditions. . Delete this question/aim.

Page 4-13, line 10: Insert “human laboratory and” between “with “ and “toxicologic”.

Page 4-15, line 28-29. The first goal should be “to comprehensively and critically review the literature and subsequently identify.....” as stated on p.1-2, line 11-13.

I also suggest adding a Chapter at the end of the ISA discussing commonalities and differences, if any, of key factors and studies that have led to and determined the current WHO, EU and the NAAQS for CO.

## **Dr. Rogene Henderson**

Comments on Section 6. Policy Assessment/Rulemaking of the US EPA Draft Plan for Review of the Primary NAAQS for Carbon Monoxide.

In a letter to the Administrator dated January 23, 2008, the CASAC expressed their opposition to the use of an ANPR as a Policy Assessment document at the end of the NAAQS review process and that opposition still exists. As pointed out in that letter, the ANPR is a document that belongs at the beginning of the review process, not at the end, because the ANPR (Advance Notice of Proposed Rulemaking) is meant to describe every possible choice that might be considered.

In a memo from Assistant Administrator Marcus Peacock of December 7, 2006, the ANPR/Policy Assessment Document was described as containing essentially the analyses that had been in the former staff paper plus modifications related to EPA management concerns. The ANPR that was presented to CASAC at the end of the lead review process was NOT such a document, but was the standard ANPR with all options described but with no scientific justification for the options. It is **not acceptable** to CASAC to remove from the review process the scientific analyses of the data that was formerly provided in the Staff Paper and substitute an ANPR that provides little or no scientific justifications.

The CASAC is a science advisory body and we cannot give the EPA our advice if the scientific analyses of the EPA staff is obscured from us.

## **Dr. Michael T. Kleinman**

### **Chapter 3**

A policy relevant issue that is not explicitly addressed is the non-uniformity of CO exposures in various environments. This has a profound effect on the adequacy of our ability to judge health effects as a function high local exposures, i.e. near heavily trafficked roads. Monitoring plans for CO should take this into account.

Perhaps this could be folded into the question: What do recent studies focused on the near-roadway environment tell us about high-exposure subpopulations and the health effects of CO?

Alternatively, it might be advisable to raise the issue of whether the current network of air sampling monitors adequately represents population exposures to CO as an explicit charge question.

### **Chapter 4**

#### **4.1 Scope and Organization**

Vis-à-vis the issue stated above, if "emphasis will be placed on studies conducted at or near CO concentrations found in ambient air." Some guidance should be provided with respect to ranges of exposures measured near areas of unusually high concentration that are not always represented by the placement of monitors for other criteria pollutants.

#### **4.2 Assessment Approach**

##### **Literature Search**

The suggested search terms are rather limited. An important aspect of the current literature relates to long-term sequelae which include neurological as well as cardiovascular endpoints. While this may be subsumed in the guidance to look at specific health outcomes, it might be useful to state this explicitly.

##### **General Criteria for Study Selection**

The criteria are well thought out. In keeping with my previous comments I suggest that we discuss the following criterion.

- To what extent are the aerometric data, exposure, or dose metrics of adequate quality and sufficiently representative to serve as indicators of exposure to ambient CO?

This should be placed into a context of the exposure range for populations with exceptional exposures since this criteria might be interpreted to exclude some studies near CO sources that use measured values that are in excess of those seen at central site monitoring stations.

### **Criteria for Selecting Animal and Human Toxicological Studies**

“Criteria for the selection of research evaluating animal toxicological or controlled exposure studies will focus primarily on those studies conducted within about an order of magnitude of ambient CO concentrations and those studies that approximate expected human exposure conditions in terms of concentration and duration.”

There are seasonal and site-specific factors that contribute to the non-homogeneity of CO exposures. The order of magnitude requirement may be too restrictive.

Many toxicological studies are limited with respect to time. Perhaps a criteria of whether the study was performed to assess subjects with reasonable levels of biomarker

One important factor that should be considered for assessing the acceptability of human toxicological studies is whether the study was appropriately blinded.

## Dr. Beate Ritz

### Chapter 4:

page 4-4 "Emphasis in the text will be placed on discussion of (1) new, multi-city studies that employ standardized methodological analyses for evaluating CO effects and that provide overall estimates for effects based on combined analyses of information pooled across multiple cities; "

The emphasis on pooled results from multi-city studies that use standardized methods might be misplaced i.e. it is not clear that such approaches will be informative. The problem with CO is its intra-community heterogeneity due to local sources, heterogeneity may not be reflected in ambient monitoring station measurement data. Depending on how ambient monitoring is used to derive exposure estimates in different communities, this could lead to differences in measurement errors depending on how dense the network is. Concerning standardized exposure modeling approaches, if different sources contribute to high CO in different cities, a 'standardized model' for different cities might not work or be appropriate e.g. in some cities CO may depend more on vehicular traffic and in others on power plant emissions etc.

Similarly questionable is the emphasis on "studies that consider CO as a component of a complex mixture of air pollutants." It is unclear whether this means only multi-pollutant models will be taken into consideration and how the expected (and possibly strong) correlational pattern with particles and NO<sub>2</sub> will be dealt with in such models. It might be impossible to adjust for (highly) correlated pollutants in the model, and it is not clear how this may be addressed and/or evaluated in the report.

Furthermore, it is unclear what the emphasis on "new studies that provide quantitative effect estimates for populations of interest" means. For pregnancy outcomes, the issue of scaling according to a (susceptible) time period is essential and it is not clear that 1ppm exposure on average during a trimester is comparable to a 1ppm average exposure during a month or week of pregnancy.

### Chapter 5, page 5-4

"For this current review, EPA staff will build upon the 1999 work and subsequent improvements to the exposure model (now called APEX) in developing its plan for CO exposure assessment. " It is unclear what this work will be i.e. what kind of data will be used to develop these models and whether the data already exist and/or will be retrieved from existing research (e.g. the LA RIOPA study that monitored CO).

Given that the highest CO exposures might occur inside cars during commute, it is unclear how this will be integrated into the stated goals for CO exposure assessment (page 5-5), even though the Apex model uses in-vehicle microenvironments and this is also mentioned on page 5-10.

## **Dr. Paul Roberts**

### **Comments on the “Draft Plan for Review of the Primary National Ambient Air Quality Standard for Carbon Monoxide” before the CASAC CO NAAQS Review Panel conference call on April 8, 2008**

Note that this document outlines a plan for the several year review process for the CO NAAQS and thus includes little or no technical detail. In general, this plan is well-written, is adequate to meet its objectives, and (presumably) matches the review process currently ongoing for sulfur dioxide and nitrogen oxides, which are both further along than the process for CO. Overall, I am concerned about the elimination of the EPA staff paper from the process, since I am not sure how the summary and integrative aspects of the staff paper will be handled in the new process (within the ISA and the Scope and Methods Plan). Maybe this should be addressed directly in the “Plan”.

In Section 1.3, I think that there should be some discussion of why the previous 1997-2000 CO NAAQS review process was not completed (see page 1-6, lines 23-24).

Table 2-1 seems to have a duplicate listing for the first draft of the risk and/or exposure assessments in January 2010 (see 3<sup>rd</sup> and last entry under Risk/Exposure Assessment in the table).

Specific comments on Sections 4 and 5:

- The introduction to Section 4 mentions that a formal framework for the integration of health effects evidence was developed in the NO<sub>x</sub> ISA (see page 4-1, lines 13-16); I think this should be summarized here in the draft plan.
- As far as I can tell, the WHO guidelines referenced on page 5-5, lines 3-4 do not include CO; information on CO was not updated from the earlier WHO Air Quality Guidelines for Europe, 2<sup>nd</sup> edition published 2000.
- I do think that a comparison and explanation of the different standards (and studies supporting them) published by WHO and others for CO should be discussed in summary form in this plan and in more detail in the ISA and/or the Scope and Methods Plan. This specifically could help on the short-term issues discussed on pages 4-10 to 4-12 etc., since short-term standards is one major area of difference.
- Text is missing from the bullet that begins on page 5-5 and continues onto the top of page 5-6.
- There are several potential CO ambient exposure environments which are not mentioned in this document, but should be mentioned here and information for them explored during the development of the ISA and the Scope and Methods Plan. Existing study data may be useful for determining levels and averaging times, as well as relevant to future exposure environments. These exposure environments include other near-source environments such as near ship loading and unloading ports (potential exposure from trucks and other vehicles plus potential exposure from the ships themselves) and exposures near

recreational boats. Recreational boat engines, including both 2-stroke and 4-stroke engines, do not have exhaust controls and several potential environments can result in very high CO concentrations in the near-source environment. Even with coming emissions controls on new boats, fleet turnover is extremely slow and such exposures will likely persist for 10-20 years. Places in the draft plan where these additional environments might be mentioned include: page 3-2, lines 1-2; page 4-8, lines 3 and 28-29; page 4-10 subsection on short-term exposure; and page 5-3, lines 23-26.

- There should be some discussion of the types of CO monitoring sites and how data from all types of sites will be used to characterize CO air quality and exposures (specifically mentioned in Section 5.3, pages 5-5 to 5-7). In particular, there are official CO monitoring sites, “hot-spot” sites, and data from special purpose monitoring sites which all might inform the analysis being undertaken. This section of the plan should discuss these additional data sets and how they might be used to further the objectives of the exposure assessment (note that this is also of importance for the discussions on pages 4-7 and 4-8 regarding spatial and temporal analyses). In addition, the appropriateness of current monitoring sites, relative to their purposes, should be discussed in the ISA and/or the Scope and Methods Plan. Also, existing sites should be evaluated in some consistent manner in order to ensure that the CO data being collected is appropriate for the stated purposes, both for the current review and for future uses relative to the NAAQS.

## Dr. Jonathan M. Samet

In anticipation of the teleconference meeting on April 8, 2008, I write to provide comments on Section 4 (“Science”) of EPA’s *Draft Plan for Review of the Primary National Ambient Air Quality Standard for Carbon Monoxide*. Below, I offer both general and specific comments.

### General Comments:

- This *Draft Plan* follows the model that is now coming into place for developing a primary National Ambient Air Quality Standard (NAAQS). As such, the plan draws on approaches taken already over the last several years. The overall plan and approach is appropriate.
- However, the new plan appears to draw little on “lessons learned” to date from dealing with nitrogen oxides and sulfur oxides. The plan suffers from an overall lack of specificity and vagueness of wording that will undoubtedly become a limitation during its implementation. Additionally, there has been little advance in the EPA’s formulation of such critical concepts as causality, confounding, effect modification, and susceptibility. On reading over the questions that will guide the review, problems arising from this vagueness are abundant. I highlight a number of examples in my specific comments.

### Specific Comments:

Page #	Line #	Comment
4-4	27	“...sufficiently representative” Of what? Representative in what regard?
4-4	29	Not clear at all
4-4	30	“meaningful” From what perspective? Reliable means repeatable. Is the concern about misclassification?
4-5	5	“potential confounders...” Specify criteria for these
4-8	20	This needs greater specificity
4-8	24	Temporal and spatial?
4-9	19	What does variability mean here?
4-10	7-10	Lines 7-10 are sweeping. What is this saying?
4-11	18	All other systems?
4-11	23	“...nature of health effects...” Effect modification?
4-12	20-22	What is meant by evidence <u>against</u> a causal association? Could more be said
4-13	1-2	about EPA’s approach to causal inference?
4-13	9	“evaluate uncertainty...” Any attempt to quantify?
4-13	17-19	What does this mean? Is this in reference to potential effect modification?
4-15	6	Reference to fetuses not clear.
4-15	10	What results?
4-15	19-21	Not clear in the formulation of attributable risk

## Dr. Stephen R. Thom

**Approach & format for the integrated science assessment section are well organized and logical.**

**Specific comments I suggest be included in the EPA document are:**

**A. Human exposure studies:** Environmental pollution causes a variety of disorders, although not all studies have documented CO *per se* as the etiologic agent.

1. Neonates/infants:

- a) Preterm labor/delivery - association with environmental CO and also particulates (PM)  
(as separate risk factors & also in combination)
- b) Infant mortality - association with CO plus PM
- c) Neonate hospitalizations for respiratory diseases - association with CO
- d) Intra-uterine growth retardation/low birth weight (risks with CO, PM and NO<sub>2</sub>)
- e) No relation between SIDS and CO, but a link has been established with NO<sub>2</sub> and SO<sub>2</sub>

2. Children

- a) Childhood respiratory symptoms (wheezing) - association with CO and also PM.

3. Adults

- a) Correlations between ambient CO and ischemic heart disease ED visits (CO and also NO<sub>2</sub>)
- b) Cardiovascular mortality (esp. elderly) - associations with CO and CO/PM & O<sub>3</sub>
- c) Respiratory-related ED visits - association with CO and CO+O<sub>3</sub>
- d) Depression-related ED visits
- e) Pneumonia hospitalizations (CO + O<sub>3</sub>)
- f) No link between CO and tachyarrhythmias (but + link with ultra-fine particulates)
- g) Risk of CVA elevated with CO, PM, NO<sub>x</sub>
- h) Cardiac irregularity (HR variability) and CO (+ link in some but not all trials)
- i) Plasma markers of inflammation - atmospheric CO contamination only linked with altered albumin. PM and O<sub>3</sub> showed additional changes in plasma levels of vWF, Factor VIII, fibrinogen. Higher CO concentrations (& shorter exposure times) linked to elevated plasma myeloperoxidase.

**B. Issues of CO dose-response, as well as time-course of responses, are not clear.** The weight of the scientific findings probably does not warrant an alteration in EPA CO guidelines (1 hr 35 ppm; 8 hr 9 ppm). Also, the variability among findings in some trials indicates that combinations of CO with co-pollutants can yield disparate results, leaving the issue of pathophysiological mechanisms unclear.

**C. Dosimetry questions persist,** and there needs to be some focus on mechanisms unrelated to CO-O<sub>2</sub> competition for hemoproteins (e.g. the CFK equation alone is not adequate to 'predict' biological stresses). These include pro-inflammatory processes such as intravascular platelet-

neutrophil interactions, and a growing body of information on oxidative stress/free radical mediated mechanisms (some linked to 'therapeutic' pathways such as activation of MAPKs, NF $\kappa$ B inactivation, caspase 8 inactivation). Endogenous CO production impacts mitochondrial respiration but whether environmental CO will compound this effect is unknown (current kinetic modeling suggests this is unlikely).

## Coalition For A Safe Environment

P.O. Box 1918, Wilmington, California 90748  
wilmingtoncoalition @ prodigy.net 310-834-1128

April 8, 2008

Clean Air Scientific Advisory Committee (CASAC)  
U.S. Environmental Protection Agency (USEPA)  
Docket ID No. EPA-HQ-ORD-2007-0925  
1200 Pennsylvania Ave., NW  
Washington, DC 20460  
C/O Ms. Kyndall Barry  
barry.kyndall @epa.gov  
202-343-9868

Re: Carbon Monoxide (CO) National Ambient Air Quality Standard (NAAQS)  
Su: Draft Integrated Review Plan Public Comments

Clean Air Scientific Advisory Committee:

The Coalition For A Safe Environment (CFASE) is a non-profit Environmental Justice Organization involved in International Trade Ports, Goods Movement, Transportation, Energy and Petroleum Industry environmental, public health, public safety and socio-economic issues. CFASE is headquartered in Wilmington a predominantly Latino Environmental Justice Community in the City of Los Angeles and located in the Port of Los Angeles Harbor. Wilmington is further located in South Los Angeles County in the California South Coast Air Quality Management District.

The Coalition For A Safe Environment wishes to submit the following public comments, recommendations and requests regarding the Clean Air Scientific Advisory Committee (CASAC) Draft Integrated Review Plan:

1. CASAC must conclude and recommend the most stringent Carbon Monoxide (CO) NAAQS to protect public health, public welfare and assure no significant public health impacts, no public health crisis exists or public health problem is developing in any community, city or region. The only acceptable public margin of safety is zero or near zero CO emissions.

The current CO NAAQS has failed to help decrease the increasing respiratory and cardio-pulmonary public health problems and public health disease crisis in many communities, cities and regions.

The Center for Disease Control (CDC) has failed to stop the public health crisis that currently exists which is the unacceptable annual increases in all categories of cancers and respiratory health problems. The CDC has failed to maintain close watch of new scientific evidence or act upon new scientific evidence.

Public welfare adverse impacts can be addressed if CASAC first establishes an accurate and complete inventory of what contributes to these negative adverse public health impacts as recommended in our comments.

Environmental Justice Organizations believe that the loss of one innocent life, the negative health affliction of one person is unacceptable if the cause is preventable and due to private or governmental business industries failure to adopt the Best Available Control Technologies (BACT) or Best Technologies which can achieve zero or near zero Co and toxic air emissions.

2. It is a fact that technology exists today to achieve zero or neat zero emissions. Polluting industries refuse to incorporate these technologies. The U.S. EPA has no legal mandate to allow air polluting industries both private and public to operate or continue to pollute and negatively impact public health. Every air polluting industry makes substantial profits to pay for the incorporation of clean technologies.
3. CASAC must consider that “Hot Spot Environmental Justice Communities” now have sensitive receptor populations of 50% - 80% based on public health surveys and medical data.
4. CASAC must consider the multiple public health impacts of Carbon Monoxide and the need for a stricter CO NAAQS in relationship to the cumulative impacts of public exposure to multiple toxic air pollutant emissions.
5. CASAC must consider recommending a more stringent national standard that takes into consideration that there are Hot Spot Environmental Justice Communities, in which a national standard does not stop their significant cumulative public health impacts. Environmental Justice Communities bare a significant disproportionate burden of CO exposure due to their multiple toxic industries and sources in their communities.
6. CASAC must consider that CO and other toxic air emissions are not decreasing in Environmental Justice Communities. The California South Coast Air Quality Management District (SCAQMD) and all other AQMD’s have failed to adopt adequate rules, regulations and standards that would prevent the increase of CO and significantly decrease public exposure to CO to zero or near zero.
7. CASAC must consider all available local and regional public health data in establishing its new CO NAAQS. Some public health data for example are based on public health surveys and not long term longitudinal scientific studies. The UCLA Medical Center at Harbor General Hospital in 2007 completed a Children’s Asthma Study in Wilmington and discovered that over 23.9% of all children have asthma. You would not find this data in any scientific or medical journal. Yet it is important data that should be taken into consideration because NAAQS’s have more significant impacts at the local and regional level.
8. CASAC must consider that in most “Hot Spot Environmental Justice Communities” Carbon Monoxide and toxic air pollution emissions are increasing every year not decreasing. CASAC must request data and forecasts of current industry growth and new industry sources of CO and toxic air pollution.

The Port of Los Angeles and Port of Long Beach are estimated to triple their imported container business by the year 2020. Currently there are over 45,000 truck trips a day carrying containers and cargo out of the Ports, and in a recent Port sponsored Truck Traffic Study it is estimated that this will increase to over 100,000 truck trips a day by the year 2020. In addition, the number of bunker fuel ships, diesel fuel trains and diesel fuel cargo handling equipment will also triple. This also means that their amount of CO and toxic air emissions. In addition, there are 17 new proposed major Port of Los Angeles and Port of Long Beach construction projects to be completed by the year 2020. The Port of Los Angeles and the Port of Long Beach both border the Environmental justice Community of Wilmington.

There are eight major oil refineries and three fuel storage tank facilities in South Los Angeles County located in the California South Coast Air Quality Management District. Six oil refineries and three fuel storage tank facilities are located in the Environmental Justice Communities of Wilmington and Carson all within eight miles of each other. There has been no significant decrease in CO in the past six years and all oil refineries have plans for expansion. In addition to their normal daily CO release, CO is also released during accidental and scheduled maintenance flaring. See attached photographs of oil refineries flaring.

Although flaring is considered a public safe guard, the real truth of the matter is that the petroleum industry refuses to invest in vapor recovery systems and gas storage tanks. Although there are rules and regulation prohibiting and limiting flaring, the real truth is that flaring in the South Coast Air Quality Management District and through-out the United States has been increasing every year. The so called accidental flaring releases hundreds if not thousands of tons of CO and other toxic emissions every week through-out the United States. Flaring and CO release is nearly 100% preventable.

The California South Coast Air Quality Management District is currently processing 11 new power plant applications. These new power plants will generate millions of tons of new Carbon Monoxide and other toxic air emissions that currently do not exist in Environmental Justice Communities.

9. CASAC must consider the actual number of people with public health problems and the types of health problems when developing the CO NAAQS. It is one thing to establish a standard, but another to put real human faces onto the numbers. The public health care and welfare system and the funds to support it is collapsing and causing a financial crisis in the State of California. Every major county hospital and clinic in and near Environmental Justice Communities have had significant medical doctors, medical staff and medical services cutbacks in the last several years.

As an example, the financial impact of public health care from Particulate Matter and Ozone due to Ports and Goods Movement was estimated to be \$ 19 billion in California. CO public health costs have not been determined for the other many other toxic air pollutants.

We request that CASAC establish a Public Health Baseline by number of afflicted people, health problem, disease and demographic data. Without a Public Health Baseline it is impossible to know if an established or proposed CO NAAQS has been adequate to protect public health and welfare. The Public Health Baseline should be based on comprehensive Public Health Survey Data.

We request that your CO NAAQS research include an assessment of public health and welfare short term temporary and long term mental and physical disabilities. We request that you include children learning disabilities in the assessment study. We request that you include public health socio-economic impacts in the assessment study.

10. CASAC must consider not only the CO air pollution emissions public health impacts, but also quantify aerial deposition of Carbon Monoxide on human drinking water, agricultural land and livestock which increases the amount of public exposure to toxic chemical emissions as the public drinks water daily and consumes food daily.
11. CASAC must consider the global warming and climate change impact of CO and CO<sub>2</sub> on public health, human drinking water, agricultural land, biological wildlife habitats and the environment. It is a fact that Carbon Monoxide (CO) becomes Carbon Dioxide (CO<sub>2</sub>) over time.

Climate change is decreasing fresh water supplies, contaminating fresh water supplies, destroying agricultural food crops and historical agricultural product lands through-out California and the United States. In 2007 California experienced a new record of the most wildfires in a year. The number of wildfires is increasing every year, therefore significantly increasing the amount of natural CO.

12. CASAC must consider areas and regions in the U.S. such as the South Los Angeles County San Pedro Bay the home of Port of Los Angeles and the Port of Long Beach where there are atmospheric air inversion layers which lower the atmospheric levels, thus causing a higher concentration of toxic air emissions and higher percentage of public health impacts in one area or region which would not necessarily occur throughout a large region or state.
13. CASAC must consider areas and regions which are subject to micro climatic changes due to major CO, other toxic air polluting industries, heat and steam cloud generating industries. There is at least one study which has shown that a major oil refinery can in fact cause micro climatic changes where they are located due to their heat footprint and immense steam generated clouds. This climatic change is a contributor to an increase in public health problems that is being unrecognized and unaccounted for.
14. Request CASAC accelerate its current review schedule and change its final review date by the year 2010 and not 2011 as proposed. The public supports the early completion of this CO NAAQS study and determination of a new stricter CO NAAQS. There is current litigation pending against the U.S. EPA Administrator in which the U.S. EPA has failed to disclose on its website which will require final rule making to be completed in the year 2011. The U.S. EPA has admitted its guilt and failure to comply with the Clean Air Act. The courts will more than likely rule in favor of the litigants due to the failure of U.S. EPA to complete CO NAAQS rulemaking for the past 14 years. The Coalition For A Safe Environment is one of the litigants.
15. Request CASAC add new public interests expert scientific, medical and technical organization members to its advisory committee. CFASE recommends USC Kerk School of Medicine, Physicians for Social Responsibility, Union of Concerned Scientists, American Lung Association and Communities for a Better Environment.

16. Request CASAC to revise and request that its Schedule for the Current Review to indicate Public Comment Review and Comment Periods. Request that Public Review and Comment Periods be a minimum of 90 days.
17. Request that CASAC hold and request a Public Review and Comment Period after the Risk/Exposure Assessment Final document.
18. Request that CASAC and the U.S.EPA hold a regional public hearing in Los Angeles and in every in every city where there is a significant public health problem due to CO and toxic air emissions exposure.
19. Request that CASAC release its information not only through the federal register but through all U.S.EPA Regional offices and state regulatory agencies public mail and email listservs and public news media outlets which distribute information to the public for free at no expense to EPA.
20. Request that CASAC ask U.S. EPA assign adequate staff to meet requested accelerated evaluation and review schedule.

Respectfully Submitted,

Jesse N. Marquez  
Executive Director

Photograph Attachments



**ConocoPhillips Oil Refinery Wilmington California Flaring**

September 12, 2005

Borders Wilmington - San Pedro - Harbor City Wilmington South View



**ConocoPhillips Oil Refinery Wilmington California Flaring**

October 23, 2003

Borders Wilmington - Harbor City - San Pedro Wilmington West Sunset View



**Tesoro (Shell) Oil Refinery Wilmington California Flaring**

**September 12, 2005**

**Borders Wilmington - Long Beach - Carson ( Long Beach West View )**



**Valero Oil Refinery Wilmington California Flaring**

**September 12, 2005**

**Borders Wilmington - Long Beach ( Wilmington Northeast View )**

Clean Air Scientific Advisory Committee (CASAC)  
U.S. Environmental Protection Agency (USEPA)  
Docket ID No. EPA-HQ-ORD-2007-0925  
1200 Pennsylvania Ave., NW  
Washington, DC 20460  
C/O Ms. Kyndall Barry  
barry.kyndall @epa.gov  
202-343-9868

April 8, 2008

Reference: Carbon Monoxide (CO) National Ambient Air Quality Standard (NAAQS)

Subject: Draft Integrated Review Plan Public Comments & Requests

USEPA Clean Air Scientific Advisory Committee:

I am writing to submit my public comments and requests on the U.S. EPA Clean Air Scientific Advisory Committee (CASAC) proposed Carbon Monoxide (CO) National Ambient Air Quality Standard (NAAQS) Draft Integrated Review Plan.

I am a Community Organizer and Public Health Survey Coordinator with the Coalition For A Safe Environment which is a community based non-profit organization located in Wilmington, California. The Coalition is an environmental justice and public health advocacy organization involved in fighting air pollution and public health impacts from ports, ships, trains, trucks, oil refineries and power plants.

I live in Wilmington approximately one mile away from the Port of Long Beach and the Port of Los Angeles. I live about one and a half miles to the Valero Oil Refinery and the Tesoro/Shell Oil Refinery and less than three miles from the ConocoPhillips Oil Refinery and BP/Arco Oil Refineries. I live five blocks from the BNSF Railroad track and ten blocks from the BNSF Watson Rail Yard and seven blocks from the Port of Los Angeles and Port of Long Beach Alameda Train Transportation Corridor.

I would like to CASAC to include in their review, assessment and recommendations the following:

1. US EPA - CASAC recommend and adopt a Carbon Monoxide National Ambient Air Quality Standard that guarantees no public health impact.
2. US EPA – CASAC recommend and adopt a Carbon Monoxide National Ambient Air Quality Standard that will reduce the current public health crisis.

3. US EPA – CASAC recommend and adopt a Carbon Monoxide National Ambient Air Quality Standard that will mandate a zero or near zero Carbon Monoxide air emissions in all industries and transportation vehicles.
4. US EPA - CASAC identify Environmental Justice Toxic Hot Spots communities, cities or regions and their populations which require more stringent CO NAAQS standards.
5. US EPA - CASAC include in its research and assessment Public Health Survey Data in order to establish Public Health Baseline to show the actual numbers of people impacted and their health affliction.
6. US EPA - CASAC modify its schedule to provide for a minimum public review and comment period of 90 days after each assessment and the final recommendation report.
7. US EPA - CASAC announce all public hearings, meetings and teleconference calls and distribute all assessments and reports to the public via all governmental regulatory agencies and all available public news media outlets.
8. US EPA - CASAC complete its CO NAAQS assessment and policy recommendations by the year 2010 and not 2011 as proposed.

I ask that you inform me in writing of your decisions and actions regarding my public comments and further ask that you place me on your mailing list.

Cordially,

Sofia Carrillo  
521 N. Avalon Blvd., Apt. 105  
Wilmington, CA 90748  
310-493-8999

sofiamilio @ sbcglobal.net

April 8, 2008

Clean Air Scientific Advisory Committee (CASAC)  
U.S. Environmental Protection Agency (USEPA)  
Docket ID No. EPA-HQ-ORD-2007-0925  
1200 Pennsylvania Ave., NW  
Washington, DC 20460  
C/O Ms. Kyndall Barry  
barry.kyndall @epa.gov  
202-343-9868

Reference: Carbon Monoxide (CO) National Ambient Air Quality Standard (NAAQS)

Subject: Draft Integrated Review Plan Public Comments & Requests

Clean Air Scientific Advisory Committee:

I am writing to submit my public comments and requests on the Clean Air Scientific Advisory Committee (CASAC) proposed Carbon Monoxide (CO) National Ambient Air Quality Standard (NAAQS) Draft Integrated Review Plan.

I am a student intern with the Coalition For A Safe Environment which is a community based non-profit organization involved in fighting air pollution impacts on the environment and public health. I will be graduating this May 31, 2008 with my Masters in Urban Public Health from the Charles R. Drew University of Medicine and Science which is located in the City of Los Angeles.

In the past ten months I have participated in two community organization based Public Health Surveys conducted by the Coalition For A Safe Environment in the Los Angeles community of Wilmington where I live and in the City of Carson which borders Wilmington to the north. I helped pass out flyers, went door-to-door interviewing residents about their health and did data entry.

I was astonished to find so many residents and their families suffering from so many health problems primarily caused and/or aggravated by air pollution from oil refineries and ports. It was shocking to discover that less than 10% of those surveyed had good health with relatively no significant health problems. Over 50% of all families surveyed had one or more family members suffering from a health problem such as difficulty breathing, asthma, bronchitis, sinusitis, emphysema, anemia, lung cancer, leukemia, lymphoma, myeloma and cardiovascular diseases caused by exposure to ambient toxic air pollution.

I have discovered that our current air quality standards are not adequate to protect public health and that public health problems from exposure to air pollution are in fact getting worse. In Wilmington where I live, the Port of Long Beach and the Port of Los Angeles are less than two miles away. I live about one mile to the Valero Oil Refinery and the Tesoro/Shell Oil Refinery and less than three miles from the

ConocoPhillips Oil Refinery and BP/Arco Oil Refineries. I live one block from an oil well drilling operation and flare site. I live one block from the BNSF Railroad track and five blocks from the BNSF Watson Rail Yard and five small blocks from the Port of Los Angeles and Port of Long Beach Alameda Train Transportation Corridor.

I would like to request the following:

1. That CASAC recommend the most stringent carbon monoxide standard to assure that public health is protected, that will reduce the current public health and welfare impacts and there is no increase in CO and other toxic air emissions.
2. That CASAC acknowledge that the current CO NAAQS has failed to stop the increase in public health problems and prepare appropriate time and health problem charts, graphs and data tables.
3. That CASAC identify communities and cities that are Environmental Justice Toxic Hot Spots which justify stricter standards.
4. That CASAC include in its research and assessment Public Health Survey Data in order to have an accurate accounting of all public health impacts.
5. That CASAC establish a Public Health Baseline to show the actual numbers of people impacted and their health affliction.
6. That CASAC provide for a minimum public review and comment period of 90 days after each assessment and the final recommendation report.
7. That CASAC distribute all assessments and reports to the public via all governmental regulatory agencies and all available news media outlets.

Please respond to me in writing of your actions regarding my public comment requests and place me on your mailing list.

Sincerely

Adriana Maciel  
926 McFarland Ave.  
Wilmington, CA 90744  
310-490-3658