

**U.S. Environmental Protection Agency
Office of Research and Development**

**BOARD OF SCIENTIFIC COUNSELORS
PARTICULATE MATTER AND OZONE RESEARCH SUBCOMMITTEE**

**Conference Call Summary
March 3, 2005
12:00 noon–3:00 p.m., e.s.t.**

DRAFT

Welcome

Mr. Lawrence Martin, Designated Federal Officer (DFO) for the Particulate Matter and Ozone Research Subcommittee, opened the conference call by welcoming Dr. Rogene Henderson, Chair of the subcommittee, the subcommittee members, and the Environmental Protection Agency (EPA) participants. This was the first of four scheduled meetings; two additional teleconference meetings are planned, one on March 14, 2005, and another on April 12, 2005. A face-to-face meeting will be held on March 30-April 1, 2005. Mr. Martin noted that this teleconference meeting is a public meeting.

Dr. William Farland from EPA could not attend this conference call.

Introduction of Subcommittee Members

Dr. Rogene Henderson proceeded with introductions of subcommittee members. Dr. Henderson (Chair) is a senior scientist at Lovelace Respiratory Research Institute. She is an internationally known inhalation toxicologist. She has studied biochemistry of the lungs and the effects of chemicals on the lungs for more than 30 years.

- Dr. Juarine Stewart (Vice Chair) is a professor at the School of Computer Math and Natural Sciences at Morgan State University where she is interim dean of the Dixon Science Research Center. She also is president of the Research Centers in Minority Institutions Program that enhances the research capacity and infrastructure at minority colleges and universities that offer doctorates in health sciences.
- Dr. Peipei Ping is director of the Proteomic Laboratory at the Department of Cardiology in the School of Medicine, University of California, Los Angeles. Dr. Ping is a molecular and cell biologist with particular expertise in the area of signal transduction and cellular kinases.

- Dr. Christian Seigneur is vice president of air quality studies at Atmospheric and Environment Research, Inc. He has more than 20 years of experience in air quality studies, and his experience in air quality models spans a wide range of air pollution issues. Dr. Seigneur also has more than 10 years of experience in public health risk assessment.
- Dr. Kenneth Demerjian is director of the Atmospheric Science Research Center at the State University of New York. His research involves the study of chemical and physical processes affecting the fate of anthropogenic and biogenic emissions and their impact on air quality and global cycles of trace atmospheric constituents. Dr. Demerjian's main field of expertise is atmospheric chemistry.
- Dr. Brian Lamb is a professor at the Laboratory for Atmospheric Research at Washington State University where he is the Boeing Distinguished Professor of Environmental Engineering. His area of interest is in chemistry and chemistry remodeling. Dr. Lamb's research has included regional grid modeling of photochemical air quality and windblown dust, application of atmospheric tracer techniques, and biogenic emissions.
- Dr. Charles Rodes is the program manager of the Aerosol Exposure Program at the Research Triangle Institute in North Carolina. Dr. Rodes has more than 23 years conducting environmental research at EPA. His primary area of research is in exposure sediment in local media and air.
- Dr. Michael Lipsett is currently the public health medical officer with the California Department of Health. Dr. Lipsett also is an assistant clinical professor in the Department of Epidemiology and Biostatistics at the University of California at San Francisco. His research interests include air pollution, asthma, and respiratory health.
- Mr. Bart Croes is chief of the Research Division at the California Air Resources Board. Mr. Croes's area of expertise is in health research and exposure, economics, and air quality.

Other conference call participants included Mr. Lawrence Martin (ORD), Ms. Jennifer Robbins (ORD), and Dr. Dan Costa (ORD).

Explanation and Function of the Board of Scientific Counselors (BOSC)

After introductions, Dr. Henderson started the meeting by thanking subcommittee members and EPA participants for their time and effort in planning for and attending the first meeting of the Particulate Matter (PM) and Ozone Research Subcommittee. She then gave a brief summary and explanation of the Board of Scientific Counselors (BOSC).

BOSC was established by EPA to provide advice, information, and recommendations to ORD on their research programs. BOSC is a chartered federal advisory committee whose meetings are held publicly and must comply with the requirements of the Federal Advisory Committee Act (FACA). A DFO must attend all public open meetings to ensure FACA requirements are being met, including the opportunity for members of the public to attend BOSC meetings and offer comments.

The PM and Ozone Research Program is a newly integrated program and is being reviewed by BOSC for the first time. Dr. Henderson pointed out that the BOSC review process is different from a National Institutes of Health (NIH) review in that programs are reviewed and judged based on how they are managed, and the program design must ensure successful outcomes.

Overview of FACA

Lawrence Martin is the DFO for the BOSC PM and Ozone Research Subcommittee. He thanked the subcommittee members and EPA participants for their time and noted that it was a difficult subcommittee to put together because many people were unavailable at the time to serve as subcommittee members. He pointed out that many researchers and scientists had applied for PM Center grants under the Science To Achieve Results (STAR) research program within the National Center for Environmental Research (NCER), so conflicts of interest were rampant.

As DFO, Mr. Martin serves as liaison between the subcommittee, EPA, and the public and ensures that meetings comply with the FACA Act. All FACA meetings on substantive issues, whether by person, telephone, or e-mail, are open to the public. Notice of meetings must be sent to the *Federal Register* 21 days prior to the meetings and must be announced in the *Federal Register* at least 15 days prior to a meeting. This includes all communications between subcommittee members when at least one-half of the members are involved. Mr. Martin suggested that because of the current time compressions between now and the time various reports are expected, no more than four subcommittee members should take part in a conference call. Issues that are solely administrative or preparatory in nature are exempt from *Federal Register* requirements. DFOs approve the agenda and attend all meetings, and meeting minutes must be certified by the Chairperson within 90 days of the meeting. All Advisory Subcommittee documents must be made available to the public. The subcommittee provides advice to the Executive Committee in their deliberations, and ultimately the BOSC Executive Committee approves the subcommittee report and makes it final.

Regarding financial conflict of interest, FACA ensures appropriate ethic regulations are satisfied by requiring all subcommittee members to file standard government financial disclosure reports. The reports are received and reviewed by the appropriate EPA official. Additionally, subcommittee members must complete annual EPA ethics training.

Review of the Charge to the Subcommittee and Discussion of Charge Questions

Dr. Henderson explained that the charge distributed to all subcommittee members outlines the type of information that EPA wants from the subcommittee review. She informed the members that they would have writing assignments due before the March 30–April 1 face-to-face meeting. She explained that although the writing assignments had been distributed prior to this teleconference meeting, changes could be made based on members' preferences and expertise.

According to Dr. Henderson, the combined integral program of PM plus ozone is being developed. Unlike other programs, it is not a mature program. She reminded members that the PM part of the program, however, had been reviewed by the National Research Council (NRC) and the subcommittee would have NRC's comments on the program. The subcommittee needs to comment on whether the integration of the PM program and the ozone program is being done well and makes sense and, for example, leads to the consideration of one atmosphere.

The charge questions will help evaluate the relevance, quality, and performance of the PM and Ozone Research Program. The questions also will assist subcommittee members in assessing the management and scientific leadership of the program. Dr. Henderson stressed the importance, in particular, of charge question number four – Demonstrated Outcomes – because the program is facing a Program Assessment Rating Tool (PART) evaluation. The PM part of the program has had a PART review, and according to Dr. Henderson had problems expressing outcomes. A key goal of the subcommittee review will be to better express the outcomes of the program. Because the PART review process originated in defense programs, Dr. Henderson suggested that knowing how to make it fit the EPA review process is vital. She said one goal is to ensure that a review of the PM and Ozone Research Program by the subcommittee takes place before the PART review.

Dr. Dan Costa explained that the PART process takes a different perspective from other reviews on how government programs are functioning. He pointed out that PART examines many different programs, from public health to defense. The process poses a series of questions that are answerable by “yes” or “no”; long-term goals also must be provided to the PART review committee. PART refers to the long-term measures as outcome-oriented measures. Dr. Costa explained that the science community is used to measuring *output* as opposed to *outcome*. The misinterpretation of output vs. outcome led to the “Results Not Demonstrated” scoring in the PART review. He said outcomes include clear demonstrations that the science and the use of that science have improved public health. In addition, he stated that the PART review process looks at outcomes in a broad perspective.

Mr. Bart Croes asked if a list of outcomes had been developed that will meet the PART criteria. Dr. Costa said a list had been developed but that PART wanted far fewer outcomes than had been used in the previous review. Dr. Costa said that this time there are two goals or outcomes, downsized from the previous five goals.

Dr. Kenneth Demerjian stated that air quality outcomes usually are a function of implementation, which is not ORD's responsibility. Dr. Costa agreed but said that the Office of Management and Budget (OMB) wants EPA to consider implementation as part of their responsibility, and the Agency must ensure that the implementation tools are adequate and manageable to improve outcomes. Dr. Costa commented that this forces a better integration of the total program. The difficulty for the subcommittee is that OMB considers long-term goals and measures interchangeable and scientists normally do not view them in the same way.

Dr. Lipsett stated that it would be beneficial to help reframe the thinking of the OMB reviewers. Dr. Costa added that he felt some progress had been made in that area. He emphasized that other agencies also were struggling with the same issue of developing acceptable outcomes for the PART reviews. Dr. Costa said that he welcomed assistance from other agencies, though not all of it would be helpful to the subcommittee.

Dr. Henderson commended Dr. Lipsett on his optimism concerning changing the mind of the OMB. She encouraged including, wherever possible, comments to the OMB illustrating that one framework does not fit all types of government endeavors. Dr. Lipsett said that he is concerned that the real outcome regarding improved public health is almost entirely contingent on what happens at the political level. He stressed that an agency or program has little control over how output from a particular research program is used. Dr. Henderson emphasized that the EPA is constituted as a scientific advisory group, and she sees the role of the Agency and subcommittee as providing sound scientific advice and remaining politically neutral.

Dr. Demerjian asked if material could be provided from previous reports. Dr. Costa said that within a few days he expected to send a notebook to subcommittee members that would include information on the previous BOSC report and PART criteria. The information would include a summary/history of the program and the debriefings to the Agency of the last NRC review that highlighted the challenges the Agency faces in the future. Dr. Costa told subcommittee members that a summary of the last NRC review also is available.

Dr. Charles Rodes inquired about the difference between intramural and extramural programs and their funding for the purposes of the PART review. Specifically, he asked if extramural funding is solely grant funding. Dr. Costa said because the program has been as integrated as possible, there usually is no distinction made between the two types of programs. For the purposes of this review, however, extramural funding is considered grant funding.

Before a vote was taken to approve the charge, Mr. Croes referred to a question he had about the charge concerning the definition of research coordination. He asked that the definition be defined more broadly to include more than federal agencies. Mr. Martin noted that the revised draft sent to subcommittee members expanded the research coordination component to include the phrase "inside and outside the government."

Mr. Croes also questioned EPA's definition of one atmosphere, which seemed to be limited to health effects of PM and ozone. He said he agreed that those are the primary concerns; however, he said other pollutants should be considered. Dr. Henderson said that although atmosphere includes more than just PM and ozone, this subcommittee is only addressing those two components.

Dr. Demerjian requested the words "other agencies" to be changed to "other organizations." Consensus was reached on this revision, and Mr. Martin stated that he would make the change.

Dr. Henderson took a vote to approve the charge to the subcommittee. The members approved the charge.

EPA Management of Programs

Mr. Martin presented a brief summary of EPA's research planning process. EPA, ORD, and Agency science strategic plans are developed leading to a strategic approach to research, sequencing and setting of priorities on the Agency level, and identifying outcomes. The process includes the multi-year planning (MYP) process, which is primarily how the Agency frames the entire research program for all areas. Next, there is an annual planning process that essentially is a course correction on the MYP that is responsive to budget demands. Priorities and budget guidance are obtained from senior management organizations within the Agency. Laboratory and center research plans, which are essentially operating plans, function as a subset of the MYP and the annual planning process.

The planning process is an annual research adjustment to the budget target. Mr. Martin said it was part of the annual planning process and not the MYP process. The MYP includes various goals, outcomes, objectives, and outputs, all of which collide with the budget. Research coordination teams take the first look at what EPA wants to do and what resources are available to the Agency. These teams usually begin in February and March. After the teams make their recommendations, prioritization across all the research goals is conducted by the ORD Science Council. The prioritization results are submitted as a proposal to the Executive Council for review. By May, the Council has final decisions on how EPA will fit the budget into the MYP or vice-versa. The proposal at this point becomes a budget submission to the Agency. Mr. Martin said that the planning process starts 3 years in advance and work on FY2007 began last year.

Mr. Martin briefly discussed research planning and budgeting. He pointed out that following the budget submission to the Agency, the submission is generated into an enacted budget and becomes part of the implementation of the research plan.

Mr. Martin stated that the generic research coordination teams at EPA ensure that the research planning process is fully accountable to the individual program offices in the regions. He told subcommittee members that the teams include representation from all of

the program offices that rely on ORD research as well as all of the laboratories, centers, and senior scientists. He added that the teams have weekly teleconferencing calls.

He then explained how EPA uses the ORD MYPs to guide the direction of research efforts in selected areas. In addition to serving as a planning tool, the MYPs provide a link between the Agency and ORD strategic plans as well as research strategies and laboratory implementation plans.

OMB PART Review

Ms. Jennifer Robbins provided an overview of and background on OMB's PART process and Research and Development (R&D) criteria, which informed the draft charge questions that were submitted.

EPA developed PART to evaluate the budget and performance integration element of the President's Management Agenda. PART evaluates program effectiveness in four areas: Purpose and Design, Strategic Planning, Program Management, and Program Results. The PART review consists of a questionnaire comprising approximately 30 questions for R&D and a separate Measures Tab where programs enter tangible evidence that goals have been met. The Results Section is weighted as 50 percent of the total score. Scores for Strategic Planning and Program Results largely are based on what is provided in the Measures section. According to Ms. Robbins, the score for the Results Section is very dependent on the score received for Strategic Planning. PART reviewers are looking at the quality of a program's measures.

Programs receive a numerical score and based on that score receive an adjectival rating of "effective," "moderately effective," "adequate," "ineffective," or "results not demonstrated." Programs receive a "results not demonstrated" if OMB decides a program did not have the appropriate outcome measures, or if they have no data to adequately demonstrate they were achieving results and reaching program goals. The PM and Ozone Research Program received a "results not demonstrated" rating because PART reviewers determined the program was not sufficiently outcome oriented. This program and two other ORD programs (Pollution Prevention Research and Ecosystem Protection Research) that received a "results not demonstrated" rating are resubmitting responses to PART questions in hopes of receiving a higher score.

PART Questions

A core set of PART questions applies to all federal programs, but additional R&D questions can be included. The questions are based on the OMB and the Office of Science and Technology Policy (OSTP) investment criteria for federal R&D and focus on quality, relevance, and performance.

Ms. Robbins stated that quality is defined as how a program allocates funds to ensure that the outcomes or end products are of high quality. OMB expects programs to maximize the quality of the research in which they invest. OMB assesses program quality partly by

evaluating competitive awarding of funding within a program. PART demands that merit-based procedures are used to ensure scientific quality and leadership, and merit-based competition is used for extramurally awarded funds. If funds are awarded noncompetitively, merit-based procedures must be demonstrated. The program also might use scientific benchmarking and other factors to assess program quality.

Program relevance requires a clear purpose for the program and should respond to specific existing problems relevant to national priorities, Agency missions, and customer needs. Programs must have an outcome-oriented design with clear benefits and connect to outcomes such as improved environmental or human health. Duplication of other program efforts should be avoided, and the program should include a small number of performance goals linked to key scientific questions and the program's outcomes.

Programs must demonstrate performance by identifying relevant inputs and manage these inputs to ensure that the program achieves the intended results and outputs. The program must set annual and long-term goals, demonstrating progress toward outcomes. Performance goals should answer key research and client questions. Finally, programs periodically should assess research progress and priorities as new scientific knowledge is developed.

ORD Evaluation Framework

Ms. Robbins briefly discussed implementing an ORD Evaluation Framework. She said that OMB defines outcomes for the purpose of the PART and R&D criteria as being the desired result of a program but being slightly outside the complete control of the program. Outcomes are targeted at program customers and clients, and the program controls implementation of the resources and activities for program outputs. EPA has an indirect impact on achieving improvements in environmental and human health risks because many factors are outside of EPA's control.

A question was asked regarding who EPA considers as clients. Ms. Robbins stated that "client" is defined in a broad and far-reaching capacity. EPA programs, states, tribes, industry, other nongovernment organizations, and basically any group or groups that could use the information in a useful way are considered clients.

Ms. Robbins next described the path from resources to activities to outputs and finally to clients. She discussed how this aligns with the areas that OMB evaluates through the PART review. Program purpose and program design focus on the outcome side of the program, whereas strategic planning spans the entire range and design of the program, including how output is managed and how the program design contributes to output. Program management is concentrated more on the use of program resources through technology transfer to clients, and the results section focuses on how outputs are transferred to clients and how those outputs contribute to long-term outcome.

In summary, Ms. Robbins indicated that effectively articulating program design offers ORD its best opportunity to achieve its goals, demonstrate the value of its efforts, and maintain or increase funding for EPA R&D programs.

Ms. Robbins was asked how clients were surveyed to determine if the program's results are being used. She said surveys can be developed, and that a professional evaluator assists with developing such surveys. In this way, specific customer groups can be targeted.

Dr. Henderson asked Ms. Robbins about benchmarking scientific leadership. Ms. Robbins explained that this would involve supplying evidence to OMB demonstrating cutting-edge research techniques and demonstrating that the specific program is a leader in the particular field. She indicated that examples of what others in similar fields are doing as compared with the specific program's research could be provided to the OMB.

Discussion of the Face-to-Face Meeting Agenda

Dr. Henderson led the discussion on the March 30–April 1, 2005, face-to-face meeting agenda. She noted that time had been built into the agenda for subcommittee members to work on their writing assignments but expressed concern on whether there was enough time provided for this task.

Dr. Christian Seigneur asked if writing assignments should be completed prior to the face-to-face meeting. Dr. Henderson explained that after materials from Dr. Costa are received, subcommittee members could begin writing their evaluations of the program, hopefully completing much of their reports prior to the meeting at the end of the month. This would provide a baseline evaluation that could then be modified according to what is presented at the meeting.

Dr. Costa explained that the agenda had been divided into four sessions. The first session includes a comprehensive presentation by Dr. Costa on the PM and Ozone Research Program. Another presentation will discuss the health and exposure part of the program. A third session will examine air quality concerns, and the fourth and final session is a presentation on the shift in the program from independent health and implementation of air quality issues into the current outcome perspective being developed as the primary goal for the future.

Several members asked Dr. Costa about the poster sessions at the face-to-face meeting. Dr. Demerjian asked if the posters will be available for the entire meeting and also inquired if the authors of the posters will be present. Dr. Costa replied that the posters will be available for the entire meeting, and that the authors will be present for each of the 90-minute sessions being devoted to review of the posters. Dr. Peipei Ping asked if the authors will provide a poster presentation. Dr. Costa informed members that there will not be formal presentations of each poster, but the authors and individuals involved with creating each poster will be available during the poster sessions to answer questions.

Dr. Rodes asked what charge was given to the authors of the posters because the posters seemed output-oriented as opposed to outcome-oriented. Dr. Costa explained that the posters are not meant to be outcome-based but should be seen more as long-term goals. He said that the posters demonstrate the science products that the Agency is developing and should be viewed from a broad perspective as opposed to a single study or outcome.

Mr. Martin addressed an issue involving the poster presenters. Because BOSC is a FACA regulated body and the face-to-face meeting discussions will be held with the poster creators concurrently and independently of a forum where notes can be taken, a process is necessary to summarize and present those discussions and communications in the public forum. He said that this process could be discussed via e-mails and did not have to be accomplished during this teleconference call.

Dr. Demerjian asked if the information packet from Dr. Costa could be sent electronically as well as hardcopy. Dr. Costa responded that a CD is being sent duplicating all of the hardcopy information.

PM and Ozone MYPs

Dr. Costa noted that air pollution is not just PM or ozone but a host of substances that includes air toxics, which is a largely separate program. Over time, ozone has continued to decrease both in terms of priority and in funding support. According to Dr. Costa, at this point there is virtually no health work or ecowork within the ozone program. He explained that part of the rationale for combining PM and ozone into one integrated program is because there is not enough substance in the ozone program to have a single MYP. According to Dr. Costa, the intent is to move from a research perspective into a multi-pollutant perspective, which is part of the challenge and charge given to the PM and Ozone Research Program.

Part of the packet of information being sent by Dr. Costa to subcommittee members includes a narrative describing the MYP that explains where it originates, how it fits into the program, and how it is used in the research planning and prioritization process. The information also examines how the MYP is evolving from pertaining solely to PM to include long-term goals that are appreciative of the PART program. Dr. Costa described the MYP as a reframing of the program to include an environment in which pollutants are more complex.

Dr. Costa stressed the size of the program noting that the program covers a number of years, many accomplishments, and involves \$250 to \$300 M. He stated that one handout subcommittee members will receive is a brief history of the program highlighting its beginnings and some of the accomplishments of the program, which are representative of the quality and type of scientific research work being conducted within the program.

Dr. Costa said he is hoping for constructive criticism from subcommittee members. Specifically members are being asked for feedback on how well the program is being

developed and what direction the MYP should take. The constructive advice received from subcommittee members will assist in creating the new MYP. He also pointed out that long-term goals are due from him to the Agency by March 11, and by the middle of April any adjustments to long-term goals must be completed and presented to PART reviewers.

Report Organization and Writing Assignments

Dr. Henderson stated that she had organized the writing assignments around the four charge questions. Via e-mail, she had discussed pairing up subcommittee members to examine one charge question per pair. She noted that Dr. Lipsett preferred to consider Relevance rather than Science Quality, so he now will help develop that charge question.

The writing assignments are as follows:

- Program Design and Demonstrated Leadership
 - Drs. Demerjian and Lamb

- Science Quality
 - Drs. Henderson and Ping

- Relevance
 - Drs. Rodes and Lipsett

- Demonstrated Outcomes
 - Dr. Seigneur and Mr. Croes

Dr. Henderson reminded the subcommittee members that everyone should feel free to submit comments on any of the charge topics. She recommended that members submit their remarks to one of the subcommittee members assigned to that specific charge topic. She also encouraged members to contribute to the charge questions as necessary. Dr. Henderson emphasized that the written report would be circulated among subcommittee members for comments, and revisions would then be made.

Public Comments

No public comments were made during this teleconference call.

Administrative Procedures

EPA will send a packet to subcommittee members once a member has been officially acknowledged as a government employee. The packet includes travel planning information and a reporting sheet for recording hours. EPA will make travel arrangements and purchase airline tickets. Mr. Martin said that everyone should plan on arriving on the evening of March 29 and returning after 12:00 noon on April 1, which allows a half-day of writing time on April 1. Airline tickets are paid for in advance by

the Agency, and subcommittee members will be reimbursed for all other expenses such as lodging. Hotel rooms are being reserved at the DoubleTree Hotel near Raleigh Durham International Airport. The hotel provides a courtesy van from the hotel to the airport. Dr. Henderson advised subcommittee members to contact Mr. Martin directly if they have any further questions.

Dr. Henderson thanked the subcommittee members for their time and their commitment to the PM and Ozone Research Program. She adjourned the teleconference at 2:15 p.m.

List of Participants

Subcommittee Members

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APPENDIX

**Teleconference Agenda
March 3, 2005
12:00 noon-3:00 p.m., e.s.t.**

MEETING AGENDA
March 3, 2005
12:00 noon–3:00 p.m., e.s.t.

CONFERENCE CALL

Participation by Teleconference Only

The call may end earlier than indicated below.

For information on joining the call, contact Lawrence Martin at 202-564-6497

- 12:00 noon Introductions and Explanation of BOSC
 Dr. Rogene Henderson, Chair
- 12:10 p.m. FACA Rules and Ethics Training
 Mr. Lawrence Martin, EPA
- 12:20 p.m. Charge to the Subcommittee: Questions
 Dr. Rogene Henderson
- 12:40 p.m. Explanation of How EPA Manages Their Programs
 (logic, strategy, LTGs, APMs, etc.): Questions
 Dr. William Farland, EPA
 Mr. Lawrence Martin, EPA
 Ms. Jennifer Robbins, EPA
 Dr. Dan Costa, EPA
- 1:40 p.m. Explanation of PM and Ozone MYPs, Current Status, Changes from 2003
 and Their Merger: Discussion
 Dr. Dan Costa, EPA
- 2:40 p.m. Report Organization and Writing Assignments
 Dr. Rogene Henderson
- 2:50 p.m. Public Comment
 Mr. Lawrence Martin, EPA