



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460

OFFICE OF THE ADMINISTRATOR
SCIENCE ADVISORY BOARD

October 21, 2008

FROM: Dr. Deborah Swackhamer / *Signed* /
Chair
EPA Science Advisory Board (SAB)

TO: Board Members

SUBJECT: SAB Meeting October 27-28, 2008

As you know from Dr. Vanessa Vu's email last month, I have been invited to be and accepted the position as Chair of the EPA Science Advisory Board. I am excited to be entrusted with this responsibility and I look forward to working with all of you over the next several years as we do the work of advising the Administrator of EPA on the science that supports the nation's environmental decisions. This memorandum will address our upcoming October 27-28, 2008 Board meeting and what we need to accomplish as a result of that meeting. Each day's agenda is attached below. In the paragraphs below, I will discuss each of the items that we will take up during the meeting.

As you know from our past several Board meetings, we will be engaging in a seminar style meeting on October 27, 2008 that will focus on: 1) the environmental implications of biofuels, and 2) the implications epigenomics research for environmental health sciences and human health risk assessment. The notion behind this is to stimulate our thinking about priorities for meeting critical environmental problems with an integrated approach to interdisciplinary science and research. During the morning of the 27th, we will hear from several experts on biofuels issues (Drs. Bruce Dale, Kenneth Cassman, David Tilman, and Christopher Field) and then we will have an opportunity for an open discussion with them at the end of that session. In the afternoon of the 27th, we will hear about epigenetics from Drs. Mark Hanson, Randy Jirtle, and Michael Skinner and then we will have an opportunity to interact with these experts and to sum up.

On day two of the meeting (October 28), we will engage in several activities. First, we will consider the interactions from day one of the meeting on biofuels and epigenomics and consider what they might suggest to the Board in regard to our continuing project on EPA's strategic research directions. During this first session of the day our discussions will be led by Dr. David

Dzombak (biofuels) and Dr. Deborah Cory-Slechta (epigenomics). There are a number of directions this discussion could take and we might end up suggesting follow up activities on either topic, or we might decide how these areas could be integrated into EPA's research program. These two issues are important in their own right, however, we might also decide that there are other science topics that are emerging that may be equally important. Thus, our discussions might also need to include other topics that may be identified by Members. We hope to have Dr. Kevin Teichman, and possibly others from EPA, present during this session to participate in these discussions.

Day two will also be used to conduct some routine SAB business. Among these will be the quality review of three draft SAB panel reports and discussion of future meeting plans. Below I will provide some highlights on each of the quality reviews. Our DFO, Tom Miller, sent these draft reports to you by email and by Fedex during the week of October 9, 2008. He asked for your written comments on those reports by today, October 21, 2008, and I imagine you are even now providing those comments to Tom.

- 1) **Aquatic Life Criteria:** The SAB Ecological Processes and Effects Committee reviewed EPA's Aquatic Life Criteria for Contaminants of Emerging Concern, an Agency white paper that describes recommendations for deriving criteria for the protection of aquatic life from contaminants that disrupt endocrine function in animals. The charge to the SAB is contained in the draft report. At the meeting, Dr. Judy Meyer will discuss her Committee's draft, and your comments on that draft, with you and then the Board will determine if the report is ready for approval as is, or with some level of editing being required. For this review, I am asking **Drs. Greg Biddinger, Deborah Cory-Slechta, Jill Lipotti, and David Dzombak** to serve as Lead Reviewers. These persons will be asked to lead the discussion of the draft for the Board and to serve as vettors if the Board asks for any revisions to the report. It is possible that we will also have members of the public providing written information for your consideration prior to the meeting and some might wish to make brief oral statements during the meeting. Any written comments from the public will be provided to you by this Friday, October 24.
- 2) **Contaminant Criteria List 3:** The SAB Drinking Water Committee reviewed EPA's third Drinking Water Contaminant Candidate List (CCL 3). EPA is required to publish a CCL every five years on contaminants that might need to be the subject of a regulatory determination (either to regulate or not regulate). The process used in this regard has evolved over the last decade and will likely continue to do so. The current list (CCL 3) includes 93 chemicals or chemical groups and 11 microbiological contaminants that are known or anticipated to occur in public water systems. At the meeting, Dr. Joan Rose will discuss her Committee's draft, and your comments on that draft, with you and then the Board will determine if the draft report is ready for approval as is, or with some level of editing being required. For this review, I am asking **Drs. LD McMullen, James Johnson, and Christine Moe** to serve as Lead Reviewers. Their responsibilities will be the same as in item "1" above. It is possible that we will have members of the public providing written information for your consideration prior to the meeting and some might wish to make brief oral statements during the meeting. Dr. Rose has already noted an issue relative to the EPA process used for this list that has come to light since the

DWC review meetings on CCL 3. That item is a determination to not regulate one of the contaminants on the list, perchlorate, that was published in an EPA Federal Register notice on October 10, 2008 (73 FR 60262). Dr. Rose will raise a process issue for your consideration. We will need to consider if that issue suggests a need for an SAB commentary to the EPA Administrator.

Acrylamide Carcinogenicity: The SAB established an *ad hoc* panel, the Acrylamide Review Panel, to review EPA's draft Integrated Risk Information System (IRIS) assessment on the Toxicologic Review of Acrylamide. Comments were specifically asked on EPA's hazard characterization and dose-response assessment for acrylamide, including EPA's selection of the most sensitive non-cancer health endpoint, the use of pharmacologically-based toxicokinetic models, the derivation of a proposed oral reference dose, an inhalation reference concentration for non-cancer endpoints, as well as the cancer descriptor, oral slope factor, and inhalation unit risk. I would like **Drs. James Bus, Meryl Karol, and George Lambert** to serve as Lead Reviewers. Their responsibilities are as noted above in item "1". We have already been contacted by members of the public noting that some wish to provide written information for your consideration in regard to acrylamide and to make brief oral presentations at the meeting. This information will be sent to you on Friday, October 24, 2008, or sooner, for your consideration.

At the end of day two we will consider some future planning issues. One of these will be a retreat to be held for Board members during December (most likely on December 15-16, 2008) in Annapolis, MD. We will say more about this at the meeting, but in general I want to discuss with the Board the directions we should take for the next several years. This could include items from our roles and responsibilities as an advisory board to any special project we might wish to conduct as a "capstone" activity for that time frame. We will also discuss an exciting new project on strengthening science at the EPA that the Administrator is requesting of the SAB (see the final Attachment to this memorandum).

A second future issue that we will discuss is our impending quality review of the draft report and roll out of a final report from the SAB's Committee for Valuing the Protection of Ecological Systems and Services (CVPESS). This is now scheduled for our December meeting. The draft report is an original SAB study, initiated in 2003. The committee's charge was to assess EPA valuation needs; assess the state of the art and science of valuing protection of ecological systems and services; and identify key areas for improving knowledge, methodologies, practice, and research. The report takes a multi-disciplinary approach to ecological valuation issues. It differs from other recent reports on ecological valuation because of its focus on EPA's need for improved valuation in three different contexts (national rulemaking, site-specific decision making, and regional partnerships) and because it takes a broad view of ecological valuation that does not focus exclusively on economic methods. The Committee Chair (Dr. Barton J. Thompson) and vice-chair (Dr. Kathleen Segerson) briefed the chartered SAB about this effort in March 2008.

I want to thank you in advance for your presence and support during the October meeting. I look forward to a very productive meeting. Please contact me or our DFO, Tom Miller, if you have any questions about this meeting.

Attachments

U.S. Environmental Protection Agency
Science Advisory Board
Looking to the Future
Renaissance Mayflower, 1127 Connecticut Avenue NW
Washington DC 20036
October 27, 2008

Purpose: Is to stimulate SAB thinking about priorities for meeting critical environmental problems with an integrated approach to interdisciplinary science and research.

Preliminary Agenda

8:00 - 8:10 am	Welcome Remarks	Dr. M. Granger Morgan, SAB
	Biofuels: What are the net environmental implications?	
8:10- 8:15 am	Introduction	Dr. M. Granger Morgan, SAB
8:15- 8:45 am	Sustainable paths to a biofuel-powered transportation sector; the role of innovation and invention	Dr. Bruce Dale, Michigan State University Dr. Lee Lynd, Dartmouth College
8:45- 9:15 am	Ensuring environmental sustainability of biofuel systems	Dr. Kenneth Cassman, University of Nebraska
9:15- 9:45 am	Lifecycle environmental and health costs and benefits of fossil and renewable fuels	Dr. G. David Tilman, University of Minnesota
9:45-10:15 am	Biofuels potential: The climate protective domain	Dr. Christopher Field, Carnegie Institution
10:15-10:30 am	Break	
10:30-12:00 pm	SAB discussion with invited speakers	
12:00-1:15 pm	Lunch	
	Epigenomics research: What are the implications for environmental health sciences and human health risk assessment?	
1:15- 1:20 pm	Introduction	Dr. Deborah Cory-Slechta, SAB
1:20- 1:50 pm	Developmental Origins of Health and Disease - the Role of Epigenetic Mechanisms	Dr. Mark Hanson, University of Southampton

1:50- 2:20 pm	Epigenetics: The new genetics of disease susceptibility	Dr. Randy Jirtle, Duke University
2:20- 2:50 pm	Epigenetic transgenerational activity of endocrine disruptors on reproduction and disease; the ghosts in your genes	Dr. Michael Skinner, Washington State University
2:50 -3:15 pm	Break	
3:15- 4:45 pm	SAB discussion with invited speakers	
4:45- 5:00 pm	Concluding remarks	Dr. Deborah Swackhamer, SAB Chair
5:00 pm	Adjourn	

**U.S. Environmental Protection Agency
Science Advisory Board**

**Agenda
Renaissance Mayflower, 1127 Connecticut Ave., NW
October 28, 2008**

(For call-in information, please call the Staff Office at 202-343-9999)

Purpose of the Meeting: The Board will meet to discuss new issues that might be recommended for inclusion within EPA's research program vision, with special emphasis on those topics discussed at the Board's October 27, 2008 seminar on biofuels and epigenomics. The Board will also conduct up to three quality reviews of draft SAB Panel reports.

Tuesday October 28, 2008

8:30 a.m.	Convene the Meeting	Thomas O. Miller <i>Designated Federal Officer, EPA SAB</i>
8:40 a.m.	Chair's Welcome and Introductions and Purpose and Approach for the Meeting	Dr. Deborah Swackhamer <i>Chair EPA Science Advisory Board</i>
9:00 a.m.	Discussion of Future Directions for EPA's Research Program: <ul style="list-style-type: none">- Biofuels (Dr. Dzombak to lead the discussion)- Epigenomics (Dr. Cory-Slechta to lead the discussion)- Other Topics (TBD)	Dr. Deborah Swackhamer and The Board Dr. Kevin Teichman, <i>Deputy Assistant Administrator for Science US EPA ORD</i>
10:15 a.m.	Break	
10:30 a.m.	Public Comments on Strategic Research Directions	TBA
10:40 a.m.	Continued Discussion of Future Directions for EPA Research	Dr. Deborah Swackhamer and The Board Dr. Kevin Teichman
11:30 a.m.	Quality Review of the Draft SAB <i>Aquatic Life Criteria Review</i> (Committee Lead: Dr. Judith Meyer, Chair SAB Environmental Processes & Effects Committee)	Dr. Deborah Swackhamer and The Board
	Public Comments on Draft Aquatic Life Criteria Report	TBA

12:00 p.m.	Lunch	
1:30 p.m.	Quality Review of the Draft SAB Advisory on Contaminant Candidate List 3 (Committee Lead: Dr. Joan Rose , <i>Chair SAB Drinking Water Committee</i>)	Dr. Deborah Swackhamer and The Board
	Public Comments on the Draft Report	TBA
2:00 p.m.	Quality Review of the Draft SAB Advisory on Acrylamide (Committee Lead: Dr. Deborah Cory-Slechta , <i>Chair, SAB Acrylamide Review Panel</i>)	Dr. Deborah Swackhamer and The Board
	Public Comments on the Draft Report	TBA
3:00 p.m.	Adjourn the Meeting	The DFO

(October 23, 2008)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OCT 20 2008

THE ADMINISTRATOR

MEMORANDUM

SUBJECT: Request for a Science Advisory Board Study

TO: Dr. Deborah Swackhamer
Chair, Science Advisory Board

At the U.S. Environmental Protection Agency, sound decision-making depends on getting the best available science. During its 30-year history of advising EPA Administrators, the Science Advisory Board has emphasized the need for anticipating future environmental threats and investing in emerging research and science critical for informing decisions. As our understanding of complex environmental problems improves, integrated approaches for delivering the best science need to be developed and implemented.

The SAB's 2000 report *Toward Integrated Environmental Decision-Making* suggested an integrated decision-making framework for evaluating and responding to environmental problems. I ask that the SAB initiate a study that builds on its 2000 study to develop independent advice on how EPA can strengthen scientific assessments for decision making. The SAB might consider EPA's organizational structure and functions in light of how they influence the development and application of science assessments in different decision-making contexts. It would also be valuable for the SAB to recommend how to strengthen EPA's approaches for integrating traditional human health and ecological science assessments with socioeconomic analyses, decision sciences, and technology development and assessments to better support policy development. Finally, as EPA continues to plan for human capital needs, I would like the SAB to provide advice on ways to attract and retain the best diverse technical workforce.

Attached is a brief description of the proposed study. Please feel free to tailor the scope and depth of the study as appropriate. I ask the study be completed in a timely manner for the next EPA Administrator's consideration and implementation.

A handwritten signature in black ink, appearing to read "S. L. Johnson".

Stephen L. Johnson

Attachment

Effective human health and environmental protection requires a strong foundation of scientific knowledge. Scientific information often includes considerable uncertainty resulting in a diversity of scientific interpretations. The development and application of scientific knowledge in identifying potential threats, characterizing risks, formulating technological solutions, and evaluating the benefits and costs of U.S. Environmental Protection Agency actions are major science functions at EPA. The scope and depth of such science assessments greatly vary under different legislation and policies.

These functions are carried out by scientists, engineers, and economists with specialized program knowledge. They, in turn, rely on technical support by outside experts procured through Agency's interagency agreements or contracts. In addition, EPA's National Center for Environmental Assessment in the Office and Research Development develops technical assessments for EPA's Integrated Risk Information System which are used throughout the Agency. Summaries of the potential human health effects information that may result from exposure to chemicals in the environment, along with the supporting Toxicological Reviews, are made available electronically on IRIS for use by EPA, states, and tribal governments.

Over the years, reports from the National Research Council, the General Accountability Office, and other organizations point out that, while EPA has knowledgeable experts, the Agency's policies and regulations are too often perceived to lack a strong scientific foundation and EPA's science is of uneven quality. To address these issues, EPA established several science coordinating bodies. For instance:

- the Risk Assessment Forum consists of Agency senior scientists that develop Agency-wide technical guidelines for human health risk assessment, ecological risk assessment, and exposure assessment;
- the Science Policy Council develops Agency position papers on cross-cutting and emerging issues (e.g. peer review practices, data quality guidelines, genomics, nanotechnology); and
- the Council on Regulatory Environmental Modeling guides the development and use of environmental models.

Staff support for these coordinating bodies is now centralized in the newly created EPA Office of the Science Advisor. In addition to these groups, the National Regional Science Council promotes communication and collaboration of regional scientists to identify common regional needs.

Nonetheless, scientists, engineers, economists, and other technical professionals, by necessity, continue to be spread throughout the Agency and have limited opportunity to interact with their peers in other organizational units. Such segregation can result in duplication of effort as well as conflicting scientific approaches to the evaluation of similar environmental agents by different offices. While the Agency has tried to minimize such occurrences through its science and science policy coordinating bodies, existing coordination processes can be slow and tend to occur in the later phases of assessment development and approval. Furthermore, the environmental problems of today are more complex, often cross state and national boundaries, and require consideration of difficult trade-offs and integration of socioeconomic and technological solutions. EPA's existing science and science policy coordinating bodies primarily address immediate scientific needs of the Agency and may miss a longer-term strategic viewpoint.

Proposal

The SAB has provided scientific advice and recommendations to the Agency on a wide variety of scientific issues for more than 30 years. Because of the SAB's unique perspective, it would be of value for the SAB to evaluate the Agency's current organizational structures and functions concerning the development and application of science assessments in different EPA decision-making contexts. The evaluation would result in advice and recommendations on how the Agency might strengthen scientific assessments, communication of uncertainties of the assessments, and how the results are used. Areas for consideration may include: scientific leadership; consistent scientific practices; scientific collaboration within and between disciplines; and multi-disciplinary approaches for integrating natural science assessments with economic and social science assessments.