



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

June 12, 2006

OFFICE OF THE ADMINISTRATOR
SCIENCE ADVISORY BOARD

MEMORANDUM

SUBJECT: Science Advisory Board (SAB) Advisory on EPA's *Sustainability Research Strategy* and the Associated *Science and Technology for Sustainability Multi-year Plan* – Determination of SAB Panel Membership

FROM: Kathleen E. White /Signed/
EPA Science Advisory Board Staff Office (1400F)

THRU: Daniel Fort /Signed/
SAB Ethics and FACA Policy Officer
EPA Science Advisory Board Staff Office (1400F)

TO: Vanessa T. Vu, Ph.D.
Director
EPA Science Advisory Board Staff Office (1400F)

This memorandum documents the evaluation process for establishing an advisory panel for the review of the EPA's *Sustainability Research Strategy* and the associated *Science and Technology for Sustainability Multi-year Plan*.

A. Background

As part of its research planning and management, EPA's Office of Research and Development (ORD) often prepares Research Strategies and Multi-Year Plans. Each Strategy defines broad areas of research that ORD expects to undertake and lays out an organizational road map addressing related research questions. The more specific Multi-Year Plans (MYP) serve as implementing documents for the frameworks set out in the Research Strategies. Each MYP identifies a set of long-term goals and associated Annual Performance Goals (APGs) and Annual Performance Measures (APMs). Intended as a living document, ORD updates each MYP as needed, reflecting the current state of the science, resource availability, and Agency priorities.

ORD is now developing a new Sustainability Research Program because ORD believes that the growing challenges on our environment require a new set of approaches that help our nation move toward a more sustainable future. ORD's new approaches include the ORD's *Sustainability Research Strategy*, along with the associated *Science and Technology for Sustainability MYP*, which will play a crucial role in achieving measurable sustainable outcomes. The *Sustainability Research Strategy* proposes a scientific framework for a more systematic and holistic approach to environmental protection that takes into consideration the complex nature of environmental issues and the welfare of future generations. The multi-year research plan describes ORD's research to meet the short-term and long-term goals of the Research Strategy. The *Sustainability Research Strategy* will unify existing and future ORD research programs and their associated MYPs. The *Science and Technology for Sustainability MYP* is the first of several ORD research programs that will contribute to the implementation of work that responds directly to the research questions laid out in the *Sustainability Research Strategy*.

ORD submitted both the *Sustainability Research Strategy* and the implementing *Science and Technology for Sustainability MYP* to the Science Advisory Board for its advice and guidance on the science. The SAB's recommendations, as well as public comments, will be incorporated in to the final documents. The charge for the review is attached to this memo.

B. Formation of the SAB Environmental Engineering Committee Augmented for Sustainability

The SAB Staff Office determined that the SAB Environmental Engineering Committee, a standing committee of the chartered SAB, supplemented with experts from the chartered SAB, the SAB Ecological Processes and Effects Committee and the Environmental Economics Advisory Committee would be most suitable to undertake this activity. On April 26, 2006, the meetings were announced in the Federal Register, the biosketches for the members were posted at the SAB's website and time was allowed for public comment.

All members were required to provide information that would allow the SAB Alternate Deputy Ethics Official to determine whether a conflict or interest or an appearance of a lack of impartiality might exist if the individual were to serve on the Committee. (These considerations are described more fully in the next section.)

C. Conflict of Interest Considerations

18 U.S.C. 208 provision states that:

"An employee is prohibited from participating personally and substantially in an official capacity in any particular matter in which he, to his knowledge, or any person whose interests are imputed to him under this statute has a financial interest, if the particular matter will have a direct and predictable effect on that interest [emphasis added]."

For a conflict of interest to be present, all elements in the above provision must be

present. If an element is missing, the issue does not involve a formal conflict of interest. However, the general provisions in the "appearance of a lack of impartiality guidelines" may still apply and need to be considered.

Personal and Substantial Participation:

Participating personally means participating directly. Participating substantially refers to involvement that is of significance to the matter [5C.F.R. 2640.103(a)(2)]. For this review, Committee members will be participating personally in the matter through attendance at meetings, teleconferences and other means.

Direct and Predictable Effect:

A direct effect on a participant's financial interest exists if, "... a close causal link exists between any decision or action to be taken in the matter and any expected effect of the matter on the financial interest...A particular matter does not have a direct effect...if the chain of causation is attenuated or is contingent upon the occurrence of events that are speculative or that are independent of, and unrelated to, the matter. A particular matter that has an effect on a financial interest only as a consequence of its effects on the general economy is not considered to have a direct effect." [5 C.F.R. 2640.103(a)(i)]. A predictable effect exists if, "...there is an actual, as opposed to a speculative, possibility that the matter will affect the financial interest." [5 C.F.R. 2640.103(a) (ii)].

Particular Matter:

A "particular matter" refers to matters that "...will involve deliberation, decision, or action that is focused upon the interests of specific people, or a discrete and identifiable class of people." It does not refer to "...consideration or adoption of broad policy options directed to the interests of a large and diverse group of people." [5 C.F.R. 2640.103 (a)(1)].

The Strategy and related Multi-Year Plan are so broad that the SAB Environmental Engineering Committee's activity cannot be said to be **particular matter** because the resulting advice will involve neither the interests of a discrete and identifiable class of people nor specific parties.

Appearance of a Lack of Impartiality Considerations:

The Code of Federal Regulations [5 C.F.R. 2635.502(a)] states that:

"Where an employee knows that a particular matter involving specific parties is likely to have a direct and predictable effect on the financial interest of a member of his household, or knows that a person with whom he has a covered relationship is or represents a party to such matter, and where the person determines that the circumstances

would cause a reasonable person with knowledge of the relevant facts to question his impartiality in the matter, the employee should not participate in the matter unless he has informed the agency designee of the appearance problem and received authorization from the agency designee."

Further, 5 C.F.R. 2635.502(a)(2) states that:

"An employee who is concerned that circumstances other than those specifically described in this section would raise a question regarding his impartiality should use the process described in this section to determine whether he should or should not participate in a particular matter."

Each potential advisory Committee member was evaluated against the 5 C.F.R. 2635.502(a) general requirements for considering an appearance of a lack of impartiality. Information used in this evaluation has come from information provided by potential advisory Committee members (including, but not limited to, EPA 3110-48 confidential financial disclosure forms) and public comment.

To further evaluate any potential appearance of a lack of impartiality, the following five questions were posed to all SAB Environmental Engineering Committee (as augmented for sustainability) members:

- 1) Do you know of any reason that you might be unable to provide impartial advice on the matter to come before the Committee or any reason that your impartiality in the matter might be questioned?
- 2) Have you had any previous involvement with the issue(s) or document(s) under consideration, including authorship, collaboration with the authors, or previous peer review functions? If so, please identify those activities.
- 3) Have you served on previous advisory Committees or committees that have addressed the topic under consideration? If so, please identify those activities.
- 4) Have you made any public statements (written or oral) on the issue? If so, please identify those statements.
- 5) Have you made any public statements that would indicate to an observer that you have taken a position on the issue under consideration? If so, please identify those statements.

As a result of a review of these forms and the responses to the five questions above provided by each prospective Committee member, the SAB Alternate Deputy Ethics Official determined that there are no conflicts of interest or appearances of a lack of impartiality for the members of this committee.

While the Administrator appoints members to the standing committees and chartered Board, the SAB Staff Office makes the final decision about who serves on a particular review. Selection criteria included: scientific and technical credentials and expertise; the need to maintain a balance with respect to members' qualifying expertise background and perspectives; willingness to serve, and availability to meet during the proposed time period; the absence of conflict of interest; and absence of any appearance of lack of impartiality.

Accordingly, based on the above-specified criteria, the Environmental Engineering Committee Augmented for Sustainability Advisory of the following experts was selected:

CHAIR

Dr. Michael J. McFarland, Associate Professor, Department of Civil and Environmental Engineering, Utah State University, Logan, UT

MEMBERS OF THE ENVIRONMENTAL ENGINEERING COMMITTEE

Dr. Viney Aneja, Professor, School of Physical and Mathematical Sciences, North Carolina State University, Raleigh, NC, USA

Dr. David A. Dzombak, Professor, Department of Civil and Environmental Engineering, Carnegie-Mellon University, Pittsburgh, PA

Dr. T. Taylor Eighmy, Research Professor and Director of the Recycled Materials Resource Center, Civil Engineering, University of New Hampshire, Durham, NH

Dr. Joseph B. Hughes, Professor and Chair, School of Civil and Environmental Engineering, and Associate Director, Hazardous Substances Research Center S/SW, Georgia Institute of Technology, Atlanta, GA

Dr. Catherine Koshland, Professor, Department of Environmental Health Sciences, School of Public Health, University of California, Berkeley, Berkeley, CA

Dr. Reid Lifset, Associate Director, Industrial Environmental Management Program, School of Forestry and Environmental Studies, Yale University, New Haven, CT

Dr. William Mitsch, Professor, Olentangy River Wetland Research Park, The Ohio State University, Columbus, OH

Dr. Mark Rood, Professor, Department of Environmental Engineering, Civil and Environmental Engineering Program, University of Illinois, Urbana, IL

Dr. John R. Smith, Manager, EHS Science and Technology Center, Alcoa Technical Center, Alcoa Center, PA

OTHER SAB MEMBERS

Dr. Anna Alberini, Associate Professor, Department of Agricultural and Resource Economics - AREC, University of Maryland, College Park, MD

Mr. David Rejeski, Foresight and Governance Project Director, Woodrow Wilson International Center for Scholars, Washington, DC

Dr. Thomas L. Theis, Professor and Director, Institute for Environmental Science and Policy, University of Illinois at Chicago, Chicago, IL

Dr. Valerie Thomas, Anderson Interface Associate Professor of Natural Systems, School of Industrial and Systems Engineering, Georgia Institute of Technology, Atlanta, GA

Concurred,

 /Signed/
Vanessa Vu, Ph.D.
Director
EPA Science Advisory Board Staff Office (1400F)

 June 12, 2006
Date

**Context Statement for Science Advisory Board Review:
ORD Sustainability Research Strategy and
Science and Technology for Sustainability Multi-Year Plan**

As part of its research planning and management, EPA's Office of Research and Development (ORD) often prepares **Research Strategies** and **Multi-Year Plans**. Each **Strategy** defines broad areas of research that ORD expects to undertake and lays out an organizational road map addressing related research questions. The more specific **Multi-Year Plans (MYP)** serve as implementing documents for the frameworks set out in the Research Strategies. Each MYP identifies a set of long-term goals and associated Annual Performance Goals (APGs) and Annual Performance Measures (APMs). Intended as a living document, ORD updates each MYP as needed, reflecting the current state of the science, resource availability, and Agency priorities.

ORD is now developing a new **Sustainability Research Program**. As detailed in the *Sustainability Research Strategy*, a combination of growing world population, rapidly expanding GDP and other forces suggest that significant stress will be placed on the earth's resources and on humanity's ability to maintain or improve environmental quality. Today's and future generations thus face the challenge of preventing or mitigating the negative consequences that come with this population growth and economic expansion while we simultaneously work to improve the protection of human health and environmental quality. ORD believes that the growing challenges on our environment require a new set of approaches that help our nation move toward a more sustainable future.

ORD's new approaches include the ORD's *Sustainability Research Strategy*, along with the associated *Science and Technology for Sustainability MYP*, which will play a crucial role in achieving measurable sustainable outcomes. The *Sustainability Research Strategy* promotes will unify existing and future ORD research programs and their associated MYPs. The *Science and Technology for Sustainability MYP* is the first of several ORD research programs that will contribute to the implementation of work that responds directly to the research questions laid out in the Sustainability Research Strategy.

This new research activity will provide added value to EPA through scientifically based models, methods, technologies, and strategies for the long-term protection of the environment. It recognizes that problems exist within systems whose spatial and time scales are extremely large. Adding a time dimension reflects the idea that, rather than attempting to remediate or restore already damaged watersheds and other ecosystems, it's better to seek ways to maintain the healthy conditions of ecosystems. Emphasizing the spatial dimension in ORD's new research activity recognizes that the environmental consequences of actions must be examined for their system-wide impacts.

External peer review, including public comment, is an important part of any scientific activity. ORD is pleased to submit both the *Sustainability Research Strategy* and the implementing *Science and Technology for Sustainability MYP* to the Science Advisory Board for its review and

guidance. The SAB's recommendations, as well as public comments, will be incorporated in to the final Strategy and MYP.

Sustainability Research Strategy and MYP Charge to the SAB

ORD requests that the Science Advisory Board provide consultation and advice on the Sustainability Research Strategy and its accompanying Multi-Year Plan (MYP). ORD asks the SAB to respond to the following specific charges:

Strategy:

Does the SAB agree with the central premise of the Strategy that sustainability is all about decision making and that ORD research support should aim to inform and allow decision makers at all levels of government and in the private sector to choose courses of action that will lead to achieving sustainable outcomes?

Does the strategy make a compelling case for ORD and EPA that Sustainability Research is a priority for ORD?

Does the strategy focus on priority national issues and identify the right research questions?

Does the strategy identify the right implementing steps to address research questions and achieve sustainable outcomes (Advance technology, develop tools and approaches, advance systems research and disseminate and apply results.)

Does the strategy adequately and correctly connect to policy and/or decision-makers inside and outside EPA for achieving desired sustainability outcomes?

Does the strategy enable ORD to prioritize its research investments?

Does the strategy define an appropriate role for EPA relative to other funding agencies? Does it sufficiently encourage other Federal agencies and organizations to relate their sustainability efforts to EPA's so as to promote co-funding and/or collaboration where appropriate?

Does the Strategy outline an adequate roadmap for ORD to implement this program (P2 transition to Sustainable Technology, coordination among NPD and across existing MYPs, leveraging interagency cooperation, and defining emerging research areas?)

Does the SAB believe that sustainability research is a sufficiently strong concept for integrating and coordinating across ORD research programs?

MYP

Does the organization of the new Sustainability Technology MYP provide a clear logical framework for implementing an element of the overall Sustainability Strategy?

Does the MYP follow appropriately from the Sustainability Research Strategy? Are the research issues identified in the MYP consistent with the research questions identified within the Sustainability Research Strategy?

For each major research track addressed within the MYP (e.g., Decision Support Tools, Education, Technologies, Systems, and Metrics/Indicators), do the Annual Performance Goals (APGs) and Annual Performance Measures (APMs) represent a logical progression of activities and intended outcomes? Does the MYP identify the specific issues motivating the research program?

Does the MYP lay out a balanced program addressing both short-term and longer-term research that meets current needs while positioning the Agency to respond to emerging issues?

Do the long-term goals address the high-priority science, engineering, and technology needs of users that will help the Agency meet its strategic goals relating to sustainability? Do the long-term goals clearly relate to the research tracks within the MYP framework? Do they provide a picture of what the program is trying to achieve? Will the proposed research activities lead to progress towards these goals? Are the goals appropriately linked to long-term environmental outcomes?

Are the research products supportive of the strategic target as set forth in the Agency's Strategic Plan under Objective 5.4?

Does the scope of work proposed within the MYP complement research being supported by other programs inside and outside EPA?

Are there other potential emerging research areas that the MYP should consider?

Is the level of resources specified by the MYP sufficient to address the research issues that it identifies, allowing ORD to achieve the intended outcomes of the research program? Is the MYP's relative allocation of those resources among the research tracks of the sustainability research program appropriate, based on a consideration of scientific and programmatic needs?

Does the MYP appropriately address findings and recommendations in evaluations of the program and its components?