

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

Minutes of Public Meeting May 17, 2006

Committee: SAB Environmental Engineering Committee Augmented for Sustainability Advisory (See attached Roster)

Date and Time: May 17, 2006 from noon to 4 p.m. Eastern Time (See attached Federal Register Notice, February 1, 2006 (Volume 71, Number 80, Page 24674-24675))

Location: By telephone only, run from room 3610E, 1025 F Street Northwest, Washington D.C.

Purpose: This conference call, the June 13-15 face-to-face meeting, and the August 1, 2006 conference call will allow the Committee to provide advice on the Sustainability Research Strategy and the associated multi-year research plan, Science and Technology for Sustainability (These materials are posted at the SAB's website, www.epa.gov/sab and will be found in the FACA file for this meeting)

Materials Available: The following materials were distributed before the meeting:

1. agenda
2. preliminary charge
3. roster and biosketches
4. U.S. Environmental Protection Agency, Office of Research and Development, *Sustainability Research Strategy*, May 4, 2006
5. U.S. Environmental Protection Agency, Office of Research and Development, *Science and Technology for Sustainability Multi-Year Plan (FY2008-FY2012)*, May 10, 2006

Attendees: Because this was a conference call, there are no sign-in sheets.

The following members of the committee participated Dr. Michael J. McFarland (chair), Dr. Viney Aneja, Dr. T. Taylor Eighmy, Dr. Reid Lifset, Dr. Susan E. Powers, Mr. David Rejeski, Dr. Mark Rood, Dr. Thomas L. Theis, and Dr. Valerie Thomas. The following members were unable to attend Dr. Anna Alberini, Dr. John C. Crittenden, Dr. David A. Dzombak, Dr. Joseph B. Hughes, Dr. Michael Kavanaugh, Dr. Catherine Koshland, Dr. William Mitsch, and Dr. John R. Smith.

Tony Maciorowski and Kathleen White of the Science Advisory Board Staff office were present.

The following EPA employees participated: Alan Hecht, Claudia Walters, Steve Lingle, Diana Bauer, Gordon Evans, Sally Guttierrez, Alva Daniels, Theresa Harten, and Subhas Siktar.

Nicolas Gard from Exponent was present.

Summary: The meeting went largely according to the agenda. The chair assigned various

committee members responsibilities with regard to commenting on the charge questions. Members should send their individual independent comments to DFO and coordinators by Friday May 26 if possible, otherwise by 9 a.m. Tuesday May 30. The coordinators will use these materials to prepare preliminary responses to the charge questions by Friday June 2. The DFO and chair will read, integrate and distribute before the June 13-15 face-to-face meeting.

Details of the meeting: After the Designated Federal Officer opened the meeting, Associate Director for Science, Tony Maciorowski thanked everyone who joined them on the call, EPA staff and managers, the Committee and the Chair. He reminded the Committee that their function was important because the quality of the Agency's science depends on external advice.

The chair thanked Dr. Maciorowski, welcomed the Committee, and reviewed the planned agenda. After asking if there were any questions about logistics, and receiving none, he instructed the Committee to focus on clarification in the first part of the meeting. The chair then asked Alan Hecht and Gordon Evans for their briefings.

Hecht and Evans provided an overview and introduction to the strategy and plan. After thanking NCER, NRMRL and SAB staff as well as committee for all their efforts, Hecht addressed these questions, "What is sustainability?" and "What is EPA's role.?"

EPA, which has a 35 year history to reflect on, has been successful on media-centric activities, is entering a new era. EPA must consider how best to approach the new landscape. Table on page 6 is the first attempt EPA has made to define sustainable outcomes. Chapter 2 gives much of the justification for the program and looks ahead. EPA is getting involved because it anticipates new problems that will require a more systems oriented approach to resolve them. It also reflects EPA's slow evolution into an organization that works towards sustainability. The Administrator talks about improving and advancing environmental protection and economic growth. Sustainability is an impetus for industry and government to do this. Why is also a reflection of earlier advice they have received from the SAB.

There are strong links between risk, risk management and sustainability. He referenced the Swiss Re 2002 report on Sustainability. (Swiss Re is a global reinsurance company which has chosen to integrate sustainability into its corporate framework. Its 2002 Sustainability Report is available at [swiss_re_ar2002_sustainability_report_e.pdf](#))

Hecht observed that, because of the importance of systems, the research questions and outcome measures are more systems oriented than media oriented.

Finally, the strategy addresses what EPA has to do. EPA has identified five objectives as key to achieving the stated goals:

1. Improve Systems Understanding
2. Develop Decision Support Tools
3. Advance Technologies
4. Promote Collaborative Decision-Making

5. Develop Metrics and Indicators

In parallel with the EPA *Report on the Environment*, EPA needs to have sustainable indicators that it can measure. It is both a research and management area.

EPA has toyed with sustainability for a long time, but never given it the kind of attention it receives here. The question is whether this effort is in tune with the rest of the Agency. Hecht thinks so. OW has started a sustainable water program, OSW is moving towards managing materials instead of waste, OPPT has been an ally on this for many years – their Green Chemistry and Green Design program are a big part of this. The Agency is putting more emphasis on energy, and appointing an energy advisor. Next week at the SES meeting there will be former Deputy Hank Habicht and DOE to discuss energy and environment issues. With these efforts, it appears that this is the right time.

Hecht finished at 12:35. McFarland thanked him for an important and valuable presentation and gave the Committee an opportunity to ask a few questions before going to the next presentation.

Taylor Eighmy noted that, from a 40 000 foot view, the other feds like DOI, DOE, and NOAA are also contemplating sustainability as they deal with PART and GPRA. He asked, “What kind of interaction and coordination occurs at the Inter Agency level?” Hecht said that last year, ORD in cooperation with the Office of the Federal Environmental Executor, convened a summit of the federal Agencies at the Office Director/grass roots level. The feeling was that everyone was doing something and were desperate for coordination. Subsequently the OFEE formed a Stewardship for Sustainability working group and invited the other federal agencies to share their thinking.

Interestingly, the Army claims to be the lead in terms of federal procurement and base design. Across the board, the agencies made it clear that this is an issue of concern to them and they are all involved. We need to clearly define the role of the federal government in terms of research and guidance. A vision might be that EPA will provide more guidance that could be developed into a (What?) There does seem to be progress in greening of the federal system, but there is more to be done. They hope to have a federal research summit on sustainability later this year.

Viney Aneja asked whether sustainability was being created because of world growth in population, food consumption and energy use. He hasn't heard USDA mentioned! Is USDA part of this effort and what is it's role. Hecht responded that completely independent of the sustainability strategy, EPA has developed an agricultural strategy developed by his Agricultural Advisory and just now made available. ORD will provide the web site. The Ag strategy was presented at a recent senior level discussion and a working group formed that looked at it. In addition to the importance of food, there is interest in the interface between agriculture, biomass, and alternate energy. There is a 25-25 program with the goal of providing 25% of energy from agriculture by 2025. USDA, especially the Agricultural Research Service, has been an excellent ally on sustainability issue.

At 12:45. the chair asked Gordon Evans to speak about the multi-year plan, after which there will be another question period and additional questions can be taken by Hecht as well at that time.

Evans provided an overview of Science and Technology for Sustainability Multi-Year Plan (FY2008-FY2012). This is the first attempt to take at least a portion of the Sustainability Research Strategy and operationalize it. The MYP begins with the existing Pollution Prevention research program. The document takes the reader from the foundation programs to the three long term goals in Chapter 3:

1. Identify and develop scientifically-based metrics to quantitatively assess environmental systems for sustainability with a view to eventually supporting the Report on the Environment
2. Develop and apply decision support tools and methodologies that promote environmental stewardship and sustainable environmental management practices.
3. Develop, apply, and demonstrate innovative technologies that solve environmental problem and provide sustainable outcomes.

Resource availability is a primary criterion. Regional and program office needs are as well.

At 1:00 the chair opened the floor to questions from the Committee.

Valerie Thomas had a question for Gordon Evans. Much of the MYP rests on the capacity of the existing EPA staff. It would be helpful to have some kind of description of what this is. EPA has to work with what it has and the better we understand that, the more helpful they can be. Evans offered to provide names, backgrounds and specialties, and degrees. He also mentioned their post-doc program.

Dave Rejeski said \$2.7 million is not a lot of money. What's the trend? Do you have any extramural funding? Was ETV zeroed out? Can you leverage SBIR? We are in an era of flat and declining budgets. We have lost ETV. In terms of FTE, ceiling declines with attrition which means there are few new hires. Theresa Harten said ETV was zeroed out in the FY07 budget; the FTEs will provide technical and quality support for the centers, but vendors would have to still pay the full cost. ETV was designed to be a program with declining resources. Steve Lingle said that, over the last three years or so, we have had a program at about \$3M for technology for sustainable development which was phased out and replaced with the student design and competition P3 at \$1M. This is the only continuing program in the budget. There had been a collaborative network for sustainability grant. In FY06 there is about \$6 million for SBIR; this is part of a 2.5% tap on the extramural research program. At the end of Phase II, EPA offers to pay for a verification. EPA also offers to other agencies with more money than EPA has, the option of funding some of EPA's research. Hecht reminded the Committee that S AB comments on ORD's budget every year. It is clear that the goals are much larger than the

budget. If it is as important as we think, we will have to find ways to make it grow over time. He mentioned Figure 6.1 on page 64 of the Strategy which shows how goals in the research strategy overlap other programs. As managers become more supportive of sustainability, they become willing to put some of their resources towards the goals.

Susan Powers asked about the format of the MYP and what needs to be included. She thought there would be more about metrics for whether people are using the tools and strategies you would like them to than what is on page 36. Evans confirmed that these are the kinds of measures PART talks of and is an area that needs more work. The decided at the last minute to change the language of their goals. Their old goal structure had the benefit of a year's discussion of measures that were more PART influenced. He remarked this was a good observation.

Mark Rood was interested in how sustainability would provide an impetus to change its funding direction. Is that part of what EPA is thinking about? Evans doesn't know how the program can fully do that. Measures and outcomes are the center of everything ORD talks about these days. Rood spoke of large programs under development at NSF, one of which is called CLEANER. (Ask Mark what the other one was called – QUASI?) Steve Lingle said they had worked closely with NSF in the past, but hadn't heard of that one. Rood thinks it is out of the BES. Diana Bauer is familiar with it and also the MUSES program. McFarland says SAB always recommends leveraging and NSF is an excellent partner.

Taylor Eighmy asked Evans about the three long-term goals with each having performance measures and performance goals. He would like to hear more about implementation and whether includes something that might be called demonstrations. Evans said that's exactly the point and they have begun discussions with partners to apply both metrics and decision tools, including the National Park Service. It is not just sought of partnering and giving away, but partnering, assessing, reporting and transferring lessons learned. Eighmy thinks a larger discussion of implementation might be illuminating.

McFarland asked for additional questions and there were none.

After polling the Committee, the chair called at 10 minute comfort break before the discussion of the 17 charge questions which, he estimated would take at least an hour to discuss.

At 1:30 the chair spoke to the charge and assignments. He normally assigns one charge question per coordinator with co-responders. The co-responders develop their individual independent preliminary responses which the coordinator integrates into a draft to bring to the face-to-face meeting. The coordinator will also make a presentation at the face-to-face meeting. All Committee members should feel free to respond to any or all charge questions. The DFO asked that the individual preliminary responses to her first or her and copy the coordinator. He asked if there were any questions about the process.

Viney Aneja asked that a brief outline of the action items be sent to the Committee after the call and McFarland agreed. McFarland said he drew up the initial proposal before he realized Mike

Kavanaugh would not be able to participate. Hecht thought some of the questions could be grouped together. McFarland himself thought there were some questions that could be collapsed and welcomed further suggestions. Hecht thought they could be grouped as follows.

1. A priority and a national interest (Q2 & 3)
2. A priority for EPA and across programs (Q1,5,6,&,7)
3. Research implementation (Q4,8 &9)

McFarland conveyed to the Committee his preliminary assignments and asked that the proposed charge questions be considered carefully by the Committee, especially the coordinators so that anything necessarily could be clarified --

Strategy:

1. 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? **(Coordinator: Eighmy; co-responders: Alberini, Hughes, Powers, Smith)**
2. Does the strategy make a compelling case for ORD and EPA that Sustainability Research is a priority for ORD? **(Coordinator: Lifset; co-responders Koshland, Rood, Thomas)**
3. Does the strategy focus on priority national issues and identify the right research questions? **(Coordinator: Theis; co-responders Lifset, Mitsch, Rejeski)**
4. 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.) **(Coordinator: Rejeski; co-responders Aneja, Powers, Eighmy, Thomas)**
5. Does the strategy adequately and correctly connect to policy and/or decision-makers inside and outside EPA for achieving desired sustainability outcomes? **(Coordinator: Dzombak; co-responders Hughes, Koshland, Lifset, Thomas)**
6. 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? **(Coordinator: Alberini; co-responders Aneja, Crittenden, Dzombak, Rejeski, Theis)**
7. Does the Strategy outline an adequate roadmap for ORD to implement this program (P2 transition to Sustainable Technology, coordination among National Program Directors (NPD) and across existing MYPs, leveraging interagency cooperation, and defining emerging research areas?) **(Coordinator: Powers; co-responders Mitsch, Smith, Theis)**

8. Does the SAB believe that sustainability research is a sufficiently strong concept for integrating and coordinating across ORD research programs? **(Coordinator: Aneja; co-responders Crittenden, Lifset, Powers, Rood)**

Thomas asked about the first question. She would like the Agency to clarify what they are asking. Hecht said that they make a point in the strategy that a key area EPA can play on sustainability is developing tools, methods, understanding and approaches that the government and private sector can use in promoting sustainability. This makes ORD, in part, a support rather than research organization. That's the point of the question – helping decision makers make better decisions.

Aneja asked for some guidance on how long a response is expected. McFarland said that responses. Basically a page and a half to ten pages seems pretty typical. This isn't the time to agonize, just capture the thinking.

MYP

1. 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? **(Coordinator: Thomas; co-responders Alberini, Eighmy, Mitsch, Theis)**

2. 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? **(Coordinator: Smith; co-responders Dzombak, Hughes, Rejeski)**

NOTE: The Agency thought they might like to change MYP charge question #2 and will send edits to the DFO. They do not anticipate that it will be a major change, more of a clarification.

3. 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? **(Coordinator: Aneja; co-responders Crittenden, Eighmy, Koshland, Rejeski)**

4. 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? **(Coordinator: Powers; co-responders Koshland, Mitsch, Dzombak, Smith, Theis)**

5. Are the research products supportive of the strategic target as set forth in the Agency's Strategic Plan under Objective 5.4? **(Coordinator: Hughes; co-responders Aneja, Mitsch, Rood)**

Hecht noted that EPA is redoing its Strategic Plan for FY2007-2011. It has five objectives, the fifth is compliances, stewardship and sustainable outcomes. This week there have been edits to the documents, including in area 5.4 which deals with sustainable outcomes. He will send final language to DFO to forward to Committee for their use in answering this question.

6. Does the scope of work proposed within the MYP complement research being supported by other programs inside and outside EPA? **(Coordinator: Lifset; co-responders Aneja, Crittenden, Dzombak, Eighmy)**

7. Are there other potential emerging research areas that the MYP should consider? **(Coordinator: Rejeski; co-responders Crittenden, Dzombak, Powers, Smith)**

8. 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? **(Coordinator: Theis; co-responders Alberini, Mitsch, Smith, Thomas)**

9. Does the MYP appropriately address findings and recommendations in evaluations of the program and its components? **(Coordinator: Rood; co-responders Hughes, Koshland, Lifset)**

After presenting this initial cut at assigning writing responsibilities, the chair asked if there were changes that the Committee would like to propose, either now or privately afterwards. Powers wanted to clarify whether she could handle this by phone and the DFO and chair thought so. Mark Rood asked, once you start digging in to the document, how do they follow up. The chair said to work through the DFO and reminded the committee to work through the DFO.

McFarland asked if there were any clarifications or other questions the Committee would like addressed now. Aneja said they would like to leave the door open to clarify things later. McFarland agreed saying he didn't mean to close the door to new thoughts, just to make the best use of the present opportunity.

Members should provide their individual independent comments to DFO and coordinators by Friday May 26 if possible, otherwise by 9 a.m. Tuesday May 3. Coordinators will use these inputs to prepare their preliminary responses to the charge questions by Friday June 2. DFO and chair will read, integrate and distribute.

There were no further questions about logistics.

At 2:15, the chair asked if the Committee had further questions for the Agency. There were none. No one from the public had reserved time on the agenda and none took this opportunity to do so.

Dave Rejeski asked what happens to the strategy and plan after the June meeting. Hecht referenced implementing steps in chapters 5 and 6. One is a meeting of national program directors. Another is the Innovation Action Council activity in June. There is an activity with the Stewardship and Sustainability summit. Lastly, ORD is making budget decisions. He doesn't anticipate that this advisory will affect the budget decisions that are being made now, but could affect the FY2008 budget. Diana Bauer said the program is going to BOSC in the fall and will be re-PARTed in the spring. The SAB's report will feed into that.

There were no further questions.

McFarland reviewed next steps; there were no questions about the next steps.

The DFO adjourned the meeting at 2:20

Respectfully Submitted:

Certified as True:

_____/s/_____
Ms. Kathleen White
Designated Federal Official

_____/s/_____
Dr. Michael McFarland, Chair
Environmental Engineering Committee Augmented
for Sustainability Advisory

