

**MINUTES from the
U.S. Environmental Protection Agency
Science Advisory Board
Meeting on the EPA's Strategic Research Directions (2007-2012) and Fiscal Year
2008 Research Budget
February 22-23, 2007**

Meeting Location: US EPA SAB Conference Room,
1025 F Street NW, Washington, DC 20004

PURPOSE: The EPA Science Advisory Board (SAB or the Board) met to review the five-year EPA strategic research directions and the FY 2008 President's Budget Request for research at EPA. Attachment A is the Federal Register notice announcing the meeting (71 FR, 7938, February 15, 2006). A meeting agenda is included as Attachment B.

LOCATION: The meeting was held in the EPA SAB Conference Center, Room 3700, 1025 F St., NW, Washington, DC.

DATE AND TIME: Thursday, February 22, 2007 to Friday, February 23, 2007.

PARTICIPANTS: The roster of SAB members is in Attachment C and others are in the Sign in sheets in Attachment D.

MEETING SUMMARY: A summary of the meeting follows. Pre-meeting background materials provided to the SAB are in Attachment D to these minutes.

Thursday, February 22, 2007 (Day One of the Meeting):

1. Convene the Meeting: Mr. Thomas Miller, Designated Federal Officer convened the meeting and noted that the meeting was held under, and in compliance with, the requirements of the Federal Advisory Committee Act.
2. Dr. Granger Morgan, EPA Science Advisory Board Chair welcomed members and identified the main topic for the meeting as the EPA FY 07 research budget review. Dr. Morgan noted that this year's approach, in addition to considering the FY 2008 research budget, would also continue the SAB's shift in focus to the longer-term EPA strategic research directions. For this year, the SAB identified four cross-cutting areas that it asked EPA to discuss from the strategic perspective. The cross-cutting issues include: a) climate change, b) sensitive populations, c) urban sprawl, and d) science support to environmental disaster response.
3. Ms. Carol Terris, Deputy Director, US EPA OCFO, gave an overview of the US EPA FY 2008 President's Budget (see Attachment F). She noted that overall the Agency budget for FY 2008 is down from \$7. The Science and Technology (S&T) account is down from \$788 million to \$755 million. Of this, \$512 million is allocated to the

EPA Office of Research and Development for its research, development and assessment activities. This amounts to about 68% of total S&T funds with the remainder allocated in order of amount to OAR (15%), OARM (10%), OW (4%), OECA (2%), and OEI, and OPPTS at less than 1% each. Ms. Terris noted a number of areas with budget emphasis or change. She concluded that the Agency's FY 2008 S&T budget affirms that "EPA is committed to strengthening the scientific basis of its decisions."

Member comments:

- The S&T account combines research activity with non-research activity so the total is not being invested in research.
 - Question: Does the SAB interact with the appropriations committees in Congress or just the authorizing ones? Answer: The SAB testifies to the authorizing side who uses the information gained to negotiate issue resolution with the appropriations committee.
 - Question: Are budget decisions driven by PART scores? Answer: Budget decisions reflect the bigger picture and PART scores do get consideration, however, conclusions in the full narrative analysis are included in decisions. One of the problems is that some research programs have no "Measures" in place and that hurts EPA when it argues for those programs. Research is an especially difficult area to evaluate.
 - Question: Does energy policy work fall under the S&T account? Answer: Most policy making is funded from the EPM account. However, in the air program, most regulatory work is in the S&T account, so its a mixture of things in S&T.
4. Dr. Kevin Teichman, Acting Deputy Assistant Administrator for Science, US EPA ORD, discussed both the ORD portion of the FY 2008 research budget and ORD's Strategic Directions for research through 2012.

He first discussed the overlapping flow of ORD planning and budgeting activities that cover several years simultaneously and listed the major research areas in the ORD FY 2008 budget (see Attachments G). Dr. Teichman noted that the ORD S&T resources for FY 2008 are proposed to be \$540 million which is down from the \$557 that was in the FY 2007 President's budget and \$595 million enacted for FY 2006. By EPA Strategic Goal the budget allocations across all appropriations are:

- Goal 1 Clean Air: \$81 million
- Goal 2 Clean Water: \$105 million
- Goal 3 Land Preservation and Restoration: \$32 million
- Goal 4 Health Communities and Ecosystems: \$299 million
- Goal 5 Compliance and Stewardship: \$22 million

Dr. Teichman identified the areas of major increase in the FY 2008 budget: 1) Air +\$3.3 million (for air pollution characterization near roads, research to aid development of emission inventories by source type, NOAA interagency agreement on Community Multi-scale air quality modeling system) and Human

Health Risk Assessment +\$4.5 million for developing air “Integrated Science Assessments;” uncertainty characterization methods for quantitative human health risk assessments; and NAS review of “complex risk assessment issues.”

Areas of major decrease identified by Dr. Teichman included Ecosystems -\$11.0 million; Human Health -\$4.0 million; Homeland Security -\$3.9 million; Economics and Decision Sciences -\$2.5 million; Land Preservation -\$1.7 million and Pesticides and Toxics -\$1.4 million. Dr. Teichman noted the specific items to be decreased or eliminated (see pages 10-14 in Attachment G). Dr. Teichman indicated a number of issues in which ORD had responded to SAB comments in past reviews.

Dr. Teichman noted that ORD uses advice from outside groups and stakeholders, as well as program evaluations conducted using PART or expert bodies to review research programs as inputs to deciding on its strategic research directions. The SAB is one of the outside groups that EPA/ORD engages in deciding on its overall strategic research directions. Dr. Teichman stated that EPA was interested in focusing on getting the SAB’s advice on the EPA strategic directions for its program areas that ORD National Program Managers have articulated for the interval from 2008 to 2012. He listed the various reviews that the SAB, BOSC and others have conducted in the last several years that have informed EPA’s strategic research planning exercise. He noted that a number of evaluations were also considered when ORD conducted its strategic planning (e.g., PART, the aforementioned evaluations of specific research programs/strategies, program and regional office feedback).

The activities (some of which are still underway) leading to 2008-2012 strategic planning directions included: 1) Executive level discussions of NPD proposals (Spring-Summer 2006), 2) proposal of NPD strategic direction (December 2006), 3) Laboratory/Center Directors’ responses to NPD proposals (January 2007), 4) SAB review and advice (February 2007), and 5) incorporation of strategic directions into FY 2009 budgeting exercise (March-June 2007). Specific Strategic Directions write-ups for each of the ORD program areas are in Attachment H.

Dr. Teichman gave an overview of the proposed strategic directions for EPA/ORD research for 2008-2012 for each of the five EPA Strategic Goals. This included:

Goal 1: Clean Air: i) Maintain priority for NAAQS regulatory decision support, with integrated NAAQS and air toxics programs to improve management of EPA air research as a multi-pollutant or “one atmosphere” program and ii) provide improved assessments of source-to-effects linkages

Goal 2: Clean and Safe Water: i) focus drinking water research on pathogens, unregulated contaminants, distribution system (infrastructure) problems and source water protection; emphasize watershed management to support the development of integrated water quality and quantity modeling and monitoring tools; support regulatory needs for revising aquatic guidelines and criteria;

develop approaches to characterize, control; and manage point and non-point sources of water quality impairment

Goal 3: Land Protection and Restoration: i) evaluate the most problematic site types, contaminants, and exposure pathways; and ii) provide tools for EPA's Resource Conservation Challenge.

Goal 4: Healthy Communities and Ecosystems: i) advance molecular and computational methods for testing and screening; ii) shift the primary focus of the human health research program from "reducing uncertainties in risk assessment" to "developing and linking indicators of risk" along the source-exposure-effects-disease continuum, to demonstrate reductions in human risk; iii) make ecosystem services the strategic focus for the ecology research program; iv) continue to provide high quality, scientifically credible human health assessments to EPA's program and regional offices.

Goal 5: Compliance and Environmental Stewardship: i) develop decision tools that address sustainable outcomes and demonstrate those tools in real-world applications, and ii) continue to support innovative technologies through such programs as Small Business Innovation Research program and the P3 Student Design Competition

Dr. Teichman also discussed the ORD research directions in each of the four "SAB Challenge Areas" that were noted in the SAB information request to Dr. Gray. ORD research viewed in relation to these topics are listed below.

Global Climate Change. ORD's Global Change research is planned in conjunction with the U.S. Climate Change Science Program (CCSP). CCSP identified 21 synthesis and assessment products that will inform research planning and policy making. EPA has the lead two of these -- SAP #4.4, "Review of adaptation options for climate sensitive ecosystems and resources," and SAP #4.6, "Analyses of the effects of global change on human health and welfare and human systems." ORD is also the lead for the CCSP's goal of improving decision making and adaptive management. ORD products will include; i) a decision assessment to identify different classes of climate-sensitive decisions in different regions of the country, and to evaluate the returns from providing better scientific information to inform those decisions; and ii) an NRC study, co-sponsored by NOAA, to better understand what effective decision support entails and how to evaluate our effectiveness in providing it.

Sensitive Populations: ORD efforts that were highlighted in studying issues of special concern for children and the elderly, included: i) EPA clinical studies of air pollutants on individuals who are in the early stages of these chronic diseases (epidemiologic studies have suggested that individuals with underlying chronic diseases that impact the cardiovascular system, such as diabetes, are more susceptible to the effects of air pollution); ii) risk assessments for the health impacts on sensitive populations in the development of Maximum Contaminant

Level Goals and Maximum Contaminant Levels for drinking water regulations; iii) to protect children, EPA is developing assays to screen chemicals to understand their potential for developmental neurotoxicity; iv) to understand pollutant-disease linkages, EPA is developing protocols to identify genetic changes that increase responsiveness or contribute to the early pathogenesis of disease; v) EPA is conducting studies to understand how environmental pollutants may be increasing the incidence of asthma in children; and vi) to protect children and the elderly, EPA is conducting research to understand the exposure-related and biological basis for increased vulnerability.

Urban Sprawl: In this areas, i) ORD researchers are studying landscape indicators for pesticides, nutrients, and toxic chemicals in stream water and sediments; ii) ORD has developed the Analytical Tools Interface for Landscape Assessments to facilitate landscape analysis; iii) the Regional Growth Decision Tool developed by ORD's Regional Vulnerability Assessment displays over 100 metrics, and allows users to compare between alternative future scenarios; iv) ORD's drinking water research is addressing water use efficiency and the potential health and environmental consequences of water reuse programs; v) research on infrastructure is also addressing urban sprawl issues in developing new design approaches for water distribution systems and wastewater collection systems; vi) the Sustainable Environment for Quality of Life Project is a partnership for regional integrated planning created to address future growth around Charlotte, NC; and vii) ORD has a Collaborative Network for Sustainability (e.g., the City of Portland is using market forces of implement sustainable watershed management; Cities 21 in the San Francisco Bay Area, Cal, is transforming office parks into transit villages; and the University of Maryland is pursuing an ecological sustainability program in rapidly urbanizing watersheds).

Environmental Disasters – Hurricane Katrina and Other Natural Events:

Lessons learned from ORD's Katrina response activities continue to contribute to future environmental disaster response strategies. Activities include: i) treatment and disposal options for debris and wastes -- working with EPA Regions and federal and state agencies in developing alternative waste recycling, treatment, and disposal options; ii) options for management and risk assessment of asbestos wastes; iii) on-site technical assistance in getting drinking water facilities back on-line; iv) assessment of ecological effects and recovery in collaboration with NOAA and USGS; v) floodwater control options for FEMA and Army Corps of Engineers; and vi) evaluations of contamination incurred from flooding. ORD's water quality research includes research on non-point source-related health risks associated with wet weather events include projects addressing water quality and quantity issues.

Environmental Disasters – Research at the National Homeland Security Research Center includes: i) developing procedures for using biological decontamination agents; ii) field testing strategies for clean-up following radiological/nuclear

release events; iii) developing guidelines for creating a specially constructed government landfill for contaminated wastes; iv) developing oral and inhalation advisory levels for acute, short-term, and long-term exposure conditions for selected chemical and biological agents, v) developing chemical quantitative structure-activity relationship models and biological agent virulence factor-activity relationship models; and vi) revising and deploying databases to support the emergency response community. In addition, Drinking Water Research interfaces with homeland security research to address disaster situations, including: i) real-time monitoring tools to detect chemical and biological contaminants in water; ii) technologies for production of water from contaminated sources; iii) distribution system models that can be applied to identify vulnerable areas of water distribution systems; and iv) low-energy point-of-use treatment systems for emergency situations.

SAB Member comments:

- Question: What resource trends are built into the strategic directions exercise?
Answer: ORD assumed level resources for the exercise; however, the strategic directions reflect the science needs and actions that would flow from the strategic directions could be reduced or increased to reflect a budget allocation other than level.
- Question: What process leads to the decisions to increase or decrease the research budget? Answer: ORD deliberates within its own planning structure that involves NPDs and management of the labs and ORD itself. This has program office and regional office input as well. Once EPA decides on its budget preferences they are reviewed by OMB who provides a “passback” in the late fall that identifies what will be in the budget request released the following February. Because of this timeline, ORD would prefer to hold strategic research direction discussions with the SAB much earlier than February each year because of the constraints that are embodied within a “budget-centric” SAB review.
- Question: Is the resource carried in a line item (e.g., an increase) fully available to ORD for use in conducting research. How much of the '07 amount will actually be apportioned to the research item? Answer: It will be less but the amount is not yet known since the “appropriated” amount is still being discussed by EPA who will ultimately need to gain OMB approval of its tentative apportionment. It is also likely that in arriving at a final amount, the Administration’s nearer term needs will also be taken into consideration. Also, given the “continuing resolution” nature of the final “appropriation” the baseline we are working from is not yet clear.
- The change in Economics and Decision Sciences appears to be a move of research resources to an operational unit where regulatory review is the predominant activity. Question: Will this eliminate the STAR E&DS program? Answer: It will.
- With respect to the cuts in ecological research, the PART standard for benefits justification of research can’t be met without the programs in E&DS that would allow one to have research needed to evaluate the benefits of ecological research. This seems to be self-defeating.

- Comment: The assumption of level resources also seems to apply to resources across major programs and not limited to just within each program. Response: This is true – ORD considered going across each area, but the stovepipes are difficult to break down and we chose not to allow cross-program shifts for this specific exercise.
- It is difficult to track resources available for each of the strategic direction write ups.
- Members asked for a 5-year budget history for ecosystems and susceptible populations.
- Comment: The projects discussed in our 4 “challenge areas” have work being accomplished; however, the impression given is that there is no systematic cross “program project” planning going on for EPA research. Response: Dr. Teichman acknowledged that that was correct and that ORD’s first step in getting to such systematic planning was to identify the pieces. We have a story to tell for climate change but for the other areas we have only identified the pieces. The next step is to take that forward and think across the pieces and consider the tradeoffs of one against the other. That implies that there will be some growth and some declines. ORD would be pleased to have SAB advice on areas that are mature and can be allowed to decline as well as areas to grow.
- Question: Is energy efficiency research a part of ORD’s portfolio? Answer: There is no research program on that yet, but the NPD is talking to OAR about their needs.
- Question: The ecological research program has been PARTed twice. Will it be PARTed again and do PART scores there reflect the lowering resources, i.e., low scores because the program is being reduced? Answer: There is not a one-to-one correlation between scores and cuts. Other factors are considered when cuts are made.

Members then engaged in a series of discussions of each ORD Program/Project with the National Program Directors (NPD).

5. **Discussion of Air Research:** Program Projects included are i) air research, ii) mercury research, and iii) global change research. EPA ORD Representatives were Dr. Dan Costa, NPD for Air Research and Dr. Joel Scheraga NPD for Global Change/Mercury Research.

Members discussed the following topics with the two NPDs: 1) the extent of STAR support for the Air program; 2) efforts in the global change research program, including the implications and extent of research on new energy sources; 3) the EPA niche within the overall Federal Climate Change Science Program; 4) the minimal level of ecosystems research within the air program; 5) the extent of progress EPA has made on its “One-Atmosphere” conception that integrates activities in the Air medium; 6) the lack of economic and other behavioral science in the air program; 7) fine particle research; 8) the use of national models in regional pollutant concentration modeling; 9) coastal-wetlands research; 10) international mercury transport; 10) research in host-defense issues of air pollution; 11) the limiting affect

to air pollution research associated with tight travel dollars; and 12) human health risk assessment.

6. **Discussion of Homeland Security Research:** Dr. John Herrmann, Director of the EPA National Homeland Security Center and Dr. Greg Sayles, Acting NPD for Homeland Security discussed the Homeland Security research program with Board members. The SAB indicated that it was impressed by the EPA staff commitment and conscientiousness in this area, and that the main issue is that the resource available does not permit EPA to include researchers who routinely publish on the behavioral dimensions of the issue involved. This program will be especially disadvantaged with the impending shift of the Economics and Decision Sciences program from ORD to the NCEE, an organization that is perceived to be essentially operational.

Other issues discussed with EPA representatives by the Board included: 1) the need for research to identify better ways of handling the large masses of animal carcasses that will be in need of disposal when there is an avian flu breakout in the U.S.; 2) the even larger need that would be faced in disposing of radiation-contaminated materials in the event of a terrorist event involving nuclear materials; 3) the need for analytical methods research to track movement of contaminants through the air during a terrorist or other release; 4) health guidance to communities for contaminant levels of importance; 5) “dual-use” technologies that can be applied to homeland security events as well as other environmental issues; 6) the need for water security research even though the “pilots” are soon to phase out; 7) monitoring for rapid detection of pollutants; 8) the apparent lack of stakeholder involvement in this research; 9) cuts to analytical methods development, and 10) the need for a risk communications research program for Homeland Security and other EPA issues.

7. **Discussion of Research on Ecological Protection, Water Quality and Drinking Water:** Program Projects in this area either address directly, or influence, ecosystems research. Included are i) Ecological Protection research, ii) Water Quality research, and iii) Drinking Water research. EPA ORD Representatives were Dr. Rick Linthurst (ecology), Dr. Chuck Noss (water quality), and Dr. Audrey Levine (drinking water).

Members discussed the following topics with these NPDs: 1) the new ecological protection strategy that begins to focus on ecosystem services at the expense of ecosystem condition and function research; 2) the lack of economists in ORD given the impending shift of that program to the NCEE and the importance of that line of research to determining the benefit of the research program and to doing ecosystem services research; 3) the importance of condition and function research to determining the change in ecosystem services; 4) the loss of trends data from ending the conditions program, and possibly the loss of the value of the past data collection itself; 5) the need for ecologists and economists to have a common vocabulary to work on ecosystem services; 6) the need for expertise and consistent data-collection across the U.S. in TMDL efforts – levels are quite varied now and that can lead to different levels being set; 7) the voluntary nature of the TMDL program that does not

really require improvement and which has large research needs to permit TMDL establishment; 8) the need for retrospective looks at MCLs in drinking water to determine the gains they provide; 9) the difficulty in the contaminant by contaminant approach to MCL establishment and what that means in research terms; 10) the need for treatment research; 11) how research helps with private water supplies; 12) the need for addressing the disparate water quality from place to place; and 13) whether the Homeland Security research has shown any benefits to the overall drinking water program.

8. **Discussion of Human Health Research:** Program Projects included in this area are: i) human health research and ii) human health risk assessment research. EPA ORD Representatives were Dr. Hugh Tilson, NPD for Human Health Research and Dr. John Vandenberg, Associate Lab Director, ORD NCEA.

Members discussed the following topics with the NPDs: 1) the need for research to allow EPA to move away from the current use of defaults in risk assessment; 2) the need for research on neurodevelopment; 3) the need for information on susceptible populations and how that relates to the computational toxicology program; 4) the new Initial Science Assessment program for NAAQS vs. the older approach; 5) multi-stressor research; 6) research to determine the health outcomes of past risk management efforts; 7) expert elicitation; and 8) the possibility of interacting internationally in this research.

9. **Discussion of Contaminated Sites, Resource Conservation, and Nanotechnology: Economics and Decision Sciences Research Projects:** Program Projects included in this area are: i) Land Research and ii) Nanotechnology. EPA representatives were Dr. Randy Wentsel, NPD for Contaminated Sites and Resource Conservation and Dr. Nora Savage, ORD Nanotechnology Project Leader.

Members discussed the following topics with the NPDs: 1) the perception that most of these efforts still seem to focus on legacy problems; 2) progress measures that focus on number of site remediation; 3) lack of attention to major land issues like sprawl, intensive agriculture and nutrient flows; 4) lack of research on green programs; 5) the lack of human behavior research; 6) the applicability of some things learned in hazardous waste research to nanotechnology; 7) nanotechnology science planning across EPA; 8) the need for research into emerging issues; 9) resource increases for EPA nanotechnology research; 10) the need for research to support development of a new regulatory approach that will match the pace of developments in the nanotechnology sector – the old chemical-focused toxicology approach will not likely work with nanotechnology; 11) life cycle approaches; 12) the possibility of EPA reaching out to small “start-ups” to provide technical assistance in risk management to prevent problems; 13) the rationale for not increasing STAR grants in nanotechnology; and 14) research on the implications and impact of using various nanotechnology applications – wide distribution of “nano-sensors.”

10. **Discussion of EPA Research on Pesticides and Toxic Substances:** Program Projects included in this area include: i) Safe Pesticides/Safe Products, ii) Endocrine

Disruptors research, and iii) Computational Toxicology. EPA representatives were Dr. Elaine Francis, NPD for Pesticides and Toxics Research, Dr. Ross Highsmith, Assistant Lab Director, NERL, and Dr. Jerry Blancato, Acting NPD for Computational Toxicology Research.

Members discussed the following topics with the NPDs: 1) neuro-developmental toxicology screening assays; 2) genetic toxicology resource decreases; 3) prioritization of work on assays by crop type; 4) decreased resources for high-throughput chemicals; 5) EPA's interest in future childhood exposure studies; 6) integrated research on CAFOs; 7) phthalates and endocrine disruptor research; 8) the relationship of fate and transfer research to TMDLs; 9) data availability for use in validating computational toxicology models; and 10) movement of computational toxicology "research" results to applications in EPA programs.

The meeting was adjourned for the day.

Friday, February 23, 2007 (Day Two of the Meeting):

11. **Discussion of Sustainability Research:** There is one Program Project included in this area, Science and Technology for Sustainability (see Attachment I). Members discussed the following topics with Dr. Hecht: 1) the apparent limited penetration of the sustainability concept into EPA's programs; 2) the need for a clear definition of sustainability; 3) the potential use of the "sustainability" term in negative ways; 4) the need for changes in EPA science to be able to adopt sustainability more widely; 5) the new EPA training program on sustainability; 6) EPA's excellent position to help sustainability be adopted across government; 7) and the severely limited resources now invested in EPA's sustainability program.
12. **Discussion of Economics and Decision Sciences Research Projects:** There is one Program Project included in this area, Economics and Decision Sciences. Mr. Brett Snyder represented the Agency for this topic (see Attachment J). Mr. Snyder noted that EPA's National Center for Environmental Economics (NCEE) has about 30 economists and they have a history of doing research, primarily valuation research. There has been a lesser history of doing behavioral social sciences research. The consequences of transferring the economics and decision science research program to NCEE in 2008 are not yet clear. However, the proposed resource change results in losing half of the current \$2 million that is now in that program project.

Members discussed the following topics with Mr. Snyder: 1) if the cut would be allocated to the grants area; 2) distribution of economic analysis across EPA; 3) the recognition that most of the overall NCEE economics workload is policy analysis instead of research; 4) coordination of economics research at EPA; 5) whether there is a likely cost savings associated with combining the economics functions within NCEE; 6) EPA's nearly complete absence of behavioral social science research beyond economics; 7) the difficulty in showing the benefits of EPA's ecological research program in the face of cuts to the economics research; 8) NCEE's ability to continue to attract high-quality economics graduates in the face of declining economics research opportunities at EPA; 9) how to improve the empirical basis for

benefits assessment in the face of declining resources; 10) the extent of NCEE's involvement in sustainability; 11) cap and trade programs; and 12) economic analysis in support of legislation.

13. Conclusions on EPA's Research Budget:

Members discussed the major comments that they wished to make in their report to the Administrator and in the Congressional testimony. Dr. Morgan instructed Members to work in groups to address the major Program Project areas. Attachment L is the result of the discussions and drafting that occurred in this regard. This became the core messages for the report and the testimony.

14. Upcoming Meetings and Events for the SAB

Dr. Vu discussed the next meeting for the Board which was scheduled for June 19-20, 2007. Staff had suggested that we meet in an EPA ORD laboratory (e.g., Las Vegas) and discuss EPA research. Members agreed that they would like to do this but decided that June was not the right timing. Instead, the SAB staff will explore holding an SAB meeting at an ORD Lab during September 2007.

Dr. Vu and Dr. Nugent discussed the plans to do an Outcome Assessment for EPA science advisory committees. See Attachment L).

Dr. Vu proposed that the SAB hold a 30th Anniversary celebration at one of its late 2008 meetings. The Board agreed to do this. Staff will prepare some proposals for this and brief the Board at its June meeting on some alternatives for this activity.

15. Quality Review of the Sustainability Report

Dr. Michael McFarland introduced the SAB Environmental Engineering Committee's (EEC) review of EPA's science and technology for sustainability multiyear plan and the EPA sustainability research strategy. SAB members were provided the draft report on that review prior to the meeting (see Attachment M) and many provided written comments on the draft (see Attachment N). Dr. McFarland noted the relationship of this review to the sustainability research directions and budget that was discussed earlier in this Board meeting with Mr. Alan Hecht. Members discussed the need for a clear definition of sustainability and whether EPA was prepared to take the intellectual lead for sustainability across government. Dr. McFarland stated that the written comments of members were quite good and that he did not anticipate any difficulty in accommodating them with editorial changes to the document.

Dr. Morgan asked for a motion regarding disposition of the report. A motion was made to approve the draft report conditional on Drs. Milford and Fischhoff reviewing the edits. After their approval, the report may be transmitted to the EPA Administrator. All members present voted to approve the draft with that condition. There was no dissent.

Having no further business to transact, Mr. Miller, SAB DFO, adjourned the meeting.

Respectfully submitted

Certified as True

/ Signed /

/ Signed /

Thomas O. Miller
Designated Federal Officer

Dr. Granger Morgan, Chair
EPA Science Advisory Board

Attachments:

- A Federal Register Announcement of the Meeting
- B Meeting Agenda
(http://www.epa.gov/sab/07agendas/sab_02_22-23_07_agenda.pdf)
- C SAB Roster
- D Sign-in Sheets
- E Pre-meeting Background Materials from DFO --see links as follows:
Internet Links to Background Information

<u>LINK NO.</u>	<u>LINK</u>
1	http://www.epa.gov/ocfo/budget/2008/2008bib.pdf
2	http://www.epa.gov/ocfo/budget/2008/2008cj.htm
3	http://www.epa.gov/ocfo/budget/2008/intro.pdf
4	http://www.epa.gov/ocfo/budget/2008/resource.pdf
5	http://www.epa.gov/ocfo/budget/2008/overview.pdf
6	http://www.epa.gov/ocfo/budget/2008/sciencetech.pdf
7	http://www.epa.gov/ocfo/budget/2008/superfund.pdf
8	http://www.epa.gov/ocfo/budget/2008/lust.pdf
9	http://www.epa.gov/ocfo/budget/2008/oilspill.pdf
10	http://www.epa.gov/sab/pdf/sab-adv-06-003_response_09-21-06.pdf
11	http://www.epa.gov/sab/pdf/sab-adv-06-003.pdf
12	http://www.epa.gov/sab/pdf/sustainability_for_chartered_board_jan_18_07.pdf
- F Ms. Terris' Presentation
(http://www.epa.gov/sab/pdf/ocfo-pres08_final_sab_02-22-07.pdf)
- G Dr. Teichman's Presentation
(http://www.epa.gov/sab/pdf/ord_teichman_sab02222007.pdf)
- H NPD's Strategic Directions Write Up for EPA Program Projects
(http://www.epa.gov/sab/pdf/strat_directions_epa_res_2018-12.pdf)
- I Sustainability Research Strategy Synopsis (paper file only)
- J Highlights of NCEE's FY2006 Accomplishments (paper file only)
- K Next steps for outcomes assessment (paper file only)
- L Draft comments on EPA Research Program Strategies – FY 2008 (Paper file only)
- M Draft EEC Report on EPA's Sustainability Research Strategy and MYP
(http://www.epa.gov/sab/pdf/sustainability_for_chartered_board_jan_18_07.pdf)
- N Compilation of SAB Member comments on the Draft EEC Sustainability Report
(paper file only)