

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

**BOARD OF SCIENTIFIC COUNSELORS
EXECUTIVE COMMITTEE MEETING**

**Pentagon City, VA
January 25-26, 2001**

Thursday—January 25, 2001

Welcome and Introductions

Dr. Jerry Schnoor (University of Iowa), Chair of the Board of Scientific Counselors (BOSC), called the meeting to order at 9:21 a.m. He welcomed the new BOSC members—Dr. Daniel Acosta (University of Cincinnati) and Dr. Jim Johnson (Howard University) who were unable to attend the October meeting and asked everyone to introduce themselves for the benefit of these new members.

Dr. Schnoor quickly reviewed the agenda and noted that he hoped to accomplish two goals: (1) obtain an update from the Office of Research and Development (ORD) on their activities with regard to the new Administration, and (2) organize the next activities to be undertaken by the BOSC. He mentioned that all of the BOSC reports have been delivered; a response to the PM report should be received in the near future.

Dr. Preuss welcomed the new BOSC members and noted that the Board is approaching its critical size. He explained his role as the ORD liaison to the BOSC. He said that Dr. William Farland is the Acting Deputy Assistant Administrator for Science in ORD and will probably be interacting with the BOSC until that position is filled under the new Administration.

Dr. Schnoor reported that Dr. William Cooper has resigned from the BOSC. He asked the BOSC members to peruse the list of candidates that was assembled by the Nomination Subcommittee to identify a potential replacement for Dr. Cooper.

Approval of October Meeting and November Conference Call Minutes

Dr. Schnoor asked if there were any comments on the October meeting minutes. Dr. Ann Bostrom (Georgia Institute of Technology) pointed out that it should be the “Committee on Environment and Natural Resources” rather than the “Center on Environment and Natural Resources” (page 3). She also suggested adding that the CENR is under the National Science and Technology Council. No other comments on the meeting minutes were received. Dr. Schnoor asked for a motion to approve the October meeting minutes with the correction suggested by Dr. Bostrom. Dr. Jim Clark (Exxon Mobil Research & Engineering Co.) made a motion to approve the minutes, and Dr. Herb Windom (Skidaway Institute of Oceanography) seconded the motion. The October minutes were approved unanimously.

Dr. Schnoor then asked for comments on the November conference call summary. He noted that there was some discussion about Dr. Bonnie McCay's possible resignation from the Board; however, she has agreed to continue to serve on the BOSC. Dr. Windom made a motion to approve the November conference call minutes and Dr. Bostrom seconded the motion. The conference call minutes were approved unanimously by the BOSC.

ORD Update and Remarks

Dr. Farland (Acting Deputy Assistant Administrator for Science, ORD) indicated that it is a time of change within the Agency and across the federal government. He noted that Dr. Norine Noonan had submitted her resignation and that Dr. Henry Longest would be the Acting Assistant Administrator for ORD (AA/ORD) until a new AA is appointed. Dr. Farland reported that ORD is in good shape for the transition team.

Dr. Farland's presentation included four topics: an overview of ORD, planning activities, areas of future research emphasis, and looking to the future. He noted that ORD's mission is to provide the scientific foundation to support EPA's mission of protecting human health and safeguarding the natural environment upon which life depends. ORD accomplishes its mission by:

- ✧ Conducting research and development to identify, understand, and solve current and future environmental problems.
- ✧ Providing responsive technical support to EPA's Programs and Regions.
- ✧ Collaborating with our scientific partners in academia and other agencies, state and tribal governments, private sector organizations, and nations.
- ✧ Exercising leadership in addressing emerging environmental issues and advancing the science and technology of risk assessment and risk management.

He explained that ORD is unique in the environmental research community because it conducts health and ecological research as well as research in pollution prevention and new technology. ORD combines in-house research and an external grants program to provide credible, relevant, and timely science that informs EPA policy decisions.

Dr. Farland pointed out that making EPA decisions with sound science requires: (1) relevant, high quality, cutting-edge research in human health, ecology, pollution control and prevention, and socioeconomics; (2) proper characterization of scientific findings; and (3) appropriate use of science in the decision process. ORD is a leader in environmental research, focusing its efforts and resources on those areas where EPA can add the most value to reducing uncertainty in risk assessments and in enhancing environmental risk management. ORD will make a difference in the next 4 years by:

- ✧ Ensuring the foundation for sound environmental decisions.
- ✧ Providing the scientific basis for important EPA decisions, such as fine particulates in air, drinking water contaminants, diesel engine emissions, and mercury in air and water ("problem-driven research").
- ✧ Providing the "core" research on which future EPA decisions can be based.
- ✧ Providing technical support and expertise to other parts of EPA.

- ❖ Leading and participating in research planning with the rest of the Agency to ensure the highest priority research needs are achieved.

Dr. Farland presented an organization chart of ORD and described the structure of the Executive Council, Management Council, and Science Council (see Attachment 1: U.S. EPA's Office of Research and Development Presentation). The Executive Council includes the AA, the Director of the Office of Resource Management and Administration (ORMA), the Deputy AAs for Science and for Management, the Director of the Office of Science Policy (OSP), and the Directors of the five National Laboratories/Centers. The Management Council includes the Director of ORMA, the Associate Director of Management for ORMA, the Associate Director of Management for OSP, the Deputy Directors of each of the five National Laboratories/Centers. The Science Council includes the Deputy AA for Science, the Director of OSP, the Associate Director of OSP, and the Associate Directors for Health and the Associate Directors for Ecology for the three National Laboratories and the National Center for Environmental Assessment (NCEA), and the Senior Science Advisor for the National Center for Environmental Research (NCER).

Dr. Zimmerman asked if there were any social scientists in the organization chart and Dr. Farland replied that there were a few in each of the Laboratories/Centers. He added that ORD will be building strength in this area in the near future.

Dr. Farland presented a diagram that depicted the alignment of the ORD Laboratories/Centers with the risk paradigm. He noted that this structure recognized the importance of the risk paradigm in characterizing and making regulatory decisions about risk.

With regard to ORD's recent funding history, Dr. Farland indicated that the budget has been increasing over the past 5 years. He mentioned that some portion of ORD's budget is always set-aside for earmarks, such as research centers. Dr. Farland noted that before these centers receive funding, their proposals are subjected to peer review. He pointed out that ORD's budget is about 6-7 percent of EPA's budget. Dr. Windom asked why ORD has been successful in increasing its budget and Dr. Farland attributed it to the fact that the programs are achieving success and that they are well documented. Dr. Johnson asked how ORD's budget benchmarks with other organizations. Dr. Farland replied that ORD's budget is probably lower than those of other organizations funding research, but he pointed out that ORD uses the scientific research of other agencies, such as the National Science Foundation (NSF), the National Institutes of Health (NIH), and the National Institute of Environmental Health Sciences (NIEHS), to complement ORD's efforts. Dr. Farland indicated that about \$260 million of the budget is for salaries and expenses, \$200 million is for extramural funds to support the intramural research program, and the remainder is for extramural research.

Dr. Acosta asked if any steps are taken to eliminate duplication among the various agencies and Dr. Farland replied that ORD's role is unique and it performs research that is not being conducted by other organizations. He noted that the amount of interaction among federal agencies has increased tremendously; there is more joint planning and joint funding of research efforts. In response to Dr. Windom's question about planning for projects that require capital investments, Dr. Farland said that it varies by project. He added that the Agency began discussions of the new facility in Research Triangle Park, NC, in the late 1980s, and the facility is not yet in use. Another effort for expansion of the Duluth, MN, laboratory has been under discussion for several years. Dr. Windom asked if capital projects are prioritized by headquarters or by the Laboratory/Center Directors. Dr. Farland replied that there is a committee (with representatives from the Laboratories/Centers) that weighs priorities and makes expenditure recommendations.

Dr. Farland indicated that ORD has recently completed its Strategic Plan 2000. He mentioned that ORD obtained input from the BOSC, the Science Advisory Board (SAB), stakeholders, and other federal agencies. The plan will be available on ORD's Web site soon and hard copies will be distributed once they are printed.

Dr. Farland described ORD's strategic planning principles and the planning input process. He noted that one principle is to maintain a balance between health and ecological research. He indicated that the Laboratories and Centers are moving toward decreasing the imbalance. Dr. Peter Preuss (Director, NCER) added that there is a 50:50 balance between health and ecological research in the extramural program. He pointed out that the Agency's decisions tend to be based on human health issues because EPA has not figured out how to base decisions on ecological issues. Dr. Farland mentioned that the BOSC could perhaps assist ORD in packaging ecological information so that it is as useful as health information. Dr. Windom cautioned against a goal specifying a 50:50 balance.

Dr. Clark asked how ORD's plan differed from EPA's strategic plan. Dr. Farland replied that ORD's plan focused on achieving the sound science goal as well as research to achieve the goals of clean air, clean water, etc.

Dr. Farland mentioned the National Research Council's "Research Opportunities and Priorities for EPA" (ROPE) report. This report recommended that ORD:

- ❖ Balance problem-driven research with broad core research.
- ❖ Establish mechanisms for identifying emerging issues.
- ❖ Maintain risk assessment prioritization framework.
- ❖ Seek out and collaborate with counterparts in other science and research organizations.
- ❖ Conduct periodic reviews.

He presented a diagram that depicted the interrelation between core and problem-driven research. Another diagram illustrated how ORD's core ecological research answers science questions common to many EPA programs. He noted that core research helps the Agency to build up information needed to manage problems and program issues. Dr. Windom asked about interaction with other research organizations. Dr. Farland replied that there is more interaction now than at any time in the past 20 years. Dr. Preuss added that ORD is collaborating with other agencies on a number of research programs. For example, there is a research effort focused on harmful algal blooms that is funded by five federal agencies, each contributing \$1 million. Dr. Preuss pointed out that such collaboration takes continual effort by EPA. Dr. Farland mentioned that he would be participating in a conference call to finalize a Memorandum of Understanding (MOU) among the U.S. Geological Survey, EPA, and the National Oceanic and Atmospheric Administration (NOAA) to address pollutants moving through the water environment.

Dr. Farland presented a diagram that shows the intramural and extramural research components to support the Agency's mission. He noted that most of the extramural research is funded through the Science to Achieve Results (STAR) Program, which was established in 1995 as part of the ORD reorganization. He indicated that the STAR mission is to include this country's universities and non-profit centers in EPA's research program and to ensure the best possible quality of science in areas of highest risk and greatest importance to the Agency. The program has grown over the last 4 years and now awards about \$100 million annually and manages between 800 and 900 active grants and fellowships. He noted that STAR receives 3,000 to 3,500 grant applications each year, and makes about 350 new STAR awards.

Dr. Farland presented a diagram of the annual planning process. Dr. Johnson noted that one of ORD's strategic principles is to include stakeholders in setting the research agenda; however, this diagram does not depict outside stakeholder input. Dr. Farland replied that the diagram should be amended to indicate the opportunities for obtaining outside stakeholder input into the cycle. ORD used the following prioritization criteria: (1) contributes to Agency GPRA goal (responsive to program and regional office needs), (2) consistent with ORD strategic plan criteria (i.e., high-risk health and/or ecological effect, but not well understood, or well characterized risk problem, but control options are too costly or inefficient), (3) ORD can make a difference, and (4) responsive to input from external scientific community.

Dr. Farland indicated that multi-year plans provide the framework for integrating ORD research across ORD's Laboratories and Centers and GPRA goals. There are 16 multi-year plans under development. They have been developed and reviewed by intra-Agency teams. These plans provide the link between research plans and annual plans and they identify long-term research goals as well as annual performance goals and measures. Dr. Farland noted that the multi-year plans foster internal and external communication by showing the planned direction of EPA research. He indicated that these are living documents that will be updated periodically to reflect changes in Agency strategic needs, the current state-of-the-science, and available resources. Dr. Farland mentioned that Lee Mulkey's (National Risk Management Research Laboratory, ORD) upcoming presentation would focus on one of the multi-year plans. Dr. Farland hoped that, by the next BOSC meeting, several of the plans would be ready for presentation to the Board. Dr. Schnoor indicated that the BOSC is anxious to review at least two multi-year plans—one on problem-driven research and one on core research.

Dr. Farland said that ORD's major areas of research emphasis include: particulate matter, drinking water, global change, endocrine disruptors, ecological risk, human health, pollution prevention and new technologies, dioxin reassessment, diesel exhaust assessment, mercury, contaminated sediments, MTBE, environmental technology verification (ETV), water quality, environmental modelling and assessment (EMAP), coastal issues, harmful algal blooms/Pfisteria, children's health, Superfund, risk assessment guidelines, and persistent bioaccumulative toxics (PBT). He pointed out that some of these areas include both core and problem-driven components.

Dr. Farland listed the recommendations from NRC's "Strengthening Science" report, which include:

- ✧ Establishing a Deputy Administrator for Science position.
- ✧ Appointing the AA for ORD for a 6-year term.
- ✧ Giving ORD research managers a high degree of flexibility and commensurate accountability.
- ✧ Enhancing research leadership and ORD's stature by creating the equivalent of endowed academic research chairs, and continuing the ORD fellowship and postdoctoral programs.
- ✧ Continuing and expanding ORD's new multi-year planning process.
- ✧ Maintaining approximately an even balance between problem-driven and core research.
- ✧ Increasing efforts to disseminate ORD research products, explaining their significance, and assisting others in applying them.
- ✧ Expanding the recently initiated science inventory by publishing a comprehensive inventory of all EPA scientific activities.

- ✧ Changing the Agency's peer review policy to separate the management of the development of a work product from the management of the peer review.

Drs. Farland and Preuss mentioned that ORD is very supportive of these recommendations and has made many of them priorities.

In concluding his presentation, Dr. Farland repeated the five items listed earlier regarding how ORD will make a difference in the next 4 years.

Dr. Schnoor thanked Dr. Farland for his excellent presentation and asked if there were any questions. Dr. Clark asked if there would be another reorganization of ORD with the new Administration. Dr. Farland responded that he did not think there would be a reorganization, given that ORD's structure is so engrained with how it does its work. Dr. Bostrom noted that the NRC reports have been useful to EPA and asked if the Agency had any plans to commission more reports in the future. Dr. Farland replied that some of the reports are commissioned by Congress and some by the Agency. He expects that ORD will continue to seek advice from the NRC and the National Academy of Sciences (NAS). Dr. Mitch Small (Carnegie Mellon University) pointed out that ORD is doing a good job in collaborating with other government and private organizations. He asked if there is any concern about involving certain stakeholders, such as industry, more than other stakeholders. Dr. Preuss responded that ORD will involve a broad group of stakeholders in all future efforts. He mentioned that there is little concern with regard to the Health Effects Institute (HEI) and similar organizations because of their commitment to peer review and involvement of stakeholders.

Public Comment

Dr. Schnoor asked if there were any public comments and Mr. Troy Seidle from the People for the Ethical Treatment of Animals (PETA) indicated that he had a comment. He expressed concern about EPA's approach to the validation of test methods with regard to the proposed endocrine disruptor screening program (EDSP). A test method is validated to determine its reliability, reproducibility, and relevance. The validation process in the United States is overseen by the Interagency Coordinating Committee for the Validation of Alternative Methods (ICCVAM), of which EPA is a member. Pursuant to the ICCVAM Authorization Act of 2000, every federal agency carrying out a program that prescribes or recommends toxicological testing is required to "ensure that any new or revised ... toxicity test method, including animal test methods and alternatives, is determined to be valid for its proposed use prior to requiring, recommending, or encouraging the application of such test method."

Mr. Seidle indicated that a consistent approach to validation for both animal and non-animal tests is both scientifically sound, and, in the case of the EDSP, statutorily required by the Food Quality Protection Act, which stipulates that only "appropriate validated test systems" may be used. He said that EPA has demonstrated a clear and arbitrary double standard between its validation requirements for animal versus non-animal tests in spite of its statutory obligations. For example, despite a unanimous recommendation by the Advisory Committee on Alternative Toxicological Methods (ACATM) of the National Toxicology Program (NTP) in March 2000, that all proposed test methods for the EDSP should be validated through ICCVAM, the EPA has been intransigent in its refusal to subject animal-based tests to an examination that even remotely approximates ICCVAM's level of scientific scrutiny and peer review. Objecting to this double standard, the NTP ACATM unanimously passed the following motion in November 2000, reiterating its position even more strongly:

"The ACATM expresses grave concern at the bifurcated approach being taken with review of methods for evaluation of endocrine disruption activity, with ICCVAM considering *in vitro* methods and with the U.S. EPA proposing to review *in vivo* methods using an ICCVAM-like approach. The Committee's primary concern is that both *in vitro*

and *in vivo* methods be subjected to the same rigorous peer review and validation process to ensure the highest likelihood of acceptance by the regulatory agencies, the scientific community and the public.”

PETA also is deeply concerned about EPA’s almost exclusive selection of animal-based test methods for “validation” and incorporation in the EDSP. PETA submits that this bias in favor of animal tests is inappropriate given the existence of numerous promising non-animal approaches. For example, the ECETOC Compendium lists 56 test methods that could be suitable for large-scale screening of potential endocrine disruptors—a number of which do not involve the use of animals. Among these is high throughput screening technology, which has been virtually ignored by the EPA.

Mr. Seidle said that EPA’s unwillingness to promote the development, validation, and use of non-animal test methods in the EDSP and other programs is a violation of the NIEHS’ implementation guidelines of the 1993 NIH Revitalization Act, which stipulates that agencies with regulatory programs must “reduce reliance on animal testing.”

Finally, Mr. Seidle indicated that EPA’s stakeholder involvement process would benefit from a major overhaul. For example, on December 15, the EPA issued a final rule establishing chemical test guidelines under the Toxic Substances Control Act. EPA published this action as a final rule without prior notice or an opportunity for public comment because “the Agency believes that providing notice and an opportunity to comment is unnecessary.” Moreover, the Agency took this action in spite of PETA’s having articulated a great many technical concerns regarding one particular test method—the developmental neurotoxicity test (DNT)—in a lengthy letter to the Agency, which has gone unanswered now for more than 5 months.

It also is significant to note that the animal protection community is not represented on any EPA Federal Advisory Committee Act (FACA) committee and has been excluded consistently from key meetings, discussions, and consultations on issues where this community is clearly a major stakeholder.

In summary, PETA urges this committee to give these issues careful consideration, and closely monitor EPA programs and activities to ensure that they are consistent—in practice—both with its own stated principles, and with the statutory requirements to which it is subject.

Multi-Year Plan

Dr. Preuss indicated that a number of working groups were established within ORD to prepare drafts of these multi-year plans. The working groups included representatives from the Laboratories, Centers, Program Offices, and Regions. The working groups prepared good first drafts that have been reviewed by the Executive Council and Science Council. Comments on the plans were returned to the working groups and revisions are ongoing. Dr. Preuss expects that several of the plans will be completed over the next few months. Because of the BOSC’s interest in these plans, Dr. Mulkey was asked to give the same presentation that was provided to the Executive Council so that the BOSC members could get of sense of what the plans contain. Dr. Elaine Dorward-King (Rio Tinto Borax) asked for a list of the areas covered by the plans and Dr. Preuss agreed to provide that list after the lunch break.

Dr. Mulkey said that the guidance to the working groups was clear—the plans should identify the drivers for the research area, the long-term goals for that area, a road map for achieving those goals, and the activities that are required to get there. The plan he presented was for water (Goal 2) and it included drinking water and water quality.

He presented a diagram (see Attachment 2: Multi-Year Plan for Water Presentation) that outlined the steps required to meet water quality goals. This diagram identified the policy guidance, regulations, and program initiatives relevant to Goal 2 (e.g., Water Quality Criteria and Designated Use Guidance, NPDES, CWAP 106 grants), the steps required to meet the water quality goals (e.g., issuing criteria to support use designations, monitoring for condition and attainment of water quality standards), and the research products required to provide sound scientific basis for implementing the steps (divided among Goals 2 and 8).

The data and observations from the Office of Water (OW), states, regions, and research (e.g., EMAP) show that there is:

- ❖ A shift from point source discharges as the major source of pollutants to nonpoint sources.
- ❖ An increasing use of biological indicators and metrics as the preferred method for determining the condition of aquatic ecosystems.
- ❖ An increasing awareness of the importance of landscape scale processes and activities as determinants of water quality.
- ❖ An increasing awareness of the role of atmospheric deposition and multimedia sources as determinants of water quality.
- ❖ An increasing awareness of the role of habitat alteration as a cause of aquatic ecosystem degradation.
- ❖ An increase in human health risks from apparent ecosystem responses to stressors.
- ❖ Institutional and litigation-based pressures to expand the scope of Agency and state programs while increasing the efficiency and cost-effectiveness of implementation.
- ❖ An increase in the role of citizen stakeholders in setting watershed management goals and in implementing action programs at the local level.

Dr. Mulkey highlighted a number of reasons why more research is needed and identified the following three long-term goals for the multi-year plan:

- ❖ Goal 1—Provide the approaches and methods to develop and apply criteria to support designated uses.
- ❖ Goal 2—Provide the tools to assess and diagnose impairment in aquatic systems and the sources of the associated stressors.
- ❖ Goal 3—Provide the tools to restore and protect aquatic systems and to forecast the ecological, economic, and human health outcomes of alternative solutions.

The priority science questions associated with Goal 1 focus on dose response, the role of the environment, and integrated application; for Goal 2, the questions focus on diagnosing the cause of impairment, diagnosing the sources of stressors, and the application of TMDLs (total maximum daily loads); and for Goal 3, the questions concern modeling, restoration and management, and integrated application of TMDLs.

Dr. Mulkey presented a diagram that showed the logical connection among the activities required to meet long-term Goal 1. Preparation of this figure required the working group to analyze whether the project supported the goal and if there was a balance. Dr. Preuss mentioned that this figure is backed with a matrix which includes all the projects so they can be evaluated to determine if they add up to meet the goal. All of the annual goals should add up to achievement of the long-term goal. Dr. Bostrom pointed out that ORD needs to consider what other organizations are doing in these areas and asked if ORD is getting what it needs from other agencies. Dr. Mulkey replied that there is an assumption that the investigators know the literature and keep abreast of the research conducted by other organizations. He added that ORD calls for periodic workshops and other activities to address this issue. He noted that ORD has not decided at what point it should seek external input for the plans. He added that some ORD programs are well integrated across the federal government and academia, but others are not.

Dr. Johnson suggested that the BOSC select plans in which the members have competency so that they can identify outside efforts that are not integrated into the plan. Dr. Farland pointed out that if ORD has a critical path and is relying on another agency to complete a particular piece, EPA is dependent on that agency to complete the effort on time and it has little influence over the other agency to ensure that this happens. This requires the Agency to make hard decisions about whether it can afford to rely on other agencies. Dr. Windom suggested that there be an ongoing process to evaluate what is being done by other agencies, as well as a mechanism in the plan to ensure that this happens. Dr. Preuss noted that ORD has developed international inventories for PM and endocrine disruptors and he pointed out that they were difficult and costly to prepare. When should ORD expend the resources to prepare an inventory? When is an inventory most useful?

Dr. Schnoor thanked Dr. Mulkey for his presentation and the meeting was recessed for lunch. Following the lunch break, Dr. Preuss distributed a list identifying the 16 multi-year plans, including:

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|---|------------------------|
| ✧ Human Health Risk Assessment | ✧ Sediments |
| ✧ Ecological Risk Assessment | ✧ Safe Communities |
| ✧ Pollution Prevention/New Technologies | ✧ Safe Foods |
| ✧ Clean Water | ✧ Global Climate |
| ✧ Drinking Water | ✧ Mercury |
| ✧ Particulate Matter | ✧ Socioeconomics |
| ✧ Air Toxics | ✧ Endocrine Disruptors |
| ✧ RCRA | ✧ Ozone |

Dr. Preuss indicated that all of these plans currently are being revised. He anticipates that the PM and Endocrine Disruptor plans will be completed first. Dr. Johnson asked if the BOSC could review the plan in two phases—look at what the public reviewed earlier to provide input as well as the input provided by stakeholders, and then look at the completed plan. Dr. Schnoor pointed out that such an approach would enable the BOSC to evaluate the process as well as the plan. Dr. Dorward-King suggested that the BOSC may want to examine all of the plans to evaluate how they relate to one another and cover the portfolio of research ORD must conduct to achieve its goals as stated in ORD's strategic plan. Dr. Preuss commented that there was substantial stakeholder input for only a few of these plans. Dr. Johnson indicated that the BOSC should select a plan that had significant stakeholder involvement. Dr. Schnoor said that selection of the multi-year plans will be a topic at the next meeting. Dr. Preuss pointed out that there were some limits placed on the working groups so there may be certain things left out of the plans.

Discussion of Laboratory/Center Review Process

Dr. Preuss proposed the following draft charge to the BOSC:

- ✧ Create standing subcommittees of the BOSC to advise and perform peer review of the activities of ORD Laboratories and Centers on a regular basis.
- ✧ Review the Laboratories and Centers with regard to their efficiency and effectiveness in communications, personnel policies and human resources, and research portfolio planning, and target indicators for measuring effectiveness. Communications will be an area of special emphasis for ORD and the BOSC for 2001.
- ✧ Review the strategic plans and the planning process of the Laboratories and Centers and how those plans integrate with, and complement, the ORD Strategic Plan and the EPA Strategic Plan. The BOSC also should consider how these plans are in harmony with the multi-year plans and the plans of other federal agencies doing related research.

Dr. Windom suggested that the charge indicate that the BOSC would review the process by which ORD develops strategic plans—emphasize review of the process and management rather than the outcome. Dr. Schnoor commented that the BOSC will create ad hoc subcommittees until standing subcommittees can be established. Ms. Shirley Hamilton (NCER, ORD) noted that appointments of ad hoc subcommittee members can be approved by ORD, but the Deputy Administrator must appoint members of standing subcommittees. Dr. Johnson suggested that the subcommittees look at interfaces between EPA's efforts and those of other organizations. The strategic plans and planning process should take into consideration the global community. Dr. Windom agreed that the subcommittees should evaluate whether ORD looked at outside efforts in their planning process. Dr. Small pointed out that the self-study questions could include a question about whether and how ORD considered outside efforts in the planning process. Dr. Schnoor agreed that this issue could be addressed in the self-study questions rather than rewording the charge. Dr. Bostrom suggested that the questions include one regarding coordination with other federal agencies.

Dr. Schnoor reviewed (and distributed copies) of the BOSC Laboratory/Center Ad Hoc Subcommittee assignments. Dr. Schnoor asked the members present if they were willing to serve in their assigned roles. The members confirmed that they would serve in the designated roles. Dr. Zimmerman thought her subcommittee would benefit from the addition of a toxicologist. It was suggested that Ann Fairbrother be added to the list of potential members of the NCEA Subcommittee. Dr. Zimmerman asked to see her resume and agreed to contact Dr. Fairbrother to determine her interest in serving. Dr. Small indicated that the Nominating Committee had a copy of her resume and he would provide it to Dr. Zimmerman. Dr. Johnson suggested the addition of Herb Ward to the NCER Subcommittee or someone else who served on the NRC committee that prepared the peer review report. He agreed to review the list of potential members with Dr. Marilyn Brown (Oak Ridge National Laboratory) and contact the list of potential members to ascertain their willingness to serve. Dr. Small proposed adding Dr. George Helz (aquatic chemist) to the NERL Subcommittee. Dr. Juarine Stewart (Clark Atlanta University) thought the NERL Subcommittee might benefit from the addition of a behavioral toxicologist. Dr. Small suggested Michael Jayjock as another potential member of that subcommittee. Dr. Schnoor volunteered to work with Dr. McCay to contact the potential members for the NERL Subcommittee. Elizabeth Anderson, Ken Dickson, Jerome Sachs, and Fred Miller were suggested as possible members of the NHEERL Subcommittee. Dr. James Bus (Dow Chemical Company) agreed to contact the possible members for the NHEERL Subcommittee to determine their interest in serving. Ms. Hamilton agreed to provide contact information to Dr. Bus for these individuals. She noted that there is some contact information listed in the NHEERL review report. Dr. Small agreed to notify the potential members of the NRMRL Subcommittee that this will be a standing subcommittee. Dr. Bostrom indicated that she had

contacted Steve Lewis and Caron Chess and they have agreed to serve on the Communications Subcommittee. She agreed to contact Anna Harding to determine if she would be willing to serve. Following the discussion, the subcommittee assignments were as follows:

<u>Laboratory/Center</u>	<u>Director</u>	<u>Chair*/Vice Chair(s)†</u>
NCEA	W. Farland (G. Alapas is Acting Director)	R. Zimmerman*, D. Mattison† <i>Members:</i> Michael Greenberg Lauren Zeise Ann Fairbrother (?)
NCER	P. Preuss	M. Brown*, J. Johnson† <i>Members:</i> R. DiGuilio Allison Cullen (?) Richard Andrews (?) Herb Ward (?)
NERL	G. Foley	B. McCay*, J. Stewart† <i>Members:</i> Jana Milford (?) Richard Kimerle George Helz (?) Michael Jayjock (?)
NHEERL	L. Reiter	J. Bus*, H. Windom†, D. Acosta† <i>Members:</i> Elizabeth Anderson (?) Ken Dickson (?) Jerome Sachs (?) Fred Miller (?)
NRMRL	T. Oppelt	M. Small*, J. Clark†, E. Dorward-King† <i>Members:</i> John Ferguson David Allen A. Bostrom*, E. Dorward-King† <i>Members:</i> Steve Lewis Caron Chess Anna Harding
Communications		

Dr. Bostrom mentioned that Steve Lewis may be willing to serve on the NCER Subcommittee as well as the Communications Subcommittee. She agreed to call Dr. Brown to discuss this possibility and notify Dr. Schnoor and Ms. Hamilton of any changes. Dr. Clark pointed out that he and Dr. Zimmerman had volunteered to assist Dr. Bostrom with the Communications Subcommittee during the last meeting. Dr. Bostrom suggested that she would need a designated liaison from each Laboratory/Center Subcommittee with whom she could coordinate communications activities.

Dr. Schnoor indicated that the members will be discussed and approved during a closed session. The Chair and Vice Chair(s) should identify the best members for the subcommittees. He indicated that the charge to the BOSOC will be formalized by the next meeting and visits to the Laboratories/Centers could

begin as early as March. Ms. Hamilton mentioned that members of standing subcommittees must complete a considerable amount of paperwork and they can be reimbursed for travel expenses and receive \$280/day for their time.

Dr. Schnoor indicated that the first step is to finalize membership of the subcommittees. The next steps are to schedule the visits to the Laboratories/Centers (March/April), develop the self-study questions (before the BOSC Meeting in May), submit the questions to the Laboratories/Centers (June), review the responses to the questions (September), draft reports, conduct a second site visit (October/November), and finalize the reports. He asked the BOSC members to begin working on formulating questions for the self-study. Dr. Schnoor mentioned that the BOSC Executive Committee would meet in May and September. The self-study questions could be finalized and approved at the May meeting and the responses to the self-study questions could be reviewed and discussed at the September meeting. Dr. Preuss asked Dr. Schnoor to clarify the purpose of the second site visit. Would it be better to conduct the second site visit before the Executive Committee meeting? Dr. Small preferred to keep the Executive Committee meeting before the second site visit because he would like to meet with the Laboratory/Center staff after preparing the initial draft of the report. He suggested that the subcommittees draft their reports before the October/November site visit. Dr. Bostrom indicated that she would like the Communications Subcommittee to meet before the first site visit. She noted that this could be through a teleconference. She also suggested that some members of the Communications Subcommittee attend each Laboratory/Center visit. Dr. Preuss noted that funds for these trips were not included in the budget, but he would determine if there is adequate funding to cover the additional travel. Dr. Bostrom said that she would like the Communications Subcommittee members to attend at least two face-to-face meetings. Dr. Schnoor suggested that the Communications Subcommittee members could interact at the BOSC Executive Committee meetings.

Self-Study Questions

Dr. Preuss distributed a handout containing potential questions for the Laboratory/Center Subcommittees and Communications Subcommittee. The following questions are designed to follow up on the previous BOSC reviews of the Laboratories/Centers:

1. Are the Laboratory and Center missions better defined?
2. Have the Laboratories and Centers written their own strategic plans?
 - a. Are they based on the ORD Strategic Plan?
 - b. Do they complement the ORD Strategic Plan?
 - c. Are there areas of divergence or gaps in the plan?
3. Is each Laboratory's/Center's risk-based research agenda clearly defined?
4. What efforts has each Laboratory and Center made to assess its infrastructure and human resources needs?
5. Have shifts in the workforce occurred?
 - a. Is the skill mix in each Laboratory and Center now more suited to its mission?
 - b. Do the changes reflect the BOSC recommendations?
 - c. How can we measure the impact/success of the postdoctoral program?
6. How well are the intramural program and the STAR Program integrated?
 - a. Have changes occurred in research planning to reinforce this integration?
 - b. Have changes occurred in communicating research results to reinforce this integration?

7. How well are the Laboratories and Centers communicating with:
 - a. EPA Program Offices and Regions?
 - b. The broad scientific community?
 - c. Environmental groups, and other interested people and organizations?
 - d. State governments?

In addition to these follow-up questions, Dr. Preuss prepared an outline of areas and issues for the new BOSC subcommittees to consider in developing the next round of self-study questions (see Attachment 3: Questions to the BOSC for Laboratory and Center Subcommittees and Communications Subcommittee). Dr. Schnoor asked the BOSC members to review these questions and be prepared to finalize the list at the May meeting. Dr. Dorward-King said she would like to include a question about how the multi-year plans are harmonized with the ORD Strategic Plan. She noted that this question is probably more appropriate for page 2 of the handout. Dr. Preuss suggested the need for two sets of questions. The first set will be used during the first site visit to follow-up on the previous review. The second set will be submitted to the Laboratories/Centers in late spring/early summer and written responses will be requested. Dr. Schnoor added that a written response to the first set of questions would not be required, but the BOSC would ask the Laboratories/Centers to address them in their presentations at the first site visit. Dr. Stewart noted that the BOSC also should ask the Laboratories/Centers to address how they have responded to the recommendations in the previous reports. Dr. Schnoor suggested that the BOSC also ask for copies of their strategic plans if they are available. If no plan is available, the Laboratory/Center should describe its process for strategic planning. Dr. Bostrom indicated that she would discuss the third page of Dr. Preuss' handout during her session on the Communications Subcommittee.

Dr. Schnoor suggested that each subcommittee meet by telephone prior to the first site visit in March/April. He anticipates that these will be 1½-day visits. He asked the BOSC members to develop additional questions for the first set of questions based on the recommendations in the previous review reports. These questions will be sent to the Laboratory/Center Directors in a letter prior to the first site visit. At these first site visits, the Laboratories/Centers will be asked to address the list of questions, review their progress in addressing the recommendations in the previous report, and provide copies of their strategic plans.

Dr. Preuss agreed to contact the Laboratory/Center Directors to inform them of the BOSC's intention to conduct the first site visit in March/April. He will ask them to provide dates within these 2 months when they would be available for the site visit. Dr. Preuss will share these dates with the Subcommittee Chairs who will be responsible for scheduling the visits. He reminded the BOSC that notice of these meetings must be posted in the *Federal Register* prior to the meeting; therefore, NCER needs 30-days' notice before the meeting. In addition, a Designated Federal Officer (DFO) needs to attend each meeting. Dr. Preuss will ascertain if any of the Laboratory/Center staff members are DFOs who could attend the meetings.

Dr. Schnoor asked if any BOSC members would volunteer to massage the list of self-study questions to be presented for approval at the May meeting. Drs. Johnson and Windom agreed to work on the list of questions. Dr. Schnoor asked Dr. Johnson to serve as the Chair and Dr. Windom as the Vice Chair of an ad hoc subcommittee to prepare the self-study questions. Dr. Bostrom pointed out that there is no mention of budgeting and fiscal responsibility in the questions. Dr. Schnoor noted that this topic was covered in the original set of questions. In response to a question regarding length of the response from the Laboratories/Centers, Dr. Schnoor replied that the previous responses ranged from 15 to 50 pages plus many pages of appendices. He mentioned that the Laboratories/Centers were asked previously to provide 2 page responses to each question.

Upcoming BOSC Meetings

Dr. Schnoor asked the members to mark the following dates on their calendars for upcoming BOSC Executive Committee meetings: May 7-8, 2001 (½-day on May 7, starting after 1:00 p.m.), and September 20-21, 2001 (½-day on September 21). At this point, assume that both meetings will be held in Washington, DC.

Discussion of Communications Ad Hoc Subcommittee

Dr. Bostrom indicated that the first step will be to review the charge from ORD to the Subcommittee. She cited the NRC “Strengthening Science” report (2000), which recommends that EPA increase its efforts to disseminate actively ORD’s research products, to explain their significance, and to assist others inside and outside the Agency in applying them. Dr. Bostrom suggested that the Subcommittee review NCER’s 1998 communications plan, including:

- ✧ Review of the current outreach/communication efforts (intraagency, interagency, regional/state/tribal, external stakeholders). Are they effective?
- ✧ Evaluation of alternative approaches for communication of research results.
- ✧ Education/buy-in of stakeholders.
- ✧ Interaction and communication with stakeholders (e.g., stakeholder involvement in the strategic planning process).

Dr. Bostrom indicated that the Communications Subcommittee would develop a list of self-study questions in collaboration with the other subcommittees. Some of these questions will be directed at specific Laboratories/Centers and others will be directed at ORD. Dr. Small suggested that the questions include what the Laboratories/Centers have done to monitor the effectiveness of communications to their target audiences. Dr. Bostrom said she would like to solicit perceptions directly from the target audience groups regarding the effectiveness of communications. She also suggested that the Subcommittee review communications research at EPA.

According to the 1998 Communications Plan, the external audiences are: academic institutions and not-for-profit institutions, Congress, grantees and fellows, federal agencies, professional and academic societies, industry and trade associations, state and local governments, the BOSC, and the SAB. The internal audiences include: the EPA Administrator, the Program and Regional Offices, and the Laboratories/Centers. Dr. Johnson noted that the public is missing from the external audience list. Dr. Preuss asked if it is ORD’s role or the role of the Program Offices to communicate with the public.

Dr. Windom asked Dr. Bostrom to identify the ultimate aim of the Communications Subcommittee. She replied that it is to provide advice to ORD on how to make its communications more effective. Dr. Bostrom mentioned that the Subcommittee will review what other groups (e.g., NSF, NIH) are doing in terms of communication and the effectiveness of those communications. Dr. Windom noted that the issue is larger than just communicating results; it includes communicating why certain research is being conducted. Dr. Bostrom acknowledged that the Subcommittee needs to assess users’ needs. The Subcommittee also will have to develop a definition for communication.

Dr. Bus mentioned that industry has developed communication principles that must be followed. Has ORD considered developing a set of principles? Does ORD have a set of fundamental research messages to communicate? He noted that ORD needs a set of messages that will drive the communications. Dr.

Clark pointed out that there is another side to communications—one that focuses on communication within ORD about career opportunities, personnel issues, training, etc.

Dr. Bostrom presented the following timeline for the Communications Subcommittee activities:

- ✧ Subcommittee planning meeting in February/March (scope, timeline, self-study questions, other consultations).
- ✧ Participate in Laboratory/Center site visits in March/April.
- ✧ Present study process to BOSC at May meeting.
- ✧ Other consultations (?) in June/July.
- ✧ Develop draft report by January/February 2002.
- ✧ Subcommittee meeting to discuss draft report in March 2002.
- ✧ Present draft report to BOSC in May 2002.
- ✧ Final report in July 2002.

Dr. Zimmerman mentioned that there were numerous comments about communications in the previous Laboratory/Center review reports. Dr. Bostrom said that the Subcommittee will search those reports for references to communications. She asked for electronic copies of the reports and Beverly Campbell (SCG) agreed to send the files to her. Dr. Windom suggested that Dr. Bostrom provide some questions on communications to incorporate into the list of self-study questions and she agreed to do so.

Dr. Schnoor recessed the meeting at 4:30 p.m. and revised the agenda to begin at 9:00 a.m. in the morning rather than at 8:30 a.m.

Friday—January 26, 2001

Dr. Schnoor reconvened the meeting at 9:04 a.m. and reopened discussion of the Communications Subcommittee. Dr. Bostrom indicated that there may be a need to target the focus of the Subcommittee. Perhaps the focus should be research results, because there has been more attention placed on other types of communication. She noted that Dr. Preuss would like the Subcommittee to focus on communication of research results. Dr. Clark suggested that some of the other types of communication, such as communication among managers and staff, could be addressed by the other subcommittees. There was general support for this suggestion. Dr. Dorward-King emphasized that these other types of communication cannot be overlooked because they affect retention and attraction of high-quality, high-caliber people. Dr. Windom asked Dr. Dorward-King and the other BOSC members to ensure that these types of questions are in the list that he prepares in conjunction with Dr. Johnson. Dr. Dorward-King suggested that the Communications Subcommittee's questions address transparency of decision making and looking at gaps. Dr. Bostrom proposed that the Communications Subcommittee could play a dual role. The Subcommittee could work with the other subcommittees to develop self-study questions on communications for the Laboratories/Centers and prepare a section in those reports on communications. In addition, the Communications Subcommittee could prepare a separate report that addresses communication of research results. Dr. Windom and Dr. Schnoor supported Dr. Bostrom's suggestion.

Dr. Don Barnes (SAB Staff Director) indicated that EPA is conducting a study on what EPA staff think about being employed at the Agency. Communications is one of the issues on which they will be collecting information. Dr. Preuss mentioned that ORD has been conducting an annual employee survey for the past 5 years. Therefore, ORD has a substantial amount of data on job satisfaction, trust, etc. He agreed to determine if the data can be released to the BOSC Subcommittees. Dr. Bostrom asked if the data have been analyzed. Dr. Preuss replied that an outside consultant has been working with ORD to analyze the data and prepare a report. He added that ORD has held a series of follow-up meetings to address some of the concerns identified in these surveys. In fact, during the week of January 29, there will be a meeting of several hundred ORD support staff to talk about their role and how they fit into ORD's efforts. In addition, every Laboratory/Center has held a session on diversity. Dr. Schnoor asked that the May meeting include a presentation on these ORD surveys. Dr. Clark asked if the BOSC members could receive something on this effort before the first site visit. Dr. Preuss noted that Henry Longest has been taking the lead on this effort, and agreed to find out what he can send to the members before the visits; he can certainly send information on trends.

Dr. Bostrom noted the need for a BOSC Web site. Dr. Preuss replied that NCER is working on creating a site. Dr. Bostrom suggested that there be a secure section on the site where BOSC members could share draft documents and other information. Drs. Bostrom and Dorward-King will prepare a draft plan describing how the Communications Subcommittee will proceed with this dual role and present it to the BOSC Executive Committee at the May meeting.

BOSC/SAB Activities for 2001

Dr. Don Barnes mentioned that the annual report, which summarizes the SAB's past year of activities, had been distributed to the BOSC members. The members also were sent copies of the "Toward Integrating Environmental Decision Making" report. He noted that this is not just an update of the previous "Reducing Risk" report. There were six committees involved in this product, including:

- ❖ Ecological Risks—ranking methodology and publication.
- ❖ Human Exposure and Health—Internet-based systems for conducting target analyses.
- ❖ Economic Analysis—primer on cost/benefit analysis.
- ❖ Valuation—workshop on how the public makes decisions.
- ❖ Risk Reduction Options—using the toolbox, as an SAB report.
- ❖ Evaluation—a template for assessing the adequacy of various suggestions for "report cards."

Dr. Barnes mentioned that the report from the Valuation Subcommittee has not been approved so it is just a working paper.

He provided a brief overview of the report, which covered risks (health, ecological, quality of life, and cumulative risk), options (all of the tools in the toolbox), societal (public) values, trade-offs (cost/benefit assessment), and evaluation. Dr. Barnes noted the need to expand the expertise used by the SAB. He indicated that there is a recognition and acceptance that social scientists have a significant role to play in Agency decision-making, even though the Board is not certain how best to incorporate this expertise.

Dr. Barnes reported that the SAB will have a strategic planning retreat in April 2001; he noted that there is usually a retreat when a new Chair is appointed. He announced that the new SAB Chair is William Glaze from the University of North Carolina–Chapel Hill. Dr. Barnes mentioned that Dr. Schnoor will be invited to participate in the SAB retreat.

Dr. Barnes identified a number of potential opportunities for the SAB and BOSC to work together, including:

- ✧ Research Strategies and Research Plans—the SAB has looked at strategic research needs and the BOSC has looked at how these plans are carried out. It may be beneficial for the BOSC to collaborate with the SAB in these reviews.
- ✧ Information—the SAB has not conducted a substantive review of OEI's activities; the SAB is in the process of setting up a meeting with OEI with regard to the issue of gathering data for a particular use and then using the data for another purpose. OEI could benefit from input from the SAB and BOSC.

Dr. Barnes mentioned that the SAB will be looking at reorganizing the Board at the April retreat. Should there be a committee for social science? He mentioned that Dr. Angela Nugent is examining how social science fits into the Agency. He noted that EPA has improved in the area of economics, but other areas have not been addressed.

Dr. Barnes indicated that the Research Strategies Advisory Committee (RSAC) is now chaired by Dr. Ray Loehr (formerly a BOSC member). Dr. Loehr would like the RSAC to look at science throughout the Agency. He wants to take a particular issue (e.g., mercury) and determine how the science has impacted Agency decision making. He hopes this review will indicate if there are ways to enhance the strategic planning process to strengthen EPA's scientific credibility.

Dr. Schnoor thanked Dr. Barnes for his update on SAB activities and mentioned that the BOSC has worked productively with the SAB in the past; he specifically cited the recent STAR Program review. Dr. Schnoor expressed some interest in working with the RSAC. He asked the other BOSC members for comments about working with the SAB. Dr. Bostrom suggested using the term social and behavioral scientists rather than just social scientists. She thought the Communications Subcommittee should coordinate its activities with those of the RSAC. Dr. Schnoor agreed to invite Dr. Loehr to the next BOSC meeting so that he can inform the BOSC members about his plans for RSAC. Dr. Zimmerman asked if the BOSC members could be informed about upcoming SAB meetings. Dr. Barnes agreed to send the BOSC members information on the spring meeting. Dr. Preuss added that the SAB has a terrific Web site that contains information on its meetings, reports, and activities.

Dr. Barnes mentioned that computer models is another area of potential SAB-BOSC collaboration. He referred to Dr. Small's letter of advice regarding coordination of Agency modeling efforts. He noted that there has been extensive effort under Dr. Gary Foley to coordinate modeling, but that responsibility is now being shifted to OEI. Dr. Barnes said that the SAB is assisting EPA in figuring out how best to coordinate modeling efforts.

Dr. Schnoor indicated that the areas of potential SAB-BOSC collaboration include: Clean Air Scientific Advisory Committee's (CASAC) research needs for PM_{2.5}, social and behavioral science, RSAC, and computer models. Dr. Preuss mentioned that ORD has prepared a strategic needs document for social science in conjunction with Agency economists. He said that ORD sponsored an RFA with the Office of Enforcement to examine how people behave when complying or not complying with environmental laws. Dr. Preuss stressed that social science is still an issue within ORD. Dr. Schnoor noted that the BOSC currently has substantial social and behavioral science expertise, so this issue should be of interest.

Dr. Barnes asked if the BOSC has set up a structure for reviewing the strategic plans. Dr. Schnoor replied that no structure has been established yet, but the Board plans on reviewing at least two plans. Dr. Preuss clarified that Dr. Schnoor was referring to the multi-year plans and Dr. Barnes was referring to strategic plans. Dr. Schnoor added that the BOSC has only been discussing review of the multi-year

plans. Dr. Bostrom mentioned that the NRC, NSF, and the Institute on the Environment have each issued lists of environmental research needs. Has anyone at EPA reviewed these lists to identify social science needs? Dr. Preuss replied that EPA has looked at some of these lists. He mentioned that applicants for Water and Watersheds and Global Climate Change grants are required to include social scientists on their teams. He noted that research on valuation is being funded under the STAR Program, and the application of this research is being examined by Al McGartland's group.

Dr. Schnoor asked Dr. Barnes to mention the Dioxin Panel experience. Dr. Barnes indicated that there were a number of protesters who dressed up in costumes, passed out information, and carried signs that targeted individual members at the panel meeting. Although the panelists were surprised, most thought such expression was good. Dr. Barnes noted that the SAB has developed a policy on audience behavior to ensure that future meetings are not disrupted. He indicated that the DFO has the right to close a meeting if there is a threat of violence. Dr. Zimmerman suggested that it may be helpful to have a set of procedures on how the public can raise issues at BOSC meetings.

Dr. Schnoor asked the BOSC members to notify him if there are any issues that should be brought to the attention of the SAB. He agreed to continue to report SAB activities to the BOSC. He asked if he can send a substitute to the SAB meetings if he is unavailable. Dr. Barnes replied that he would find out and get back to him with an answer.

Discussion of "Strengthening Science at the U.S. Environmental Protection Agency"

Dr. James Reisa (Director of the Board on Environmental Studies and Toxicology, NRC) provided an overview of the "Strengthening Science" publication. He said that the Committee on Research and Peer Review in EPA was responsible for this report. This committee was chaired by Dr. Paul Risser from Oregon State University, and it was highly coordinated with the Committee on Research Opportunities and Priorities for EPA (CROP), which was chaired by Dr. Ray Loehr. He noted that the two committees shared some common members including Dr. Loehr. CROP was responsible for the 1997 report entitled "Building a Foundation for Sound Environmental Decisions," which recommended two standards for research: ongoing core research into key processes that underlie environmental systems and problem-driven research to understand and solve identified problems. It stated that EPA should develop an internal mechanism to identify emerging issues and apply a risk-based prioritization process, and should expand its cooperation with other government agencies as well as industries and universities engaged in environmental research.

The charge to the Committee on Research and Peer Review in EPA was to assess the overall research program structure, management, organization, and peer review procedures. Dr. Reisa indicated that the Committee supported the ORD reorganization and liked the 1998 peer review policy handbook. The major areas of scientific improvement since 1994, include:

- ❖ Strategic Research Planning
- ❖ Multi-year Research Planning
- ❖ Increased Core Research Program
- ❖ Consolidation of Research Laboratories/Centers
- ❖ Research Grants, Centers, Fellowship Programs
- ❖ Senior Research Appointments
- ❖ Agency-wide Science Inventory
- ❖ Agency-wide Peer Review Practices.

The Committee developed the following recommendations to strengthen science at EPA:

Scientific Leadership and Talent

- ❖ Establish a new position at EPA: Deputy Administrator for Science and Technology.
- ❖ Convert the position of Assistant Administrator for ORD to a statutory term appointment of 6 years.
- ❖ Seek ways to give research managers in ORD a high degree of flexibility and commensurate accountability. Empower and charge them to make research program decisions at the lowest appropriate management level consistent with EPA policy and ORD's strategic goals and budget priorities.
- ❖ Enhance research leadership and ORD's scientific stature by creating the equivalent of endowed and academic research chairs in ORD's national laboratories.
- ❖ Continue to place high priority on the ORD graduate fellowship and postdoctoral programs.

Research Continuity and Balance

- ❖ Continue steadily on the major courses set in the 1995 reorganization of ORD.
- ❖ Continue and expand ORD's new multi-year planning approaches for both problem-driven and core research areas.
- ❖ Maintain approximately an even balance between problem-driven research and core research.

Research Partnerships and Outreach

- ❖ Develop and implement a proactive, structured, and visible strategy for stimulating, acquiring, and applying the results of research conducted or sponsored by other federal and state agencies, universities, and industry in this country and abroad.
- ❖ Reassess the numbers, qualifications, and skill mix of the staff of ORD's NCER to ensure they are consistent with the needs of the current program of research grants, centers, and fellowships.
- ❖ Develop additional mechanisms to promote and facilitate research interactions among STAR grantees and ORD research staff.
- ❖ Increase EPA's efforts to disseminate actively ORD's research products, to explain their significance, and to assist others inside and outside the Agency in applying them.

Research Accountability

- ❖ Improve the documentation and transparency of the decision-making processes used by ORD for setting research and technical-assistance priorities, making intramural and extramural assignments, and allocating funds.
- ❖ Expand upon the recently initiated Agency-wide science inventory by conducting, documenting, and publishing a more comprehensive and detailed inventory of all scientific activities that are being conducted by office throughout EPA.

Scientific Peer Review

- ✧ Change the Agency's peer-review policy to more strictly separate the management of the development of a work product from the management of the peer review of that work product, thereby ensuring greater independence of peer reviews from the control of program managers, or the potential appearance of control by program managers, throughout the Agency.
- ✧ Peer review needs to be made more of a part of the culture within the Agency and it needs to be better understood.

Dr. Reisa mentioned that a bill has been introduced in Congress to implement all of these recommendations. Dr. Schnoor thanked Dr. Reisa for his presentation and asked if there were any questions. Dr. Clark commented that this report appears to place the responsibility of avoiding duplication with other agencies on EPA. Many of these recommendations could be applied to other agencies. Dr. Reisa agreed and said that some of these same messages will be included in reports focusing on other agencies. Dr. Bostrom asked why this report was so successful in garnering Congressional support. Dr. Reisa attributed the success to the fact that the report addresses the most common EPA criticisms and offers constructive recommendations for improvement. Dr. Preuss added that the Agency strongly endorsed these recommendations. Dr. Clark asked if the 6-year term recommendation was discussed at length. Dr. Reisa replied that it was discussed more than any other recommendation. Dr. Preuss pointed out that the 6-year term may make it difficult for academics to take the position.

Public Comment

Dr. Schnoor asked if there were any public comments and Mr. Troy Seidle (PETA) indicated that he would like to make a comment. He noted that the EPA requires more toxicity testing on animals than any other federal agency. This makes the animal protection community a key stakeholder in a wide range of Agency decisions, activities, and programs. However, the animal protection community is not presently—nor has it ever been—represented on any EPA FACA committee, including the SAB and its committees. The “Member and Consultant Selection Process,” described in the *SAB FY 2000 Annual Staff Report*, involves soliciting or accepting nominations from a variety of stakeholders. Specifically identified are industry, trade, scientific, and professional societies, as well as environmental groups, but not animal protection organizations.

Therefore, Mr. Seidle's first request is that, as a matter of policy, animal protection organizations be included among the sources from which SAB staff solicit or accept nominations of candidates for SAB membership. His second, related request, is that an animal protection representative be considered, in particular, for membership on the RSAC—given what appears to be an expanded mandate of this committee, and its relevance to the interests of animal protection stakeholders.

Next Steps/Next Meeting

Dr. Schnoor agreed to send to the BOSC members some general guidance about the April site visit. He will leave it to the Chair and Vice Chair(s) to work out the details with regard to how the subcommittees will spend their time. He will work with Ms. Hamilton to get the subcommittee members approved and to arrange potential times for the site visits. Dr. Windom asked if there will be time in the agenda to allow the Laboratory/Center staff an opportunity to talk to the subcommittee members. Dr. Schnoor replied that each Chair should prepare the agenda for his/her subcommittee visit. He will communicate with the Chairs before the April site visit to arrange all the details. Dr. Preuss noted that these visits are dependent upon getting the subcommittee members on board. Dr. Schnoor agreed and reminded the members that the next Executive Committee meeting was scheduled for May 7-8, 2001. He then asked

for a motion to adjourn the meeting. Dr. Dorward-King moved to adjourn the meeting and Dr. Bostrom seconded the motion. The meeting was adjourned at 11:27 a.m.

Action Items

The following action items were identified during the meeting discussions:

- ✧ Dr. Small agreed to send a copy of Ann Fairbrother's resume to Dr. Zimmerman for review, and Dr. Zimmerman agreed to contact Dr. Fairbrother to determine her interest in serving on the NCEA . Subcommittee.
- ✧ Dr. Johnson agreed to review the list of potential members of the NCER Subcommittee with Dr. Brown and contact the list of potential members to ascertain their willingness to serve.
- ✧ Dr. Schnoor volunteered to work with Dr. McCay to contact the potential members for the NERL Subcommittee.
- ✧ Dr. Bus agreed to contact the possible members for the NHEERL Subcommittee to determine their interest in serving. Ms. Hamilton agreed to provide contact information to Dr. Bus for these individuals.
- ✧ Dr. Small agreed to notify the potential members of the NRMRL Subcommittee that this will be a standing subcommittee.
- ✧ Dr. Bostrom agreed to contact Anna Harding to determine if she would be willing to serve on the Communications Subcommittee.
- ✧ Dr. Bostrom agreed to contact Dr. Brown to discuss the possibility of having Steve Lewis serve on the NCER Subcommittee as well as the Communications Subcommittee. Dr. Bostrom also agreed to notify Dr. Schnoor and Ms. Hamilton if this results in a change.
- ✧ Dr. Schnoor asked the BOSC members to begin working on formulating questions for the self-study.
- ✧ Dr. Preuss agreed to determine if there are adequate funds to travel members of the Communications Subcommittee to the Laboratory/Center site visits.
- ✧ Dr. Schnoor asked the BOSC members to review the draft questions prepared by Dr. Preuss (page 2 of handout) and be prepared to finalize the list of self-study questions at the May meeting.
- ✧ Dr. Schnoor suggested that each subcommittee meet by telephone prior to the first site visit in March/April.
- ✧ Dr. Schnoor asked the BOSC members to develop additional questions for the first set of questions (page 1 of the handout) based on the recommendations in the previous review reports.
- ✧ Dr. Preuss agreed to contact the Laboratory/Center Directors to inform them of the BOSC's intention to conduct the first site visit in March/April. He also will ask them to provide dates within these 2 months when they would be available to meet.
- ✧ Dr. Preuss will ascertain if any of the Laboratory/Center staff members are DFOs who could attend the site visits.

- ❖ Drs. Johnson and Windom agreed to work on the list of self-study questions to be presented to the Board at the May meeting.
- ❖ Dr. Bostrom requested electronic copies of the Laboratory/Center reviews to facilitate searching for references to communications. Beverly Campbell agreed to send the electronic files to Dr. Bostrom.
- ❖ Dr. Bostrom agreed to provide questions on communications to Dr. Windom for incorporation into the list of self-study questions.
- ❖ Dr. Windom asked the BOSC members to submit specific questions to be included in the list of self-study questions.
- ❖ Dr. Preuss agreed to find out what data from the ORD employee surveys can be released to the BOSC subcommittees before the site visits in March/April.
- ❖ Dr. Schnoor requested a presentation on the ORD surveys at the next Executive Committee meeting.
- ❖ Drs. Bostrom and Dorward-King agreed to prepare a draft plan describing how the Communications Subcommittee will proceed with its proposed dual role (i.e., working with the Laboratory/Center Subcommittees to prepare sections on communications and preparing a separate report on communication of research results). The plan will be presented at the May meeting.
- ❖ Dr. Schnoor agreed to invite Dr. Ray Loehr to make a presentation on his plans for the RSAC at the May meeting.
- ❖ Dr. Barnes agreed to send the BOSC members information on the SAB's upcoming spring meeting.
- ❖ Dr. Schnoor asked the BOSC members to notify him if there are any issues that should be brought to the attention of the SAB. He agreed to continue to report SAB activities to the BOSC.
- ❖ Dr. Barnes agreed to determine if Dr. Schnoor can send a substitute to the SAB meetings when he is unable to attend them.
- ❖ Dr. Schnoor agreed to send the BOSC members some general guidance for the March/April site visit. He will work with Ms. Shirley Hamilton to get the subcommittee members approved and to work with Dr. Preuss to identify potential dates for the site visits. He will communicate with the Chairs to finalize the arrangements.
- ❖ Subcommittee Chairs should develop an agenda for their March/April site visits.

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**ATTACHMENT 1:
U.S. EPA's Office of Research and
Development Presentation**

Dr. William Farland

**ATTACHMENT 2:
Multi-Year Plan for Water
Presentation**

Dr. Lee Mulkey

ATTACHMENT 3:
**Questions to the BOSC for Laboratory and
Center Subcommittees and
Communication Subcommittee**

Dr. Peter Preuss