

**BOARD OF SCIENTIFIC COUNSELORS (BOSC)  
EXECUTIVE COMMITTEE**

**Conference Call Summary  
December 17, 2008  
10:00 a.m. – 12:00 noon EST**

**Welcome and Overview**

*Dr. Gary Saylor, University of Tennessee, BOSC Executive Committee Chair*

Dr. Gary Saylor welcomed the Executive Committee members and other participants to the conference call and thanked everyone for taking the time to participate. He explained that the purpose of the call was to discuss evaluating the research efficiency of the Office of Research and Development's (ORD) research programs. This task was identified at the September Executive Committee meeting and the topic was first addressed in a presentation by Dr. Gilbert Omenn at the May Board of Scientific Counselors (BOSC) meeting. At that meeting, Dr. Omenn presented an overview of the National Research Council's (NRC) January 2008 report entitled, "Evaluating Research Efficiency in the U.S. Environmental Protection Agency." That report provided a good definition of research efficiency. Dr. Saylor noted that the agenda for the call also included time for public comment, updates on the activities of the subcommittees, and a discussion of potential candidates to fill the three vacancies on the Executive Committee.

Dr. Saylor then introduced Ms. Heather Drumm, who is serving as the Designated Federal Officer (DFO) for the BOSC Executive Committee while Ms. Lorelei Kowalski is on detail until February 2009, to provide the DFO remarks.

**DFO Remarks**

*Ms. Heather Drumm, EPA/ORD/OSP, Designated Federal Officer*

Ms. Drumm stated that the BOSC is a federal advisory committee that is subject to the requirements of the Federal Advisory Committee Act (FACA). As the DFO, she serves as the liaison between the BOSC Executive Committee and the U.S. Environmental Protection Agency's (EPA) ORD and ensures that all FACA procedures and requirements are met. All meetings involving substantive issues, whether in person, by phone, or by e-mail, must be open to the public. This applies to all group communications that include at least one-half of the Executive Committee members. In addition, there must be time set aside for public comment at each meeting. Ms. Drumm noted that she did not receive any requests for public comment prior to the call; however, there is time on the agenda for public comment at 11:15 a.m. She asked that comments be limited to 3 minutes each. She explained that the BOSC Chair and the DFO must be present at all Executive Committee meetings and conference calls. A notice was placed in the *Federal Register* to announce this conference call and it was entered into the federal docket management system ([www.regulations.gov](http://www.regulations.gov)).

A contractor, Beverly Campbell from The Scientific Consulting Group, is present to take notes during the call. Ms. Drumm asked those speaking during the conference call to identify themselves for the record. A summary of the call will be prepared and it will be posted on the BOSC Web Site ([www.epa.gov/osp/bosc](http://www.epa.gov/osp/bosc)), after it is approved by the BOSC Chair. Ms. Drumm has ensured that all ethics requirements have been satisfied, each BOSC member has filed a standard government financial disclosure report, and all members have completed the required ethics training. She asked the members to notify her if any potential conflict of interest arises during the conference call. The purpose of this call is to discuss the research efficiency questions included in the BOSC program reviews, several action items from the last meeting, and the three vacancies on the Executive Committee.

Ms. Drumm indicated that BOSC members should have received two e-mails prior to the conference call that included the agenda and lessons learned from the review of the BOSC Homeland Security Research Program (HSRP).

Dr. Sayler asked if there were any questions for Ms. Drumm and there were none.

### **Investment Efficiency Discussion**

*Dr. Gary Sayler, Executive Committee Chair*

Dr. Sayler explained that a new element—evaluating research efficiency—has been added to the charge of the BOSC’s program reviews. Historically, these reviews have focused on relevance, quality, leadership, communication, and performance. Research efficiency has been added to the program review charge questions primarily because of the information required for the Program Assessment Rating Tool (PART) reviews conducted by the Office of Management and Budget (OMB) and the NRC’s January 2008 report, which defines the concepts of process efficiency and investment efficiency.

Process efficiency is a quantitative input/output evaluation of how research processes are managed. Examples include numbers of analyses conducted at a per unit cost, length of time to process and award grants or contracts, and percentage of external grants peer reviewed. Investment efficiency focuses on research portfolio management, which includes the need to identify the most promising lines of research to achieve the desired outcomes. Evaluations of this nature seek to determine if the right investments are being made, if the work is of high quality, and if timely and effective adjustments and corrections are made during the R&D program’s strategic time course.

Although the PART process is outcome-based, the NRC report noted that ultimate outcomes (and outcome-based efficiency metrics) were inappropriate measures because they cannot be predicted, may occur long after the research has ended, and frequently depend on the actions of others (e.g., a policy maker implementing a rule based on research outputs). This is particularly true for investment efficiency, which by its nature, is non-quantitative and is traditionally measured by the BOSC in terms of evaluating quality, relevance, and effectiveness as part of the review charge.

Dr. Sayler mentioned that Phillip Juengst from EPA was on the conference call. Ms. Juengst provided guidance on evaluating research efficiency to the HSRP Subcommittee and he can

answer any questions concerning the thinking that went into the efficiency charge questions. Basically, EPA wants the BOSC to determine if ORD is providing the right metrics to assess investment efficiency.

Dr. Saylor noted that the review of the HSRP was the first BOSC program review for which the issue of research efficiency was part of the charge. The HSRP Subcommittee was asked to respond to the following three charge questions relating to Program Performance and Efficiency:

1. How much are the program results being used by environmental decision makers to inform decisions and achieve results?
2. How well defined are the program's measures of outcomes?
3. How efficiently has the program invested and managed resources to achieve the LTGs?

The HSRP Subcommittee was able to respond to Questions 1 and 2. The members thought they had received adequate information to address those questions. The Subcommittee members, however, did not think they received sufficient information to address the third question even though they had the opportunity to question the National Homeland Security Research Center (NHSRC) Director and the National Program Director (NPD) on how investment decisions were made for the program.

Dr. Saylor identified four significant problems encountered by the HSRP Subcommittee in attempting to do the research efficiency evaluation:

1. There was some confusion among the Subcommittee members as to whether the program was seeking advice on investment efficiency or program efficiency. Investment efficiency was the target.
2. ORD provided few, if any, details on how resource (full-time equivalents [FTEs] and dollars) allocations are actually achieved. There was little transparency and the Subcommittee was provided little information at the research program level as to how management decision-making is carried out.
3. The process for mid-course corrections or deciding when and how decisions are made to terminate a research program was not defined.
4. The Subcommittee found it difficult to evaluate investment efficiency at the LTG level. The information to evaluate efficiency seems to be at the research program level rather than the LTG level. Often the LTGs are too broadly defined and may be based predominantly on outcomes.

Dr. Saylor mentioned again that the HSRP Subcommittee members had the opportunity to question the NHSRC Director and NPD about how decisions are made at higher levels, but it was difficult to make the transition between LTGs and the research program. He mentioned that he had intended to share this information with Dr. Carol Weiss and obtain her comments prior to the conference call but he did not have time to talk to her before the call. He asked Dr. Weiss to share her thoughts on this issue.

Dr. Weiss said she tried to specify the types of actions ORD would take if it was managing with investment efficiency in mind. Some of the items she suggested were the generality of the solicitations issued by ORD, the process for review of applications, the process for monitoring the research, and the involvement of ORD staff in the conduct of the research. Dr. Weiss asked if the Subcommittee received any information from ORD regarding the extent to which the research was used by decision-makers. Dr. Sayler responded that the Subcommittee received considerable information about the use of the research by decision-makers and the achievement of intermediate outcomes. There were some instances, however, where the program's products were not produced as quickly as they should have been but the Subcommittee did not receive much information about what management changes could have been implemented to speed development of such products. The discussion at the review also did not delve into how the program decides to terminate a project. Another concern is that the program often is driven by congressional mandates, Presidential directives, and similar demands. These drivers take priority and guide the focus of the program, particularly in an era of budget reductions.

Dr. Charles Haas commented that if the efficiency charge question is asking the BOSC to provide an opinion regarding investment efficiency and ORD does not provide adequate information to make that assessment, it is appropriate for the BOSC report to state that the information was not sufficient to respond to the question. Dr. Sayler agreed but thought the Executive Committee members should provide ORD guidance concerning the information that would be needed to make such an assessment for future reviews. The BOSC should try to provide ORD with a clear idea of the information a subcommittee would need to evaluate investment efficiency.

Dr. Barry Ryan stated that it is difficult to define the qualitative information needed. He expressed some concern about evaluating efficiency over a short period of time. The program has identified LTGs and it should not be expected to make considerable progress toward these goals in the short term. It is better to look at the progress over 4 to 5 years. A program should not be required to have rapid improvement in every area to be considered efficient.

Dr. Weiss returned to Dr. Sayler's point about evaluating efficiency at the LTG level versus program level. She noted that different information would be required to evaluate investment efficiency at these different levels. Dr. Sayler pointed out that the NRC report advised that ultimate outcomes were inappropriate measures for investment efficiency. Therefore, care must be taken in how the LTGs are framed. Dr. Weiss commented that the programs will have to capture more data on the routine decisions they make, including how the Laboratory/Center Directors coordinate with the NPDs, program offices, and regions on research plans and activities. Dr. Sayler responded that the HSRP Subcommittee did not receive adequate information to understand the program's investment decisions, particularly given that the budget is not sufficient to cover all the needed research. He noted that the program made the decision to truncate its wastewater research because of budget cuts; the program based this decision on a front-end analysis and the Subcommittee thought it was the right decision. It was not clear, however, how such analyses are done with respect to changing annual investments.

Dr. Haas thought the HSRP may be a poor example to use for this discussion. Dr. Sayler agreed that the HSRP is quite different from other ORD programs but he believes that the Executive Committee will struggle with these evaluations until it provides ORD some insight on what

information is needed to assess investment efficiency. Dr. Saylor asked the members if ORD should provide the BOSC a better perspective on annual decision-making, particularly with respect to project termination. Does ORD use a structured process, similar to industry, for making decisions on carrying a project forward for another year? He did not know the answer to that question.

Dr. Katherine von Stackelberg said that this discussion relates to the efforts of the workgroup that is focusing on value of information (VOI). She noted that Drs. Charles Haas and Martin Philbert are members of that workgroup. The workgroup has talked about ORD's decision-making process and the tools ORD is using to make decisions. Those discussions could be helpful to the Executive Committee in addressing this topic. Dr. von Stackelberg pointed out that the workgroup is just getting started but she hopes to prepare a summary of the workgroup's discussions that will be circulated to the Executive Committee.

Dr. Melvin Andersen indicated that he had limited experience with evaluating investment efficiency but he noted that there is a difference between an effective program and an efficient program. An effective program is one that achieves its goals and supports the Agency's mission. A program can be efficient in achieving a goal that does not support the Agency's mission. Dr. von Stackelberg said that issue has come up in the discussions of the VOI workgroup. She noted that the Multi-Year Plans (MYPs) for the programs identify 3 to 5 years of research. The laboratories/centers develop a 1 to 2 year schedule for research projects and they have some discretion about implementing the projects. There is a structure and process that the laboratories/centers are trying to follow but it may need to be more transparent.

Dr. Weiss commented that the NRC report defined investment efficiency similar to effectiveness. She agreed that a program could be efficient without being effective. Dr. Saylor pointed out that the NRC report provided a definition of process efficiency and investment efficiency. Referring to the handout on lessons learned from the HSRP review, he stated that, with regard to process efficiency, ORD is reassessing current program measures in light of NRC recommendations. ORD is exploring a cross-cutting laboratory/center measure that would be used to manage the percent of budget allocated to direct science activities (science versus administrative functions). New measures of process efficiency are to be negotiated with the OMB through the PART process. ORD will use the BOSC to assess investment efficiency in a more explicit manner. Overall, the BOSC charge and LTG performance rating will continue to focus on quality, relevance, and performance (effectiveness). The BOSC charge is being expanded to include the following questions: (1) How appropriate are the program's measures of efficiency? and (2) How efficiently has the program invested and managed resources to achieve the LTGs? Dr. Saylor identified three expectations for the BOSC subcommittees in answering this new component of the charge:

- ✧ Assess the extent to which the proportion of the program resources and FTEs allocated to each LTG is appropriate (the focus is not to go below the LTG level).
- ✧ Assess the extent to which the resource and FTE decisions at the LTG level are based on an appropriate assessment of both short- and long-term research priorities and potential impacts.

- ✧ Assess the extent to which the program is maximizing the potential impact of its investments over both the short- and long-term, with respect to its unique role in EPA and the broader research community.

Dr. Sayler pointed out that the Agency is including effectiveness as part of the performance questions of the charge and ORD is making a distinction between efficiency and effectiveness. The key issue is the information that ORD needs to provide to the subcommittees to enable them to evaluate investment efficiency.

Dr. Andersen stressed the need for good definitions of efficiency and effectiveness. Dr. Sayler asked if the members thought it would be useful to have another primer on ORD's research planning process—the logic model used in the MYPs and the interim and desired outcomes. He suggested that the agenda for the February meeting include such a presentation if the members thought it would be useful. Dr. Ryan thought it would be helpful to have all the Executive Committee members at the same level of understanding. Dr. Cliff Duke agreed that it would be beneficial so Dr. Sayler said he would discuss this with Ms. Drumm.

Dr. Ken Demerjian asked Dr. Sayler if ORD provided the HSRP Subcommittee any program measures of efficiency. Dr. Sayler replied that the program presented an overview of how investments decisions were made but that presentation did not include enough information to evaluate investment efficiency at the LTG level.

Mr. Juengst commented that ORD has not yet figured out how to measure investment efficiency and it is looking to the BOSC to help them identify appropriate metrics. What types of information does the BOSC need to assess whether the program has made efficient investment decisions? The program updates its priorities annually and ORD has a detailed prioritization and budget process. The laboratories and centers then develop implementation plans. He noted that the laboratories and centers may do this differently. He asked the BOSC Executive Committee to provide guidance to ORD concerning the information the BOSC needs to evaluate investment efficiency. He recognized that this will require an ongoing dialogue and that it will be an evolving process.

Dr. Demerjian asked if the decision-making process was top-down or bottom-up. Mr. Juengst replied that it is both. At the highest level there are political influences that impact the program; then, there is the framework and research directions established by the NPD. The research projects to achieve the broader priorities are developed at the bottom level. ORD is looking at whether there are tools and approaches that could be used to capture this information for the BOSC. Dr. Demerjian said that the laboratories have to retain a certain level of core capabilities as well as conduct problem-driven research. It has been problematic for ORD to sustain the core capabilities, and the budget reductions in the past few years have made it necessary for ORD to eliminate certain research areas. Mr. Juengst commented that ORD will try to find out if these changes have been documented and determine if such information will be useful to the BOSC in evaluating investment efficiency.

Dr. Sayler emphasized that there is no universal model for investment decision-making. The laboratories/centers plan and implement research projects differently, but this information could be provided to the BOSC subcommittees to help them evaluate investment efficiency. Mr. Juengst thought the laboratories/centers could provide that information. He noted that the

strategic priorities for the program are established by the NPDs; the more detailed research plans for the projects in the portfolio are developed by the laboratories/centers.

Dr. Sally Darney, the NPD for Human Health Research, said that she had been following the discussion with great interest. The Human Health Research Program (HHRP) is an example of a program that is longer term in nature; it is not focused on research that must produce a product by a specific date for a particular regulation. She has been giving a great deal of thought to evaluating the impact of such a longer term program on decision-making.

Dr. Demerjian said he was not sure how to proceed with evaluating investment efficiency at his upcoming program review. Dr. Sayler indicated that the purpose of this call is to help prepare the subcommittees for upcoming reviews to address this issue. Dr. Demerjian stated that clear definitions are critical and he would develop definitions independently if that is not done before his next review. He said that he had not seen the NRC report and asked if EPA could provide him a copy of it. Ms. Drumm responded that a copy of the report (a 90-page document) was provided in the binder for the September meeting. Dr. Sayler added that the report is readily available on the Web as well. He noted that OMB will be using the definitions in the NRC report and did not want the BOSC subcommittees to define the terms independently. He read the definition of the investment efficiency from the NRC report:

*“Investment efficiency focuses on portfolio management, including the need to identify the most promising lines of research for achieving desired outcomes. It is best evaluated by assessing the program’s research activities, from planning to funding to midcourse adjustments, in the framework of its strategic planning architecture. Investment efficiency concerns three questions: are the right investments being made, is the research being performed at a high level of quality, and are timely and effective adjustments made in the multi-year course of the work to reflect new scientific information, new methods, and altered priorities? Because these questions cannot be addressed quantitatively, they require judgment based on experience and should be addressed through expert review.”*

The NRC report provides a clear definition of investment efficiency and it identifies useful information for evaluating overall efficiency. Dr. Sayler strongly encouraged the Executive Committee members to review the NRC report. Ms. Drumm agreed to provide the link for the report to the BOSC members so that they could download the report. Dr. Sayler noted that the report can be downloaded for free but if a BOSC member cannot access it on the Web, ORD will provide the document to them.

Dr. Demerjian stated that it will be difficult for ORD to provide the data needed to do the evaluation. Dr. Sayler agreed but recommended that the subcommittees look at the statutory requirements impacting the program and the decision-making tree from the top-down and the bottom-up.

Dr. Weiss mentioned that the information needed to address the three investment efficiency questions identified in the NRC report has not been provided in previous reviews. Dr. Sayler asked if the decision-making tools being discussed by the VOI workgroup would help the subcommittees. Dr. von Stackelberg said that they hope to hold a small workshop and bring in experts to discuss this issue and where ORD wants to be in 5 years. The workgroup will

synthesize the information from the workshop to inform this discussion. She mentioned that there is an American Association for the Advancement of Science (AAAS) fellow at EPA who has chosen to focus part of her fellowship on this topic.

Dr. Henry Falk expressed his opinion that this is a complicated area and it is difficult to judge research management efforts. He was concerned that the BOSC did not have the expertise to fully evaluate efficiency. Dr. Philbert agreed, stating that this type of evaluation was beyond his area of expertise. Dr. Darney hoped that the BOSC could look at the relative effort for each LTG as a percentage of the effort and determine if that is reasonable. For the HHRP review, she plans to provide the Subcommittee an idea of what adjustments the program makes from year to year in terms of FTEs and dollars and how those align with the LTGs. Dr. Philbert stated that without looking at how quickly the results feed back into outcomes, it would be just a “gut” check. Dr. Darney mentioned that the NRC report emphasizes that this should be a qualitative review.

Dr. Sayler thought the information Dr. Darney plans to provide for the HHRP review seems appropriate. It will give the Subcommittee information on program reallocations from year to year. He asked if the program also will provide information on the process used to make those decisions. Dr. Darney responded that she will give more attention to that information before the review.

### **Public Comments**

*Ms. Heather Drumm, EPA/ORD/OSP, DFO*

At 11:15 a.m., Ms. Drumm asked if anyone on the conference call would like to make a public comment. No comments were offered so the discussion resumed.

### **Investment Efficiency Discussion (Continued)**

*Dr. Gary Sayler, Executive Committee Chair*

Dr. Sayler asked Dr. Philbert if he was uncomfortable with making a qualitative evaluation of investment efficiency. Dr. Philbert replied that he was comfortable with the qualitative nature of the evaluation but noted that the evaluation is predicated on the program’s goals. A program can be efficient in achieving a weak goal.

Dr. Sayler emphasized that the BOSC reviews will continue to examine the LTGs to determine if they are appropriate for contributing to the desired outcomes. He reminded the Executive Committee members that the BOSC had made recommendations to change, collapse, and/or eliminate LTGs in past reviews. The BOSC still has a role in examining the LTGs and how they contribute to desired outcomes. If a subcommittee thinks an LTG is inappropriate, such a statement should be included in the report.

Dr. Sayler asked if Dr. Dennis Paustenbach had any comments. Dr. Paustenbach said that he did not know enough about the issue to offer many comments. In response to Dr. Sayler’s inquiry regarding his input, Dr. Duke said that he concurred with the statements regarding the BOSC’s role in examining and commenting on LTGs. He thought that the BOSC could view the efficiency evaluation as an exercise in determining if the program’s resources are appropriately distributed among the LTGs and if the program has a process for reallocating resources. Dr.

Duke noted that dollars are allocated to projects so it is difficult to think about allocating dollars and FTEs to LTGs.

Dr. Sayler asked if the Executive Committee needed more time to think about this topic or if the BOSC could move forward in identifying the information needed to undertake such an evaluation. Dr. Philbert responded that if the BOSC is to provide value, it will have to bore deep, which means that ORD will have to provide more information and clearly define how the evaluation will be used. Dr. Sayler answered that the investment efficiency evaluation will be used as input for the OMB PART reviews. Dr. Philbert asked how much weight will be given to the BOSC's efficiency evaluation. Dr. Sayler replied that he thinks it will carry considerable weight, comparable to the qualitative rating. Dr. Philbert commented that the evaluation will only be as good as the information provided by ORD.

Dr. Paustenbach said he did not know how to evaluate efficiency without looking at FTEs, dollars, timelines, and a benchmark. It does not appear that such information will be provided to the BOSC for these reviews. He thought the Agency might benefit from implementing an MBA-type of efficiency analysis. The data, however, to do such analyses usually are not collected. Dr. Paustenbach mentioned the financial analysis of the dioxin reassessment. That analysis indicated that the dioxin reassessment was not efficient; however, it failed to consider the value of the reassessment to the Agency and the public. He expressed some doubt that the Agency will be able to provide the information needed to do the efficiency assessment. It may be best to do a dry run to see what problems are encountered.

Expanding on what Dr. Paustenbach said about the dioxin reassessment, Dr. Ryan pointed out that it often is difficult to determine the impact of a program until after it is completed and the impact may not be known until years later. Dr. Sayler commented that this is the reason that the NRC report discouraged the use of outcomes as metrics. Dr. Paustenbach noted that the dioxin reassessment had a positive effect on the environment because it succeeded in reducing dioxin emissions, but it is not clear whether it had a positive health impact. The dioxin reassessment was an inefficient project but the outcome is still unknown. Dr. Paustenbach pointed out that the BOSC's impressions are valuable; the Board can offer opinions on what it perceives to be efficient and that is important input for ORD. Dr. Weiss agreed but added that these judgments are based on the information provided by ORD; the BOSC's judgments and perceptions must be based on good information. Dr. Sayler noted that if the BOSC is wrong, the Agency has an opportunity to rebut such findings.

Dr. Paustenbach asked if the HSRP Subcommittee developed a checklist of what was needed from ORD to do the efficiency evaluation. Dr. Sayler responded that no checklist was developed. Dr. Paustenbach recommended that the Executive Committee develop a checklist as a first step. He also suggested a post-analysis checklist to determine if these are the right questions. He volunteered to work on these checklists for evaluating investment efficiency.

Dr. Sayler thanked Dr. Paustenbach for his offer. Dr. Weiss asked if ORD is seeking input on process efficiency or investment efficiency. She added that process efficiency is straightforward and did not require input from the BOSC. Dr. Sayler agreed.

## **Executive Committee Updates**

*Dr. Gary Saylor, Executive Committee Chair*

Dr. Saylor stated that the HHRP review would take place in January 2009. The HSRP review report will be submitted to Ms. Drumm before December 25. Dr. Saylor has a few comments to address but it will be completed quite soon. The report for the mid-cycle review of the Land Research Program has been vetted by Drs. Duke and Ryan. Dr. Duke said he had not seen the revised report yet. Ms. Drumm indicated that she just received a clean version of the report with the vettors' input. She will send it back to Drs. Duke and Ryan so that they can verify that their comments were addressed appropriately before the report is distributed to the Executive Committee.

Dr. Demerjian reported that efforts are underway to form a subcommittee for the upcoming review of the Air Program. Dr. Saylor stated that the Endocrine Disruptors Subcommittee also is being formed; that review meeting has been moved to April 14-16, 2009, and it will be held in Research Triangle Park, North Carolina.

Dr. Saylor mentioned that Drs. von Stackelberg and Paustenbach are the vettors for the Water Quality Mid-Cycle Review Report. Ms. Drumm said that she just received the report and plans to send it to the vettors soon. She reminded the BOSC members that this report will be discussed at the February meeting.

Drs. Philbert and Ryan have agreed to serve as vettors for the Science and Technology for Sustainability (STS) Mid-Cycle Review Report. That report will be discussed by the Executive Committee at the June meeting, which is scheduled for June 4-5, 2009, in Duluth, Minnesota.

Dr. Saylor agreed to summarize the information on evaluating investment efficiency that was discussed during this conference call. He noted that this topic will be discussed again because there are a number of upcoming reviews that will require additional guidance. Dr. Saylor acknowledged that this will be an evolving process that will improve over time. The Agency will continue to interact with the BOSC to make the process more fluid and transparent.

Dr. Saylor stated that the BOSC Executive Committee has three vacancies that need to be filled. The BOSC has a responsibility to help ORD identify candidates who can make a contribution to the work of the Board. The departure of Drs. Rogene Henderson, George Daston, and Deborah Swackhamer have left these three vacancies. In an effort to maintain diversity, Dr. Saylor pointed out that two of the three former members were from industry and one from academia and two were women. He asked the Executive Committee members to forward their suggestions for candidates to Ms. Drumm. Dr. Paustenbach asked for a list of past members so that he could avoid suggesting those individuals. Ms. Drumm agreed to circulate that list to the BOSC members. He mentioned that he could provide a list of 5 to 10 possible candidates from the non-academic sector.

Dr. Saylor asked if there were any areas of expertise that should be added to the BOSC. Dr. Haas suggested someone with climate change experience and Dr. Duke agreed. Dr. Saylor asked if the number of Executive Committee members is fixed and Ms. Drumm responded that the current charter limits the Executive Committee to 15 members. Dr. Duke suggested looking at the Climate Change Subcommittee to identify potential candidates with climate change expertise.

Dr. Paustenbach asked about the date of the next meeting and Dr. Sayler replied that it will be held February 9-10, 2009, in Washington, DC.

Ms. Drumm reported that she had e-mailed to the Executive Committee members the link for the NRC report. She instructed the members to sign in by entering their e-mail address and zip code. This would allow them to download the complete pdf file of the report.

Dr. Sayler thanked the members for their insights on evaluating investment efficiency and adjourned the conference call at 11:58 a.m.

### **Action Items**

- ✧ Dr. von Stackelberg will prepare a summary of the VOI workgroup discussions on ORD's decision-making process and the tools ORD is using to make decisions for circulation to the Executive Committee.
- ✧ Dr. Sayler will discuss with Ms. Drumm the possibility of including a presentation on ORD's research planning process at the February BOSC meeting.
- ✧ Dr. Paustenbach volunteered to work on a checklist of what is needed from ORD to do the efficiency evaluation. He also agreed to help develop a post-analysis checklist to determine if the right questions are being posed.
- ✧ Ms. Drumm will send the revised report for the mid-cycle review of the Land Research Program to Drs. Duke and Ryan (vectors) for review.
- ✧ Drs. Duke and Ryan will review the revised Land Mid-Cycle Review Report to verify that their comments were addressed appropriately.
- ✧ Ms. Drumm will send the Water Quality Mid-Cycle Review Report to Drs. von Stackelberg and Paustenbach for vetting prior to the February BOSC meeting.
- ✧ Drs. Philbert and Ryan agreed to serve as vectors for the Science and Technology for Sustainability (STS) Mid-Cycle Review Report.
- ✧ Dr. Sayler will summarize the information on evaluating investment efficiency that was discussed during this conference call for distribution to the Executive Committee.
- ✧ Ms. Drumm will circulate a list of past BOSC members to the Executive Committee members so that they will not suggest past members for future membership.
- ✧ BOSC members will provide the names of candidates to fill the three Executive Committee vacancies to Ms. Drumm.

## PARTICIPANTS LIST

### Chair:

#### **Gary Saylor, Ph.D.**

Professor/Director  
Center for Environmental Biotechnology  
The University of Tennessee  
676 Dabney Hall  
Knoxville, TN 37996-1605  
Phone: 865-974-8080  
Fax: 865-974-8086  
E-mail: sayler@utk.edu

### Executive Committee Members:

#### **Melvin E. Andersen, Ph.D., CIH, DABT, FATS**

Director, Computational Biology Division  
The Hamner Institutes for Health Sciences  
Six Davis Drive, P.O. Box 12137  
Research Triangle Park, NC 27709-2137  
Phone: 919-558-1200  
E-mail: MAndersen@thehamner.org

#### **Kenneth L. Demerjian, Ph.D.**

Atmospheric Sciences Research Center  
State University of New York  
251 Fuller Road  
Albany, NY 12203  
Phone: 518-437-8705  
Fax: 518-437-8711  
E-mail: kld@asrc.cestm.albany.edu

#### **Clifford S. Duke, Ph.D.**

Director of Science Programs  
The Ecological Society of America  
1707 H Street NW, Suite 400  
Washington, DC 20006  
Phone: 202-833-8773, ext. 202  
Fax: 202-833-8775  
E-mail: csduke@esa.org

#### **Henry Falk, M.D., M.P.H.**

Director, Coordinating Center for Environmental  
Health and Injury Prevention (CCEHIP)  
Centers for Disease Control and Prevention  
Atlanta, GA  
E-mail: hxf1@cdc.gov

#### **John P. Giesy, Ph.D.** (not present)

Professor & Canada Research Chair in  
Environmental Toxicology  
Department of Veterinary Biomedical Sciences  
University of Saskatchewan  
44 Campus Drive  
Saskatoon SK S7N 5B3  
Phone: 306-966-7441  
Fax: 306-931-1664  
E-mail: jgiesy@aol.com

#### **Charles N. Haas, Ph.D.**

L.D. Betz Professor of Environmental  
Engineering  
Department of Civil, Architectural and  
Environmental Engineering  
Drexel University  
3141 Chestnut Street  
Philadelphia, PA 19104  
Phone: 215-895-2283  
Fax: 215-895-1363  
E-mail: haas@drexel.edu

#### **Dennis Paustenbach, Ph.D., CIH, DABT**

ChemRisk, Inc.  
25 Jessie Street  
Suite 1800  
San Francisco, CA 94105  
E-mail: DPaustenbach@ChemRisk.com

#### **Martin Philbert, Ph.D.**

Department of Environmental Health Sciences  
School of Public Health  
University of Michigan  
1420 Washington Heights  
Ann Arbor, MI 48109-2029  
Phone: 734-763-4523  
Fax: 734-763-8095  
E-mail: philbert@umich.edu

#### **P. Barry Ryan, Ph.D.**

Department of Environmental and  
Occupational Health  
Rollins School of Public Health  
Emory University  
Grace Crum Rollins Building, Room 264  
1518 Clifton Road, NE  
Atlanta, GA 30322  
Phone: 404-727-3826  
Fax: 404-727-8744  
E-mail: bryan@sph.emory.edu

**Katherine von Stackelberg, Sc.D.**

Harvard Center for Risk Analysis  
Harvard School of Public Health  
Landmark Center, Room 404C  
401 Park Drive, P.O. Box 15677  
Boston, MA 02215  
Phone: 617-495-4144  
E-mail: kvon@hsph.harvard.edu

**Carol H. Weiss, Ph.D.**

Harvard Graduate School of Education  
Harvard University  
467 Gutman Library, Appian Way  
Cambridge, MA 02138  
Phone: 617-495-4144  
Fax: 617-496-3095  
E-mail: weisscar@gse.harvard.edu

**SAB Liaison to BOSC:**

**George Lambert, M.D.** (not present)

Director  
The Center for Childhood Neurotoxicology  
and Exposure Assessment  
Robert Wood Johnson Medical School  
University of Medicine and Dentistry  
of New Jersey  
170 Frelinghuysen Road  
Piscataway, NJ 08854  
Phone: 800-644-0088  
Fax: 732-253-3520  
E-mail: glambert@umdnj.edu

**Committee Staff:**

**Heather Drumm**

Alternate Designated Federal Officer  
U.S. Environmental Protection Agency  
Office of Research and Development  
Mail Code 8104R  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460  
Phone: 202-564-8239  
Fax: 202-565-2911  
E-mail: drumm.heather@epa.gov

**Lorelei Kowalski** (not present)

Designated Federal Officer for BOSC Executive  
Committee  
U.S. Environmental Protection Agency  
Office of Research and Development  
Mail Code 8104R  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460  
Phone: 202-564-3408  
Fax: 202-565-2911  
E-mail: kowalski.lorelei@epa.gov

**Contractor Support**

**Beverly Campbell**

The Scientific Consulting Group, Inc.  
656 Quince Orchard Road, Suite 210  
Gaithersburg, MD 20878  
Phone: 301-670-4990  
E-mail: bcampbell@scgcorp.com

**EPA Participants**

**Sally Darney, Ph.D.**

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

**Phillip Juengst**

U.S. Environmental Protection Agency  
Office of Research and Development  
Office of Resources Management and  
Administration

**Michael Loughran**

U.S. Environmental Protection Agency  
Office of Research and Development  
Office of Resources Management and  
Administration

**Mia Sjogren**

U.S. Environmental Protection Agency  
Office of Research and Development  
Office of Resources Management and  
Administration

**Other Participants**

**Aaron Lovell**

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BOARD OF SCIENTIFIC COUNSELORS

**EXECUTIVE COMMITTEE CONFERENCE CALL  
AGENDA**

**Wednesday, December 17, 2008  
10:00 a.m. – 12:00 noon Eastern Time**

**Participation by Teleconference Only  
866-299-3188  
Code: 2025648239#**

10:00-10:10 a.m.	Welcome and Overview - Roll Call - Purpose of Teleconference	Dr. Gary Sayler, Chair, BOSC Executive Committee
10:10-10:15 a.m.	DFO Remarks	Ms. Heather Drumm, Office of Research and Development
10:15-11:15 a.m.	Investment Efficiency Discussion - Lessons Learned from Homeland Security Review & Investment Efficiency Workgroup - Discussion	Dr. Gary Sayler, Chair, BOSC Executive Committee Dr. Carol Weiss, Chair Investment Efficiency Workgroup
11:15-11:30 a.m.	Public Comment	
11:30-11:45 a.m.	Executive Committee Updates - Suggestions for Potential Candidates to fill 3 Executive Committee Vacancies - Status of NCER, Human Health, Endocrine Disrupting Chemicals, Technology for Sustainability, Air, Drinking Water, CompTox Subcommittees - Status of Land, Water Quality, Homeland Security Reports	Dr. Gary Sayler, Chair, BOSC Executive Committee
11:45-12:00 p.m.	Action Items/Wrap Up	Dr. Gary Sayler, Chair, BOSC Executive Committee
12:00 noon	Adjourn	