

**DRINKING WATER MID-CYCLE REVIEW SUBCOMMITTEE
MEETING SUMMARY**

**The Newport Harbor Hotel and Marina
Newport, Rhode Island
May 23, 2007**

Welcome and Outline of Purpose

Dr. Gary Saylor, University of Tennessee, Subcommittee Chair

Dr. Gary Saylor, Chair of the Drinking Water Mid-Cycle Review Subcommittee, welcomed the Subcommittee members to the meeting and thanked them for their time and effort. He then asked the Subcommittee members to introduce themselves.

He explained that the Subcommittee is responsible for providing an analysis of how the Drinking Water Research Program (DWRP) has responded to the Board of Scientific Counselors (BOSC) recommendations from the 2005 program review. The Subcommittee also will provide advice and guidance to DWRP scientists. The recommendations should be concise and will not have the same technical detail as a program review. The goals are to evaluate the DWRP, examine new directions, and provide feedback on performance and accountability. The Subcommittee will complete the bulk of the work at this face-to-face meeting and provide a report out to the U.S. Environmental Protection Agency (EPA) staff at the end of the day. Subcommittee members should notify Dr. Saylor if they are in need of any additional information to complete their review.

Dr. Chi-Hsin Selene Chou asked how the process will differ from the instructions she already received. Dr. Saylor responded that the review process has been expanded slightly and will result in more than a letter report. The Subcommittee members received guidelines on how to perform the review, and the guidelines are still valid. In addition, a charge question was added that asked the Subcommittee to use a rating tool developed by the BOSC Executive Committee, in conjunction with the Office of Research and Development (ORD) and the Office of Management and Budget (OMB), to assess the overall program performance since the 2005 program review.

Welcome and Designated Federal Officer (DFO) Remarks

Ms. Edith Coates, ORD, EPA, Subcommittee Designated Federal Officer (DFO)

Ms. Edith Coates thanked the Subcommittee members for their work and the attendees from EPA and the general public for their interest. She reviewed the Federal Advisory Committee Act (FACA) procedures that are required for all BOSC Subcommittee meetings. She explained that the BOSC is a Federal Advisory Committee that provides independent, scientific peer review for EPA's ORD. The Drinking Water Mid-Cycle Review Subcommittee is charged with reviewing the progress of the DWRP since the full program review conducted in June 2005. The role of BOSC is to provide recommendations to ORD, but the rights of decision-making remain with the Agency.

Today is the first face-to-face meeting of the Subcommittee. An administrative conference call took place on March 23, 2007, and a technical conference was held on April 26, 2007. A third conference call will be scheduled for late June or early July 2007. Per FACA rules, all meetings and conference calls

involving substantive issues, whether in person, by phone, or by e-mail, that include one-half or more of the Subcommittee members must be open to the public and a notice must be placed in the *Federal Register* at least 15 calendar days prior to the call or meeting.

The Subcommittee Chair will preside over the meeting, with EPA staff providing information for the Subcommittee members at the request of the Chair. EPA presenters will interact only with Subcommittee members after they have been recognized by the Chair. EPA staff members are present to provide technical information, and any new materials requested by the Subcommittee members will be attained via the DFO. EPA staff cannot approach the contractor or ask questions of the Subcommittee members.

The agenda was developed to allow adequate discussion time. The minutes are being taken by the contractor and will be publicly available on the BOSC Web Site (<http://www.epa.gov/osp/bosc>) following certification by the Subcommittee Chair. Ms. Coates requested that speakers identify themselves for the accuracy of the meeting minutes. No requests for public comments were made prior to the meeting, but there will be time for public comment at 2:00 p.m. She asked that public comments be limited to 3 minutes each.

The five charge questions that the Subcommittee members are considering in their review were drafted carefully. The charge questions address management and scientific issues and are prospective and retrospective in nature. The Subcommittee is expected to produce a draft report before the end of the meeting; the report will be finalized during the next conference call.

Drinking Water Research Program Progress Summary

Dr. Audrey Levine, ORD, EPA, National Program Director (NPD) for Drinking Water Research

Dr. Audrey Levine thanked EPA staff for attending the Mid-Cycle Review. She explained that the DWRP is in the process of revising its Multi-Year Plan (MYP) and Long-Term Goals (LTGs). The process began with a program vision statement and is being crafted with input from the Office of Water (OW). The LTGs previously were divided into regulated and unregulated contaminants, but the new LTGs will be broader in scope, allowing for more integrated research and a more efficient research program. The revised LTGs promote a more balanced research portfolio, address implementation of rules and simultaneous compliance, accommodate new initiatives, and allow better coordination and integration with other EPA research programs. LTG 1 will focus on risk characterization, and LTG 2 will focus on risk management. The verbiage for the LTGs is still under discussion to ensure that all stakeholders are included. The LTGs will be outcome oriented. Each LTG has been divided into five themes: assessment tools and health effects, source water and water resources, treatment and residuals, distribution and storage, and water use and health outcomes. These theme areas allow for more balance and better integration of the research.

In crafting the new MYP, approval of the revised LTGs was sought from the Research Coordination Team (RCT); EPA's OW, Office of Ground Water and Drinking Water, Office of Science and Technology, and the regions; and the OMB examiner. The changes were supported, and OMB approved the changes the day prior to this meeting. The current plan is to finalize the MYP and submit it for peer review by August 2007.

The DWRP and the Homeland Security Research Program (HSRP) work together as a result of the Water Security Initiative, which is part of the Homeland Security Presidential Directives. Under these Directives, EPA is charged as the lead agency for critical water infrastructure safety and security, including surveillance, monitoring, early detection, and decontamination. Some technologies and tools overlap between HSRP and DWRP, including screening for intentional release of contaminants and contaminants on the Contaminant Candidates List (CCL). Technologies approved to control pathogens in drinking water are appropriate for Homeland Security purposes as well. Some projects are co-funded by the two programs. The overarching driver of the research is that most utilities will not invest in expensive technologies that only address Homeland Security; the utility also must benefit from any monitoring tools

it uses. EPA's National Homeland Security Research Center and the DWRP each provide \$1 million per year to fund research to develop dual-benefit technologies, which is conducted by a staff of seven scientists.

In determining research accomplishments, the research performed in the previous fiscal year is examined to determine if the Annual Performance Goals (APGs) were met. If projects under an APG are not completed, the APG has not been met. In these cases, the reasons for not completing the projects are analyzed. APGs are divided into five theme areas: assessment tools, source water, treatment, distribution, and water use. Dr. Levine gave several examples of successful projects under each theme area. Additionally, the DWRP has successful collaborations at many different levels with federal agencies, EPA regions, state agencies, research foundations, academia, and international organizations.

Discussion

Dr. Saylor asked if OMB was examining performance measures versus statutory needs and asked for clarification regarding OMB's oversight. Dr. Levine responded that OMB examines outcomes and determines if the process has been transparent. The philosophy is to keep the number of goals to a minimum. The DWRP MYP has two LTGs, but these can be expanded if necessary. OMB seeks definable benchmarks when performing the Program Assessment Rating Tool (PART) process. Dr. Saylor asked if OMB is determining if outcomes are visible versus determining if the outcomes were the "right" outcomes. Dr. Levine responded that OMB determines if outcomes are apparent, and input about the "right" outcomes is derived from this Subcommittee.

Dr. Saylor asked if any relationships regarding Homeland Security research had been established with other funding agencies, such as the National Science Foundation. Dr. Levine replied that this question would be addressed in the Science To Achieve Results (STAR) presentation. She added that the HSRP has relationships with other agencies.

Dr. Chou asked for clarification about the seven staff members who work on the joint HSRP/DWRP research. Dr. Levine deferred to Dr. James Goodrich, who explained that the in-house researchers split their time equally between the two programs. Dr. Levine added that these researchers are exposed to both programs, which helps to cross-fertilize the research. Dr. Mary Ward asked if this was detrimental to research priorities. Dr. Goodrich responded that the sharing of researchers actually expands the scope of contaminants and is completely additive in terms of providing research.

Dr. Ward asked if a broad range of pesticides in source water was being considered. Dr. Levine replied that atrazine research goals had been met, and research was focusing on other pesticides as well.

Dr. Saylor asked what biosensors were being used in DWRP research. Dr. Goodrich answered that the biosensors included Daphnia, clams, fluorescent algae, and so forth whose reactions to baseline water quality were measured to determine an overall index of reactivity. These reactions can be monitored over time to determine if a stressor event has occurred.

Dr. Saylor asked if Dr. Levine saw the DWRP as taking a leadership role within EPA. Dr. Levine responded that there was the potential for this, and the DWRP already has a leadership role in several research areas.

Dr. Jim Johnson commented that he approved of the LTGs and themes and asked if there would be intentional distribution of resources across the themes and LTGs to cross-pollinate the research. Dr. Levine explained that each area did not require the same amount of resources, and the overall goal is to do the most with the resources available. Input from the RCT is solicited prior to determining research priorities. Because of changing budgets from year to year, prioritization is a dynamic process with active discussion. Dr. Johnson suggested that one method to prioritize is to talk to clients and determine the highest risks.

Dr. Ward commented that epidemiological studies require a great amount of resources, which can be augmented by collaboration and asked if any progress had been made in this area. Dr. Levine responded that the DWRP collaborated with the U.S. Geological Survey and the Centers for Disease Control and Prevention. Dr. Ward asked if there was a mechanism in place for collaboration or if it was investigator driven. Dr. Levine responded that collaborations are investigator driven at the laboratory level; there is not an Agency-wide mechanism in place. Collaborations are determined on a case-by-case basis when there is a research need that can be filled by other agencies with appropriate expertise.

Dr. Ward asked if there was a systematic review of literature to determine what research is being performed by other agencies. Dr. Levine answered that researchers performed literature searches, but an institution-wide literature review was not performed by the Agency.

Dr. James Raymer asked to what extent DWRP researchers were coordinating with other EPA research programs that have similar molecular detection methods or end products. Dr. Bruce Mintz responded that the DWRP researchers and the Ecological Exposure Research Division are co-located in Cincinnati, and the two groups hold a joint seminar series to educate each other on the current research. Dr. Goodrich added that the two groups share facilities, infrastructure, and workshops, including a planned workshop this summer as a followup to the Microbial Source Tracking Guide that was developed with state and regional input.

Role of STAR Research in the Drinking Water Research Program

Ms. Angela Page, National Center for Environmental Research (NCER), ORD, EPA

Ms. Angela Page explained that NCER's exploratory research program has evolved as budgets have shifted. As budgets continue to shrink, the program is headed in the direction of nanotechnology. The STAR Program can promote exploratory research by pooling its resources across the program and engaging the research community prior to writing Requests for Applications (RFAs). The STAR Program also supports student opportunities for research through its fellowship programs. The STAR Program budget in fiscal year (FY) 2006 was \$60 million, with the extramural Drinking Water Program budgeted at \$4.5 million that year. One method by which the STAR Program can promote exploratory research despite budget cuts is to leverage resources (i.e., answer human health/drinking water cross-cutting questions), present more workshops and conferences, and engage in presolicitation discussions. Additionally, NCER is attempting to establish a standing BOSC Subcommittee to guide its exploratory research.

NCER's Drinking Water Program began in FY 1996 and has been funded at a level of \$2.5 to \$5 million per year. Generally, the extramural research is completed within 3 to 4 years of initial funding. Solicitation and programmatic reviews of the program have extensive participation from ORD, the OW, and EPA regions. Research topics have included microbial issues and health effects of chemical contaminants.

The STAR Program encourages anticipatory research—defined as using novel ideas, powerful data, and new technology to define environmental problems that may be a future concern of EPA—by shifting research questions from focus-driven to open-ended. Mechanisms to ensure that research is anticipatory include the MYP planning process, STAR all-investigator meetings, professional meetings and conferences, and guidance from the Science Advisory Board and BOSC. Future STAR Drinking Water RFAs will include groundwater aspects of source water protection (e.g., water reuse, underground injection control, chemical and microbiological changes and impacts) and integrated approaches for managing and assessing risks in the distribution system. STAR efforts related to drinking water research include the Center for Advancing Microbial Risk Assessment, the Collaborative Network for Sustainability, the Ecology and Oceanography of Harmful Algal Blooms RFA, and fellowship programs.

Discussion

Dr. Johnson asked if the research questions were completely open-ended or if there were some constraints. Ms. Page replied that some constraints are in place, but the questions are more open-ended than in previous years.

Dr. Johnson asked if there were funding opportunities for unsolicited proposals outside of the STAR Program. Ms. Page responded that she was unsure. Dr. Levine commented that NPDs could help develop outside research ideas.

Dr. Sayler asked if the impact of drinking water publications within STAR could be mapped. Ms. Page responded that the top 10 percent were analyzed. Dr. Levine commented that the intramural and extramural components of the DWRP were intentionally not separated in the bibliometric analysis, so that the program would be seen as integrated. Dr. Chou commented that this would be a good method to evaluate the impact of STAR. Dr. Johnson added that the STAR Program's impact has been examined, and it is a good program. Unfortunately, extramural research funding is the first to be cut in times of budget reductions.

Followup From the April 26, 2007, Teleconference

Dr. Audrey Levine, ORD, EPA, NPD for Drinking Water Research

Dr. Levine explained that, in terms of scientific quality metrics (i.e., proving the quality of EPA scientists), program scientists serve as: reviewers for leading peer-reviewed journals, elected officials and members of professional societies, consultants to national and international program offices, adjunct professors or research fellows in academic organizations, and mentors of doctoral candidates and postdoctoral fellows. Additionally, program scientists are recruited to lead national and international conferences and symposia, and chair and serve on scientific review panels and work groups. They also are highly sought to provide technical assistance and support for regulatory programs.

In terms of program leadership, merit-based competitive processes are in place to engage nationally recognized principal investigators and research centers. The bibliometric analysis demonstrates the knowledge value of DWRP research, and a variety of projects serve to answer the priority research topics, which respond to the "right" questions. The DWRP program design (e.g., goals, topics, priorities) employs a source-to-health paradigm, and the MYP and LTGs enable clients to apply research for regulations and other decisions. Although it is hard to mandate metrics to ensure leadership, leadership is easy to promote, and the DWRP encourages this approach.

Discussion

Dr. Johnson asked about the attitude toward encouraging a "bottom up" strategy to accomplish leadership goals. Dr. Levine responded that this approach is easier said than done; it is possible to encourage the decision to be a leader, but the decision itself remains with the scientist. Dr. Johnson added that an institutional philosophy could be established that creates leadership opportunities and promotes a leadership environment. Dr. Levine replied that this approach is more suited to academia than to a government agency. She commented that EPA has mechanisms in place to recruit high-level scientists and to mentor junior scientists, including Title 42 hires.

Dr. Sayler asked if there were any strategic discussions regarding leadership and the hiring of established scientists between the NPDs and ORD. Dr. Levine answered that the Title 42 hires were a result of that type of discussion.

Dr. Ward commented that most of the metrics in place are already understood by postdoctoral scientists and asked how the metrics were translated into employee reviews. Dr. Levine responded that this was handled at the laboratory level, and publication in scientific journals was highly promoted. Dr. William

Russo added that scientific leadership is a peer-reviewed item that is used to evaluate candidates for advancement.

Dr. Ward asked how much emphasis was placed on communicating with other researchers. Dr. Russo responded that higher level scientists were evaluated on their collaborations in addition to their publication records. Dr. Goodrich added that an award system is in place for collaboration. Dr. Mintz noted that the evolution of scientist promotion included collaboration, leadership, and high-profile publications.

Review of Program Metrics

Dr. Audrey Levine, ORD, EPA, NPD for Drinking Water Research

Dr. Levine explained that the Essential Science Indicator (ESI) criteria were used in the bibliometric analysis, and 26 (2.86%) of the DWRP papers qualify as highly cited under the ESI criteria. DWRP papers are more highly cited than the average paper, and more than one-third of DWRP papers are published in high-impact journals. Fourteen of the DWRP papers qualify as “hot” papers. It is important to note that the papers for the 2005 bibliometric analysis were recategorized so that the results of that analysis could be directly compared to the results of the 2007 analysis.

The client document analysis determines how DWRP research is used and how it can be quantified. The goal is to develop a metric that captures the usefulness of ORD research. Possible areas of consideration include the research life cycle, which can take several years and includes the initial concept, planning, implementation, analysis, and reporting; types of documents and outputs (e.g., progress reports, peer-reviewed publications, methods, models, workshop materials); clients, including the OW, EPA regions, states, and other stakeholders; and types of end use, such as for regulatory decisions or in educational materials. The current client document analysis focused on peer-reviewed publications and regulatory decision end use. Publications may be cited during various stages in the regulatory process, and the key factors to consider in translating research outputs into client outcomes are timeframe, search process, and feedback loop. Currently, the client document analysis is in progress, and a spreadsheet and matrix for cataloguing publications have been developed to enable ongoing methodology development such as data mining. Dr. Levine presented an example of a summary of client documents that cite DWRP publications from 2000 to 2007. In the future, the DWRP will develop a database to facilitate direct tracking of publications, ensure communication and feedback with clients, and harmonize the timeframe of analysis with the timeframe of client documents.

Discussion

Dr. Saylor asked if scientists were expected to publish a certain number of papers each year. Dr. Levine replied that it was understood that researchers’ main responsibility is to perform research, and presentations and publications are encouraged, but a certain number is not mandated.

Dr. Johnson asked how the publication values were derived. Dr. Phillip Juengst answered that Thomson’s ESI indicators were used to compare the DWRP papers to other papers published in research categories related to drinking water. Dr. Levine added that the self-citation rate was low for the DWRP.

Dr. Saylor recommended that the DWRP establish criteria that are utilized year after year for consistency. Dr. Levine responded that a standard benchmark is chosen, but trends in drinking water research also affect criteria.

Dr. Ward asked how the categories were derived. Dr. Levine said the categories correspond to the journals in which the papers are published and they are established by ESI.

Dr. Phil Oshida commented that publications are important to science, but a lot of time must be spent in performing basic research. Another important contribution is teaching stakeholders how to use

technologies and methods that are developed by EPA scientists. These types of publications may not be highly cited, but they certainly will be highly used. The ability to translate knowledge and how to use it is just as important as publishing in scientific journals.

In terms of the client document analysis, Dr. Johnson commented that a self-normalized classification was not very useful. Dr. Saylor added that according to the example presented, it appeared that it takes approximately 5 years for the bulk of DWRP science to surface. Dr. Oshida clarified that this could be an artifact of the release of several major regulations in 2005 and 2006. Dr. Levine added that the example analyzed the time it takes for papers to be cited. Dr. Johnson stated that when, how much, and where also are important factors. Dr. Levine responded that such information is available; this was just one specific example.

Dr. Johnson commented that one area to analyze might be how many regulatory documents come from EPA sources. Dr. Levine responded that the DWRP is trying to track the use of these documents. Dr. Johnson suggested establishing goals regarding what should be achieved in these areas. There must be a balance that recognizes the duality of EPA's role.

Dr. Chou asked about the role of ORD when OW prepares a regulatory document. Dr. Levine responded that ORD provides some input.

Dr. Ward asked Dr. Levine to identify the program's secondary clients (i.e., after OW). Dr. Levine responded that the EPA regions are secondary clients, but the products and audiences are not consistent. This is something that needs to be defined. Dr. Ward asked to what extent OMB examined the OW as a DWRP client. Dr. Levine responded that OMB considered the OW to be the most important client in its evaluations.

Dr. Chou asked if there was a method to track global and international applications. Dr. Levine responded that one method would be to examine the regulatory hierarchy of Asia or Europe and determine how they are using the information from the DWRP. If this is going to be included in the analysis, international use would need to be defined as a parameter.

Working Lunch and Subcommittee Working Time

Subcommittee Members

During the working lunch, the Subcommittee members discussed their impressions of the information presented that morning and of the DWRP as a whole.

The Subcommittee members drafted their individual summary reports, commented on the summary reports prepared by other Subcommittee members, collaborated on the language and structure of the overall report, reached consensus on areas of disagreement, and exchanged information to facilitate preparation of the Subcommittee's report.

Public Comments

At 2:00 p.m., Ms. Coates called for public comments. No comments were offered.

Wrap-Up and Report Out

Dr. Gary Saylor, University of Tennessee, Subcommittee Chair

In debriefing EPA staff, Dr. Saylor summarized the Subcommittee's preliminary responses to the charge questions. He thanked EPA staff for the time and effort that went into the development of the materials for the mid-cycle review. Overall, the Subcommittee has a positive impression of the DWRP, including the newly developed LTGs. Following the first review, the Subcommittee was concerned with the nature of the research goals, but the thematic research agenda of the LTGs is a positive step. The DWRP has

been very responsive to the recommendation from the 2005 program review. The Subcommittee members were pleased that the Drinking Water NPD position has been filled. The Subcommittee suggested that a matrix resource analysis be performed to determine the best plan to utilize collaboration and external STAR grants to maximize funding; partnering is critical. One concern is the stability of the LTGs. Will they be changed under a new NPD?

One area of attention that must be addressed is the MYP process. The MYP must be developed as soon as possible. The need for science leadership was not fully addressed, and the DWRP should consider developing a strategic plan, including a mission vision to promote scientific leadership. A more aggressive plan for interagency collaboration also should be pursued. An effort to improve inter-laboratory and inter-research group communication should be implemented, and incentives and awards should be standardized across laboratories and centers. The bibliometric analysis is being developed with a healthy approach but needs to be fleshed out even further. A strategic direction for future and growing issues should be implemented so that an approach can be developed that ensures that programs with strong science and meaningful topics are created.

The Subcommittee found that the DWRP meets or exceeds expectations. The science is more than competent and of high quality, the products are timely, and the milestones are largely met. Exceptions to this general finding are the result of delays in securing an NPD and resolving the LTGs and their approval for full development of the MYP. The DWRP is performing extremely well.

Dr. Sayler asked each Subcommittee member for their final thoughts. Dr. Ward emphasized the need for partnership and collaboration. Dr. Raymer reiterated that the logic and cohesiveness of the new LTGs and how they are integrated with the thematic areas are a very positive part of the DWRP. Dr. Chou agreed and commended the program on its responsiveness following the 2005 program review, including the flexibility it has displayed. Dr. Johnson stated that the DWRP will receive advice about how to approach achieving the next steps in the Subcommittee's final report.

The meeting was adjourned at 2:45 p.m.

PARTICIPANTS LIST

Subcommittee Members

Gary S. Sayler, Ph.D., Chair

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

Chi-Hsin Selene Chou, Ph.D.

Environmental Health Scientist
Scientific Assessment Team
Emergency Response and Scientific Assessment
Branch
Division of Toxicology
Agency for Toxic Substances and Disease
Registry
1600 Clifton Road, MS F32
Atlanta, GA 30333
Phone: 770-488-3357
E-mail: cjc3@cdc.gov

James H. Johnson, Jr., Ph.D., P.E., DEE

Professor of Civil Engineering and Dean
College of Engineering, Architecture, and
Computer Sciences
Howard University
2300 Sixth Street, NW
Washington, DC 20059
Phone: 202-806-6565
E-mail: jj@scs.howard.edu

James Raymer, Ph.D.

Senior Program Director
Exposure Analysis Research
RTI International
PO Box 12194
Research Triangle Park, NC 27709
Phone: 919-541-6000
E-mail: jraymer@rti.org

Mary H. Ward, Ph.D.

Investigator
Division of Cancer Epidemiology and Genetics
National Cancer Institute
National Institutes of Health
Executive Plaza South, MSC 7335
6120 Executive Boulevard
Bethesda, MD 20892-7335
Phone: 301-435-4713
E-mail: wardm@mail.nih.gov

Designated Federal Officer

Edith Coates

U.S. Environmental Protection Agency
Office of Research and Development
National Health and Environmental Effects
Research Laboratory (B105-03)
109 TW Alexander Drive
Research Triangle Park, NC 27711
Phone: 919-541-3508
E-mail: coates.edie@epa.gov

EPA Participants

James Goodrich

U.S. Environmental Protection Agency
Office of Research and Development
National Risk Management Research Laboratory
Mail Code: 689
26 W. Martin Luther King Drive
Cincinnati, OH 45268
Phone: 513-569-7605
E-mail: goodrich.james@epa.gov

Phillip Juengst

U.S. Environmental Protection Agency
Office of Research and Development
Office of Resources Management
Administration
Ariel Rios Building (8102R)
1200 Pennsylvania Avenue, NW
Washington, DC 20460
Phone: 202-564-2645
E-mail: jeungst.phillip@epa.gov

Lorelei Kowalski

U.S. Environmental Protection Agency
Office of Research and Development
Office of Science Policy
Ariel Rios Building (8104R)
1200 Pennsylvania Avenue, NW
Washington, DC 20460
Phone: 202-564-3408
E-mail: kowalski.lorelei@epa.gov

Audrey Levine, Ph.D., P.E.

U.S. Environmental Protection Agency
Office of Research and Development
Ariel Rios Building (8101R)
1200 Pennsylvania Avenue, NW
Washington, DC 20460
Phone: 513-564-1070
E-mail: levine.audrey@epa.gov

Michael Loughran

U.S. Environmental Protection Agency
Office of Research and Development
Ariel Rios Building (8102R)
1200 Pennsylvania Avenue, NW
Washington, DC 20460
Phone: 513-564-6686
E-mail: loughran.michael@epa.gov

Bruce Mintz, Ph.D.

U.S. Environmental Protection Agency
Office of Research and Development
National Exposure Research Laboratory
Mail Code: D305-01
Research Triangle Park, NC 27711
Phone: 919-541-0272
E-mail: mintz.bruce@epa.gov

Phil Oshida, Ph.D.

U.S. Environmental Protection Agency
Office of Water
Office of Ground Water and Drinking Water
Ariel Rios Building (4607M)
1200 Pennsylvania Avenue, NW
Washington, DC 20460
Phone: 202-564-6594
E-mail: oshida.phil@epa.gov

Angela Page

U.S. Environmental Protection Agency
Office of Research and Development
National Center for Environmental Research
Ariel Rios Building (8722F)
1200 Pennsylvania Avenue, NW
Washington, DC 20460
Phone: 202-343-9826
E-mail: page.angela@epa.gov

William Russo, Ph.D.

U.S. Environmental Protection Agency
Office of Research and Development
National Health and Environmental Effects
Research Laboratory
Mail Code: B305-02
Research Triangle Park, NC 27711
Phone: 919-541-7869
E-mail: russo.bill@epa.gov

BOSC Executive Committee Members

Anna K. Harding, Ph.D., R.S.

Associate Professor
Department of Public Health
309 Waldo Hall
Oregon State University
Corvallis, OR 97331-6406
Phone: 541-737-3830
E-mail: Anna.Harding@oregonstate.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
E-mail: bryan@sph.emory.edu

Deborah L. Swackhamer, Ph.D.

Co-Director, Water Resources Center
College of Natural Resources
Professor, Environmental Chemistry
Environmental Health Sciences
School of Public Health
University of Minnesota
173 McNeal Hall
1985 Buford Avenue
St. Paul, MN 55108
Phone: 612-626-0435
E-mail: dswack@umn.edu

Contractor Support

Denise Hoffman, CMP

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

Kristen LeBaron

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



APPENDIX: Meeting Agenda

DRINKING WATER (DW) MID-CYCLE SUBCOMMITTEE FACE-TO-FACE MEETING AGENDA

May 23, 2007

The Newport Harbor Hotel and Marina
Newport, RI

9:00 a.m. – 9:30 a.m.	Registration	
9:30 a.m. – 9:40 a.m.	Welcome and Outline of Purpose	Dr. Gary Sayler, Chair DW Mid-Cycle Subcommittee
9:40 a.m. – 9:50 a.m.	Designated Federal Officer (DFO) Welcome and Charge - Administrative Procedures/ Federal Advisory Committee Act (FACA) Rules - Objective of Subcommittee/Charge	Ms. Edie Coates (EPA), DFO DW Mid-Cycle Subcommittee
9:50 a.m. – 10:00 a.m.	Drinking Water Research Program Progress Summary - Program Overview - Relationships With Other ORD Research Programs - Summary of Research Accomplishments - Research Collaborations and Partnering	Dr. Audrey Levine (EPA) National Program Director for Drinking Water
10:00 a.m. – 10:30 a.m.	Discussion and Q&A	DW Mid-Cycle Subcommittee
10:30 a.m. – 10:45 a.m.	Role of STAR Research in the Drinking Water Research Program	Ms. Angela D. Page (EPA) National Center for Environmental Research (NCER)
10:45 a.m. – 11:00 a.m.	Discussion and Q&A	DW Mid-Cycle Subcommittee
11:00 a.m. – 11:10 a.m.	Follow-up From 26 April 2007 Teleconference - Science Leadership - Scientific Quality Measures	Dr. Audrey Levine (EPA) National Program Director for Drinking Water
11:10 a.m. – 11:25 a.m.	Discussion and Q&A	DW Mid-Cycle Subcommittee

DRINKING WATER MID-CYCLE REVIEW MAY 23, 2007, FACE-TO-FACE MEETING SUMMARY

11:25 a.m. – 11:40 a.m.	Review of Program Metrics - Bibliometric Analysis - Client Document Analysis	Dr. Audrey Levine (EPA) National Program Director for Drinking Water
11:40 a.m. – 12:00 noon	Discussion and Q&A	DW Mid-Cycle Subcommittee
12:00 noon – 12:45 p.m.	Working Lunch	
12:45 p.m. – 2:00 p.m.	Subcommittee Working Time	DW Mid-Cycle Subcommittee
2:00 p.m. – 2:15 p.m.	Public Comments	
2:15 p.m. – 3:00 p.m.	Wrap-Up and Report Out	DW Mid-Cycle Subcommittee
3:00 p.m.	Adjourn	