

**US EPA Science Advisory Board (SAB)
Science Workshop on Environmental Protection
Ronald Reagan Building and International Trade Center Conference Center
Horizon Ballroom
1300 Pennsylvania Avenue, Washington, DC 20004
Thursday, December 11, 2003**

PRELIMINARY DRAFT AGENDA

7:30 am **Workshop Registration** - Horizon Ballroom Lobby (Participants who are attending other SAB meetings on December 10th, may pre-register during those meetings)

Goal of the Workshop

To provide workshop participants with an overview of selected emerging scientific topics of potential importance to EPA.

8:30 **Introduction to the Workshop**

- Welcoming Remarks

Dr. Vanessa Vu, Director Science Advisory Board Staff Office

Dr. Paul Gilman, Assistant Administrator for Research and Development;
Science Advisor to the Administrator

- Introduction and Overview of Workshop

Dr. William Glaze, Professor, Department of Environmental &
Biomolecular Systems, OGI School of Science & Engineering, Oregon
Health & Science University; Chair, US EPA Science Advisory Board

8:45 **Air Pollution & Control/Transboundary Air Pollutants**

EPA will face an increasingly difficult task of regulating air quality in the United States because of the impact of global industrial development that is causing increased emissions of substances to the atmosphere. The effects of these emissions on global climate and on human and ecological health are not clear and deserve increased attention of the research community. Among the issues of concern are increasing levels of ozone, particulate matter and other airborne toxics that will be transported into the United States from other regions around the world as a result of rapidly increasing industrialization, and due to the increased impacts of natural

sources. As we tighten our air quality goals, it will be much more difficult to meet these goals with the increased background levels coming into the country. International collaboration and cooperation will be needed to control transboundary pollutants and thus, monitoring methods and ways to identify source locations and compliance will be needed.

Moderator: Dr. Philip Hopke, Bayard D. Clarkson Distinguished Professor, Clarkson University; Chair, US EPA Clean Air Scientific Advisory Committee (CASAC)

10:15 **Break**

10:30 **Emerging Contaminants**

Scientists are gaining a better understanding of the occurrence, the associated risks and the measures to mitigate a number of chemical and microbial contaminants that have recently achieved high visibility. There is a need to better understand the human and ecological effects of these contaminants, as well as how they may survive available water and waste water treatment methods. There is also the question of what other unregulated contaminants with biological activity are present in low concentrations in the environment, and whether combined these compounds represent a hazard to humans who contact the water or ecological systems.

Moderator: Dr. Rhodes Trussell, Principal, Trussell Technologies, Inc.; Member, US EPA Science Advisory Board; Chair, US EPA Science Advisory Board Drinking Water Committee (DWC)

12:00 pm **Lunch**

1:00 **Invasive Species**

A problem of significant national and local concern is the invasion of non-native species, especially in waterways. The problem of invasive species in the United States is large and growing in impact, affecting all regions of the US and all sectors of life. The Environmental Protection Agency has a role in understanding and addressing the environmental challenges created by invasive species but responsibility cuts across many federal agencies and political boundaries. More research is needed on the invasion paths of serious invasive species, innovations in preventive measures, early detection and rapid response methods, and economic costs and benefits of such programs.

Moderator: Dr. Ken Cummins, Interim Director, Institute for Forest and Watershed Management, Humboldt State University, Member, US EPA Science Advisory Board

2:30 **Break**

2:45 **Nanotechnology**

The present century will undoubtedly see the emergence of new technologies that may have environmental impacts of the same magnitude as the new technologies that emerged in the early part of the 20th century. One of these new technologies - nanotechnology - has already begun to emerge with its advocates promising major positive economic impacts on our society. If the past is an indicator, there may also be important issues with regard to the possible environmental and public health impacts of this new industry. Nanotechnology can be defined as the development of technology at the atomic, molecular or macromolecular levels, in the length scale of approximately 1 - 100 nanometer range to create and use structures, devices, and systems that have unique properties and functions as a result of their small size. Nanoscale technologies negate the use of continuum models traditionally used in engineering, and molecular based processes and technologies require molecular based models. Although the potential to develop environmentally beneficial technologies exist, issues of persistence, fate, and other environmental effects of materials when produced at the nanoscale are largely unknown and need exploration. This session will focus on topics such as: 1) uses of nanotechnology in industry; commercial benefits, potential waste streams and resources needs; 2) beneficial uses of nanotechnology in environmental systems and potential environmental and human health affects; and 3) societal implications.

Introduction Dr. Domenico Grasso, Rosemary Bradford Hewlett Professor, Smith College; Vice-Chair, US EPA Science Advisory Board

Moderator: Dr. Gregory Stock, Director of the Program on Medicine, Technology, and Society, School of Public Health, UCLA

4:15 **Genomics**

No scientific discovery is likely to have more impact on human society than the revelation of the genetic code. In the fifty years that have followed, the field of genomics has grown rapidly, yielding new approaches to basic biological research and to practical areas of application (e.g., medicine, drug development, ecosystem function, public health). The potential impacts of genomics-based technologies on environmental protection and on social impacts of these developments, including ethical and legal implications, will be discussed.

Moderator: Dr. Gary Marchant, J.D., Associate Professor and Associate Director, Center for the Study of Law, Science and Technology, Arizona State University College of Law

5:45

Closing Remarks

Dr. William Glaze, Professor, Department of Environmental & Biomolecular Systems, OGI School of Science & Engineering, Oregon Health & Science University; Chair, US EPA Science Advisory Board