

**Invitation for Public Comment on the List of Candidates  
For the Chartered Science Advisory Board (SAB)**

**June 19, 2012**

The SAB was established in 1978 by the Environmental Research, Development and Demonstration Act to provide independent advice to the EPA Administrator on general scientific and technical matters underlying the agency' policies and actions. The chartered SAB provides strategic advice to the EPA Administrator on a variety of EPA science and research programs and oversees and approves all SAB committee and panel draft reports.

The U.S. Environmental Protection Agency (EPA) Science Advisory Board (SAB) Staff Office announced in a Federal Register Notice on March 4, 2012 (77 FR 20396-20398) that it was inviting nominations of experts to be considered for the Administrator's appointment to the chartered SAB .The SAB Staff Office requested nominations of experts to serve on the chartered SAB in the following disciplines as they relate to the human health and the environment:

*ecological sciences and ecological assessment; economics; engineering; medicine; health sciences; pediatrics; public health; human health risk assessment, social, behavioral and decision sciences; and modeling and statistics.* In particular, the SAB Staff Office sought scientists with expertise described above who have knowledge and experience in *air quality; climate change; energy and the environment; water quality; water quantity; water re-use; ecosystem services; community environmental health; sustainability; chemical safety; green chemistry; and homeland security.*

The SAB Staff Office identified 78 candidates based on their expertise and willingness to serve. We hereby invite public comments on the attached List of Candidates for appointment by the Administrator. Comments should be submitted to Dr. Angela Nugent, Designated Federal Officer no

later than July 10, 2012 at [nugent.angela@epa.gov](mailto:nugent.angela@epa.gov). E-mail is the preferred mode of receipt. Please be advised that public comments provided to the SAB Staff Office are subject to release under the Freedom of Information Act.

## List of Candidates for the Chartered Science Advisory Board (SAB)

### Adams, William

#### Rio Tinto HSE

Dr. William Adams is currently Chief Adviser for Rio Tinto Inc, in Magna, UT. He holds a B.S. in Biological Sciences from Lake Superior State University, and an M.S. and Ph.D. in Ecotoxicology from Michigan State University. His current responsibility is to manage a corporate global program for site remediation. This includes 9 hardrock mine sites and 50 other non-mining sites where soil or groundwater remediation is required. Dr. Adams has worked on Superfund sites since the mid 1980s. His recent research interests include developing ecotoxicology risk assessment methods for metals, site-specific methodologies for water quality criteria for metals, and development of approaches for assessing hazard of metals. Dr. Adams was a member of the U.S. Environmental Protection Agency (EPA) Science Advisory Board for 10 years and previously served on the EPA Superfund National Advisory Committee for Environmental Policy and Technology. Additionally, he chairs several technical workgroups for the metals industry. Dr. Adams has published 100 papers including 25 papers on metals related to ecological effects and exposure for birds and aquatic life. He has also published papers on methodologies for assessing sediment contaminants. Dr. Adams' recent publications have dealt with approaches for setting site specific water quality standards for copper and selenium. He is currently working on developing biotic ligand models for establishing water quality criteria for aluminum and iron. He receives no federal research grant funding.

### Aday, D. Derek

#### North Carolina State University

Dr. D. Derek Aday works very closely with government scientists at state agencies in the context of a research program that focuses on applied aquatic ecology and ecotoxicology. He received a PhD in Ecology, Ethology, and Evolution from the University of Illinois and has held faculty positions at The Ohio State University (three years) and NC State University (seven years). He served for five years as Associate Editor of Transactions of the American Fisheries Society and has been an active member of a variety of advisory panels and governing boards for agencies and foundations such as the North Carolina Department of Health and Human Services, the South Florida Water Management District, and the Highlands Biological Station. Dr. Aday's primary research questions address issues that directly impact users and consumers of natural resources, and a close working relationship with governmental toxicologists, biologists, managers, and policy makers is central to that mission; the majority of the funding for his research has come directly from those agencies (e.g., the North Carolina Wildlife Resources Commission, the Water Resources Research Institute, Sea Grant, the Great Lakes Fishery Commission). As a result of these interactions, he has had the ability to directly influence natural resource conservation and management and human health policy. Dr. Aday's recent research projects have focused on: the impact of invasive species on aquatic ecosystems; mercury dynamics, factors that drive methylmercury contamination in fishes, and communication of fish consumption risk to people; and environmental and ecological impacts of endocrine disrupting compounds in rivers and streams.

### Balmes, John R.

#### University of California

Dr. John Balmes is a Professor of Medicine at the University of California, San Francisco (UCSF) where he is the Chief of the Division of Occupational and Environmental Medicine at San Francisco General Hospital (SFGH), Director of the Human Exposure Laboratory of the Lung Biology Center, and the Principal Investigator of the UCSF Pediatric Environmental Health Specialty Unit. He is also Professor of Environmental Health Sciences at the University of California, Berkeley where he is the Director of the Northern California Center for Occupational and Environmental Health and the Center for Excellence in Environmental Public Health Tracking. Dr. Balmes received his BA from the University of Illinois (Urbana) in 1972. He received his MD from the Mount Sinai School of Medicine of the City University of New York in 1976. He completed a Residency in Internal Medicine at the Mount Sinai Hospital at New York City in 1979 and a fellowship in Pulmonary Medicine with additional training in occupational medicine at Yale University School of Medicine in 1982. He is board-certified in Internal Medicine and Pulmonary Medicine and actively practices pulmonary and critical care medicine at SFGH. Dr. Balmes leads a research program involving the respiratory effects of ambient air pollutants. In his laboratory at UCSF, he conducts controlled human exposure studies of the acute effects of ozone and other pollutants. At UC Berkeley, he collaborates in epidemiological studies of the chronic effects of air pollutants. He has published over 200 papers or chapters on occupational and environmental respiratory disease-related topics with many of these dealing with the potential health effects of ambient air pollutants, especially ozone. Dr. Balmes' expertise in the health effects of ambient air pollutants has been recognized by multiple awards including the following: an Environmental/Occupational Medicine Academic Award from the National Institute of Environmental Health Science (1991-1996); the Clean Air Research Award from the American Lung Association of San Francisco and San Mateo in 1997; and the Clean Air Award from the American Lung Association of California in 1999, the Carl Moyer Award for Scientific Leadership and Technical Excellence from the Coalition for Clean Air in 2006. He also has been received two lifetime achievement awards in the field of occupational and environmental medicine, the Robert A. Kehoe Award of Merit from the American College of Occupational and Environmental Medicine in 2006 and the Rutherford T. Johnstone Award from the Western Occupational and Environmental Medical Association in 2010. Dr. Balmes served as a member of the Research Screening Committee of the California Air Resources Board (CARB) from 1998-2007 and was a member of the Air Quality Advisory Committee of the Office of Environmental Health Hazard Assessment of the California Environmental Protection Agency from 1992-2004. He has served the U.S. Environmental Protection Agency in many capacities. In 1992, he served on the Clean Air Scientific Advisory Committee (CASAC) Oxides of Nitrogen Review Panel and was invited to participate in a Workshop on Health Issues on Air Quality Criteria for Ozone and Related Photochemical Oxidants. He contributed to the writing of the Air Quality Criteria Document for Ozone in 1993-1994. He was a Consultant Reviewer of the Air Quality Criteria Document for Particulate Matter in 1995, was invited to participate in a Workshop on Asthma and the Environment in 1996, and was a Consultant Reviewer of the Air Quality Criteria Document for Ozone in 2003. He served on the CASAC Review Panel for Ozone in 2005-2007 and again when it was re-impowered in 2010. He also served on the Nitrogen Oxides/Sulfur Oxides Review Panel in 2007-2010. In addition, he served as a consultant advisor regarding epidemiologic research on the health effects of ozone to the Health Effects Institute from 1990-1992. Dr. Balmes is

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currently studying the effects of ambient air pollution on the health of children in the San Joaquin Valley of California through his participation in a Children's Environmental Health Center that is co-funded by the National Institute of Environmental Health Sciences and the U.S. EPA. He is funded to study the acute cardiovascular effects of ozone in a multi-center controlled human exposure study funded by the Health Effects Institute. He is also funded to study the associations between PM2.5 and hospitalizations for cardiovascular disease and between PM2.5 and biomarkers of risk for cardiovascular disease by the Center for Disease Control. He is the Principal Investigator of the Northern California Education and Research Center, a program to train occupational health and safety professionals that is supported by the National Institute for Occupational Safety and Health. Dr. Balmes is a consultant editor for the Archives of Environmental Health and is an active reviewer for multiple clinical and environmental health journals, including the New England Journal of Medicine, Journal of the American Medical Association, the American Journal of Respiratory and Critical Care Medicine, the European Respiratory Journal, Occupational and Environmental Medicine, and Environmental Health Perspectives. Dr. Balmes is a member of multiple professional societies and organizations, including the American and California Thoracic Societies, the American College of Chest Physicians, the American College of Occupational and Environmental Medicine, the Society for Occupational and Environmental Health, and the International Society for Environmental Epidemiology. He was Chair of the Environmental and Occupational Health Scientific Assembly of the American Thoracic Society in 1997-1999 and President of the California Thoracic Society in 2001-2002. In December 2007, he was appointed by Governor Schwarzenegger to be the physician member of the California Air Resources Board, a position he continues to hold.

### **Barlaz, Morton**

#### **North Carolina State University**

Dr. Morton A. Barlaz is a Professor in the Department of Civil, Construction, and Environmental Engineering at North Carolina State University. He received a B.S. in Chemical Engineering from the University of Michigan and an M.S. and Ph.D. in Civil and Environmental Engineering from the University of Wisconsin. He has been involved in research on various aspects of solid waste since 1983. Over this time, he has conducted research on biological refuse decomposition, methane production, and the biodegradation of hazardous wastes in landfills. He has participated in two state-of-the-practice reviews of bioreactor landfills. His research forms the basis for much of the work done to assess the impact of landfills on methane emissions inventories. Dr. Barlaz also conducts research on the use of life-cycle analysis to evaluate environmental emissions associated with alternate solid waste management strategies. Dr. Barlaz is the author of over 70 peer-reviewed publications and has made over 150 presentations at conferences throughout the world. In 1992 he was awarded a Presidential Faculty Fellowship from the National Science Foundation. Dr. Barlaz has been active in service throughout his career. He is an Associate Editor for two journals (Waste Management and Journal of Environmental Engineering) and serves as co-chair of the bi-annual Intercontinental Landfill Research Symposium. He has served as chair of the Government Affairs Committee and the Lectures Committee for the Association of Environmental Engineering and Science Professors, and on the advisory board for the NASA Advanced Life Support Research Center at Purdue University. Finally, he serves on the Science Advisory Committee for the International Waste Working Group. He currently has two research projects supported by the National Science Foundation; One of these projects is on the application of life-cycle analysis to solid waste management and the second is on the presence of perfluorinated compounds in solid waste. He also has two projects supported by the Environmental Research and Education Foundation, funding from the Plastics Environmental Council to develop a specification for biodegradability testing in landfills, and support from Waste Management Inc. to work on the production and attenuation of solid waste in landfills.

### **Bartell, Scott**

#### **University of California - Irvine**

Dr. Scott M. Bartell is Associate Professor in public health, statistics, and epidemiology at the University of California, Irvine. His research interest is environmental health methodology, with applications in environmental epidemiology, exposure science, and risk assessment. Recent projects include epidemiologic analysis of particulate matter exposure and arrhythmia in the Cardiovascular Health and Air Pollution Study, linkage of fate and transport models and a pharmacokinetic model for perfluorooctanoic acid with data from the C8 Health Project, and development of statistical methods for biomarker based exposure estimation and for epidemiologic analysis of aggregated data. He has served on a variety of scientific advisory committees for the National Research Council, the Environmental Protection Agency, the Centers for Disease Control and Prevention, the National Institute of Environmental Health Sciences, and the Department of Energy. Dr. Bartell earned his PhD in epidemiology and MS in statistics from the University of California, Davis, and his MS in environmental health from the University of Washington. Current and recent research funding sources include the National Institutes of Health, the Centers for Disease Control and Prevention, the U.S. Environmental Protection Agency, California Air Resources Board, and Garden City Group, Inc.

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### **Bhatia, Smita**

#### **American Chemistry Council**

Dr. Smita Bhatia is Director of Chemistry and Industry Dynamics at the American Chemistry Council (ACC). She holds a B.S in Human Biology and an M.S in Biophysics from All India Institute of Medical Sciences, a PhD in Molecular Biophysics from Florida State University, and an M.A in Public Policy and Administration from Carleton University. In her current position Dr. Bhatia combines her scientific foundation with her public policy and economic analysis expertise. She reviews public policy and develops analyses and regulatory impact assessments. Dr. Bhatia has an extensive background in Bio-based chemicals, shale gas economics, innovation economics, nanotechnology, as well as chemical management and regulation. Prior to joining ACC, Dr. Bhatia worked as Senior Manager, Economics and Environment, at the Chemistry Industry Association of Canada. In this position she worked on science and technology policies, environmental policies and regulations as well as energy issues. She engaged in stakeholder meetings on the National Pollutant Release Inventory and has extensive knowledge of the Canadian chemical industry and chemical management issues in Canada. She was an independent consultant on science and technology policies and has also worked on pathogen genomics as a post-doctoral fellow at the National Research Council, Canada. She has recently completed a course (Law and Economics) at the Johns Hopkins University to better understand the economic implications of legal actions. She has served as a member of the Board of Directors of the Air and Waste Management Association. Dr. Bhatia receives no federal research grant funding.

### **Burbacher, Thomas**

#### **University of Washington**

Dr. Thomas Burbacher is Professor of Environmental and Occupational Health Sciences at the University of Washington (UW) where he teaches classes in basic Environmental and Occupational Health and Children's Environmental Health. He is the Deputy Director of the UW Pacific Northwest Center for the National Children's Study. In addition, Dr. Burbacher is the Head of the Division of Reproductive and Developmental Sciences and Director of the Infant Primate Research Center at the UW National Primate Research Center and the Center on Human Development and Disability (CHDD). He is also the Head of the Developmental Toxicology Research Emphasis Area at the CHDD and is Director of the Research Translation Core for the UW Superfund Research Program. Dr. Burbacher holds a B.S. in Psychology from the University of Cincinnati and a Ph.D. in Psychology from the University of Washington. His postdoctoral work included research in Developmental Toxicology in the Environmental Pathology Training Program at the UW. Dr. Burbacher's research investigates changes in brain development and function caused by prenatal exposure to neuroactive substances. He has conducted research in the area of mercury developmental neurotoxicity utilizing nonhuman primate models for several decades and was a member of the National Academy of Sciences panel that developed the report on the "Toxicological Effects of Methylmercury." His research reaches across species, including studies with human populations and a variety of animal models, to enhance a fundamental understanding of toxicants and their role in biological and behavioral development. Examples of such research include the following: (1) Activities of the National Children's Study sites in Washington and Oregon that are studying the effects of the environment on the health and behavioral development of American children from birth to 21 years of age; (2) Experimental approaches in rodent models that include studies of the interaction between genetics and environmental exposures and (3) Landmark studies in developmental neurotoxicology using the nonhuman primate model at the Infant Primate Research Laboratory to study compounds such as methylmercury, thimerosal, alcohol and methanol. Data from Dr. Burbacher's research program are used to help formulate policies aimed at the protection of human populations from levels of exposure to environmental contaminants such as methylmercury and methanol that are associated with adverse health effects and developmental disabilities. Dr. Burbacher is currently a member of the Food and Drug Administration's Medical Devices Advisory Board and has recently been a member of the Environmental Protection Agency's Review Panels on Mercury and Methanol. His research is currently funded by the National Institute of Child Health and Human Development, National Institute of Environmental Health Sciences.

### **Burger, Joanna**

#### **Rutgers University**

Dr. Joanna Burger holds a B.S. from the State University of New York at Albany, an M.S. from Cornell University and a Ph.D. from the University of Minnesota. She is a behavioral ecologist whose primary interests are in the adaptive significance of social behavior in vertebrates, the effects of incubation temperature on behavioral development, the effects of heavy metals on neurobehavioral development, and ecological risk. In the area of social behavior she works mainly with marine and coastal birds, including the effects of people on reproductive success and ecology of colonial species. The work on reptiles involves examining how the behavior of snakes is influenced by incubation temperature, including locomotion, antipredator behavior, foraging, and over-wintering. For several years she has been examining patterns of heavy metal distribution worldwide, using avian feathers as indicators. This ongoing work involves examining the effects of low level lead, chromium and manganese exposure (similar to what children get when they eat lead paint) on behavior development of Herring Gulls, both in the field and in the laboratory, as well as exposure levels and effects of mercury and lead of vertebrates. Her work with ecological risk assessment has included many different species and habitats. She is currently working at several Department of Energy sites developing ecological risk methodologies, and examining the risks of mercury in fish to vertebrates, including humans. She has participated in several National Research Council and international Scientific Committee on Problems of the Environment (SCOPE) committees on ecological risk, mercury, and hazardous wastes. She has written or edited over 20 books in social behavior, environmental solutions, and bird behavior, and published over 500 papers in peer-reviewed journals. Her current research is funded by the New Jersey Department of Environmental Protection and the U.S. Department of Energy.

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### **Busalacchi, Tony**

#### **University of Maryland**

Dr. Antonio Busalacchi is the Director of the Earth System Science Interdisciplinary Center (ESSIC) at the University of Maryland, a Professor in the Department of Atmospheric & Oceanic Science, and the Chair of the University of Maryland Council on the Environment. He came to ESSIC in 2000, after serving as Chief of the NASA/Goddard Laboratory for Hydrospheric Processes. Dr. Busalacchi received his Ph.D. degree in oceanography from Florida State University in 1982. He has studied tropical ocean circulation and its role in the coupled climate system. His interests include the study of climate variability and prediction, tropical ocean modeling, ocean remote sensing, and data assimilation. His research in these areas has supported a range of international and national research programs dealing with global change and climate, particularly as affected by the oceans. From 1989-1996 he served on the National Academy of Sciences/National Research Council (NAS/NRC) Tropical Ocean/Global Atmosphere Advisory Panel and for 1991-1993 he was a member of the NAS/NRC Panel on Ocean Atmosphere Observations Supporting Short-Term Climate Predictions. From 1999-2006 he served as Co-Chairman of the Scientific Steering Group for the World Climate Research Programme on Climate Variability and Predictability (CLIVAR). From 2003-2008, he served as Chairman of the NAS/NRC Climate Research Committee and for 2007-2008 as Chair of the NAS/NRC Committee on Earth Science and Application: Ensuring the Climate Measurements from NPOES and GOES-R. Presently, he serves as Chairman of the Joint Scientific Committee for the World Climate Research Programme and Chairman of the NAS/NRC Board on Atmospheric Sciences and Climate. He is a Fellow of the American Meteorological Society (AMS), American Geophysical Union, and in 2006 was selected by the AMS to be the Walter Orr Roberts Interdisciplinary Science Lecturer. His research is primarily funded by the National Aeronautics and Space Administration and the National Oceanic and Atmospheric Administration.

### **Cagen, Stuart**

#### **Shell Chemical LP**

Dr. Stuart Z. Cagen graduated from The University of Wisconsin with a B.S. in Zoology and then received a Ph.D. in Pharmacology from Michigan State University. After spending two years at the University of Kansas Medical Center, he moved to Texas and has been with Shell Oil Company since 1980. At Shell, he was originally associated with the Shell toxicology laboratory and then moved to the Shell US head office in Houston. He is currently with Shell Health. He has been a member of the Society for Risk Analysis as well as the American Conference of Governmental Industrial Hygienists, and, for over 30 years, has been a member of the Society of Toxicology. He has also been involved with local toxicology organizations as an organizer and founding member of both the Lone Star Chapter of the Society of Risk Analysis and the Gulf Coast Chapter of the Society of Toxicology, and has served on the Houston Strategic Health Effects Review Panel and, on behalf of the Greater Houston Partnership, has served on the Houston Regional Air Quality Task Force. He is a former member of the board of directors of the Chemical Industry Institute for Toxicology (CIIT) and has served on their Science Program Committee. He was also previously a member of the Board of Visitors of the University of Wisconsin Nelson Institute for Environmental Studies. Dr. Cagen has served as a member of the American Conference of Industrial Hygienists Chemical Substances Threshold Limit Value Committee. He is a member or chairman of several committees regarding the petrochemical industry. His area of expertise is toxicology, with emphasis on endocrine, reproductive and developmental toxicology, mechanisms of toxicity, pharmacokinetics, and risk assessment.

### **Carmichael, Gregory**

#### **University of Iowa**

Dr. Gregory R. Carmichael has a BS, MS and PhD in chemical engineering and has done extensive research related to air quality and its environmental impacts. He is currently the Karl Kammermeyer professor of chemical and biochemical engineering at the University of Iowa. He also serves as the Associate Dean for Graduate Studies and Research for the college of engineering and as co-director of the Center for Global and Regional Environmental Research (a large interdisciplinary center with 80+ faculty). He is an international leader in air quality modeling. He has over 280 journal publications. The majority of his recent papers deal with the development and application of chemical transport models (CTM) to studies in regional atmospheric chemistry, air quality and climate. These research activities include the development of comprehensive air quality models and their application to regional and international air pollution problems. His studies have led to a greater appreciation and understanding of the importance of long range transport of pollutants within Asia and across the Pacific. His research has involved the development of innovative modeling tools, including techniques to optimally integrate measurements and models via formal chemical data assimilation. Most recently his work has focused on the role of black carbon in the atmosphere and its dual role as an air pollutant and climate warming agent. He is a member of the scientific steering committee for the United Nations Environment Programme (UNEP) Atmospheric Brown Clouds Asia project, where he has published recent papers on the important role of black carbon in the climate system. He was a co-lead author on a recent UNEP study aimed at providing a critical assessment of the role of BC as a short lived radiative forcing agent. He also serves as chair of the Scientific Advisory Group for the World Meteorological Organization Global Atmospheric Watch Urban Meteorology and Environment project, which is focused on building capacity worldwide to improve air quality forecasts and related services. He is an active instructor and advisor, having supervised 33 MS and 31 Ph.D. students. His research on air quality modeling at regional scales is currently funded by the National Science Foundation, National Aeronautics and Space Administration, National Institutes of Health and EPA.

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### **Carney,Edward**

#### **The Dow Chemical Company**

Dr. Edward W. Carney is an Associate Fellow and Senior Science Leader of Toxicology and Environmental Toxicology & Consulting at The Dow Chemical Company. He has extensive experience in regulatory toxicity testing as well as mechanistic toxicology research, with over 80 publications to date in areas such as in vitro alternatives, developmental toxicokinetics and chemical mixtures. In 2010, he led the creation of Dow's new Predictive Toxicology Center, which he continues to direct. Dr. Carney also is engaged in numerous scientific service activities, including: US EPA Board of Scientific Counselors, Teratology Society (President), Society of Toxicology (Past-President, Reproductive & Developmental Toxicology Specialty Section), Toxicology Forum, ILSI-HESI, the Human Toxicology Project Consortium, University of Michigan (adjunct faculty), and University of Surrey (lecturer). He previously served on the National Toxicology Program Board of Scientific Counselors (2007-2010), chairing the Reproductive & Developmental Toxicology Criteria Working Group. He holds a BS in Animal Science from Cornell University, an MS in Reproductive Biology from Univ. Wisconsin-Madison, and a PhD in Reproductive Physiology from Cornell. Prior to joining Dow, Dr. Carney also conducted postdoctoral research in molecular developmental biology at Mount Sinai Hospital Research Institute in Toronto. Dr. Carney receives no federal research grant funding.

### **Christopher,John P.**

#### **Independent Consultant**

Dr. John Christopher became Staff Toxicologist Emeritus upon retirement from California Department of Toxic Substances Control 2010. He holds a Ph.D. in Biological Science from Oregon State University, M.A. in Pharmacology from Stanford University, and B.S. in Biology from Georgetown University. During 22 years in California government, Dr. Christopher developed toxicity criteria for solvents, metals, pesticides, and industrial chemicals; developed methods for dose-response assessment of chemicals; wrote risk assessments in support of proposed regulations; reviewed human health and ecological risk assessments submitted as part of regulating hazardous waste cleanup; and participated in multi-disciplinary project teams for cleanup at more than 100 former military, industrial, agricultural, and mining properties in California. Dr. Christopher became the Department's expert for biostatistics, bioavailability, background levels of metals, multi-media risk assessment for lead and arsenic, probabilistic risk assessment, and methods development for exposure and risk characterization. Since 1996 Dr. Christopher has been an independent consultant in the public sector and an invited peer reviewer for over 40 toxicity criteria and children's risk assessments. He received a Lifetime Achievement Award for government contributions to waste cleanup in 2007. He became a Fellow of Toxicology Excellence for Risk Assessment in 2009. He was an invited science panel member in 2010-2011 for "Beyond Science and Decisions", a broadly sponsored effort for implementing recommendations regarding risk assessment from "Science and Decisions" (NAS, 2009). He was elected President of both the Risk Assessment Specialty Section and the Northern California Regional Chapter of the Society of Toxicology. He has been certified by the American Board of Toxicology since 1984. His research on bioavailability of arsenic in soils at former mining sites was recently (2008) funded by U.S. EPA's Brownfields Program. Dr. Christopher currently consults actively in the public and private sectors, principally in dose-response assessment and hazardous waste cleanup. Dr. Christopher receives no federal research grant funding.

### **Daston,George**

#### **Procter & Gamble**

Dr. George Daston is Victor Mills Society Research Fellow at the Procter & Gamble Company, and an adjunct Professor of Pediatrics at University of Cincinnati. He holds a B.S. in Biology from University of Miami (1978) and a Ph.D. in Developmental Biology and Teratology (1981) from the University of Miami, Coral Gables, Florida. Dr. Daston has published over 100 articles and book chapters and edited five books in toxicology and risk assessment. His current research efforts are in the areas of toxicogenomics and mechanistic toxicology, particularly in addressing how findings in these fields can improve risk assessment for chemicals and the development of non-animal alternatives. Dr. Daston's research has been funded by Procter & Gamble and by a grant from the Cefic (European chemical industry association) Long-range Research Initiative. He has served as President of the Teratology Society, Councilor of the Society of Toxicology, on the EPA Board of Scientific Counselors, National Toxicology Program Board of Scientific Counselors, National Research Council's Board of Environmental Studies and Toxicology, and National Children's Study Advisory Committee. Dr. Daston is Editor-in-Chief of Birth Defects Research: Developmental and Reproductive Toxicology. He manages the AltTox website, which is devoted to the exchange of scientific information leading to the development of in vitro replacements for toxicity assessments. Dr. Daston has been awarded the Josef Warkany Lectureship by the Teratology Society, the George H. Scott Award by the Toxicology Forum, and was elected a Fellow of AAAS. Dr. Daston receives no federal research grant funding.

### **Denson,Costel**

#### **Costech Technologies, LLC**

Dr. Costel D. Denson is the managing member of Costech Technologies, L.L.C., a company that fabricates instrumentation for characterizing the application and performance properties of synthetic materials, and the impact that the use of these materials can have on the environment. Dr. Denson's research has focused on the rheological characterization and processing of polymeric materials, with an emphasis on mixing, mass transfer and chemical reactions in viscous media, and on the shaping operations for these materials. Dr. Denson has published numerous papers, holds patents related to the synthesis and characterization of synthetic materials and is the recipient of many honors and awards. He has served on a wide range of scientific and engineering advisory committees, including the

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Department of Defense Scientific Advisory Board for the Strategic Environmental Research and Development Program (2009-present), the Science Advisory Board of the Environmental Protection Agency (2009-present) the National Research Council's Committee on Air Quality Management in the United States, the National Research Council's Committee to Review EPA's Research Grants Program, the American Chemistry Council's Board Research Committee, the National Science Foundation's advisory committee for the Engineering Directorate, the National Science Foundation's advisory committee on Environmental Education and Research, and a wide array of engineering advisory committees at various universities. He also served as the first chair of the Board of Scientific Counselors of EPA's Office of Research and Development. Dr. Denson was employed from 1977 to 2005 at the University of Delaware where he was a professor of chemical engineering. From 1991 to 1992 he served as Engineering Dean and from 1992 to 2000, he served as Vice Provost for Research at that institution. Dr. Denson received his Bachelor of Science Degree from Lehigh University, his Master Degree from Rensselaer, and his Doctorate from the University of Utah, all in chemical engineering. Dr. Denson receives no federal research grant funding.

### Ducoste, Joel

#### North Carolina State University

Dr. Joel Ducoste is a Professor in the Civil, Construction, and Environmental Engineering Department at North Carolina State University. He holds a B.S. (1988) and M.Eng. (1989) in Mechanical Engineering from Rensselaer Polytechnic Institute, and a Ph.D. in Environmental Engineering (1996) from the University of Illinois at Urbana-Champaign. Dr. Ducoste is a national and international recognized expert in modeling water and wastewater treatment processes using Computational Fluid Dynamics (CFD). His current research interests include physico-chemical processes in water treatment, computational fluid dynamics modeling, solid/liquid separation processes, chemical and UV disinfection, advance oxidation, water/wastewater process optimization, and wastewater sewer collection system sustainability. Dr. Ducoste has served on advisory committees such as the American Water Works Association (AWWA) Particulate committee, AWWA project advisor for research projects funded by AWWA, National Science Foundation (NSF) graduate fellowship awards committee, and International Population Balance Model scientific and organizing committees. Dr. Ducoste's research has been supported by grants from both government agencies and private companies, with core grant research support primarily being from federal and state and local government (National Science Foundation, U.S. Environmental Protection Agency, U.S. Department of Energy), Water Research Foundation, Water Environment Research Foundation, and North Carolina State University Water Resources Research Institute, with additional grant support from state and local governments, industry, and foundations. He has also served on the North Carolina House of Representatives Special Committee on Offshore Energy Exploration Study. Dr. Ducoste currently serves as an Associate Editor for American Association of Civil Engineers (ASCE) Journal of Environmental Engineering and is a board member of the North Carolina Fulbright Association and the U.S. Environmental Protection Agency Science Advisory Board Drinking Water Committee. He also serves on the Water Environment Federation (WEF) FOG Sewer Collection sub-committee. Dr. Ducoste is a member of AWWA, WEF, International Ultraviolet Association (IUVA), and Association of Environmental Engineering and Science Professors.

### Ebi, Kristie

#### Carnegie Institute for Science

Dr. Kristie L. Ebi is a Consulting Professor in the Department of Medicine, Stanford University and an independent consultant who conducts research on the impacts of and adaptation to climate change, including on extreme events, thermal stress, foodborne safety and security, and vectorborne diseases. She has worked with the World Health Organization, United Nations Development Programme, U.S. Agency for International Development and others on assessing vulnerability and implementing adaptation measures in Central America, Europe, Africa, Asia, and the Pacific. She facilitated adaptation assessments for the health sector for the states of Maryland and Alaska. She was a coordinating lead author or lead author in the International Panel on climate Change Fourth Assessment Report, the Millennium Ecosystem Assessment, the International Assessment of Agricultural Science and Technology for Development, and US national assessments. Dr. Ebi's scientific training includes an M.S. in toxicology and a Ph.D. and a Masters of Public Health in epidemiology, and two years of postgraduate research at the London School of Hygiene and Tropical Medicine. She has edited four books on aspects of climate change and has more than 100 publications. She receives research funding from the University Corporation for Atmospheric Research.

### English, Paul

#### California Department of Public Health

Dr. English is State Environmental Epidemiologist and Branch Science Advisor for the Environmental Health Investigations Branch, California Department of Public Health. He holds a B.A. in Environmental Studies from the University of California, Santa Barbara and a Masters in Public Health and a Ph.D. in Epidemiology from the University of California, Berkeley. He is Vice President for Programs for the California Public Health Association – North and is a member of the Health and the Environment Board for the American Meteorological Society. Previously, Dr. English served as an invited expert and advisor for the World Health Organization and the Indian Institute of Public Health on climate change adaptation and indicator development, and served as a member of the Scientific Advisory Panel on the Toxicity Profile of Chlorpyrifos for the U.S. EPA. Dr. English's research has focused on environmental health surveillance, exposure assessment for traffic-related pollutants, air quality modeling, biomonitoring, reproductive hazards, and geographic information system development. His recent work has focused on population vulnerability assessments for climate change public health risks, in particular, heat waves, and community-based research studies and processes. He currently receives funding from the Centers for Disease Control and Prevention and the Agency for Toxic Substances Control Disease Registry.

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### **Farrow,R. Scott**

#### **University of Maryland - Baltimore County**

Dr. R. Scott Farrow is a Professor in the Department of Economics and Faculty Fellow of the Center for Urban Environmental Research and Education at UMBC, a branch of the University of Maryland. He received his doctorate in economics from Washington State University. He is the founding editor of the Journal of Benefit-Cost Analysis and previously was the Chief Economist of the US Government Accountability Office (GAO) among other academic and government positions. His research focuses on the economics and risk based evaluation of government programs and regulations, especially those involving the environment and natural resources. Topics on which he has published include benefit-cost analysis, efficiency and equity, pollution trading, extinction, the precautionary principle, integrating risk and benefit-cost analysis, and the management of offshore oil and gas leasing. He is a member of the American Economic Association, the Association of Environmental and Resource Economists, the Society for Risk Analysis, and the Society for Benefit-Cost Analysis. He has been a member of the EPA Effluent Guidelines Task Force; the Department of State Man and the Biosphere Program, Marine and Coastal Ecosystems Directorate; and the Department of Interior Scientific Advisory Committee for Outer Continental Shelf Leasing. He has carried out domestic and international research and consulting including funding from the EPA, Exxon-Mobil, and the MacArthur Foundation.

### **Faustman,Elaine**

#### **University of Washington**

Dr. Elaine M. Faustman is Professor in the Department of Environmental and Occupational Health Sciences and Director of the Institute for Risk Analysis and Risk Communication in the School of Public Health and Community Medicine at the University of Washington, where she has received the Outstanding Teaching Award. Dr. Faustman received her A.B. in Chemistry and Zoology from Hope College (1976) and her doctorate in Pharmacology/Toxicology from Michigan State University (1980). Her research includes quantitative risk assessment for non-cancer endpoints, molecular mechanisms of developmental and reproductive toxicity, and in vitro and molecular biological methodologies. Dr. Faustman's research expertise also includes development of decision-analytic tools for communicating and translating new scientific findings into risk assessment and risk management decisions. She is the principal investigator of the Pacific Northwest National Children's Study Center. She also directs the Pacific Northwest Center for Human Health and Ocean Studies. She is an elected fellow of the American Association for the Advancement of Science and the Society of Risk Analysis. She has served as chair for the National Academy of Sciences Committee on Developmental Toxicology and as a member for the NIEHS-National Toxicology Program (NTP) Committee on Alternative Toxicology Methods, the NIEHS-NTP Board of Scientific Counselors, National Academy of Sciences Committee in Toxicology and the Institute of Medicine Upper Reference Levels Subcommittee of the Food and Nutrition Board. She also served on the executive boards of the Society of Toxicology, the Teratology Society, the Society for Risk Analysis, and NIEHS Council. She has served as Associate Editor of Fundamental and Applied Toxicology and on the editorial boards of Birth Defects Research Journal, Reproductive Toxicology and Toxicology Methods. Dr. Faustman's research is currently supported by the United States Environmental Protection Agency (US EPA), the National Institute of Environmental Health Sciences (NIEHS), the National Science Foundation (NSF), the National Institute for Child Health and Human Development (NICHD), the Department of Health and Human Services (DHHS), and the Food and Drug Administration (FDA). The goals of Dr. Faustman's research are to discover the mechanisms that define susceptibility in at-risk populations and to provide linkages across disciplines. Through her research, Dr. Faustman seeks to train the next generation of scientists.

### **Field,R. William**

#### **University of Iowa**

Dr. R. William Field is a professor with appointments in the department of occupational and environmental health and department of epidemiology within the College of Public Health at the University of Iowa. He directs the National Institutes of Occupational Safety and Health's funded occupational epidemiology training program at the University of Iowa. He received his Ph.D. in Preventive Medicine and Environmental Health from the College of Medicine at University of Iowa and prior to entering the academic ranks worked as a Health Physicist at the University of California, Berkeley. After 20 years of performing radon-related research, he is now known as one of the leading national and international advocates for promoting efforts to reduce radon exposure. Recent national and international activities include service to the National Academy of Sciences, the World Health Organization, and numerous other state and national organizations. In addition, he was appointed by President Obama in 2009 to serve on the Advisory Board for Radiation and Worker Health. Dr. Field's research focuses on occupational and environmental epidemiology. He recently oversaw completion of a Department of Defense funded retrospective cohort mortality and cancer incidence study of over 38,000 munitions workers. Dr. Field's research and teaching activities are supported in part by grants from the National Institute for Occupational Safety and Health, the National Institute of Environmental Health Sciences, and the U.S. Environmental Protection Agency. In 2012, Dr. Field was the recipient of the University of Iowa's Michael J. Brody award for his long-term commitment to community, state, regional, and national service. Dr. Field currently is a member of the SAB Radiation Advisory Committee.

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### Finkel, Adam

#### University of Pennsylvania

Dr. Adam M. Finkel is currently Executive Director of the Penn Program on Regulation at the University of Pennsylvania Law School, where he is also a Senior Fellow, and (Adjunct) Professor of Environmental and Occupational Health at the University of Medicine and Dentistry of New Jersey (UMDNJ) School of Public Health. He is also currently a Visiting Scholar at the Center for Bioethics at the Penn Medical School. From 2004 to 2007, he was a Visiting Professor of Public and International Affairs at the Woodrow Wilson School at Princeton University. From 2000 to 2003, Dr. Finkel was Regional Administrator for the U.S. Occupational Safety and Health Administration (OSHA) in Denver, Colorado, responsible for regulatory enforcement, compliance assistance, and outreach activities in the six-state Rocky Mountain region (Region VIII). From 1995 to 2000, he was Director of Health Standards Programs at OSHA headquarters, and was responsible for promulgating and evaluating regulations to protect the nation's workers from chemical, radiological, and biological hazards. Dr. Finkel holds an Sc.D. in environmental health sciences from the Harvard School of Public Health, a master's degree in public policy from Harvard's John F. Kennedy School of Government, an A.B. in biology from Harvard College, and is a Certified Industrial Hygienist. Dr. Finkel has pioneered methodological improvements in human health risk assessment and cost-benefit analysis for the past 25 years, primarily in the areas of quantitative uncertainty analysis, accounting for interindividual variability in susceptibility, and designing regulatory processes to maximize stakeholder input and shed light on economic impacts. He is one of three scholars who served on both the "Blue Book" and "Silver Book" committees of the National Academy of Sciences convened to evaluate EPA's risk assessment methods. Dr. Finkel served as President of the Risk Assessment and Policy Association from 1999 to 2001, and received the Chauncey Starr Award from the Society for Risk Analysis (outstanding contributions to the field by an analyst under 40). In 2006, he received the David P. Rall Award for Advocacy in Public Health from the American Public Health Association, for "a career in advancing science in the service of public health protection." His recent research funding has come from the National Science Foundation, the Robert Wood Johnson Foundation, and the Public Welfare Foundation.

### Foster, William Michael

#### Duke University Medical Center

Dr. W. Michael Foster, Ph.D., joined the faculty of School of Medicine at Duke University in Durham, NC in 2000 and is a Research Professor in the Department of Medicine in the Division of Pulmonary, Allergy and Critical Care Medicine. He provides on an annual basis lectures to undergraduate students in the Nicholas School of the Environment of Duke University, and mentoring at the post-doctoral level to physician scientists in fellowship training of the Pulmonary Division. In addition to faculty and committee responsibilities as a member of the Department of Medicine, Dr. Foster supervises a Small Animal Model and Human Inhalation Core Facility within the Pulmonary Division. Before coming to Duke University Dr. Foster held faculty and teaching appointments at the State University of New York at Stony Brook (1977-1991), and the Johns Hopkins University School of Public Health (1991-2000). Dr. Foster frequently participates as an ad hoc reviewer for the NIH Center for Scientific Review (2005-present) and was a participant in the peer review of EPA Clean Air Research Centers (2010). Dr. Foster has been a member of the American Physiologic Society (since 1982), and the American Association for the Advancement of Science (2005). At present (2009-2012) Dr. Foster is an EPA Science Advisory Board member of the Ozone Review Panel for the Clean Air Scientific Advisory Committee (CASAC), and previously during 2007 and 2008 he served on the committee of the National Research Council of the National Academies that evaluated morbidity and mortality risk from tropospheric ozone. For the years 2006/2007 he served as the President of the Inhalation and Respiratory Specialty Section of the Society of Toxicology. Dr. Foster joined the editorial board of the Environmental Health Perspectives journal as an Associate Editor in 2010, and is an editorial board member of the American Journal Respiratory Cell and Molecular Biology (2009-present). He is the author or co-author of over 115 journal articles and book chapters that focus on the pulmonary system and/or environmental health. His research interests, and in a sense hallmarks of his scientific career and accomplishments, encompass a paradigm that links cardio-pulmonary injury to air pollutant exposure using established data bases of epidemiological investigations and his own laboratory-based studies on humans and animal models. Dr. Foster's laboratory is currently supported through extramural funding sources from the Department of Health and Human Services and includes program project (P01, n=1) and investigator initiated (R01, n=5) type awards for which he is the designated Principal and/or Co-Investigator of the research plans. These awards have term dates ranging from 2012 to 2017; 2 additional awards with fundable priority scores are pending NIH Council approval. Research in his lab encompasses 3 separable areas: 1) environmental triggers of exacerbation for obstructive airway disease; 2) development of therapeutic targets to treat inflammatory airway disease; and 3) host (genetic) factors of susceptibility to oxidant lung injury. The end points of this research enhance understanding of health risk from exposure to airborne toxins, and the interdependence between therapy, health risk, and establishment of regulatory standards for air quality that reduce poor health outcomes following exposure to ambient air pollutants.

### Franzblau, Alfred

#### University of Michigan

Dr. Alfred Franzblau graduated from the University of California School of Medicine in San Diego, completed residency training in Internal Medicine at the University of Washington, and had advanced training in Occupational and Environmental Medicine at The Mount Sinai Hospital in New York before joining the faculty at the University of Michigan School of Public Health in 1989. He is board certified in both Internal Medicine and Preventive/Occupational Medicine, and he is a certified B reader. His professional activities include teaching, research, and the clinical practice of occupational and environmental medicine. Research interests include work-related musculoskeletal disorders (e.g., carpal tunnel syndrome, tendinitis and osteoarthritis), chemical exposures (e.g., dioxins and metals in the environment), and occupational and environmental lung disease (e.g., pneumoconiosis, asthma, hypersensitivity pneumonitis). From 2003-2006 he co-chaired the Health IRB at the University of Michigan, and from 2001-2009 he served as a scientific advisor to the UAW-GM National Joint Committee for Health and Safety. He is a member of the USEPA Science Advisory Board Exposure and

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Human Health Committee, and he has served as a reviewer for numerous journals, government agencies and the Institute of Medicine. Since 1/1/2011 he has served as Associate Dean for Research of the University of Michigan School of Public Health, and he also holds academic appointments at the University of Michigan Medical School and College of Engineering. Current major sources of research funding are the Asbestos Relief Trust, South Africa, National Institutes of Health, and the Dow Chemical Company.

### **Frey, H. Christopher**

#### **North Carolina State University**

Dr. H. Christopher Frey is a professor of environmental engineering in the Department of Civil, Construction, and Environmental Engineering at North Carolina State University. His research interests are measurement and modeling of real-world fuel use and emissions of onroad and nonroad vehicles; modeling and evaluation of advanced energy conversion (e.g., combustion, gasification) and environmental control systems; development and application of methods for quantification of variability and uncertainty and for sensitivity analysis in environmental systems models; and exposure and risk analysis. He has been the principal investigator or co-principal investigator for over 50 externally sponsored research projects, and has published over 90 journal papers, 150 conference papers, and 60 technical reports, and 7 book chapters and one book. He teaches courses in air pollution control, air quality, and environmental exposure and risk assessment. He currently serves on the U.S. Environmental Protection Agency's Clean Air Scientific Advisory Committee (CASAC) and on the Board of Environmental Studies and Toxicology of the National Research Council. He is Chair of the CASAC Lead Review Panel. In recent years, he has served on an EPA Science Advisory Board panel on expert elicitation, an EPA Advisory Council on Clean Air Compliance Analysis panel on EPA's Report to Congress on Black Carbon, National Research Council committees on review of the toxicological assessment of tetrachloroethylene and of EPA's New Source Review program, a NARSTO assessment of multipollutant air quality management, and a World Health Organization working group on uncertainty in exposure assessment. He was a lead author for 2006 guidance by the Intergovernmental Panel on Climate Change (IPCC) regarding uncertainty in greenhouse gas emission inventories. He is a Fellow and Past President of the Society for Risk Analysis and a Fellow of the Air & Waste Management Association. He received the 2008 NCSU Alumni Association Outstanding Research Award and 1999 Chauncey Starr Award of the Society for Risk Analysis. He has a B.S. in Mechanical Engineering from the University of Virginia, and from Carnegie Mellon University he has a Master of Engineering in Mechanical Engineering and Ph.D. in Engineering and Public Policy. Dr. Frey is the principal investigator of grants from the National Science Foundation and U.S. Environmental Protection Agency and contracts from the North Carolina Department of Transportation and United States Department of Transportation. He has received funding from the U.S. Department of Interior (National Park Service) via Louis Berger Group, Inc., the New Jersey Department of Environmental Protection via GbD, Inc., and the Environmental Research and Education Foundation via the University of Nebraska at Lincoln. He was a co-PI on a recently completed grant from the National Institutes of Health. These projects pertain to measurement and modeling of the activity, energy use, and emissions of vehicles and to exposure assessment.

### **Gibb, Herman**

#### **Tetra Tech Sciences**

Dr. Herman Gibb is President of Tetra Tech Sciences (Sciences), an operating unit of the Tetra Tech Corporation specializing in health risk assessment. Dr. Gibb received his Ph.D. in epidemiology from the Johns Hopkins University in 1989, his M.P.H. in environmental health in 1974 from the University of Pittsburgh and his B.S. in pre-medicine from the Pennsylvania State University in 1970. Since joining Sciences in 2004, Dr. Gibb has provided expert consultation to a variety of international and national clients. Dr. Gibb has been an invited peer reviewer of health risk assessment documents prepared by the U.S. Environmental Protection Agency, the U.S. Food and Drug Administration, the National Institute of Occupational Safety and Health, Health Canada, and the World Health Organization. He is a Scientific Advisor on Risk Assessment for the European Commission. He chairs the World Health Organization's Foodborne Epidemiology Reference Group's (FERG) Chemical Task Force and is a member of FERG's Country Studies and Source Allocation Task Forces. Before joining Sciences, Dr. Gibb served in the positions of Associate Director for Health and Assistant Center Director at the National Center for Environmental Assessment of the U.S. Environmental Protection Agency. He was the Project Officer for EPA's cooperative agreements with the World Health Organization. He directed EPA's assessment of inhalation exposures and potential health risks to the general population that resulted from the collapse of the World Trade Center Towers. He is an author of EPA's Guidelines for Carcinogen Risk Assessment and EPA's Risk Assessment Principles and Practices. He was the recipient of the EPA's Scientific and Technological Achievement Award for his study of lung cancer mortality and clinical irritation among chromate production workers and the recipient of the EPA's Gold Medal for Exceptional Service for his work on the drinking water standard for arsenic. His study of chromate production workers utilized one of the most extensive industrial hygiene data bases ever assembled in its analysis of the lung cancer risk from hexavalent chromium. The study formed the basis of OSHA's Permissible Exposure Limit (PEL) on Hexavalent Chromium. He is an author of the World Health Organization's Environmental Health Criteria Document on Principles for the Assessment of Risks to Human Health from Exposure to Chemicals and the World Health Organization's Environmental Health Criteria Document on Arsenic and Arsenic Compounds. Dr. Gibb was a member of White House Interagency Committees on Mercury and on Risk Assessment. He was an author of EPA's Mercury Research Strategy. He is a member of the Presidential Advisory Board on Science, Engineering, and Health at the Ana G. Mendez University System in San Juan, Puerto Rico, and the Advisory Committee of the United States Transuranium and Uranium Registry. He belongs to the International Society of Environmental Epidemiology. He is a Professorial Lecturer in Environmental and Occupational Health and Adjunct Associate Professor of Pharmacology and Physiology at the George Washington University Medical Center. Dr. Gibb received the 2011 Practitioner of the Year Award from the Society for Risk Analysis. Dr. Gibb receives no federal research grants.

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### **Greenberg, Michael**

#### **Rutgers University**

Dr. Michael Greenberg studies risk analysis and environmental health. He is professor and associate dean of the faculty of the Edward J. Bloustein School of Planning and Public Policy. He directs a research group that focuses on environmental analysis and communication, within which are two research centers, one that focuses on risk-related issues associated with transportation security and the second brownfields redevelopment. His current writing projects focus on risk preferences, perceptions and communications associated with electrical energy, and simulation modeling of passenger rail systems. He holds a B.A. from Hunter College in New York City and M.A. and Ph.D. from Columbia University with a concentration in medical geography. His research group includes expertise in the key elements of risk assessment and risk management. He has been a member of National Research Council Committees that focus on the destruction of the U.S. chemical weapons stockpile and nuclear weapons; chemical waste management; and the degradation of the U.S. government physical infrastructure. He served on one of the EPA risk reduction advisory committees during the 1990s, and has served on several committees to support New Jersey's Department of Environmental Protection and Department of Health. Dr. Greenberg is a member of multiple professional societies. However, his main activities are with public health and risk analysis professional societies. He serves as associate editor for environmental health for the American Journal of Public Health, and is editor-in-chief of Risk Analysis: An International Journal. Current major sources of funding are from the United States Department of Energy (16 years), the US Department of Homeland Security (5 years), and FEMA (2 years).

### **Greenstone, Michael**

#### **Massachusetts Institute of Technology**

Dr. Michael Greenstone is the 3M Professor of Environmental Economics in the Department of Economics at the Massachusetts Institute of Technology. He is on the MIT Energy Initiative's Energy Council and on MIT's Environmental Research Council. In addition, he is a Senior Fellow at the Brookings Institution, a Research Associate at the National Bureau of Economic Research, and the Chair of the Abdul Latif Jameel Poverty Action Lab's Environment and Energy Initiative. His research is focused on estimating the costs and benefits of environmental quality. He has worked extensively on the Clean Air Act and examined its impacts on air quality, manufacturing activity, housing prices, and infant mortality to assess its costs and benefits. He is currently engaged in a large scale project to estimate the economic costs of climate change and identify inexpensive adaptation strategies. Other current projects include examinations of: the economic and health impacts of indoor air pollution in Orissa, India; individual's revealed value of a statistical life in the United States; the impact of air pollution on life expectancies; the efficacy of environmental regulations in India; the costs and benefits of an emissions trading market in India; and the benefits of the air pollution reductions due to the NOx Budget Program. He served as the Chief Economist for President Obama's Council of Economic Advisors in the first year of his Administration. He also served as a member of the EPA Science Advisory Board's Environmental Economics Advisory Committee. His research has been funded by the NSF, NIH, and EPA, the Rockefeller Foundation, and the MacArthur Foundation. In 2004, Professor Greenstone received the 12th Annual Kenneth J. Arrow Award for Best Paper in the Field of Health Economics. Greenstone received a Ph.D. in economics from Princeton University and a BA in economics with High Honors from Swarthmore College.

### **Griffiths, Jeffrey K.**

#### **Tufts University**

Dr. Jeffrey K. Griffiths is Professor of Public Health, and Medicine, at Tufts University School of Medicine. He has adjunct appointments in Nutrition, Veterinary Medicine, and Civil and Environmental Engineering. Clinically, he is an Infectious Diseases physician at New England Medical Center. Dr. Griffiths holds an A.B. (Chemistry) from Harvard College, an M.D. from Albert Einstein College of Medicine, and a MPH&TM in Public Health and Tropical Medicine from Tulane University. He completed residencies in both Internal Medicine and Pediatrics at Yale-New Haven Hospital. His major research interests include waterborne diseases (especially cryptosporidiosis) and their relationship to environmental factors; the roles of nutrition and environmental factors on health; and the development of heat stable vaccines for use where refrigeration is not present. Major funding sources are the US Agency for International Development (USAID), and the National Institutes of Health. He directs the USAID Global Nutrition Collaborative Research Support Program in Africa, which studies how agricultural, nutrition, and health (including water and sanitation) interventions can help the global poor. Prior national committees or advisory group service includes: the U.S. Environmental Protection Agency (EPA) Science Advisory Board (SAB) Drinking Water Committee, the EPA National Drinking Water Advisory Council; the National Academies' Committee on Drinking Water Contaminants, and the Public Interest Advisory Forum of the American Water Works Association, Public Health Subgroup. He was the Federal representative for the National Association of People with AIDS to the EPA Drinking Water Microbial Disinfection and Byproducts Committee. Dr. Griffiths recently chaired the EPA SAB Drinking Water Committee review of Partial Lead Service Line replacements, and was a member of the EPA SAB Environmental Engineering Committee (EEC) Panel that provided advice to EPA on its draft Hydraulic Fracturing Research Scoping Study Plan. He has testified thrice before the US Senate on drinking water issues. He currently receives research funding from the National Institutes of Health and the U.S. Agency for International Development.

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### Harkema, Jack

#### Michigan State University

Dr. Jack R. Harkema, DVM, PhD, DACVP is a University Distinguished Professor of Pathobiology at Michigan State University in East Lansing, MI. Dr. Harkema received a DVM (veterinary medicine) from Michigan State University (MSU) and a PhD (comparative pathology) from the University of California, Davis (UCD). After completing a NIH-sponsored research/residency training program in comparative pathology and toxicology at the UCD, Dr. Harkema joined the scientific staff at the Lovelace Inhalation Toxicology Research Institute in Albuquerque, NM in 1985 as an experimental and toxicologic pathologist. He later became the institute's project manager for pathogenesis research. In 1994, Dr. Harkema joined the faculty of the Department of Pathobiology and Diagnostic Investigation in the College of Veterinary Medicine at MSU. His primary research is designed to understand the pathobiology and toxicologic mechanisms underlying the health effects of outdoor and indoor air pollutants. In 2011, he became the director of the Great Lakes Air Center for Integrated Environmental Research, one of four US EPA-funded Clean Air Research Centers in the nation. Dr. Harkema has authored or co-authored over 200 peer-reviewed scientific publications and has served on several science advisory committees, including those for the NIEHS, NTP, EPA, and NAS. Besides training graduate students, residents, and postdoctoral fellows in biomedical research, Dr. Harkema also moderates didactic courses in advanced general pathology, integrative toxicology, and pulmonary pathobiology. Dr. Harkema is a diplomate of the American College of Veterinary Pathologists and a member of the Society of Toxicologic Pathologists, the Society of Toxicology, and the American Thoracic Society. He currently receives research funding through grants or contracts from a variety of sources that include the following: the US EPA to explore and elucidate the health effects of multi-pollutant atmospheres in the Great Lakes region and to investigate the nasal toxicology and pathology of chlorine; the NIH to study the respiratory toxicology and pathology of engineered nanoparticles and the hepatotoxicity of acetaminophen; the American Chemistry Council to study the nasal pathology and toxicology of inhaled olefin compounds in laboratory rats; and the American Beverage Association to study the pulmonary pathology and toxicology in mice orally exposed to various chemical compounds.

### Harris, Cynthia M.

#### Florida A&M University

Dr. Cynthia M. Harris is Director of and Professor in the Institute of Public Health of Florida A&M University. Dr. Harris holds a B.A. in Biology (1978) and an M.A. in Genetics (1981) from the University of Kansas, and a Ph.D. in Biomedical Sciences from Meharry Medical College (1985) with concentration in the areas of nutritional biochemistry and toxicology. Dr. Harris was awarded a postdoctoral fellowship in the Interdisciplinary Programs in Health of the Harvard School of Public Health, where she conducted research regarding the effects of heavy metals on pulmonary function and environmental risk assessment. She is a Diplomate of the American Board of Toxicology (DABT). From 1990-1996, Dr. Harris served as a staff toxicologist and branch chief with the Agency for Toxic Substances and Disease Registry, a sister agency of the Centers for Disease Control and Prevention, in Atlanta, Georgia. Dr. Harris was the first African American branch chief of the Agency for Toxic Substances and Disease Registry. As branch chief of the Community Health Branch, she was responsible for the administration and management of staff who conducted environmental health assessments, at the request of individual citizens and community groups across the nation. In 1996, Dr. Harris accepted the position of Director of the Institute of Public Health at Florida A&M University. Since her tenure, she has been actively engaged in the general planning and development of the MPH program. The 1997 Florida State Legislature approved and appropriated funding to support the MPH program and the MPH program received full, maximum accreditation for its initial review (2000-2005). Dr. Harris has served on numerous committees and panels, which includes membership on the Board of Directors for the Florida Public Health Association, Chair of the Florida Public Health Partnership Council on Stroke, member of the Pregnancy Mortality Review Board, member of the Florida Sickle Cell Task Force, member of the American Public Health Association, member of the editorial board of the Harvard Journal of Public Health, reviewer for the Journal of Environmental Health, and board member for the Panhandle Chapter of the Florida March of Dimes. She has also provided a review for the Food and Nutrition Board of the National Academy of Sciences. She is a Full Member of the Society of Toxicology and was appointed by the Secretary of the U.S. Department of Health and Human Services to the Agency for Toxic Substances and Disease Registry Board of Scientific Counselors. In addition, she has served on numerous grant reviews for several federal agencies such as the Centers for Disease Control and Prevention (CDC), National Institute for Occupational Safety and Health (NIOSH), National Institute of Environmental Health Services (NIEHS), and Health Resources and Services Administration (HRSA). Dr. Harris' research has been supported by grants primarily from the federal government (CDC and HRSA), with additional grant support from state and local governments and foundations.

### Hattis, Dale

#### Clark University

Dr. Dale Hattis is Research Professor with the George Perkins Marsh Institute at Clark University. For the past 37 years he has been engaged in the development and application of methodology to assess the health, ecological, and economic impacts of regulatory actions. His work has focused on approaches to incorporate interindividual variability data and quantitative mechanistic information into risk assessments for both cancer and non-cancer endpoints. Recent research (nearly all funded directly or indirectly by EPA) has explored PBPK-based dosimetry for chlorpyrifos, based on observations of blood levels in pregnant women and their newborn infants, possibilities for the use of new in vitro gene expression and similar measurements as contributors to risk assessments, use of continuous biomarkers such as birth weight and thyroid hormone levels to predict effects on infant mortality and IQ, quantitative analysis of uncertainties for cancer and non-cancer health risks of dioxin, and age-related differences in sensitivity to carcinogenesis and other effects. He is a leader in efforts to replace the current system of uncertainty factors with distributions based on empirical observations. He has been a member of the Environmental Health Committee of the EPA Science Advisory Board, and for several years he served as a member of the Food Quality Protection Act Science Review Board. He has also served as a member of the National Research Council Committee on Estimating the Health-Risk-Reduction Benefits of Proposed Air Pollution Regulations. He has been a councilor and is a Fellow of

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the Society for Risk Analysis. Recently (12/11) he received the Society's Distinguished Educator award. He holds a Ph.D. in Genetics from Stanford University and a B.A. in biochemistry from the University of California at Berkeley. His research is funded directly or indirectly (e.g. via consulting firms) from EPA.

### Haws,Laurie

#### ToxStrategies, Inc.

Dr. Laurie Haws is a Principal Health Scientist with ToxStrategies, Inc. and is based in Austin, Texas. She is a board-certified toxicologist with over 22 years of experience in the areas of toxicology, human health risk assessment, risk communication, and scientific and regulatory policy. Dr. Haws received her B.S. in Environmental Biology from Long Island University-Southampton (1985), her M.S. in Environmental Sciences & Engineering from the School of Public Health at the University of North Carolina at Chapel Hill (1987), and her PhD in Toxicology from the University of North Carolina at Chapel Hill (1990). Dr. Haws has significant experience evaluating potential human health risks associated with exposures to a wide variety of chemicals and metals present as additives, ingredients, or contaminants in foods, consumer products, personal care products, pharmaceuticals, medical devices, and environmental media (air, water, soil, and sediments). She also has substantial experience conducting complex multipathway risk assessments to address concerns about stack and fugitive air emissions associated with a variety of industrial operations. In addition, Dr. Haws has extensive experience assessing potential human health risks associated with personal, occupational, and community-wide exposures to air contaminants, particularly associated with chemical, petrochemical, and shale gas exploration and production activities. Dr. Haws has experience designing, conducting, and interpreting data from biomonitoring studies, and is adept at using such data to assess concerns regarding potential exposures. She is skilled at evaluating data concerning modes and mechanisms of action and in using this type of data to make determinations regarding the relevance of findings to humans, as well as in conducting weight-of-the-evidence analyses for both cancer and non-cancer risk assessments. Dr. Haws has employed these skills to develop state-of-the-science toxicity values and associated media-specific screening levels for a variety of toxicants. She has conducted studies evaluating metabolism and disposition of a variety of halogenated aromatic hydrocarbons and has experience designing and implementing both cross-fostering and developmental toxicity studies. While Dr. Haws is an internationally-recognized expert concerning the toxicity of and exposures to dioxin-like compounds, she has conducted assessments involving many different toxicants throughout her career including chlorinated hydrocarbons, aromatic hydrocarbons, glycol ethers, other organic solvents, volatile organic compounds, pesticides, phthalates, metals, persistent organic pollutants, etc. She is knowledgeable about a number of state and federal regulatory program and has assisted in the preparation of reports for submission to regulatory agencies such as the Food and Drug Administration, EPA, and California's Proposition 65 program. Dr. Haws also has substantial experience working with federal, state, and local government agencies, industry, trade associations, legislative representatives, the media and members of the general public on matters related to the toxicity of chemicals encountered in our daily lives.

### Hayes,Wallace

#### Harvard University

Dr. Wallace Hayes is a toxicologist with more than 35 years of experience in industry and academics. He is a Principal Advisory for Spherix Health Sciences, providing strategic, scientific and regulatory guidance. Dr. Hayes also holds an appointment with Harvard School of Public Health and the School of Public Health, University of Massachusetts, Amherst. Previously, Dr. Hayes held the position of Corporate Toxicologist for RJR Nabisco with responsibility for all regulatory and toxicology issues related to the safety of ingredients and food contact substances for food and drink products worldwide. Subsequently, as Vice-President of Corporate Product Integrity at the Gillette Company, he had management responsibility for the safety evaluation and regulatory compliance of a variety of consumer products, plant safety, environmental stewardship, and quality control. While at Gillette, Dr. Hayes was responsible for managing regulatory and toxicology issues worldwide. All contact substances used in Gillette products (personal care products) were cleared within his division. Dr. Hayes previously served on the Cosmetic, Toiletry, and Fragrance Association Research Council, addressing issues related to flavors and fragrances. Dr. Hayes has interacted with regulatory bodies worldwide including Canada, Japan, South Korea, EU and Latin America as well as the Food and Drug Administration, the EPA and the Department of Defense. Dr. Hayes holds degrees from Auburn University (Ph.D. and M.S.) and Emory University (A.B.). Dr. Hayes was a National Science Foundation predoctoral fellow at Auburn University, a National Institutes of Health postdoctoral fellow at the Vanderbilt University School of Medicine, a NATO Senior Scientist at the Central Veterinary Laboratory in Weybridge, England and held a NIH Research Career Development Award. Dr. Hayes is a past President of the American College of Toxicology, the Academy of Toxicological Sciences and the Toxicology Education Foundation. He served two terms as the Secretary-General of the International Union of Toxicology and is a past member of the council of the Society of Toxicology. Dr. Hayes has served on committees and expert panels for the National Academy of Sciences, the National Institutes of Health, the Environmental Protection Agency and the Department of Defense. Dr. Hayes has served on a number of Generally Regarded as Safe (GRAS) Expert Panels. Dr. Hayes is a diplomate of the American Board of Toxicology, the Academy of Toxicological Sciences, the American Board of Forensic Medicine, and the American Board of Forensic Examiners. He is a Fellow of the Academy of Toxicological Sciences, the Institute of Biology (UK) and the American College of Forensic Examiners. Dr. Hayes is a registered toxicologist in the European Union (ERT) and a certified nutrition specialist. Dr. Hayes is the editor of Principles and Methods of Toxicology, 5th Edition. Dr. Hayes is also author and/or co-author of numerous publications and articles. He currently receives no federal grant funding currently.

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### Hei, Tom

#### Columbia University Medical Center

Dr. Tom K. Hei is currently Professor and Vice-Chairman of Radiation Oncology in the College of Physicians and Surgeons and Professor of Environmental Health Sciences in the Mailman School of Public Health at Columbia University Medical Center. Dr. Hei's research focuses on basic mechanisms of radiation and environmental cancer using both human epithelial cell lines as well as animal models. His lung cancer program has studies related to asbestos fibers, arsenic and radon, seemingly diverse physical and chemical carcinogens that all involve a free radical component. His laboratory was the first to demonstrate that asbestos is a genotoxic carcinogen in mammalian cells and induces mainly deletions and that mitochondrial damages are essential in mediating the genotoxic response. His laboratory has made seminal contributions in understanding the mechanism of asbestos carcinogenesis with the identification that the TGFB1 gene has tumor suppressor function. Dr. Hei was a panel member of the Institute of Medicine in reviewing the National Institute for Occupational Safety and Health Roadmap for Research on Asbestos Fibers and Other Elongate Mineral Fibers. He was a team leader in writing the report on the genotoxic mechanism of asbestos fibers commissioned by the National Institute for Environmental Health Sciences and the EPA and the final report is due out in the summer of 2011. Dr. Hei's has many years of experience in mentoring doctoral, medical, clinical radiation oncology residents and postdoctoral research fellows, many of whom are now leaders in their own field around the world. His current research is funded by the National Cancer Institute, National Institute for Environmental Health Sciences and the EPA.

### Howarth, Robert W.

#### Cornell University

Dr. Robert Howarth is the David R. Atknsn Professor of Ecology & Environmental Biology at Cornell University, where he also directs the Agriculture, Energy & Environment Program, and he is an Adjunct Senior Scientist at the Ecosystems Center of the Marine Biological Laboratory in Woods Hole, MA. He earned a B.A. in Biology from Amherst College in 1974 and a Ph.D. jointly from Massachusetts Institute of Technology and the Woods Hole Oceanographic Institution in 1979. Dr. Howarth's research focuses on the sources and effects of nutrient pollution in coastal marine ecosystems, the interactions of biogeochemical cycles from ecosystem to regional to global scales, and the environmental effects of energy systems (including biofuels and fossil fuels, with an emphasis on water quality and on greenhouse gas emissions). He is the Founding Editor of the journal Biogeochemistry and was Editor-in-Chief of the journal from 1983 to 2004. Dr. Howarth has served on 11 committees and panels of the National Academy of Sciences, including serving as chair for two of these: the Committee on Causes and Consequences of Coastal Marine Eutrophication from 1998-2000, and the Working group on Scientific Studies in Pristine Areas in 1995. He also served on the Panel on Fluxes of Trace Gases from Terrestrial Ecosystems of the Committee on Global Change (1989-1990) and the Panel on Ecological Effects, Committee on Fate and Effects of Oil in the Sea (1981-1984) of the Academy of Sciences. Dr. Howarth co-chaired the International SCOPE Nitrogen Project from 1992 to 2002, directed the North American Nitrogen Center of the International Nitrogen Initiative from 2003-2006, and has been chair of the International SCOPE Biofuels Project on environmental effects of biofuels since 2007. From 1989-1990, he was the lead consultant for the Attorney General of Alaska on the Exxon Valdez oil spill. Dr. Howarth also served as an expert witness in two federal court trials on pollution from oil and gas drilling. From 2000 to 2002, he directed the Oceans Program at Environmental Defense. Dr. Howarth was the co-lead author of the chapter on responses to nutrient pollution for the Millennium Ecosystem Assessment in 2005 and served as a consultant to the Pew Oceans Commission on nutrient pollution from 2002-2003. From 2006-2008, Dr. Howarth served as a member of the EPA's Science Advisory Board Panel on Hypoxia in the Northern Gulf of Mexico. From 2007 to 2008 he served as President of the Coastal & Estuarine Research Federation. From 2008-2010, Dr. Howarth served on the Board of Directors of the Council of Scientific Society Presidents (CSSP), an umbrella group representing 1.5 million scientists. He co-chaired the CSSP Committee on Energy & Environment in 2009 and 2010. Dr. Howarth also represents the State of New York on the Science and Technical Advisory Committee of the Chesapeake Bay Program. He has edited 7 books and authored more than 180 papers. He receives research funding from the National Oceanic and Atmospheric Administration, Coastal Ocean Program, the U. S. Department of Agriculture, the Hudson River Foundation, the Packard Foundation, the Park Foundation, and Cornell University.

### Jacob, Daniel

#### Harvard University

Dr. Daniel J. Jacob is the Vasco McCoy Family Professor of Atmospheric Chemistry and Environmental Engineering in the School of Engineering & Applied Science at Harvard University. He received his B.S. (1981) in Chemical Engineering from the Ecole Supérieure de Physique et Chimie de Paris, and his Ph.D. (1985) in Environmental Engineering from Caltech. He went to Harvard as a postdoc in 1985 and joined the faculty in 1987. Jacob's research covers a wide range of topics in atmospheric composition ranging from air quality to climate change. He has been a pioneer in the development of global 3-D models of atmospheric composition, has served as Mission Scientist on seven National Aeronautics and Space Administration (NASA) aircraft missions, and is a member of several satellite Science Teams. He presently leads the NASA Air Quality Applied Sciences Team and the Science Steering Committee for the NASA GEO-CAPE satellite mission. He serves as Model Scientist for the GEOS-Chem global chemical transport model and is the vice-chair of the NASA Earth Science Subcommittee. Among his professional honors are the Haagen-Smit Prize (2010), the NASA Distinguished Public Service Medal (2003), the American Geophysical Union Macelwane Medal (1994) and the Packard Fellowship for Science and Engineering (1989). Jacob has published over 300 papers and trained over 70 Ph.D. students and postdocs over the course of his career. He is the world's top-cited author in geosciences (1997-2007) according to the Institute for Scientific Information. Jacob presently receives research funding from NASA for global model development, satellite data analysis, inverse modeling, air quality applications of Earth Science data (AQUAST) and leadership of the SEAC4RS aircraft mission; National Science Foundation for research on the global biogeochemical cycle of mercury; and British Petroleum for the sources contributing to background ozone in the US.

## List of Candidates for the Chartered Science Advisory Board (SAB)

### Jaramillo,Paulina

#### Carnegie Mellon University

Dr. Paulina Jaramillo is an Assistant Research Professor in the Department of Engineering and Public Policy at Carnegie Mellon University. She has a bachelor's in civil and environmental engineering from Florida International University, as well as a master's and Ph.D. in civil and environmental engineering with an emphasis in green design from Carnegie Mellon University. Her past research has focused on life-cycle assessment of energy systems with an emphasis on climate change impacts and mitigation research. She is currently involved in key multi-disciplinary research projects to better understand the social, economic and environmental implications of energy consumption and the public policy tools that can be used to support sustainable energy development and consumption. She is now the executive director of the RenewElec project, which will help the nation make the transition to the use of significant amounts of electric generation from variable and intermittent sources of renewable power in a way that is cost-effective; provides reliable electricity supply with a socially acceptable level of local or large-scale outages; allows a smooth transition in the architecture and operation of the present power system; allows and supports competitive markets with equitable rate structures; is environmentally benign; and is socially equitable. Current research efforts include quantifying the fuel consumption and emission impacts of low natural gas prices in the electricity system; modeling impacts on coal power plant ramping and associated air emissions from increased penetration of wind energy; modeling the role of smart charging of electric vehicles to support the integration of wind energy; modeling future energy development scenarios and associated externalities for the Navajo Nation; evaluating the potential air emission benefits associated with different urban congestion management strategies; and evaluating the land use and demographic impacts of large scale wind energy development. She receives research funding from the National Energy Technology Laboratory and the National Science Foundation.

### Johnston,Robert

#### Clark University

Dr. Robert J. Johnston is Director of the George Perkins Marsh Institute and Professor of Economics at Clark University. He received a BA in economics from Williams College and a PhD in environmental and natural resource economics from the University of Rhode Island. Dr. Johnston's research addresses methodological development for nonmarket valuation, benefit transfer, and analysis of ecosystem services, with an emphasis on aquatic, riparian and coastal systems. He has also conducted significant work in natural resource and fisheries economics. Much of his work coordinates methods and data from environmental economics with those of other natural and social sciences, seeking to enhance interdisciplinary collaborations for policy analysis. His work has been funded by numerous agencies including the Environmental Protection Agency (EPA), National Science Foundation, US Department of Agriculture, National Oceanic and Atmospheric Administration (NOAA, including Sea Grant and the National Estuarine Research Reserve System), US Department of Transportation, and Environment Canada. He has served on numerous science advisory boards and panels, including a current National Research Council Committee on Evaluating the Effectiveness of Stock Rebuilding Plans under the Fishery Conservation and Management Reauthorization Act. Among other appointments, he is on the Senior Advisory Board of the Connecticut Sea Grant Program, the Program Advisory Council of the New York Sea Grant Program, and the Program Committee for the Charles Darwin Foundation. He is Past-President of the Northeastern Agricultural and Resource Economics Association and Vice President of the Marine Resource Economics Foundation. He has been an invited expert for numerous EPA, SAB and other federal agency workshops, most recently addressing such topics as valuation of ecological service benefits for electric utility regulations, indicators of ecosystem services for wetlands and estuaries, indicators of ecosystem services for freshwater streams, ecosystem research within NOAA, and science for valuation of EPA's ecological protection decisions and programs.

### Karr,Catherine

#### University of Washington

Dr. Catherine Karr is an academic pediatrician, environmental health researcher, and Director of the Northwest Pediatric Environmental Health Specialty Unit (PEHSU) at the University of Washington. Her educational background includes an M.S. degree in Environmental Health/Toxicology, a Ph.D. in Epidemiology, and an M.D. from the University of Washington (UW) School of Public Health/School of Medicine. Currently, she is an Associate Professor in the Department of Pediatrics with a joint appointment in the Department of Environmental and Occupational Health Sciences and adjunct in Epidemiology. Her research interests include the effects of air pollution, pesticides, and climate change on child respiratory health and global children's environmental health. Dr. Karr is involved in primary care pediatrics and teaching at the University of Washington Pediatric Care Center, where she also sees specialty pediatric environmental medicine patients, is a co-investigator of the Pacific Northwest National Children's Study Center as well as the UW-based National Institute of Environmental Health Sciences/U.S. Environmental Protection Agency Children's Environmental Health Research Center. She recently served as member of the American Academy of Pediatrics Council on Environmental Health.

### Kim,Nancy K.

#### Health Research, Inc.

Dr. Nancy Kim is employed by Health Research Incorporated, a not-for-profit corporation affiliated with the New York State Department of Health and Roswell Park Cancer Institute. She held several positions in the Center for Environmental Health in the New York State Health Department before retiring in April 2009, and continues to work there post retirement, part time, on several priority projects. She is an adjunct associate professor in the Department of Environmental Health Sciences in the School of Public Health at the State University of New York at Albany. Dr. Kim holds a B.A. in Chemistry from the University of Delaware, and an M.S. and Ph.D. in Chemistry from Northwestern University. Her primary professional interest is in chemical risk assessment and exposure assessment. Dr. Kim was

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Interim Director of the Center that provides environmental epidemiological, toxicological, and risk assessment expertise for environmental health programs; houses regulatory programs that include drinking water supplies, food safety, sanitation/fire safety, and radiation; and evaluates chemical and radiation exposures and recommends interventions. For most of her tenure at the Department of Health she was the Director of the Division of Environmental Health Assessment. Her recent panel memberships include: a) The National Academies, Committee on Assessment of the Health Implications of Exposure to Dioxins, b) The National Academies, Committee on Water System Security Research, c) The National Academies, Committee on the United States Geological Survey's National Water-Quality Assessment Program, and d) U.S. Environmental Protection Agency's Scientific Advisory Board, 2009-2012. Recent past funding came from the Centers for Disease Control (Environmental Public Health Tracking).

### **Kipen, Howard**

#### **University of Medicine and Dentistry, New Jersey - Robert Wood Johnson Medical School**

Dr. Howard Kipen received a B.A. from the University of California, Berkeley and an M.D. from the University of California, San Francisco. He completed an internal medicine residency at Columbia-Presbyterian Medical Center in New York, followed by an M.P.H. at Columbia and an Occupational Medicine residency at Mount Sinai in New York. He accepted an assistant professor position at University of Medicine and Dentistry, New Jersey (UMDNJ)-Robert Wood Johnson Medical School in 1984. Dr. Kipen is currently Professor (with tenure) in the Department of Environmental and Occupational Medicine at UMDNJ-Robert Wood Johnson Medical School (RWJMS). He is also Chief of the Division of Clinical Research and Occupational Medicine, Director at the Clinical Center, and Medical Director of the Controlled Environment Facility of the Environmental and Occupational Health Sciences Institute, a joint institute of UMDNJ and Rutgers. He holds additional faculty appointments at the two Universities in Family Medicine, Internal Medicine, the School of Public Health, and the graduate programs in Toxicology, Exposure Science, and Environmental Science. He has authored over 150 scientific articles, book chapters and reviews on various topics in environmental and occupational health, many on respiratory disease. He has done clinical and epidemiologic studies on symptom outbreaks such as Gulf War Illness, but has more recently pursued mechanistic studies to understand how air pollutants affect cardiovascular and respiratory health. A recent study conducted controlled exposures to diesel exhaust in healthy humans and found changes in a novel marker of oxidative stress. An innovative experimental paradigm uses real-world exposures to highway traffic and oxidative stress responses. He is co-investigator on a Community Based Participatory Research EPA Science to Achieve Results grant that examines asthma severity and among a panel of disadvantaged Newark children with disproportionate exposure to truck traffic from nearby ports (Rob Laumbach, PI). An ongoing study examines the mechanisms of beneficial health effects of drastic air pollution reductions in Beijing for the 2008 Olympics. His group investigates markers of oxidative stress and vascular function after traffic pollution exposure. He has served on or chaired a number of committees at the Institute of Medicine/National Academy of Sciences, National Institutes of Health, Department of Veterans Affairs, Department of Defense, National Aeronautics and Space Administration, and New Jersey Departments of Environmental Protection and Health. In particular, he served as Chair of the Institute of Medicine Committee on Increasing Health Professionals' Use of Toxicology and Environmental Health Databases, an important foundation for more recent Environmental Justice applications.

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### **Kleinman, Michael T.**

#### **University of California, Irvine**

Dr. Michael T. Kleinman is a Adjunct Professor of Occupational and Environmental Medicine in the Department of Medicine at the University of California, Irvine (UCI), with a joint appointment in the Program in Public Health. He was previously employed by the U.S. Atomic Energy Commission (AEC) as an environmental scientist and he directed the Aerosol Exposure and Analytical Laboratory at Rancho Los Amigos Hospital in Downey, CA. He is a toxicologist and has been studying the health effects of exposures to environmental contaminants 40 years. He holds a M.S. in Chemistry (Biochemistry) from the Polytechnic Institute of Brooklyn and a Ph.D. in Environmental Health Sciences from New York University. He is the Co-Director of the Air Pollution Health Effects Laboratory at UCI. He has published 115 articles in peer-reviewed journals dealing with environmental contaminants and their effects on cardiopulmonary and immunological systems and on global and regional distribution of environmental contaminants including heavy metals and radioactive contaminants from nuclear weapons testing. He has directed more than 50 controlled exposure studies of human volunteers and laboratory animals to ozone and other photochemical oxidants, carbon monoxide, ambient particulate matter (PM) and laboratory-generated aerosols containing chemically or biologically reactive metals such as lead, cadmium, iron and manganese. He has served on two National Academy committees to examine issues in protecting deployed U.S. Forces from the effects of chemical and biological weapons. Dr. Kleinman's current research focuses on neurological and cardiopulmonary effects of inhaled particles, including nanomaterials and ultrafine, fine and coarse ambient particles in humans and laboratory animals. His recent health effects studies have the role of inhaled combustion-generated particles on the promotion of airway allergies and acceleration of development of cardiovascular disease and how these effects are mediated by organic and elemental carbon components of PM. Dr. Kleinman's current research grants and contracts include a grant to examine the effects of inhaled particles on brain stem cells related to tumor development from the California Brain and Lung Tumor Foundation, a contract from the California Environmental Protection Agency to study the role of semi-volatile components of fine and ultrafine particulate matter (PM) on cardiac function and atherosclerosis, and a contract to examine the effects of long term inhalation exposure to concentrated fine particles on brain inflammation. Dr. Kleinman is a member of the Board of Scientific Counselors, National Center for Environmental Health/Agency for Toxic Substances and Disease Registry, Centers for Disease Control and Prevention (CDC). Dr. Kleinman has previously served on the U.S. EPA Clean Air Scientific Advisory Committee (CASAC) Ozone panel and currently serves as the Chair of the California Air Quality Advisory Committee. Dr. Kleinman's current research focuses on neurological and cardiopulmonary effects of inhaled particles, including nanomaterials and ultrafine, fine and coarse ambient particles in humans and laboratory animals. His recent health effects studies have the role of inhaled combustion-generated particles on the promotion of airway allergies and acceleration of development of cardiovascular disease and how these effects are mediated by organic and elemental carbon components of PM. Dr. Kleinman's current research grants and contracts include a grant to examine the effects of inhaled particles on brain stem cells related to tumor development from the California Brain and Lung Tumor Foundation, a contract from the California Environmental Protection Agency to study the role of semi-volatile components of fine and ultrafine particulate matter (PM) on cardiac function and atherosclerosis, and a contract to examine the effects of long term inhalation exposure to concentrated fine particles on brain inflammation.

### **Koutrakis, Petros**

#### **Harvard University**

Dr. Petros Koutrakis is the Head of the Exposure, Epidemiology and Risk Program and the Director of the EPA/Harvard University Clean Air Research Center. He received his M.S. (1982) and Ph.D. (1984) in environmental chemistry from the University of Paris. His research interests include human exposure assessment, ambient and indoor air pollution, environmental analytical chemistry, and environmental management. He has served as: the Technical Editor-In-Chief of the Journal of the Air and Waste Management Association (AWMA); a consultant to the EPA Science Advisory Board, including service on the previous Clean Air Scientific Advisory Committee (CASAC) Particulate Matter (PM) Review Panel and chair of the EPA Review Panel for Research Proposals on Ambient Particle Modeling; a member of the National Research Council (NRC) PM committee; and an advisor to the International Monitoring of Protected Visual Environments (IMPROVE), Pan American Health Organization (PAHO), World Health Organization (WHO), and the United Nations Environment Program (UNEP). Dr. Koutrakis has conducted a number of comprehensive air pollution studies in the United States, Canada, Spain, Chile, Kuwait, Cyprus and Greece that investigate the extent of human exposures to gaseous and particulate air pollutants. Other research interests include the assessment of particulate matter exposures and their effects on the cardiac and pulmonary health.

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### Laden, Francine

#### Harvard University

Dr. Francine Laden is the Mark and Catherine Winkler Associate Professor of Environmental Epidemiology at the Harvard School of Public Health, and an Associate Professor of Medicine at the Harvard Medical School and the Brigham & Women's Hospital. Dr. Laden received her ScD in Epidemiology and MS in Environmental Health from the Harvard School of Public Health. Her research interests focus on the environmental epidemiology of chronic diseases, including cancer, respiratory and cardiovascular disease. Her research has or is focused on the following specific categories of exposures: air pollution (from ambient and occupational sources), persistent organic pollutants (POPs; organochlorines), secondhand smoke, and the built environment. Dr. Laden is specifically interested in the geographic distribution of disease risk, incorporating geographic information system (GIS) technology into large cohort studies to explore risk factors such as the built environment and indicators of socioeconomic status, as well as air pollution. She has published key papers on the association of ambient particulate matter and all cause and cardiovascular mortality in the Harvard Six Cities Study and the Nurses' Health Study and on the association of diesel exhaust exposures in the trucking industry and lung cancer mortality. Dr. Laden's current sources of research funding are the National Institutes of Health (NIH) and IBM.

### Levy, Jonathan

#### Boston University School of Public Health

Dr. Jonathan I. Levy is a professor in the Department of Environmental Health at the Boston University School of Public Health. He holds an Sc.D. from Harvard School of Public Health in environmental science and risk management, with a B.A. in applied mathematics from Harvard College. Dr. Levy's research focuses on air pollution exposure assessment and health risk assessment, with an emphasis on urban environments and issues of heterogeneity and equity. Recent research projects have included evaluating spatial patterns of air pollution in complex urban terrain; developing methods to quantify the magnitude and distribution of health benefits associated with emission controls for motor vehicles, power plants, and aircraft; using systems science approaches to evaluate the influence of indoor environmental exposures on pediatric asthma in low-income housing, and developing methods for community-based cumulative risk assessment that includes chemical and non-chemical stressors. Major sources of research funding currently include EPA, the National Institutes of Health, and the Federal Aviation Administration. Dr. Levy has served on multiple national advisory committees, including the National Research Council (NRC) Committee on Improving Risk Analysis Methods used by the U.S. EPA, the NRC Committee on Science for EPA's Future, and the Advisory Council on Clear Air Compliance Analysis.

### Lue-Hing, Cecil

#### Cecil Lue-Hing & Assoc. Inc.

Dr. Cecil Lue-Hing is the retired Director of Research and Development (R&D) for the Metropolitan Water Reclamation District of Greater Chicago, (District) and is currently Principal of the Environmental Engineering Consulting firm of Cecil Lue-Hing and Associates Inc., in Chicago, Illinois. During his 28 year tenure at the District, Dr. Lue-Hing provided R&D direction for the combined sewer overflow (CSO), Tunnel and Reservoir Plan (TARP), the Sidestream Elevated Pooled Aeration (SEPA) System in the Chicago River, established and directed a comprehensive water quality monitoring program for the Greater Chicago Waterway System, and the upper Illinois River, from Chicago to Peoria. Dr. Lue-Hing played a key role in the restoration of the Chicago River System. Dr. Lue-Hing is also nationally recognized as a Biosolids Management Expert. He has written extensively, and has authored, co-authored, or co-edited two reference texts on Biosolids Management, two on Industrial Wastewater control, two on Sewage Microbiology, and one on VOC emissions from wastewater treatment plants. He has also published extensively in the peer reviewed and open professional literature. He is a Past-President of The American Academy of Environmental Engineers; Past-President, Environmental and Water Resources Institute of The American Society of Civil Engineers; Past President, and Hall-of-Fame Inductee NACWA, formerly The Association of Metropolitan Sewerage Agencies; former Board Member American Academy of Environmental Engineers and The Water Environment Research Foundation. He is also a Past Chairman, Board of Editorial Review Water Environment Research. Dr. Lue-Hing has received many prestigious awards including the American Society of Civil Engineers' (ASCE;) Distinguished Member, National Government Civil Engineer of the Year, and the Simon W. Freese Environmental Engineering Award and Lecture; the Water Environment Federation's Charles Alvin Emerson Medal; Honorable Member, American Academy of Water Resources Engineers; and the American Academy of Environmental Engineers Gordon Maskew Fair Award. His prior service on Advisory Boards include, the US.EPA SAB-Environmental Engineering Committee; the International Joint Commission-Expert Committee on Engineering and Technological Aspects of Great Lakes Water Quality; Chair, Science Advisory Board, the US EPA Industrial Waste Elimination Research Center at the Illinois Institute of Technology (IIT), Chicago; currently member of the Professional/External Advisory Boards for the Civil/Energy/Environmental Engineering Departments of Washington University in St. Louis MO., IIT in Chicago, and Marquette University, in Milwaukee, Wisconsin. Dr. Lue-Hing is a graduate of Marquette University, Case Western Reserve University, and Washington University in St. Louis, Missouri. He is a Registered Professional Engineer, a Diplomate of the American Academy of Environmental Engineers, and in 2000 was inducted a Member of the National Academy of Engineering, Dr. Lue-Hing currently has no federal research grant funding.

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### **Matsui,Elizabeth**

#### **Johns Hopkins University**

Dr. Elizabeth Matsui is an associate professor of pediatrics at the Johns Hopkins School of Medicine. She holds an MD and is a practicing pediatric allergist-immunologist. She also holds a Master's Degree in Epidemiology. She has extensive experience in the clinical investigation of allergen and pollutant exposure and allergic airways disease. She has more than 5 years experience directing a Data Management and Analysis Core that is responsible for data management and analysis of more than a dozen studies at any given time. With regard to research funding, she is a Project Leader and Data Management and Analysis Core director for two program projects funded by NIEHS and EPA. She is also PI of an NIAID-funded R01 aimed at examining the impact of mouse allergen exposure on asthma in inner-city Baltimore. Lastly, she is a co-investigator in the Inner-City Asthma Consortium and the PI of a multi-center trial evaluating the effect of a home mouse allergen intervention on asthma morbidity in urban children. She has served in many leadership positions, including as Chair of the Workshops Committee of the American Academy of Allergy, Asthma and Immunology (AAAAI) and Vice Chair of the Pollution and Allergen Committee of the AAAAI. She also serves on the Executive Committee of the Section on Allergy and Immunology of the American Academy of Pediatrics.

### **Mearns,Linda**

#### **National Center for Atmospheric Research**

Dr. Linda O. Mearns is Director of the Weather and Climate Impacts Assessment Science Program (WCIASP) and Head of the Regional Integrated Sciences Collective (RISC) within the Institute for Mathematics Applied to Geosciences (IMAGe), and Senior Scientist at the National Center for Atmospheric Research, Boulder, Colorado. She served as Director of the Institute for the Study of Society and Environment (ISSE) for three years ending in April 2008. She holds a Ph.D. in Geography/Climatology from UCLA. She has performed research and published mainly in the areas of climate change scenario formation, quantifying uncertainties, and climate change impacts on agro-ecosystems. She has particularly worked extensively with regional climate models. She has been an author in the Intergovernmental Panel on Climate Change 1995, 2001, and 2007 Assessments regarding climate variability, impacts of climate change on agriculture, regional projections of climate change, climate scenarios, and uncertainty in future projections of climate change. For the Fifth Assessment Report (due out in 2013) she is a lead author of Chapter 21 on Regions in WG2. She leads the multi-agency supported North American Regional Climate Change Assessment Program (NARCCAP), which is providing multiple high-resolution climate change scenarios for the North American impacts community. She has been a member of the National Research Council Climate Research Committee (CRC), the NAS Panel on Adaptation of the America's Climate Choices Program, and the NAS Human Dimensions of Global Change (HDGC) Committee. She currently is a member of the National Academy of Sciences Panel on Advancing Climate Modeling. She has worked extensively with resource managers (e.g., water resource managers and ecologists) to form climate change scenarios for use in adaptation planning. She was made a Fellow of the American Meteorological Society in January 2006. She currently receives funding from National Aeronautics and Space Administration, the Department of Defense, National Science Foundation and the U.S. Geological Survey for her research.

### **Meeker,John**

#### **University of Michigan**

Dr. John Meeker is Associate Professor and Associate Chair in the University of Michigan School of Public Health's Department of Environmental Health Sciences. He holds a B.S. in Industrial Technology from Iowa State University, as well as M.S. and Doctor of Science (Sc.D.) degrees in Environmental Science & Engineering and Exposure, Epidemiology & Risk, respectively, from Harvard University. He is a Certified Industrial Hygienist (CIH). Dr. Meeker's work is wide-ranging, and focuses on defining sources, magnitudes and consequences of human exposure to environmental and occupational contaminants, as well as identifying and evaluating strategies to control harmful exposures. Much of his current research involves human exposure science and reproductive and developmental epidemiology studies of known or suspected endocrine disrupting chemicals, such as phthalates, BPA, pesticides, flame retardants, and others. Dr. Meeker is principal investigator on numerous large-scale research studies, is Associate Editor of Environmental Health Perspectives, has authored of over 75 peer-reviewed journal articles and book chapters, and has served on EPA IRIS peer-review and FIFRA science advisory panels in recent years. Currently his research is funded by the National Institutes of Health, the National Institute for Environmental Health Sciences, the National Cancer Institute and the EPA.

### **Menon,Surabi**

#### **ClimateWorks Foundation**

Dr. Surabi Menon heads the research department at ClimateWorks Foundation, whose mission is to support policies that prevent dangerous climate change by focusing on regions and sectors that have the greatest potential to reduce greenhouse gases. Dr. Menon has a Bachelor's degree in Physics from the University of Bombay, India, an M.S. in Atmospheric Sciences from Purdue University and a Ph.D. in Atmospheric Sciences from North Carolina State University. She also has an MBA in Sustainable Management from Presidio Graduate School. She is currently an affiliate scientist at Lawrence Berkeley National Laboratory where her work focused on global climate change impacts due to aerosols, clouds and reflective surfaces through research grants from National Aeronautics and Space Administration and the Department of Energy and other agencies. Her current work at ClimateWorks Foundation focuses on the linkages between science, technology, policy and impacts of emissions, with an emphasis on the co-benefits of air quality and climate change. She is the elected Secretary for Atmospheric Sciences for the American Geophysical Union (2010-2012) and has served on several agency panels including the recent EPA Council on Clean Air Compliance Analysis, Black Carbon Review Panel and an EPA multipollutant science assessment expert panel. She serves on the steering

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committee for the Low Emissions Development Strategies Global Partnership founded to advance low emissions development through coordination, information exchange, and cooperation among programs and countries working to advance low emissions growth.

### **Murphy, Eileen**

#### **Rutgers University**

Dr. Eileen Murphy is the Director of Research and Grants at the Rutgers University Ernest Mario School of Pharmacy. She holds a B.S. in English with a minor in Biology from the University of Notre Dame (1983), an M.S. in Environmental/Outdoor Education from Northern Illinois University (1984), and a Ph.D. in Environmental Science from Rutgers University (1989). Dr. Murphy coordinates multi-disciplinary research projects among faculty in pharmacology, toxicology, communication, environmental science, engineering and other disciplines at Rutgers. Her research interests include occurrence, fate and transport of pharmaceuticals and other anthropogenically-derived organic chemicals in the environment. Prior to holding this position, Dr. Murphy served as the Director of the New Jersey Department of Environmental Protection (NJDEP) Division of Science, Research and Technology. She held the position of Assistant Director for the group for four years before that and served as a research scientist for 15 years within the group, developing an expertise in the drinking water field. Dr. Murphy has focused much of her career on drinking water science, including contaminant occurrence and fate & transport. She has been involved in the issue of unregulated contaminants in drinking water and the treatment to remove them from finished water. Dr. Murphy's particular research emphasis is on exposures to toxic substances, fate and transport of toxic substances and assessments of the potential risks to human health and the environment posed by these exposures. Dr. Murphy's research has been conducted without the support of grants from either government agencies or private companies. She is co-author on numerous peer-reviewed scientific papers that have appeared in scholarly journals, including Environmental Science and Technology. Dr. Murphy currently has no federal research grant funding.

### **Nandedkar, Arvind**

#### **Howard University**

Dr. Arvind K. N. Nandedkar, Professor of Biochemistry and Molecular Biology, College of Medicine, joined the Howard University faculty in 1968. Currently, he serves as the Safety Officer for the College of Medicine Complex. He has served as the Director of the Metabolic Screening- Biochemical Genetics Laboratory, in the Department of Pediatrics and Child Health, and the Acting Director of Clinical Chemistry Laboratory, Howard University Hospital. He is a Diplomate, American Board of Clinical Chemistry (1979) and a Certified Professional Chemist of the American Institute of Chemists. He is a Fellow of the College of the Forensic Examiners (1995) and is Board Certified in Forensic Medicine (1996). Dr. Nandedkar earned his Bachelor of Science degree in Chemistry, Botany, Geology (1959) and the Master of Science degree in Biochemistry and Physiology (1961) from Nagpur University, Nagpur, India. He received his Ph.D. degree in Medical Biochemistry (1966) from The V.P. Chest Institute, Delhi University, India. Dr. Nandedkar completed his post-doctoral fellowships at the Georgetown University (1966-68). He has served as a Visiting Professor at the Cornell Medical Center's New York Hospital (1975-1977, 1979-80), Mt. Sinai Medical Center and Hospital, New York (1979-80), and the USAMRIID (U.S. Army), Ft. Derrick (1982, 1983). He has received Atomic Energy Commission Fellowship, NIH Fellowship and the National Library of Medicine Fellowship, as well as Visiting Scientist Awards from the U.S. Army Medical Program/Battle Engineering and the Minority Student Science Careers Support Program, the American Society of Microbiology. Dr. Nandedkar is a member of the Association of Clinical Scientists and American Association for Clinical Chemistry as well as a Fellow of the American Institute of Chemists; a Fellow of The American College of Forensic Examiners, a Fellow of Society of Toxicology. Dr. Nandedkar is the first person of color to achieve the National Peer Recognition by his election as the President of the American Institute of Chemists (2000-2002), headquartered in Philadelphia, PA.

### **Nevius, Tim**

#### **Horiba Instruments Inc**

Dr. Tim Nevius is an Analytical Specialist at Horiba Instruments in Ann Arbor, Michigan. He received a Ph.D. in Analytical Chemistry from Purdue University in Lafayette, Indiana in 1984, and a B.S. in Chemistry from Wright State University in Dayton, Ohio. He has conducted research and designed analytical instruments for measuring many of the high profile criteria emissions from internal combustion engines in the US and internationally. His research includes hybrid vehicles, alternative fuels, diesels, and particulate and gaseous emissions at ultra-low concentrations in ambient air and vehicle exhaust. He has 20 years experience with certifying vehicles in chassis and engine dynamometer test cells, and equal experience with real-world on-board vehicle emission testing. Dr. Nevius has published more than 20 technical papers related to vehicle and air emissions, and holds five patents on emission instrumentation. He serves as an advisor to the Brazilian (CETESB) government, as well as the United Nations WLTP committee for global emissions standards. He is an active participant in the Society of Automotive Engineers emissions forums, and he is a member of the American Chemical Society and the Association of Analytical Chemists.

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### Orlov,Alexander

#### Stony Brook University

Dr. Alexander Orlov is an Assistant Professor of Materials Science and Engineering at State University of New York, Stony Brook, USA. He is also a faculty member of the Consortium for Interdisciplinary Environmental Research and affiliate faculty of Chemistry Department. His major research and teaching activities are in evaluation of hazardous materials interactions with various environmental interfaces; air quality issues; energy and environment; risk assessment of hazardous substances and nanomaterials; physicochemical methods of water and air treatment; sustainable energy, and green chemistry and engineering. Dr. Orlov has five degrees from various European and the US institutions, including: Doctoral and Master's degrees in Physical and Environmental Chemistry from the University of Cambridge (UK) and Master's degree in Environmental Engineering from the University of Michigan. He also holds Diploma in Economics from the London School of Economics. Dr. Orlov's research is supported by the National Science Foundation (NSF), the State of New York, the Department of Education and industry. In 2007 Dr. Orlov was appointed by the UK Secretary of State to advise the Government on such environmental issues as risk assessment of hazardous substances and environmental impact of nanotechnology. He was reappointed in 2011. Dr. Orlov is the first ever US based advisory committee member and was the author of numerous risk assessment reports to the UK government. Among his current activities Dr. Orlov contributes to the work of the United Nations Environmental Program as a Lead Author for the Global Environmental Outlook (GEO) report. He also contributes to activities of the UK Parliamentary and Scientific Committee, as first ever US based member; as well as to activities of the Environmental Chemistry Division of the American Chemical Society, as a Member-at-Large (elected position) and organizer of several symposia. He is reviewer of grant proposals submitted to over 13 US (including 4 NSF programs), Canadian and European governmental funding agencies. His current research is funded by the National Science Foundation.

### Philbert,Martin

#### University of Michigan

Dr. Martin Philbert is Professor of Toxicology and Dean of the University of Michigan School of Public Health. He earned his Bachelor of Science degree from the College of Arts and Technology at Cambridge, and his doctorate from the London University Royal Postgraduate Medical School. He was awarded a postdoctoral fellowship in the Neurotoxicology Laboratories at Rutgers University. Dr. Philbert served as a research assistant professor at Rutgers' Neurotoxicology Laboratories until 1995 when he joined the faculty at the University of Michigan School of Public Health as an assistant professor of toxicology. He was promoted to associate professor in 2000 and to professor in 2004. He served as associate chair for research and development in the Department of Environmental Health Sciences from 2000-03. In 2004, Dr. Philbert was appointed senior associate dean for research of the School of Public Health, a position he held through 2010 when he was appointed as Dean. He also served as interim director of the Center for Risk Science and Communication from 2004-10. He has maintained a continuously federally funded portfolio of basic research activities throughout his career. His research focuses on the development of flexible polymer nanoplateforms for optical sensing of ions and small molecules and the early detection and treatment of brain tumors (funded by the National Institutes of Health and National Cancer Institute). Other research interests include the mitochondrial mechanisms of chemically-induced neuropathic states and the modulation of immune-gastrointestinal function by nanosilver (both projects funded by the National Institutes of Health). Dr. Philbert served as the Vice-Chair of the National Academies National Research Council (NCR) Committee for the Review of the Federal Strategy to Address Environmental, Health, and Safety Research Needs for Engineered Nanoscale Materials, and Chaired the U.S. Food and Drug Administration (USFDA) Science Board Committee on Bisphenol A. Dr. Philbert served on the National Advisory Environmental Health Council of the National Institute of Environmental Health Sciences and provides consultation to federal agencies on a variety of issues surrounding emerging nanotechnologies. He is a Standing Member of the US Food and Drug Administration Science Advisory Board and the past chair of the U.S. Environmental Protection Agency (U.S. EPA) Board of Scientific Counselors.

### Polasky,Stephen

#### University of Minnesota

Dr. Stephen Polasky holds the Fesler-Lampert Chair in Ecological/Environmental Economics at the University of Minnesota where he is a member of the Department of Applied Economics and the Department of Ecology, Evolution and Behavior. He is also a Faculty Fellow at the Institute on the Environment, and the Law School, and a graduate faculty member of the Conservation Biology, Water Resources, and Natural Resource Science and Management Graduate Programs. He received a Ph.D. in Economics from the University of Michigan. He served as senior staff economist for environment and resources for the President's Council of Economic Advisers. He has served on the SAB, the SAB Committee on Valuing Ecosystems and Services, and the Environmental Economics Advisory Committee for US EPA. He serves on the Governing Board of the Natural Capital Project, the Board of Directors for the Beijer Institute of Ecological Economics, the Sustainability External Advisory Committee for the Dow Chemical Company, and the Board of Directors and the Science Council of The Nature Conservancy. He is a University Fellow at Resources for the Future, a Research Fellow at the Beijer Institute of Ecological Economics, and a Research Associate in the Environmental & Energy Economics Program at the National Bureau of Economic Research. His research focuses on issues at the intersection of ecology and economics. His research interests focuses on land use, the value of ecosystem services and natural capital, biodiversity conservation, sustainability, environmental regulation, renewable energy, and common property resources. Over the past five years he has received research funding from the National Science Foundation, the National Aeronautics and Space Administration, the Minnesota Pollution Control Agency, Friends of the Boundary Waters, and the University of Minnesota. He was elected into the National Academy of Sciences in 2010. He was elected as a Fellow of the Association of Environmental and Resource Economists in 2011, the American Academy of Arts and Sciences in 2009, and the American Association for the Advancement of Science in 2007.

## List of Candidates for the Chartered Science Advisory Board (SAB)

### Reible,Danny

#### University of Texas

Dr. Danny Reible is the Bettie Margaret Smith Chair of Environmental Health Engineering at the University of Texas and Director of the Center for Research in Water Resources. Dr. Reible holds BS (Lamar), MS (Caltech) and PhD (Caltech) degrees in Chemical Engineering. His research career has been focused on understanding the fate and transport of contaminants in the environment, particularly in surface waters and sediments. His work develops tools to assess and manage the risks posed by contaminants. He has authored two books and edited four, and authored more than 110 refereed technical papers and more than 30 chapters in books. He served on the National Research Council Board of Environmental Studies and Toxicology and on five National Research Council committees and is a member of the EPA SAB Environmental Engineering Committee (EEC). He is a Board Certified Environmental Engineer, a Professional Engineer and in 2005 was elected to the National Academy of Engineering for the "development of widely used approaches for the management of contaminated sediments". He has received the LK Cecil Award of the American Institute of Chemical Engineers and the New Frontiers in Research Award of the Association of Environmental Engineering and Science Professors. Dr. Reible is a Fellow of the American Institute of Chemical Engineers and the American Association for the Advancement of Science and Associate Editor of four technical journals. His research has been supported by grants from both government agencies and private companies, with core grant research support primarily being from federal and state government and public and private organizations and companies (including Chevron, Department of Defense, District of Columbia, DuPont, Electric Power Research Institute, Environmental Protection Agency (US), Louisiana Biotechnology Initiative, National Institute of Environmental Health Sciences, National Science Foundation, Oregon Department of Environmental Quality, Parsons Engineering, and URS Corporation).

### Richardson,David

#### University of North Carolina

David B. Richardson, PhD is Associate Professor of Epidemiology in the School of Public Health at the University of North Carolina at Chapel Hill. His research focuses on the health effects of occupational and environmental exposures, particularly with regards to ionizing radiation. He has conducted studies of cancer among nuclear workers at several U.S. Department of Energy facilities, as well as studied cancer among the Japanese survivors of the atomic bombings of Hiroshima and Nagasaki. He has served as a visiting scientist at the World Health Organization's International Agency for Research on Cancer in Lyon, France and at the Radiation Effects Research Foundation in Hiroshima, Japan. Since 2007, he has served as Director of the National Institute of Occupational Safety and Health-funded training program in occupational epidemiology at the University of North Carolina-Chapel Hill. In addition, he is a core faculty member at the Injury Prevention Research Center at the University of North Carolina, and a member of the Exposure and Biomarkers Research Core at the University's Center for Environmental Health and Susceptibility. He is an Associate Editor of the journals Occupational and Environmental Medicine, American Journal of Epidemiology and Environmental Health Perspectives, is a member of the President's Advisory Board on Radiation and Worker Health, and currently serves on the Institute of Medicine's Committee on Review of the Department of Labor's Site Exposure Matrix Database. Dr. Richardson's current research includes studies of mortality among workers in the nuclear industry and development of innovative methods for occupational cancer studies. These research activities are supported by grants from the National Institute for Occupational Safety and Health, and the National Cancer Institute. Dr. Richardson received a Ph.D. and M.S.P.H., both in epidemiology, from the University of North Carolina.

### Rodewald,Amanda

#### The Ohio State University

Dr. Amanda Rodewald is Professor of Wildlife Ecology in the School of Environment and Natural Resources at The Ohio State University. She holds a B.S. in Wildlife Biology from The University of Montana, an M.S. in Zoology from The University of Arkansas, and a Ph.D. in Ecology from The Pennsylvania State University. Dr. Rodewald's research program seeks a mechanistic understanding of the responses of animal communities to human activities and global change, which requires her to work at multiple spatial scales and across multiple levels of biological organization. As such, her research touches on a variety of sub-disciplines, including conservation biology, landscape ecology, population demography, community ecology, behavioral ecology, and ecological restoration. Her current work focuses on understanding (1) how community organization and species interactions are affected by land use change, invasive species, altered disturbance regimes, and anthropogenic resource subsidies, (2) socioecological drivers of avian population, community, and landscape dynamics, (3) modified selective environments in human-dominated systems, and (4) population and community responses of forest birds to land use change in the U.S. and South America. Dr. Rodewald consistently extends research findings to managers, decision-makers, and private individuals in the U.S. and Neotropics. She serves her professional societies and university by serving on governance councils, advisory boards, and committees, and was recently a CIC Academic Leadership Fellow. Dr. Rodewald also contributes to the national and state-level environmental decision-making process in her ad-hoc advisory and panel roles with National Science Foundation, U.S. Department of Agriculture Forest Service, U.S. Fish and Wildlife Service, Ohio Department of Natural Resources, and North American Bird Conservation Initiatives. Over the last decade, her research has been funded by National Science Foundation (NSF), U.S. Fish and Wildlife Service (USFWS), Ohio Department of Natural Resources, National Council for Air & Stream Improvement, National Fish and Wildlife Foundation, American Association for the Advancement of Science, The Nature Conservancy, Ohio Agricultural and Research Development Center, Cleveland Metropark Zoo, and Ohio Ornithological Society. Dr. Rodewald's research is currently supported by grants from: the NSF (linking watershed research and GK-12 education in an ecosystem context); the USFWS (impact of cat colonies on the conservation value of protected areas to grassland birds, non-breeding ecology of Cerulean Warblers); and the Ohio Department of Natural Resources (Ohio biodiversity conservation partnership, conserving birds in urbanizing landscapes, landscape-scale responses of animal communities to urbanization).

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### Roy,Sujoy

#### Tetra Tech Inc.

Dr. Sujoy B. Roy is a Director of Tetra Tech Inc., located in Lafayette, CA. He holds a B. Tech. in Civil Engineering from Indian Institute of Technology, New Delhi, India, and an M.S. and Ph.D. in Civil and Environmental Engineering from Carnegie Mellon University. Dr. Roy is an environmental engineer with extensive experience studying water quality and water resources in applied research and regulatory contexts. Dr. Roy's particular areas of interest include the modeling and development of management plans to address water quantity and quality concerns for drinking water source protection and for addressing ecological impacts. In most instances, his work is motivated by current impairment, such as the development of total maximum daily loads or anticipation of future growth and climate change. Dr. Roy's recent studies have included the evaluation of water withdrawal sustainability across the U.S. under climate change scenarios at national and regional scales, support for the development of nutrient standards in surface waters, and modeling of contaminants of drinking water or ecological concern, such as mercury, selenium, and arsenic. He served on National Academy of Sciences panels on Missouri River Basin restoration and on Clean Water Act Implementation across the Mississippi Basin. Dr. Roy served as a member of the EPA SAB Environmental Engineering Committee (EEC) panel that provided advice to EPA on its draft hydraulic fracturing research scoping study plan and a panel on the value of water to the U.S. Economy. Dr. Roy's research is currently supported by the Electric Power Research Institute to conduct a National-Scale Analysis of Water Use Availability in River Basins and to develop case studies for the use of stormwater as a resource for power plant cooling; the U.S. Environmental Protection Agency to study the Development of TMDLs for Organic Carbon and Nutrients for Suisun Marsh, California; the Florida Coordinating Group of Electric Utilities to study Mercury Cycling in Florida Lakes and Rivers; the Metropolitan Water District of Southern California for the Development of Models for Turbidity in the Sacramento-San Joaquin Delta; the Western States Petroleum Association to conduct Selenium Monitoring in San Francisco Bay; Orange County, California, to assess Climate Change Impacts on the Development of Integrated Regional Water Management Plans; and the National Aeronautics and Space Administration to conduct an Evaluation of Impacts of Climate Variability and Change at NASA Ames Research Center in Silicon Valley California.

### Salawitch,Ross

#### University of Maryland

Dr. Ross Salawitch is a professor at the University of Maryland's college of computer, mathematical, and natural sciences. He received the Yoram J. Kaufman Award for Unselfish Cooperation in Research and the NASA Exceptional Achievement Medal for "exceptional contribution to the WMO/UNEP Ozone Assessment Report" for the "crucial contributions to the evaluation of stratospheric models used in environmental assessment." He has served on the Air Quality Control Advisory Council for Maryland's Department of the Environment and is a Board Member of the University Park Community Solar LLC. He received his Ph.D. in Applied Physics from Harvard University in 1987 and was a Postdoctoral Fellow and Research Associate at Harvard University from 1988-1994. His research interests include the quantification of the effects of human activity on the composition of Earth's atmosphere by the development of computer models used to analyze a wide variety of observations. Focus on stratospheric ozone depletion and recovery, air quality, climate change, and the global carbon cycle. Participant in numerous NASA atmospheric chemistry field campaigns and Earth Observing Satellite missions. His research paper "New interpretation of atmospheric bromine during Arctic spring" was featured on the cover of Vol. 37, No. 21 (16 Nov 2010) issue of Geophysical Research Letters. His research is funded by the National Aeronautics and Space Administration.

### Sayler,Gary

#### University of Tennessee

Dr. Gary S. Sayler is Beaman Distinguished University Professor in Microbiology, and Ecology and Evolutionary Biology at the University of Tennessee, Knoxville. He is Director of the UT-ORNL Joint Institute for Biological Sciences at Oak Ridge National Laboratory and Director of the Center for Environmental Biotechnology at UTK. He received his Ph.D. (1974) in Bacteriology and Biochemistry from the University of Idaho where he conducted research on heterotrophic utilization of organic carbon in freshwater environments. This was followed by postdoctoral training in Marine Microbiology and Biodegradation at the University of Maryland after which he joined the faculty of the University of Tennessee in 1975. He is the Founding Director (1986) of the Center for Environmental Biotechnology, an interdisciplinary Research Center-of-Excellence, and was Director of the Waste Management Research and Education Institute a Tennessee Center-of-Excellence, and Interim Director of the Institute for a Secure and Stable Environment. He is a principal in forming the China-US Joint Research Center for Ecosystem and Environmental Change (2006). Over his career he has directed over \$40,000,000 in environmental, biodegradation, and molecular ecological research for numerous federal, state, and industrial sponsors. He has directed the graduate programs of over 50 Ph.D. and 20 Master's students in Microbiology, Ecology, and Evolutionary Biology, Genome Sciences, and Engineering. He has edited five books and published over 330 publications in broad areas of molecular biology, environmental microbiology, biodegradation, and biotechnology, and holds 16 patents on environmental gene probing, genetic engineering for bioremediation, bio-electronic sensor technology, environmental gene expression, and eukaryotic lux mediated bioluminescence. His work has included pioneering molecular and environmental aspects of polychlorinated biphenyl (PCBs), polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, and xylene (BTEX chemicals) and trichloroethylene aerobic biodegradation and metabolism. He has given invited presentations at over 500 national and international meetings in broad areas of biotechnology and the environment. He has served on and chaired numerous panels and advisory review committees of Oak Ridge National Laboratory, Lawrence Berkeley National Laboratory, National Science Foundation, National Institutes of Health, Department of Energy, and the EPA, including service as the chair of the Office of Research and Development's Board of Scientific Counselors. During his career, he has been awarded a NIEHS Research Career Development Award (1980-1985); was named by Science Digest Top 100 Innovators in Science in 1985, he received the American Society for Microbiology, Procter and Gamble Award for Environmental Microbiology (1994), the Distinguished Alumni Award of the University of Idaho (1995) and the DOW Chemical Foundation SPHERE Award (1998-2000). He was elected to the American Academy of Microbiology in 1991 as a lifetime member and served as an ASM Foundation

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Lecturer. He has served in an editorial capacity for six journals and is currently an associate editor for Environmental Science and Technology. He has conducted recent research in areas integrating Bioluminescent Bio-reporter Integrated Circuit technology, nucleic acid environmental diagnostics, gene expression bio-sensing and monitoring in complex system analysis. Areas of research expertise include microbiology, genetic engineering, molecular biology in biodegradation and bioremediation; PAH, PCB soils, sediments, and water; molecular ecology in biological waste treatment, environmental genomics, biosensors for bioavailable pollutants including endocrine disruptors, nanotechnology, and carbon nanofibers in microbial biofilms. Dr. Saylor has current research project support engagement through FY13 of approximately \$8,500,000 originating from Department of Energy, National Science Foundation, Tennessee Technology Development Corporation, and Hampton Road Sanitation District, Hampton Roads, VA.

### Schlesinger, William

#### Cary Institute of Ecosystem Studies

Dr. William H. Schlesinger is President of the Cary Institute of Ecosystem Studies, a private ecological research institute on the grounds of the Cary Arboretum in Millbrook, NY. He assumed this position after 27 years on the faculty of Duke University. Completing his A.B. at Dartmouth (1972), and Ph.D. at Cornell (1976), he moved to Duke in 1980, where he retired in spring 2007 as Dean of the Nicholas School of the Environment and Earth Sciences and as James B. Duke Professor of Biogeochemistry. Dr. Schlesinger is the author or coauthor of over 200 scientific papers on subjects of environmental chemistry and global change and the widely-adopted textbook Biogeochemistry: An Analysis of Global Change (Academic Press, 2nd ed. 1997). He has published editorials and columns in the Charlotte Observer, Chicago Tribune, Los Angeles Times, Philadelphia Inquirer, and the Raleigh News and Observer. He was elected a member of the National Academy of Sciences in 2003, and was President of the Ecological Society of America for 2003-2004. He is also a fellow in the American Academy of Arts and Sciences, the American Geophysical Union, and the Soil Science Society of America. Dr. Schlesinger currently receives no federal research grant funding.

### Seiber, James

#### University of California, Davis

As an Environmental Toxicology faculty member since 1969, and currently Professor Emeritus, Dr. James Seiber has interests and expertise in agricultural, food and environmental chemistry, including contributions in the areas of contaminant transport and fate, with emphasis on atmospheric processes and deposition associated with the chemistry of pesticides, industrial byproducts, and naturally occurring toxicants. He is also interested in risk assessment for chemicals in the diet and in the environment, human exposure analysis, and trace organic analysis. New methods for disposing or reusing chemical, agricultural, and industrial wastes and byproducts, biobased products from renewable resources, and food protection are also of interest. He served as Director of the U.S. Department of Agriculture (USDA) Agricultural Research Service Western Regional Research Center in Albany, California (1998-2009) and founding Director of the University Center for Environmental Sciences and Engineering at the University of Nevada (1972-1998). Since January 1999, Seiber has served as Editor of the Journal of Agricultural and Food Chemistry, the largest and most recognized international journal in its field. His national/international committee service includes as a member of the National Academy of Sciences committees on Pesticides in the Diets of Infants and Children, Risk Assessment for Hazardous Air Pollutants, Non-RCRA Hazardous Waste Classification, and the Future Role of Pesticides in US Agriculture. He was also a Steering Committee member of the World Health Organization Joint International Program on Chemical Safety/Organization for Economic Cooperation and Development Committee on Endocrine Disruptors. He chaired the Risk Assessment Advisory Committee for California EPA, a statewide effort involving over 30 committee members and numerous state agency personnel. Governor Wilson signed a proclamation declaring that all of the Report's recommendations be implemented by the Boards and Departments of Cal/EPA. He is currently serving as a member of the USDA Agricultural Air Quality Task Force, and the USDA/Department of Energy Biomass R&D Initiative Committee. Seiber's degrees (A.B., M.S., and Ph.D.) are all in Chemistry

### Shepard, Peggy

#### WE ACT for Environmental Justice

Ms. Peggy Shepard is co-founder and executive director of West Harlem Environmental Action (WE ACT) which has a 24-year history of engaging New York City Northern Manhattan residents in community-based planning and campaigns to improve environmental protection and environmental health practice and policy locally and nationally. A former journalist, she holds a B.A. in English from Howard University, and has received an Honorary Doctorate from Smith College. A frequent lecturer, Ms. Shepard is a co-author of and contributor to several peer-reviewed articles and reports published in Environmental Health Perspectives and by the Institute of Medicine/ National Academy of Sciences. WE ACT has ongoing research partnerships with the Columbia Children's Environmental Health Center, and the NIEHS Center for Environmental Health in Northern Manhattan, both at the Columbia Mailman School of Public Health (funded by the U.S. Environmental Protection Agency (EPA) and the National Institute of Environmental Health Sciences (NIEHS) where it works to translate ambient and indoor air quality research into policy and community education initiatives; Montefiore Hospital Medical Center (funded by EPA and the NYS Department of Health) where it works to investigate efficient methods of training parents on indoor lead dust exposure; Mt. Sinai School of Medicine (funded by NIEHS) where it works to build the capacity of community partners to engage in ethical research partnerships, and to understand the impact of climate change on Northern Manhattan children; and the University of Pittsburgh School of Public Health (funded by EPA) where it works to understand the cumulative impact of psychosocial stress and air pollution in New York City neighborhoods. A member of the NIEHS Public Interest Partners, she served as chair of the National Environmental Justice Advisory Council (NEJAC) to the U.S. Environmental Protection Agency, and currently serves as co-chair of NEJAC's Research and Science workgroup.

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### Sheppard, Elizabeth A. (Lianne)

#### University of Washington

Dr. Elizabeth A. (Lianne) Sheppard, PhD is professor of biostatistics and environmental and occupational health sciences at the University of Washington. She holds a B.A. in psychology and a Sc.M. in biostatistics from Johns Hopkins University and a Ph.D. in biostatistics from University of Washington. Her research interests focus on understanding the health effects of environmental and occupational exposures with particular emphasis on statistical methods for environmental and occupational epidemiology. She actively collaborates on a variety of research projects in the environmental and occupational health sciences and leads the statistical analyses for the MESA Air study, a 10-year study funded by EPA to determine the effect of long-term air pollution exposure on subclinical progression of cardiovascular disease. She is a fellow of the American Statistical Association and a member of the editorial board for Epidemiology. She currently serves on the Health Effects Institute's review committee.

### Small, Mitchell J.

#### Carnegie Mellon University

Dr. Mitchell Small is the H. John Heinz III Professor of Environmental Engineering at Carnegie Mellon University (CMU). He joined the Departments of Civil and Environmental Engineering and Engineering & Public Policy (EPP) at CMU in 1982, following completion of his Ph.D. in Environmental and Water Resources Engineering at the University of Michigan. Professor Small's research involves mathematical modeling of environmental systems, risk assessment and decision support. Current projects involve the modeling of drinking water distribution systems to detect accidental or intentional contamination; modeling geologic sequestration of CO<sub>2</sub> to determine the best combination of monitoring devices needed to verify that sequestered CO<sub>2</sub> is remaining underground, and the development of decision support tools for ecosystem management with multiples stakeholders and objectives. Dr. Small has served as a member of the U.S. EPA Science Advisory Board (SAB) and has been a member of a number of U.S. National Research Council committees addressing issues of environmental risk assessment and management. He is currently a member of the U.S. Army Corps of Engineers External Review Panel for the Louisiana Coastal Protection and Restoration Project, is a Fellow and current Secretary of the Society for Risk Analysis, a feature columnist for the Journal of Industrial Ecology, and serves as an Associate Editor for the journal Environmental Science & Technology, with particular responsibility for the environmental modeling and policy analysis sections of the publication.

### Tebaldi, Claudia

#### Climate Central Inc.

Dr. Claudia Tebaldi obtained a Ph.D. in Statistics from Duke University and has been working on statistical analysis applied to the atmospheric and climate sciences since then. Her expertise is in the analysis of observations and climate model output in order to characterize observed and projected climatic changes and their uncertainties. She has published papers on detection and attribution of these changes, on extreme value analysis, future projections at regional levels and impacts of climate change on agriculture and human health. She is adjunct professor of Statistics at UBC-Vancouver, member of the National Research Council Board on Atmospheric Sciences and Climate, and is currently a lead author for the International Panel on Climate Change Fifth Assessment Report, within Working Group Research funding is provided by Climate Central, a nonprofit organization that lists its funders at <http://www.climatecentral.org/what-we-do/funding/> and by the Department of Energy, National Science Foundation, National Institutes of Health and a private foundation, the Moore Foundation.

### Tolbert, Paige

#### Emory University

Dr. Paige Tolbert is Professor and Chair of the Department of Environmental Health at the Rollins School of Public Health of Emory University. She holds a joint appointment in the Department of Epidemiology, and a cross-appointment at Emory's Graduate School of Arts and Sciences. Dr. Tolbert received a B.A. in biochemistry from Harvard College, and both an M.S.P.H. in environmental science and Ph.D. in epidemiology from the University of North Carolina Chapel Hill. Following a post-doctoral fellowship at the Harvard School of Public Health, she joined the faculty of Emory University in 1993. Dr. Tolbert has devoted the past twenty years to research, teaching and service in environmental epidemiology. She is interested in understanding the role of environmental exposures in the etiology of acute and chronic health outcomes. In studies ranging from intensive molecular lab-based studies to large cohort studies, Dr. Tolbert has studied carcinogens, endocrine disruptors, pesticides, water pollution, and most recently the pulmonary, cardiac and reproductive health effects of ambient air pollution. The air pollution work is encompassed by a collection of studies called the Studies of Particles and Health in Atlanta (SOPHIA), supported by multiple grants in the past ten years, and recently has culminated in the award of a new EPA Clean Air Research Center, an \$8M five-year collaboration with Georgia Tech. She also directs a NIOSH-funded graduate training program. Dr. Tolbert has served on numerous expert panels and grant reviews, including the USEPA's chartered Science Advisory Board, the agency's primary source of guidance on priorities and future directions.

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### Trasande, Leonardo

#### New York University School of Medicine

Dr. Leonardo Trasande is a faculty member in pediatrics and environmental medicine at the NYU School of Medicine, and in health policy at the NYU Wagner School of Public Service. His research focuses on identifying the role of environmental and other factors in chronic childhood disease, and documenting the economic costs for policy makers of failing to prevent them proactively. Dr. Trasande is perhaps best known for a 2011 study in Health Affairs which found that children's exposures to chemicals in the environment cost \$76.6 billion in 2008. His analysis of the economic costs of mercury pollution played a critical role in preventing the Clear Skies Act (which would have relaxed regulations on emissions from coal-fired power plants) from becoming law. His studies have documented increases in hospitalizations associated with childhood obesity and increases in medical expenditures associated with being obese or overweight in childhood, and have been cited in the Presidential Task Force Report in Childhood Obesity. He serves on a United Nations Environment Programme Steering Committee which is developing a Global Outlook on Chemicals Policy, on the World Trade Center Health Program Science and Technical Advisory Committee, and on the Executive Committee of the Council for Environmental Health of the American Academy of Pediatrics. He recently served on the Board of Scientific Counselors for the National Center for Environmental Health at the Centers for Disease Control and Prevention, and on the Steering Committee for the National Children's Study. Dr. Trasande has completed and is pursuing studies across the world examining the consequences of chemical exposures. NIEHS and Fogarty support a thriving pilot birth cohort of prenatal methylmercury exposure in communities near Lake Chapala, the largest lake in Mexico (R21ES018723). The Passport Foundation supports recontact of a birth cohort in New Zealand to examine later life cognitive and cardiovascular consequences of prenatal methylmercury exposure. A recent study led by Dr. Trasande identified proximity to a hazardous waste site in Uganda as a major predictor of childhood lead poisoning. Dr. Trasande earned a Master's degree in Public Policy from Harvard's Kennedy School of Government, and an M.D. from Harvard Medical School. He completed a pediatrics residency at Boston Children's Hospital, a Dyson Foundation Legislative Fellowship in the office of Senator Hillary Rodham Clinton, and a fellowship in environmental pediatrics at the Mount Sinai School of Medicine.

### VanBriesen, Jeanne

#### Carnegie Mellon University

Dr. Jeanne M. VanBriesen is a Professor of Civil and Environmental Engineering and the Director of the Center for Water Quality in Urban Environmental Systems (Water QUEST) at Carnegie Mellon University. Dr. VanBriesen holds a B.S. in Education and a M.S. and Ph.D. in Civil Engineering from Northwestern University. Her research is in environmental systems, including biotransformation of recalcitrant organics, detection of biological agents in drinking water and natural water systems, and speciation-driven biogeochemistry of chelating agents and disinfection by-products. Dr. VanBriesen is currently leading a study of the impacts of hydraulic fracturing produced water on surface water sources of drinking water. In particular, she is examining the potential for increased production of brominated organic compounds in drinking water systems due to increases in bromide concentrations in source water. Dr. VanBriesen is also participating in design and implementation of a real-time water quality monitoring system at drinking water plants in the Monongahela River. She is very active with local and regional watershed groups focused on understanding urban water issues in Pittsburgh and the Ohio River Valley. Dr. VanBriesen has served on the boards of the Association for Environmental Engineering and Science Professors and the Ohio River Basin Consortia for Research and Education. Dr. VanBriesen has received numerous awards, including the Pennsylvania Water Environment Association Professional Research Award in 2007 and the Best Research Paper in the Journal of Water Resources Planning and Management in 2008. Dr. VanBriesen served on the National Research Council's Committee on Water Quality in Southwestern Pennsylvania in 2002-2004. She was a selected presenter at the National Academy of Engineering Indo-US Frontiers of Engineering Symposium on Infrastructure in 2008, and she was the National Academy of Engineering Gilbreth Lecturer in 2011. Currently, her principal research funding comes from the National Science Foundation and private foundations.

### Wallace, Kendall

#### University of Minnesota Medical School

Dr. Kendall B. Wallace is a Professor of Biochemistry & Molecular Biology at the University of Minnesota Medical School-Duluth. He received his B.S. in Biochemistry and his Masters and Ph.D. degrees in Physiology from Michigan State University. He then completed a postdoctoral Fellowship in Toxicology at the University of Iowa. His primary area of research is mitochondrial toxicity, with a focus on how drug or environmental exposures lead to various metabolic disorders, including diabetes, metabolic syndrome and cancer. His research has been funded primarily by the NIH, The American Heart Association and the 3M Company. Dr. Wallace has published over 100 full-length peer-reviewed manuscripts, five book chapters and four technical reports, and has edited scientific reference books on Free Radical Toxicology and Molecular Biology of the Toxic Response. He has served on numerous journal editorial boards and is currently co-Editor of Toxicology. Dr. Wallace has been elected as President of the Society of Toxicology (SOT), Chair of the Board of Directors for the American Board of Toxicology (ABT), Chair of the Board of Trustees for the Health and Environmental Sciences Institute and member of the Science and Medical Advisory Board for the United Mitochondrial Disease Foundation. He has also served on working groups and study sections for the National Institutes of Health and on scientific advisory panels for the U.S. EPA and the FDA. Dr. Wallace served as Councilor to the International Union of Toxicology and the Executive Committee of the International Congress of Toxicology. He's an elected Fellow of the Academy of Toxicological Sciences and currently serves on its Board of Directors. Dr. Wallace is a medical expert for the HRSA National Vaccine Injury Compensation Program and serves on the Food Safety Advisory Panel to the FDA. He is also president of StrataTox, LLC providing expert toxicology consulting.

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### Watts, Robert

#### Tulane University

Dr. Robert G. Watts attended Tulane University, receiving a B.S. in Mechanical Engineering in 1959. He received a M.S. from M.I.T the following year and a Ph.D. from Purdue University in 1965. After teaching at Tulane for several years he studied Atmospheric and Ocean Sciences on an NSF Senior Postdoctoral Fellowship at Harvard University during academic year 1969-70. In 1975 he spent a year at the Institute for Energy Analysis in Oak Ridge, and in about 1990 he spent ten months at the International Institute for Applied Systems Analysis in Laxenburg, Austria. A few years later he spent a semester sabbatical leave at Battelle in Washington D.C. He is founder and past director of the South Central Region of the National Institute for Global Environmental Change, which is funded by the Department of Energy. After retiring from Tulane as the Cornelia and Arthur L. Jung Professor of Mechanical Engineering in 2007 he taught at the United States Naval Academy for one semester. Dr. Watts currently receives no federal research grant funding.

### Webster, Mort

#### Massachusetts Institute of Technology

Dr. Mort David Webster is an Assistant Professor of Engineering Systems, with a focus on energy and environmental systems. Prof. Webster specializes in risk analysis, uncertainty analysis, and decision-making under uncertainty. He has published numerous peer-reviewed articles in energy and environmental science, economics, and policy, and has served on several national and international panels, including the U.S. Climate Change Science Program. Current research projects include stochastic dynamic modeling of the electric power system focusing on the integration of intermittent renewable generation [funding from the National Science Foundation (NSF)], modeling technological change as a stochastic process and implications for near-term R&D portfolios (funding from NSF and the Department of Energy), and flexible air quality strategies under uncertainty using integrated economic/energy/chemistry regional models (funding from NSF and the EPA). Prof. Webster is active in several research centers at MIT, including the Center for Energy and Environmental Policy Research (CEEPR), the Joint Program on the Science and Policy of Global Change, and the MIT Energy Initiative. Prior to returning to MIT, Prof. Webster was an assistant professor of public policy in the Department of Public Policy at the University of North Carolina at Chapel Hill. He received a Ph.D. (2000) in Engineering Systems and a M.S. (1996) in Technology and Policy from MIT, and a B.S.E. (1988) in Computer Science and Engineering from the University of Pennsylvania.

### Wilson, Vincent

#### Louisiana State University

Dr. Vincent L. Wilson is a professor in the department of environmental sciences, the director of a senior college bachelors degree program in the School of the Coast & Environment, and the chair of the campus radiation safety at Louisiana State University. He holds a B.S. in chemistry from Sonoma State University, an M.S. in physical chemistry from University of California, Davis, and a Ph.D. in Pharmacology & Toxicology from Oregon State University. Over the course of more than 30 years, the majority of Dr. Wilson's research work has been focused on the induction of human disease, mainly cancer and genetic diseases by chemical and physical agents. Although much of this work has been in chemical carcinogenesis and molecular genetics of cancer, exogenous impacts on germ cells, and on fetal and embryonic tissue development leading to genetic disease or the inheritance of predisposition to disease has also been an area of focus. Grants from the National Institutes of Health, National Science Foundation, the EPA, private foundations and state agencies have funded his research efforts. Dr. Wilson has served on several review boards, scientific advisory boards, national and state committees, and professional society committees. He has chaired the Molecular Genetics Committee of the Mountain States Regional Genetics Services Network, a six state regional, federally supported commission for the dissemination of information on genetic disease. He is presently a member of two journal editorial boards, a foundation scientific advisory board, and the Louisiana State Advisory Commission on Pesticides.

## List of Candidates for the Chartered Science Advisory Board (SAB)

### Yang, Raymond

#### Colorado State University

Dr. Raymond S. H. Yang is Professor Emeritus of Toxicology and Cancer Biology, and the former leader of the Quantitative and Computational Toxicology Group, at the College of Veterinary Medicine and Biomedical Sciences, Colorado State University (CSU). Between October 2007 and July 2009, Dr. Yang had also been a Visiting Scientist at the National Center for Environmental Assessment, U.S. EPA, Cincinnati, to work on 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) and chemical mixture toxicology and risk assessment, among other projects. Dr. Yang's research focuses on physiologically based pharmacokinetic/pharmacodynamic (PBPK/PD) modeling, and other biologically-based computer modeling with a special emphasis on the toxicology of chemical mixtures. Dr. Yang has had extensive research and administrative experience in academia, chemical industry, and the federal government. At CSU in the last 20 years, Dr. Yang had served in the capacity as a Department Head, a Center Director, and the Director for a National Institute for Environmental Health Sciences (NIEHS) Quantitative Toxicology Training Program. Since June 2010, Dr. Yang has retired from the CSU but during his tenure at CSU in the past 20 years or so his research funding was principally from the NIEHS, Centers for Disease Control, and Department of Defense for toxicological interactions of chemicals including biologically based computer modeling. Dr. Yang publishes extensively in biomedical journals and is the editor/co-editor of two books; Toxicology of Chemical Mixtures: Cases Studies, Mechanisms, and Novel Approaches (1994), and Physiologically Based Pharmacokinetics: Science and Applications (2005). Dr. Yang is a Fellow of Academy of Toxicological Sciences and served on many prestigious national and international committees and panels. Presently, Dr. Yang is working part-time as an international consultant; part of this service includes Dr. Yang's continuing teaching of his "PBPK Modeling Workshop for Beginners" at CSU and elsewhere in the US, Europe, and Asia.

### Zheng, Wei

#### Purdue University

Dr. Wei Zheng received his bachelor's degree in Pharmacy from the College of Pharmacy, Zhejiang University, Hangzhou, China, his master's degree in Pharmacology from Zhejiang University and his doctorate degree in Pharmacology and Toxicology from College of Pharmacy, University of Arizona. He has been a professor and associate dean at Purdue University. He is the Head of the School of Health Sciences responsible to the University President and State shareholders and as such bears the primary responsibility for strategic planning and execution, and management of faculty and staff, budget, space and financial resources. He plans and oversees the programs to assure appropriate delivery of the School's educational and research missions and raises funds and facilitates alumni relationships. His expertise is on environmental and occupational exposure of toxic chemicals, particularly toxic metals, derived from his internationally collaborative neurotoxicological research in animal models as well as human cohorts. He has served on numerous federal agency panels for NIH/NIEHS and is a member of a number of scientific organizations. His current research is funded by the National Institutes of Health.