

# Biosketches of Members of the Chartered Science Advisory Board

## Swackhamer, Deborah L., Chair

Dr. Deborah L. Swackhamer is Professor and Charles M. Denny Jr., Chair in Science, Technology, and Public Policy in the Hubert H. Humphrey School of Public Affairs, and Co-Director of the University's Water Resources Center. She also is Professor in Environmental Health Sciences in the School of Public Health. She received a BA in Chemistry from Grinnell College (Grinnell, IA) and a MS and PhD from the University of Wisconsin-Madison in Water Chemistry and Limnology & Oceanography, respectively. After two years post-doctoral research in Chemistry and Public & Environmental Affairs at Indiana University, she joined the Minnesota faculty in 1987. She has studied the processes affecting the behavior of, and exposures to, toxic chemicals in the environment, including bioaccumulative chemicals in the Great Lakes and environmental estrogens in wastewater. Dr. Swackhamer currently serves as Chair of the chartered Science Advisory Board of the US Environmental Protection Agency, and on the Science Advisory Board of the International Joint Commission of the US and Canada. She currently serves on the National Research Council, National Academy of Sciences committee reviewing the USGS National Assessment of Water Quality Program. She is appointed by Governor Pawlenty to serve on the Minnesota Clean Water Council. Dr. Swackhamer is a member of the Editorial Advisory Board for the journal Environmental Science & Technology, and she chairs the Editorial Advisory Board of the Journal of Environmental Monitoring. She is a Fellow in the Royal Society of Chemistry in the UK. Dr. Swackhamer received the 2007 Harvey G. Rogers Award from the Minnesota Public Health Association. She received the prestigious Founders Award from the Society of Environmental Toxicology and Chemistry for lifetime achievement in environmental sciences in 2009. She is the 2010 recipient of the University of Minnesota's Ada Comstock Award.

## Allen, David T.

Dr. David T. Allen is the Gertz Regents Professor of Chemical Engineering, and the Director of the Center for Energy and Environmental Resources, at the University of Texas at Austin. He holds a B.S. in Chemical Engineering from Cornell University (1979), and an M.S. (1981) and Ph.D. (1983) in Chemical Engineering from California Institute of Technology. Dr. Allen is the author of six books and over 190 papers in areas ranging from coal liquefaction and heavy oil chemistry to the chemistry of urban atmospheres. For the past decade, his work has focused primarily on urban air quality and the development of materials for environmental education. Dr. Allen was a lead investigator for the first and second Texas Air Quality Studies, which involved hundreds of researchers drawn from around the world, and which have had a substantial impact on the direction of air quality policies in Texas. He has also developed environmental educational materials for engineering curricula and for the University's core curriculum. The quality of Dr. Allen's work has been recognized by the National Science Foundation (through the Presidential Young Investigator Award), the AT&T Foundation (through an Industrial Ecology Fellowship), the American Institute of Chemical Engineers (through the Cecil Award for contributions to environmental engineering and through the Research Excellence Award of the Sustainable Engineering Forum), the Association of Environmental Engineering and Science Professors (through their Distinguished Lecturer Award), and the State of Texas (through the Governor's Environmental Excellence Award). He has won teaching awards at the University of Texas and UCLA. Dr. Allen has held visiting faculty appointments at the California Institute of Technology, the University of California, Santa Barbara, and the Department of Energy.

## Benitez-Nelson, Claudia

Dr. Claudia Benitez-Nelson received her Ph.D. in Oceanography from the Woods Hole Oceanographic Institution/Massachusetts Institute of Technology Joint Program. She is currently an Associate Professor at the University of South Carolina. Her research focuses on understanding the ocean's role in climate change, as well as human impacts on nutrient biogeochemistry and coastal ecology. She is a diverse scientist, with expertise in radiochemistry, nutrient biogeochemistry, and harmful algal bloom toxins. Over the past decade, Dr. Benitez-Nelson has authored or co-authored more than 50 papers, including several in the journals of Nature and Science, and two Oceanography Lab Manuals. She has garnered over 3.4 million dollars in research support from a number of federal and state agencies. Her many research honours include the Early Career Award in Oceanography from the American Geophysical Union in 1996, one of the highest honours in the field. She is also highly regarded as a teacher and mentor, having received the National Faculty of the Year Award from the National Society of Collegiate Scholars in 2005 and the University of South Carolina's Mungo Teaching Award in 2006. Dr. Benitez-Nelson currently serves as an Associate Editor of Limnology and Oceanography-Methods and Marine Chemistry, as an elected Councillor of the Oceanography Society, and a member of the Advisory Committee to the Geoscience Directorate of the National Science Foundation.

## Buckley, Timothy J.

Dr. Timothy J. Buckley is an associate professor and Chair of the Division of Environmental Health Sciences at The Ohio State University (OSU) College of Public Health. Dr. Buckley received his Ph.D. in Environmental Science from Rutgers University (1991), a Masters of Health Science in Industrial Hygiene from the Johns Hopkins Bloomberg School of Public Health (1986), and B.S. in Chemistry from St. John's University (Collegeville, MN; 1981). Dr. Buckley is a certified industrial hygienist and has been elected to leadership positions among his professional associations including chair of the American Industrial Hygiene Association's Biological Monitoring Committee and Academic Counselor of the International Society of Exposure Analysis. Dr. Buckley has also been an active member of the American Conference of Governmental Industrial Hygienists (ACGIH) since 1986. Dr. Buckley's research expertise is in human exposure assessment as applied in risk assessment and epidemiology. This expertise is formed from 21 years of experience spanning his doctoral work (5 years), followed by five years as a research scientist with U.S. EPA's National Exposure Research Lab, and another twelve years in academia. Prior to his move to OSU, Dr. Buckley was on the faculty at the Johns Hopkins Bloomberg School of Public Health for nine years. Throughout his research career, Dr. Buckley has focused on methods, measurements, and models for assessing human exposure to contaminants in the community and work environments as a basis for assessing the public health threat and developing strategies for prevention. Dr. Buckley's current research is focused on the impact of air pollution on susceptible populations including urban economically disadvantaged communities, inner-city asthmatic children, nursing mothers and their infants, and communities in close proximity to heavily trafficked urban arterials. He has published over fifty peer-reviewed research articles on these and other topics. Dr. Buckley served on the U.S. EPA's Science Advisory Board's (SAB) Exposure and Human Health Committee from 2001 to 2007, he has been an ad hoc member of the U.S. EPA Board of Scientific Counselors (BOSC), he is a member of the Centers for Disease Control and Prevention's (CDC) National Center for Injury Prevention and Control Initial Review Group, and he is an associate editor for Environmental Health Perspectives. While at Johns Hopkins he served on the Faculty Advisory Board for the Center for a Livable Future. During his tenure with the U.S. EPA, Dr. Buckley received awards for his role and efforts in the National Human Exposure Assessment Survey (NHEXAS) and the Lower Rio Grande Environmental Exposure Study. His published research was recognized in 1996 with a U.S. EPA Scientific and Technology Achievement Award and again in 1999 by the Walter G. Berl Award given by the Johns Hopkins Applied Physics Laboratory.

## Buffler, Patricia

Dr. Patricia A. Buffler is Dean Emerita of the School of Public Health at the University of California, Berkeley, having served as Dean from 1991 to 1998, and has been a Professor since 1991. She was appointed to the Kenneth and Marjorie Kaiser Endowed Chair and her current research interests in cancer epidemiology include studies of leukemia and brain tumors in children, health effects of environmental second-hand tobacco smoke, gene-environment interaction in cancer epidemiology, and health effects of non-ionizing radiation. She received her BSN in Nursing and Biology from

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Catholic University of America in 1960, and a MPH in Public Health Administration and Epidemiology in 1965, and a Ph.D. in Epidemiology in 1973 from the University of California, Berkeley. Dr. Buffler has also served as the principal or co-principal investigator for over three dozen research activities including research activities supported by the National Institutes of Health (NIH) Toxic Substances in the Environment Research Program and the NIH Studies of Molecular Epidemiology of Childhood Leukemia and Environmental Exposures and Leukemia. Dr. Buffler was elected a fellow of the American Association for the Advancement of Science (AAAS) in 1992 and served as an officer for the Medical Sciences Section from 1994-2000. She is a Fellow of the American College of Epidemiology, and has served as President for the Society for Epidemiological Research (1986), the American College of Epidemiology (1992), and the International Society for Environmental Epidemiology (1992-1993). In 1994 she was elected to the Institute of Medicine, National Academy of Sciences (IM/NAS). Dr. Buffler served on the U.S. Environmental Protection Agency (EPA) Science Advisory Board (SAB) Radiation Advisory Committee's (RAC) Nonionizing Electric and Magnetic Fields (EMF) Subcommittee in 1991-1992. Dr. Buffler has served on several editorial boards. In addition to memberships in scientific societies and professional organizations, she has served on numerous national and international advisory groups as director or member of several boards, including the U.S.-Japan Radiation Effects Research Foundation (RERF), the National Urban Air Toxics Research Center, the Lovelace Respiratory Research Institute, the FMC Corporation and the National Council on Radiation Protection and Measurements (NCRP). She has also served as an advisor to the World Health Organization (WHO), the NIH, the U.S. Public Health Service Centers for Disease Control and Prevention (U.S. PHS/CDC) the U.S. Environmental Protection Agency (U.S. EPA), the U.S. Department of Energy (U.S. DOE), the U.S. Department of Defense (U.S. DoD), and the National Academy of Sciences/National Research Council (NAS/NRC), including recent service as a member of the NAS BEIR VII Committee.

## Burke, Ingrid

Dr. Ingrid C. Burke is the Director of the Haub School and Ruckelshaus Institute of Environment and Natural Resources at the University of Wyoming. Her research interests focus on: cross-continental studies of ecosystem ecology, the influences of land use management on net ecosystem production; biogeochemical cycling in semiarid ecosystems at local to regional scales; and nitrogen retention in soils. She has served on numerous scientific panels and committees including; the National Academy of Sciences - National Research Council (NRC) Committee on the Environmental Impacts of Wind Energy, the NRC Committee on a New Biology for the 21st Century, the NRC Board on Environmental Science and Toxicology, and other EPA, NSF, and NASA panels and committees. Dr. Burke presently serves on the editorial board of Ecological Applications. She is a member of the American Association for the Advancement of Science, the American Geophysical Union, the American Institute of Biological Sciences, the Association of Women in Science, the Ecological Society of America, Sigma Xi, and the Soil Science Society of America.

## Burke, Thomas

Dr. Thomas A. Burke is Associate Dean and Professor at The Johns Hopkins Bloomberg School of Public Health, Department of Health Policy and Management, with joint appointments in the Department of Environmental Health Sciences and the School of Medicine Department of Oncology. He is also Director of the Johns Hopkins Risk Sciences and Public Policy Institute. Dr. Burke was Chair of the National Academy of Sciences Committee on Improving Risk Analysis and a Fellow of the Society for Risk Analysis. His research interests include environmental epidemiology and surveillance, evaluation of population exposures to environmental pollutants, assessment and communication of environmental risks, and application of epidemiology and health risk assessment to public policy. He was Principal Investigator for the Pew Environmental Health Commission which established the framework for a national approach to environmental public health tracking. He has been awarded the Johns Hopkins Golden Apple Award for excellence in teaching four times. Before joining the University faculty, Dr. Burke was Deputy Commissioner of Health for the State of New Jersey and Director of Science and Research for the New Jersey Department of Environmental Protection. In New Jersey, he directed initiatives that influenced the development of national programs, such as Superfund, the Safe Drinking Water Act, and the Toxics Release Inventory. Dr. Burke has served as a member of the National Academy of Sciences Board on Environmental Studies and Toxicology and chaired the NAS Committee on Human Biomonitoring for Environmental Toxicants and Committee on Toxicants and Pathogens in Biosolids Applied to Land. He also served on the NAS Committee on the Toxicological Effects of Methylmercury. In 2003 he was named a lifetime National Associate of the National Academies. He was Inaugural Chair of the Advisory Committee to the Director of the CDC National Center for Environmental Health and a member of the Executive Committee of the EPA Board of Scientific Counselors. Dr. Burke received his B.S. from St. Peter's College, his M.P.H. from the University of Texas and his Ph.D. in epidemiology from the University of Pennsylvania.

## Daniel, Terry

Dr. Terry C. Daniel is Professor Emeritus of Psychology and Natural Resources at the University of Arizona. He received his Ph.D. in Psychology at the University of New Mexico, where he was a Ford Foundation Career Scholar and a University Fellow. Professor Daniel is a Fellow in the American Psychological Association (Population and Environmental Psychology), has served as a member of the Advisory and Founding Committees for the Udall Institute for Public Policy Studies, and as an International Adjunct Professor in Behavioral Sciences at the University of Melbourne, Australia. He is a member of the editorial boards for Society and Natural Resources, Journal of Environmental Psychology, and Landscape and Urban Planning. Professor Daniel received the National Environmental Education Foundation Gifford Pinchot Award in 1993 for outstanding contributions to natural resources management education. Research has focused on the development and application of methods for quantifying relationships between bio-physical features of natural environments and human perception and judgment of environmental quality. Specific areas of research include: aesthetic and recreational impacts of forest management; effects of air pollution on perceived visual air quality in National Parks and Wilderness Areas; effects of environmental/ecological information on public perception and acceptance of environmental change; and roles for environmental data visualization and computer simulation in evaluating public response to environmental management policies.

## Daston, George

Dr. George Daston is Victor Mills Society Research Fellow at the Procter & Gamble Company. He 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 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. He is Editor-in-Chief of Birth Defects Research: Developmental and Reproductive Toxicology. Dr. Daston 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 is an adjunct Professor of Pediatrics at University of Cincinnati.

## Denson, Costel

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 could have on the environment. Dr.

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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 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. And, he 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, and his Doctorate from the University of Utah, all in chemical engineering.

### Doering III, Otto C.

Professor Otto Doering has degrees from Cornell University and the London School of Economics. He is a public policy specialist with teaching, research, and extension responsibilities in the Department of Agricultural Economics at Purdue University. He specializes in policy analysis and technology assessment relating to agriculture, resources, energy, and the environment. He has overseas experience with the Ford Foundation in Southeast Asia. He served the U.S. Department of Agriculture working on the 1977 and 1990 Farm Bills. In 1997 he was Principal Advisor to USDA's Natural Resources Conservation Service for implementing the 1996 Farm Bill and in 2005 on conservation program design. From 1997 to 1999 he was team leader for the economic analysis of the National Hypoxia Assessment for the Gulf of Mexico. He served on the National Academies Committee on the Mississippi River and the Clean water Act from 2005 to 2007 and is a member of the Department of Interior's National Invasive Species Advisory Committee. Dr. Doering has served on Indiana's Commission for Higher Education and was Director of Indiana's State Utility Forecasting Group. He has been a Director and also President of the Agricultural and Applied Economics Association and Chairman of the National Public Policy Education Committee. Recently he has worked on Mississippi River water quality issues, environmental impacts of the nitrogen cascade, assessments of biofuels and biofuel policy, and the provision of public goods. In a previous life he worked as a horse wrangler and a legal investigator. His recent publications include books on the 1996 Farm Bill and on the effects of climate change and variability on agricultural production systems. Recent publications focus on economic linkages driving the response to nitrogen over-enrichment, the changing rationale for U. S. agricultural policy, integrating biomass into energy systems, and concerns over environmental impacts of biofuels.

### Dzombak, David A.

Dr. David Dzombak is the Walter J. Blenko, Sr. Professor of Environmental Engineering in the Department of Civil and Environmental Engineering at Carnegie Mellon University, Pittsburgh, PA. He is also Faculty Director of the Steinbrenner Institute for Environmental Education and Research at Carnegie Mellon. Dr. Dzombak holds a B.S. in Civil Engineering from Carnegie Mellon University, a B.A. in Mathematics from Saint Vincent College in Latrobe, PA, an M.S. in Civil-Environmental Engineering from Carnegie Mellon University, and a Ph.D. in Civil-Environmental Engineering from Massachusetts Institute of Technology. The emphasis of his research and teaching is on water quality protection and restoration. Dr. Dzombak's professional interests include: aquatic chemistry; fate and transport of chemicals in surface and subsurface waters; water and wastewater treatment; soil and sediment treatment; hazardous waste site remediation; abandoned mine drainage remediation; river and watershed restoration; deep geologic CO<sub>2</sub> sequestration; and public communication of environmental science and technology. He has published numerous articles in leading environmental engineering and science journals; book chapters; articles for the popular press; and two books (Surface Complexation Modeling: Hydrous Ferric Oxide, Wiley-Interscience, 1990; Cyanide in Water and Soil, CRC/Taylor&Francis, 2006). Dr. Dzombak also has a wide range of consulting experience. He has served on the Environmental Engineering Committee of the U.S. Environmental Protection Agency's (EPA) Science Advisory Board since 2002 and as its Chair since 2007. In addition, he has served on the EPA National Advisory Council for Environmental Policy and Technology, Environmental Technology Subcommittee (2004-2008), chaired the National Research Council's Committee on the Mississippi River and the Clean Water Act (2005-2007), and serves as an Associate Editor of Environmental Science & Technology (2005-present). He is a registered Professional Engineer in Pennsylvania, a Diplomate of the American Academy of Environmental Engineers, a Fellow of the American Society of Civil Engineers and a member of the National Academy of Engineering. This past year, Dr. Dzombak served as Chair of the EPA SAB Environmental Engineering Committee (EEC) Panel that provided advice to EPA on its draft Hydraulic Fracturing Research Scoping Study Plan.

### Eighmy, T. Taylor

Dr. Taylor Eighmy is the Vice President for Research at Texas Tech University (TTU) in Lubbock, TX. He holds a B.S. in Biology from Tufts University, and an M.S. and Ph.D. in Civil Engineering from University of New Hampshire. He joined TTU's Office of Research in June 2009. In his current capacity, Dr. Eighmy works closely with the faculty, Department Chairs, Deans and the President's Cabinet to broaden and strengthen the research enterprise at TTU. Specific efforts are directed at entering into strategic relationships with the Federal government, the private sector, and foundations to foster investment in faculty, graduate and undergraduate research, and interdisciplinary research programs. His research interests are in beneficial use of waste materials, life cycle analysis of waste products, chemical speciation, environmental chemistry of leaching behavior, spectroscopic surface analysis, reactive barriers, and environmental microbiology. Dr. Eighmy's most recent research was supported by the Federal Highway Administration (FHWA), the National Oceanic and Atmospheric Administration (NOAA), the National Science Foundation (NSF), the U.S. Environmental Protection Agency (EPA), the European Union, and the private sector. Before June 2009, Dr. Eighmy was Interim Vice President for Research at the University of New Hampshire (UNH). At UNH, he was also the Director of Strategic Initiatives and a Professor of Civil Engineering, chaired the UNH Energy Task Force, and helped manage the State's National Science Foundation (NSF) Experimental Program to Stimulate Competitive Research (EPSCoR) Research Infrastructure Improvement (RII) initiative. Dr. Eighmy was also the founding director of UNH's Environmental Research Group (ERG), an applied environmental engineering and environmental science research center from 1987 through 2004. He also was the past director of UNH's Recycled Materials Resource Center from 1998 to 2004, which is a partnership with FHWA that promotes the wise use of recycled materials in highway construction. Dr. Eighmy presently serves on the Environmental Engineering Committee of the EPA Science Advisory Board. Dr. Eighmy is an inventor of a patented reactive barrier technology for contaminated sediments and co-inventor of a carbon sequestration technology (patent pending).

### Faustman, Elaine

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

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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.

## Giesy, John P.

Dr. John P. Giesy is currently Professor and Canada Research Chair in Environmental Toxicology in the Department of Veterinary Biomedical Sciences and Toxicology Centre at the University of Saskatchewan. He is also Distinguished Professor Emeritus of Zoology at Michigan State University in East Lansing, Michigan, where he was a Professor for 26 years. Dr. Giesy is also Chair Professor at Large of Biology & Chemistry, at City University of Hong Kong and Concurrent Professor of Environmental Science at Nanjing University, China. He holds a B.S. in Biology from Alma College, Alma, Michigan, and an M.S. and Ph.D. in Fisheries & Wildlife (Limnology) from Michigan State University. Dr. Giesy is a world leading eco-toxicologist with interests in many aspects of eco-toxicology, including both the fates and effects of potentially toxic compounds and elements, particularly in the area of ecological risk assessment. He has conducted research into the movement, bioaccumulation, and effects of toxic substances at different levels of biological organization, ranging from biochemical to ecosystem. Dr. Giesy has done extensive research in the areas of metal speciation, multi-species toxicity testing, biochemical indicators of stress in aquatic organisms, fate and effects of PAHs, halogenated hydrocarbons, including chlorinated dibenzo-p-dioxins and -furans, PCBs and pesticides. He discovered the phenomenon of photo enhanced toxicity of organic compounds, such as PAHs and was the first to report the occurrence of perfluorinated chemicals in the environment. Dr. Giesy's studies include both laboratory and field as well as mesocosm studies and apply tools from molecular biology to ecosystem-level. He was the first to report the occurrence of perfluorinated compounds in the environment. Dr. Giesy has published 712 books and peer-reviewed articles and presented 1,134 lectures, world-wide. His research is much used and cited by other researchers - Dr. Giesy is in the top 0.01% of active authors (Institute for Scientific Information (ISI) Current Contents) and was the 2nd most cited author in the field of Ecology/Environmental Science over the period 1997-2007 over 15,000 citations, and his h-score is 62. He served six years on the USEPA Board of Scientific Counselors He is currently a chartered member of the U.S. Environmental Protection Agency (EPA) Science Advisory Board and has served a member of six National Academy of Sciences panels, including: 1) Endocrine Disruptors, 2) Remediation of PCB-Contaminated Sediments, and 3) Bioavailability of Residues from Sediments and Soils. Dr. Giesy currently serves on the Boards of Scientific Counselors (BOSC) and the EPA Office of Research and Development (ORD) (Executive Committee). In 2009 he was named Einstein Professor by the Chinese Academy of Science and in 2010, he became a Fellow of the Royal Society of Canada as a member of the National Academy of Science.

## Griffiths, Jeffrey K.

Dr. Jeffrey Griffiths is currently Director of Global Health, in the public health program at Tufts University School of Medicine. He is Associate Professor of Public Health, Medicine, Nutrition, and Civil and Environmental Engineering at Tufts University, with a primary appointment in the Department of Public Health and Family Medicine at Tufts University School of Medicine. Clinically, he is an Associate Physician, Division of Geographic Medicine and Infectious Diseases, New England Medical Center; Physician, Department of Infectious Diseases, St. Elizabeth's Medical Center, and Consulting Physician, Divisions of Infectious Diseases, Carney Hospital and Quincy Hospital. Dr. Griffiths holds an A.B. in Chemistry in 1977 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 (both in 1982). His major research interests lie in the study of waterborne diseases (especially cryptosporidiosis) and their relationship to environmental factors; respiratory infections and their linkage to malnutrition and air pollution; and the development of an ultrastable measles vaccine for use where refrigeration is not present. He has served on numerous national committees or advisory groups including: the U.S. Environmental Protection Agency (EPA) Science Advisory Board (SAB) Drinking Water Committee, the National Drinking Water Advisory Council of the EPA; the National Academies' Committee on Drinking Water Contaminants and the Public Interest Advisory Forum of the American Water Works Association, Public Health Subgroup. Other service has included being the Federal representative for the National Association of People with AIDS (NAPWA) to the EPA Drinking Water Microbial Disinfection and Byproducts Committee, and a member of multiple National Institutes of Health (NIH) AIDS Clinical Trials Groups dealing with enteric infections. He is a 2008 American Society of Microbiology International Professor, and is co-editor of the Communicable Diseases section of the International Encyclopedia of Public Health (8th edition, published by Elsevier). He completed residencies in both Internal Medicine and Pediatrics at Yale-New Haven Hospital during 1982-1986. This past year, Dr. Griffiths served as an ad hoc member of the EPA SAB Environmental Engineering Committee (EEC) Panel that provided advice to EPA on its draft Hydraulic Fracturing Research Scoping Study Plan.

## Hammitt, James K.

Dr. James K. Hammitt is Professor of Economics and Decision Sciences, Director of the Harvard Center for Risk Analysis, and visiting professor at the Toulouse School of Economics. His teaching and research concern the development and application of decision and risk analysis to health and environmental policy. Professor Hammitt studies the management of long-term environmental issues with important scientific uncertainties (such as global climate change and stratospheric-ozone depletion) and methods for measuring the value of health risks (including monetary and health-adjusted-life-year metrics). He holds degrees in applied mathematics and public policy from Harvard and worked at the RAND Corporation.

## Kahn, Bernd

Dr. Kahn is Director of the Environmental Radiation Center since 1974 (formerly the Environmental Resources Center) and now Professor Emeritus of the Nuclear and Radiological Engineering Programs at Georgia Institute of Technology (GIT). Dr. Kahn currently serves as Chairman of the U.S. EPA SAB's Radiation Advisory Committee (RAC). He received his B.S. in Chemical Engineering from Newark College of Engineering (Now New Jersey Institute of Technology), M.S. in Physics from Vanderbilt University and Ph.D. in Chemistry from the Massachusetts Institute of Technology. He was Adjunct Professor of Nuclear Engineering at the University of Cincinnati (1970-1974), Chief of the Radiological & Nuclear Engineering Facility at the U.S. EPA's National Environmental Research Center (1970-1974), undertaking research in environmental, medical, and biological radiological programs, including studies of radioactive fallout in food, radionuclide metabolism in laboratory animals, and SR-90 balances in human infants; an Engineer/Radiochemist with the U.S. Public Health Service (1954-1970), evaluating the treatment of low- and intermediate-level radioactive wastes; and a Health Physicist and Radiochemist with Union Carbide Corporation (1951-1954). Dr. Kahn has served on a number of committees, panels and commissions, including the National Research Council (NRC) committees on decontamination and decommissioning of uranium enrichment facilities, buried transuranium waste, single shell tank wastes, Panel on Sources and Control Technologies, Committee on Nuclear Science, and Subcommittee on the Use of Radioactivity Standards. He has served on the National Council on Radiation Protection and Measurements (NCRP) Scientific Committees as Chair of the Scientific Committee 64-22 for Effluent and Environmental Monitoring, Chair of the Task Group 5 on Public Exposure from Nuclear Power, member of the Scientific Committee 84 on Radionuclide Contamination, and member of various other Scientific Committees. Dr. Kahn is widely

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published with over 160 publications on the topics of radiation measurements, monitoring and protocols, fate of radionuclide discharges, critical pathways for radiation and population exposure, radiochemical analyses for environmental studies, airborne radiation in buildings, emergency response to accidents involving radioactive materials, airborne fallout, sources, fate and occurrences and health effects of radionuclides in the environment, surveillance of radionuclides in the food chain, integrated environmental measurement, germanium detectors and other devices, and decommissioning.

## Kane, Agnes

Dr. Agnes B. Kane is Professor and Chair of the Department of Pathology and Laboratory Medicine at Brown University. She received her B.A. degree from Swarthmore College and her M.D. and Ph.D. degrees from Temple University School of Medicine. She is board-certified in anatomic pathology and has studied murine models of asbestos-induced disease. She has served as scientific advisor and invited participant in workshops on fiber toxicology and nanotechnology for NIOSH, US EPA, NAS, IOM, NTP, and ILO and has participated in three IARC Working Groups on the Evaluation of Carcinogenic Risks to Humans. She is the Director of the Training Program in Environmental Pathology at Brown University, now in its 15th year. Her research focuses on the potential health effects of environmental and occupational exposure to asbestos fibers, mixed dusts, and nanomaterials. Her laboratory has developed a murine model of asbestos-induced malignant mesothelioma that reproduces the morphologic and molecular characteristics of the human disease. This murine model will be used to develop new strategies for prevention and treatment of asbestos-related cancer.

## Khanna, Madhu

Dr. Madhu Khanna is a professor in the Department of Agricultural and Consumer Economics at the University of Illinois at Urbana-Champaign. She received her Ph.D. from the University of California at Berkeley. Her research focuses on environmental policy analysis and incentives for adoption of environmentally friendly technologies. She has examined the effectiveness of alternative market based instruments for inducing the adoption of best management practices in agriculture such as precision farming and improved irrigation methods and the targeting of green payment policies for reducing nitrogen run off and sediment from cropland. She also examines the design and performance of voluntary programs such as the Conservation Reserve Enhancement Program to improve water quality in the Illinois River. She is currently examining the economics of using perennial grasses to provide environmental benefits, such as soil carbon sequestration and reduced run-off, as well as a source of bioenergy. Professor Khanna teaches undergraduate and graduate courses in international trade and environmental economics. She has received several teaching and research awards and was supervisor of the recipient of an Outstanding Thesis Award in 2002 from the American Association of Agricultural Economics. She was selected as a University of Illinois Scholar for 2004-07. She has served on review panels for the USEPA and the USDA. She is also on the Board of Directors of the Association of Environmental and Resource Economists. She serves as an associate editor for the American Journal of Agricultural Economics and is on the editorial boards of the Journal of Soil and Water Conservation, Journal of Agricultural and Resource Economics, and Review of Agricultural Economics.

## Kim, Nancy K.

Dr. Nancy Kim is affiliated with Health Research Incorporated (HRI), which is a not-for-profit corporation affiliated with the New York State Department of Health (DOH) and the Roswell Park Cancer Institute (RPCI). She held a number of 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 also 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 (1964), and an M.S. (1966) and Ph.D. (1969) in Chemistry from Northwestern University. Her primary professional interest is in chemical risk assessment and exposure assessment. Dr. Kim was Interim Director of the Center that provides environmental epidemiological, toxicological, and risk assessment expertise in support of environmental health and protection programs. Most of her tenure at the Department of Health involved serving as the Director of the Division of Environmental Health Assessment. This Division has the primary responsibility for assessing the potential risk for adverse health effects from exposure to toxic substances and to study, monitor and evaluate the effects of exposure to them in homes and communities. Dr. Kim's recent panel memberships include: a) The National Academies, Board on Environmental Studies and Toxicology, Member of the Committee on Assessment of the Health Implications of Exposure to Dioxins, September 2004 to summer 2006, b) The National Academies, Water Science and Technology Board, Member of the Committee on Water System Security Research, December 2004 to December 2006, c) The National Academies, Water Science and Technology Board, Member of the Committee on USGS Water Resources Research, Committee on the United States Geological Survey's National Water-Quality Assessment (NAWQA) Program, March 2009 to February 2011, and d) U.S. Environmental Protection Agency's Scientific Advisory Board, 2009-2012.

## Kling, Catherine

Dr. Catherine Kling is a Professor of Economics at Iowa State University and head of the Resource and Environmental Policy Division of the Center for Agricultural and Rural Development. Prior to her Iowa State appointment, she was an Associate and Assistant Professor in the Department of Agricultural Economics at the University of California, Davis. Dr. Kling holds a B.A. in Business and Economics from the University of Iowa and a Ph.D. in Economics from the University of Maryland. She is a Fellow of the American Agricultural Economics Association and has served as a member of their Board of Directors and awards committee chair. She has also served as vice president and member of the board of the Association of Environmental and Resource Economists, and has held editorial positions at several environmental and agricultural economics journals. Dr. Kling's research addresses methods for improving non-market valuation methods and economic incentives for pollution control, especially in relation to non-point source pollution from agriculture.

## Lee, Kai

Dr. Kai Lee is program officer for science in the Conservation and Science program at the David & Lucile Packard Foundation. The science program funds science linked directly to decision-making in the conservation areas of priority to the Foundation. Before joining the Foundation, Lee taught at Williams College from 1991 through 2007, and he is now the Rosenberg Professor of Environmental Studies, emeritus. He directed the Center for Environmental Studies at Williams from 1991-1998 and 2001-2002. Lee also taught from 1973 to 1991 at the University of Washington in Seattle. He holds a Ph.D. in physics from Princeton University and an A.B., magna cum laude, in physics, from Columbia University. He is the author of *Compass and Gyroscope* (1993) and coauthor of the National Research Council study, "Our Common Journey" (1999). He is a National Associate of the National Research Council, where he served as vice-chair of the panel that wrote "Informing Decisions in a Changing Climate" (2009). Earlier, Lee had been a White House Fellow and represented the state of Washington as a member of the Northwest Power Planning Council.

## Lue-Hing, Cecil

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

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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 currently President-Elect (2009-10) of The American Academy of Environmental Engineers; Past-President, Environmental and Water Resources Institute of The American Society of Civil Engineers; Past President of The Association of Metropolitan Sewerage Agencies; former Board Member American Academy of Environmental Engineers and 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) National Government Civil Engineer of the Year, the Simon W. Freese Environmental Engineering Award and Lecture; the Water Environment Federation's Charles Alvin Emerson Medal, 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 a Member of the National Academy of Engineering.

## Malveaux, Floyd

Dr. Floyd J. Malveaux is Executive Director of the Merck Childhood Asthma Network, Inc. (MCAN). Dr. Malveaux is a nationally recognized expert on asthma and allergic diseases and is Emeritus Dean of the College of Medicine and Professor of Microbiology and Medicine at Howard University. Dr. Malveaux received a B.S. degree from Creighton University in Omaha, Nebraska, and a M.S. degree from Loyola University in New Orleans. He earned a Ph.D. degree in Microbiology and Public Health from Michigan State University and the Doctor of Medicine degree, with honors, from Howard University College of Medicine. Dr. Malveaux is a fellow of the American College of Physicians and the American Academy of Allergy, Asthma and Immunology. He is a member of Alpha Omega Alpha Honor Medical Society and was elected to the Institute of Medicine of the National Academies. Prior to joining MCAN, Dr. Malveaux led Howard University's participation in several multi-million dollar initiatives to identify and address risk factors that contribute to increased asthma morbidity among inner-city children and to develop evidence-based interventions to reduce and prevent asthma among high-risk populations. In addition, he has worked extensively to address health disparities and improve the quality of health care and health outcomes, especially among low-income, urban and underserved populations.

## McMullen, Lee D.

Dr. L.D. McMullen is the Water Resources Practice Leader for Snyder & Associates located in Ankeny, Iowa since January 2008. In this position he is responsible for solving water resource and quality problems for small and medium sized water utilities in Iowa and Missouri. Snyder & Associates is a company of 200 employees located in six different offices. Dr. McMullen holds a B.S. in Civil Engineering, and an M.S. and a Ph.D. in Environmental Engineering, all from the University of Iowa. Prior to Snyder & Associates, Dr. McMullen was the Chief Executive Officer and General Manager of Des Moines Water Works, Des Moines, Iowa, having served in this capacity since 1986. He joined the utility in 1978 as a design engineer, was appointed director of engineering services in 1980, assistant general manager in 1985, and acting general manager in 1986. Prior to joining the utility, Dr. McMullen was an assistant professor in the engineering department at University of Iowa, Iowa City. During his tenure as General Manager at Des Moines Water Works, he provided leadership throughout the development and activation of the utility's ion-exchange nitrate removal facility; the recovery and restoration of water service to the nearly 200,000 residents of the city of Des Moines following the Flood of 1993; the completion of the aquifer storage and recovery demonstration project, being the first such undertaking in a deep Midwestern bedrock aquifer; the construction and implementation of a lime slurry feed control system; and the "design-build concept" construction and initial operation of the new 25 million-gallon-per-day water treatment plant at Maffitt Reservoir. Dr. McMullen served two terms as Chairperson of the Environmental Protection Agency's National Drinking Water Advisory Council and on the Drinking Water Committee of the Agency's Science Advisory Board. Additionally, he served on the Water Utility Council of the American Water Works Association and currently is a member of the Board of Directors of the Association of Metropolitan Water Agencies. Through a multi-year project commencing in 1999 supported by the U.S./Ukraine Partnership, Dr. McMullen serves as Water Quality Team Leader working with the Cherkasy, Ukraine Water Department in jointly researching and developing solutions to water quality problems for the 320,000 residents of this city located on the Dnipro River, in southeastern Europe.

## Meyer, Judith L.

Dr. Meyer is Professor Emeritus at the Odum School of Ecology, University of Georgia (UGA), where she served on the faculty from 1977 – 2006. She received a B.S. in zoology from University of Michigan, a M.S. in marine biology from University of Hawaii, and a Ph.D. in ecology from Cornell University. Dr. Meyer's research interests center around stream ecosystems, in particular water quality and nutrient dynamics, stream food webs, headwater and urban streams, riparian zones, human impacts on stream ecosystems, and stream restoration practices. She has studied urban streams in Atlanta, blackwater rivers in Georgia, and mountain streams in the Southern Appalachians, where she led one of National Science Foundation's Long-term Ecological Research sites. Dr. Meyer's research has resulted in 175 peer-reviewed publications. She is a former President of the Ecological Society of America and helped found the River Basin Center at UGA, where she was a Co-Director. She currently serves on EPA's Science Advisory Board, chairs its Ecological Processes and Effects Subcommittee, and is a member of the Scientific and Technical Advisory Committee of American Rivers. Dr. Meyer received the Award of Excellence in Benthic Science from the North American Benthological Society, which is the foremost scientific society for stream researchers. In 2010 she received the Naumann-Thienemann Medal from the International Society of Limnology.

## Mihelcic, James R.

James R. Mihelcic is a Professor of Civil and Environmental Engineering and State of Florida 21st Century World Class Scholar at the University of South Florida. He directs the Peace Corps Master's International Program in Civil & Environmental Engineering (<http://cee.eng.usf.edu/peacecorps>). His research interests are centered around sustainability, specifically understanding how global stressors such as climate, land use, and urbanization influence water resources, water quality, and provision of sanitation. Dr. Mihelcic is a past president of the Association of Environmental Engineering and Science Professors (AEESP) and is currently a Board Certified Environmental Engineering Member and Board Trustee with the American Academy of Environmental Engineers (AAEE). He is lead author for 3 textbooks: Fundamentals of Environmental Engineering (John Wiley & Sons, 1999); Field Guide in Environmental Engineering for Development Workers: Water, Sanitation, Indoor Air (ASCE Press, 2009); and, Environmental Engineering: Fundamentals, Sustainability, Design (John Wiley & Sons, 2010).

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## Milford, Jana

Dr. Jana Milford is a Professor in the Department of Mechanical Engineering at the University of Colorado at Boulder. She has previously worked as a Congressional Fellow, an Analyst at the Congressional Office of Technology Assessment, an Assistant Professor in the Department of Civil Engineering at the University of Connecticut, and a Senior Scientist and Staff Attorney at Environmental Defense. Dr. Milford holds a B.S. in Engineering Science from Iowa State University, a M.S. in Civil Engineering from Carnegie Mellon University, a Ph.D. in Engineering and Public Policy from Carnegie Mellon University, and a J.D. from the University of Colorado, School of Law. Dr. Milford's research interests focus on photochemical air quality modeling, air pollution receptor modeling, sensitivity and uncertainty analysis of environmental models, and air quality management. She is co-author, with Anu Ramaswami and Mitchell Small, of *Integrated Environmental Modeling: Pollutant Transport, Fate, and Risk in the Environment* (John Wiley and Sons, 2005). She has served on the Colorado Air Quality Control Commission, the National Research Council Committee on Air Quality Management in the United States, and the National Research Council Committee on Energy Futures and Air Pollution in Urban China and the United States. She has also served as a consultant to the Science Advisory Board's National Air Toxics Assessment Subcommittee, Environmental Models Subcommittee, Radiation Advisory Committee, and Air Toxics Monitoring Strategy Subcommittee.

## Moe, Christine

Dr. Christine Moe is the Eugene J. Gangarosa Professor of Safe Water and Sanitation and the Director of the Center for Global Safe Water at Emory University. Her primary appointment is in the Hubert Department of Global Health at the Rollins School of Public Health of Emory University, and she holds joint appointments in the Department of Environmental Health and the Department of Epidemiology. Dr. Moe holds a B.S. in Biology from Swarthmore College and an M.S. and Ph.D. from the Department of Environmental Sciences and Engineering at the University of North Carolina School of Public Health. Her research focuses primarily on the environmental transmission of infectious agents, in particular, foodborne and waterborne disease. Dr. Moe works on international water, sanitation and health issues and has conducted research in the Philippines, El Salvador, Bolivia and Kenya. Her laboratory research program includes studies of viral persistence in the environment, methods to detect enteric viruses in water and wastewater, and studies of norovirus infectivity and inactivation. Dr. Moe's field research focuses on dry sanitation systems and drinking water distribution systems and associated health risks. In 2006, her research team received the Infrastructure Award and the Development Marketplace Award in The Development Marketplace Global Competition of The World Bank for their project on "Pro-poor Sanitation Demand Creation in Bolivia". Dr. Moe currently serves on the U.S. Environmental Protection Agency Science Advisory Board and has been a consultant on water and sanitation issues for the World Health Organization and The Bill and Melinda Gates Foundation.

## Moo-Young, Horace

Dr. H. Keith Moo-Young is Dean of the College of Engineering, Computer Science and Technology at California State University-Los Angeles. He holds an M.S. and Ph.D. in Civil-Environmental Engineering from the Rensselaer Polytechnic Institute, and a Masters of Technology Management from the University Pennsylvania, and is a licensed professional engineer (Environmental Engineering) in Pennsylvania. Dr. Moo-Young was formerly the Interim Dean and Associate Dean for Research and Graduate Studies at Villanova University, and has served as a Professor at Lehigh University and Villanova University. The emphasis of his research is on hazardous and solid waste management and technologies, such as the remediation of inorganic contaminants in acid mine drainage and groundwater, manufactured gas plant and coal tar, recycling and reuse of industrial co-product materials, and corrective strategies for contaminated sediments. Dr. Moo-Young has served as a member of the Water Environmental Research Foundation Exploratory Team on Solids Reduction, National Science Foundation Committee of Visitors for Civil and Mechanical Systems Division from 2001-2003, the Department of Energy's Workshop on Monitoring of Metals and Radionuclide Contaminated Sites in 2004 and Workshop on Containment Technologies in 2002. He also served as the session leader on Sediment Stability for the Department of Defense's SERDP-ESTCP Workshop on Contaminated Sediment in 2004. Dr. Moo-Young co-chaired the First International Conference on Environmental Research, Technology, and Policy on Africa in Accra, Ghana in 2007. He has received numerous national awards including service as an American Association for the Advancement of Science Policy Fellow at the U.S. Environmental Protection Agency from 2001-2002 and Black Engineer of the Year in 2001. Dr. Moo-Young has published over 120 papers in peer-reviewed journals, books and conference proceedings, and has delivered over 80 presentations at conferences, workshops and invited lectures. He is also the co-inventor of one patent.

## Murphy, Eileen

Dr. Eileen Murphy is the Director of the New Jersey Department of Environmental Protection (NJDEP) Division of Science, Research and Technology. Before becoming Director in 2004, she served as Assistant Director for four years and as a research scientist for 15 years within the group, developing an expertise in the drinking water field. Dr. Murphy holds a B.S. in English with a minor in Biology from the University of Notre Dame, an M.S. in Environmental/Outdoor Education from Northern Illinois University, and a Ph.D. in Environmental Science from Rutgers University. 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 lead service line replacement and has a broad expertise in the issue of infrastructure aging, particularly as it relates to contamination of drinking water. She is also experienced in the issue of unregulated contaminants in drinking water and the treatment to remove them from finished water. Her 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. She is co-author on numerous peer-reviewed scientific papers that have appeared in scholarly journals, including *Environmental Science and Technology*. In addition to her work with the NJDEP, Dr. Murphy is serving on a National Academy of Sciences Air Transportation Research Board panel, which is charged with investigating the influence of environmental factors on emissions of hazardous air pollutants from jet engines. Before coming to NJDEP, Dr. Murphy served as Assistant Director for the Douglass Project for Rutgers Women in Math and Science and as a Project Manager for the Center for Math, Science and Computer Education at Rutgers University.

## Patten, Duncan

Dr. Duncan Patten is Research Professor with the Department of Land Resources and Environmental Sciences and affiliate faculty with the Big Sky Institute at Montana State University. He is also Professor Emeritus of Plant Biology and past director of the Center for Environmental Studies at Arizona State University. Dr. Patten holds an A.B. degree from Amherst College, an M.S. from the University of Massachusetts at Amherst, and a Ph.D. from Duke University. His research interests include arid and mountain ecosystems, especially the understanding of ecological processes of riparian, wetland, and riverine ecosystems. Dr. Patten's research has also involved studies of ecosystem indicators of watershed condition including remote sensing of indicators, biocomplexity of natural and human system interactions in western rangelands, and conceptual modeling of national park ecosystems. He was Senior Scientist of the Bureau of Reclamations Glen Canyon Environmental Studies, overseeing the research program evaluating effects of operations of Glen Canyon Dam on the Colorado River riverine ecosystem. Dr. Patten was founding president of the Arizona Riparian Council, president of the Society of Wetland Scientists, and Business Manager of the Ecological Society of America. He is a Fellow of the American Association for the Advancement of Science, has been a member of eleven National Academy of Science/National Research Council committees, chairing two; the National Academy of Sciences (NAS) Board on Environmental Studies and Toxicology; and the NAS Commission on Geoscience, Environment and

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Resources. He also has served on the National Science Foundation Environmental Biology/Ecological Sciences Panel. Dr. Patten presently serves on the U.S. Environmental Protection Agency Science Advisory Board. He was involved with the Heinz Center's "State of the Nation's Ecosystems" project and served on an Independent Science Board guiding restoration and science for the California Bay Delta Authority river/water/levee programs. This past year, Dr. Patten served as an ad hoc member of the EPA SAB Environmental Engineering Committee (EEC) Panel that provided advice to EPA on its draft Hydraulic Fracturing Research Scoping Study Plan.

## Polasky, Stephen

Dr. Stephen Polasky holds the Fesler-Lampert Chair in Ecological/ Environmental Economics at the University of Minnesota. Dr. Polasky is a faculty member of the Department of Applied Economics and of the Department of Ecology, Evolution and Behavior and the interdisciplinary Conservation Biology Program. He received his Ph.D. in economics from the University of Michigan in 1986. Prior to coming to Minnesota he held faculty positions in the Department of Agricultural and Resource Economics at Oregon State University and the Department of Economics at Boston College. He was the senior staff economist for environment and resources for the President's Council of Economic Advisers 1998-1999. He served as associate editor and co-editor for the Journal of Environmental Economics and Management from 1996 to 2002. He served as a member of the National Research Council Committee on Assessing and Valuing Services of Aquatic and Related Terrestrial Ecosystems and serves as Co-Chair for Core Project 3: Developing the Science of Conservation and Sustainable Use of Biodiversity for DIVERSITAS. His research interests include biodiversity conservation and endangered species policy, integrating ecological and economic analysis, game theoretic analysis of natural resource use, common property resources, and environmental regulation.

## Pope, Arden

Dr. C. Arden Pope III is the Mary Lou Fulton Professor of economics at Brigham Young University. He received his Ph.D. from Iowa State University (1981) where he studied economics and statistics. He has been an IPH Fellow in Environmental Health and Public Policy at the Harvard School of Public Health and is an Honorary Fellow of the American College of Chest Physicians. His teaching and research interests include natural resource and environmental economics. He is most well known for his cross-disciplinary research dealing with the costs of air pollution and related pulmonary and cardiovascular health effects. He has also played prominent roles in reviewing and interpreting this literature, and is one of the world's most widely cited and recognized experts on the health effects of air pollution.

## Roberts, Stephen M.

Dr. Stephen M. Roberts is Professor at the University of Florida with joint appointments in the College of Veterinary Medicine, College of Medicine, and College of Public Health and Health Professions. He also serves as Director of the Center for Environmental & Human Toxicology at the University of Florida. Dr. Roberts received a B.S. in Pharmacy from Oregon State University and a Ph.D. from the University of Utah College of Medicine. After a postdoctoral fellowship at SUNY Buffalo (1977 – 1980), he served on the faculties of the University of Cincinnati College of Pharmacy (1980-1985) and the College of Medicine at the University of Arkansas for Medical Sciences (1986-1989). Dr. Roberts has been a faculty member at the University of Florida since 1989. His research addresses mechanisms of toxicity, particularly involving the liver and immune system. Dr. Roberts also has an active research program in toxicokinetics, especially involving bioavailability of environmental toxicants, as well as approaches to evaluation of potential toxicity of nanomaterials. He serves as an advisor to regulatory agencies on topics related to risk assessment.

## Rodewald, Amanda

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 to understand the mechanisms guiding landscape-scale responses of animal communities to anthropogenic disturbances, 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 projects aim to identify the ecological processes that regulate bird populations in urban and agroforestry ecosystems in North and South America, to understand the effects of invasive species on trophic interactions, and, more recently, to evaluate how biodiversity conservation will be impacted by global change and climate adaptation. She has published over 50 scientific papers in a broad range of journals including Ecology, Ecological Applications, Biological Conservation, Biological Invasions, and Restoration Ecology. Dr. Rodewald serves as an Associate Editor for The Auk, a leading ornithological journal, has served as an Associate Editor for the Journal of Wildlife Management, and is a reviewer for 20 scientific journals. In addition, Dr. Rodewald 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.

## Samet, Jonathan M.

Dr. Jonathan M. Samet is Professor and the Flora L. Thornton Chair of the Department of Preventive Medicine at the Keck School of Medicine of the University of Southern California (USC), and Director of the USC Institute for Global Health. Dr. Samet received a Bachelor's degree in Chemistry and Physics from Harvard College, an M.D. degree from the University of Rochester, School of Medicine and Dentistry, and a Master of Science degree in Epidemiology from the Harvard School of Public Health. He is trained in the specialty of internal medicine and in the subspecialty of pulmonary diseases. From 1978 through 1994, Dr. Samet was at the University of New Mexico School of Medicine, where he was Professor and Chief of the Pulmonary and Critical Care Division in the Department of Medicine. From 1984 through 2008 he was chair of the Department of Epidemiology at the Bloomberg School of Public Health. Dr. Samet's research has addressed active and passive smoking and the effects of inhaled pollutants in the general environment, both indoors and outdoors, and in the workplace. Dr. Samet has served as Editor for Reports of the Surgeon General on Smoking and Health receiving the Surgeon General's Medallion in 1990 and 2006 for these contributions. Dr. Samet was elected to the Institute of Medicine (IOM) of the National Academy of Sciences (NAS) in 1997. He currently serves as Chairman, Board on Environmental Studies and Toxicology of the National Research Council (NRC); and as chair of the Environmental Protection Agency's Clean Air Scientific Advisory Committee. Dr. Samet is past President of the Society for Epidemiologic Research and the American College of Epidemiology. He is a past editor of the American Journal of Epidemiology; and of Epidemiology and current co-editor of Air Quality, Atmosphere and Health.

## Sanders, James

Dr. James Sanders is Director of the Skidaway Institute of Oceanography, a campus of the University System of Georgia. He received his B.S. from Duke University in Zoology and his Ph.D. from the University of North Carolina in Marine Sciences, then was a postdoctoral investigator at Woods Hole Oceanographic Institution. Prior to his arrival in Savannah in 2001, Dr. Sanders was on the faculty and served as Director of the Academy of Natural Sciences' Estuarine Research Center in Maryland from 1981 to 1999, then was Chairman of the Department of Ocean, Earth and Atmospheric Sciences

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at Old Dominion University in Virginia. Dr. Sanders is known for his interests within the area of nutrient and trace element biogeochemistry: how trace elements are transported through coastal zones, transformed by chemical and biological reactions during transport, and how they can impact aquatic ecosystems. He serves as a consultant to federal and state science agencies and industrial groups in the U.S. and Europe. He is a member of numerous scientific societies, is President of the National Association of Marine Laboratories and a Trustee of the Consortium for Ocean Leadership. He is the author of over 75 scientific publications.

## Schnoor, Jerald

Dr. Jerald L. Schnoor, Ph.D., P.E., DEE, Allen S. Henry Chair in Engineering; Professor, Civil & Environmental Engineering; Professor, Occupational and Environmental Health; and Co-Director, Center for Global and Regional Environmental Research; The University of Iowa, Iowa City, Iowa. Dr. Jerald Schnoor is a member of the National Academy of Engineering (elected in 1999) for his pioneering work using mathematical models in science policy decisions. He testified several times before Congress on the environmental effects of acid deposition and the importance of passing the 1990 Clean Air Act. While serving as Editor-in-Chief of Environmental Science and Technology, Jerry guides the leading journal in the world in both environmental engineering and environmental science. His editorial writings on environmental policy and research have been widely accessed by the international community. Professor Schnoor has published (as author, co-author, or editor) six books and over 150 research articles in archival journals, in addition to serving as lead editor of a series of texts and monographs for John Wiley & Sons (Wiley Interscience on Environmental Science and Technology). Dr. Schnoor chaired the Board of Scientific Counselors for the Environmental Protection Agency, Office of Research and Development from 2000-2004. Currently, he is one of three Co-Directors for the National Science Foundation Project Office on the WATERS Network, and Chair of the Iowa Climate Change Advisory Council. He was also the Chair of the 2008 National Research Council report on The Water Implications of Biofuels Processing in the U.S. Dr. Schnoor and his students have pioneered phytoremediation, the use of plants to help clean the environment. The research involves discovering novel pathways for the uptake, storage, and metabolism of toxic organic chemicals at waste sites. Dr. Schnoor has been instrumental in the full-scale clean-up and demonstration of phytoremediation systems to remediate petrochemical contaminations, explosives contaminant remediation from groundwater using created wetlands, and the interception and treatment of groundwater plumes containing industrial chemicals. Schnoor's publications cover a wide range of environmental problems including toxic chemical fate and transport, surface and groundwater contaminant modeling, phytoremediation, and carbon sequestration for mitigation of greenhouse gases.

## Segerson, Kathleen

Dr. Kathleen Segerson is Philip E. Austin Professor of economics and former department head at the University of Connecticut. She holds a BA in mathematics from Dartmouth College and a PhD in agricultural and resource economics from Cornell University. She is a fellow of the Association of Environmental and Resource Economists (AERE) and of the American Agricultural Economics Association. Dr. Segerson's research focuses on the incentive effects of alternative environmental policy instruments, with particular emphasis on the application of legal rules and principles to environmental problems. Specific research areas include: the impact of legal liability for environmental damages in a variety of contexts, including groundwater contamination, hazardous waste management, and workplace accidents; land use regulation and the takings clause; voluntary approaches to environmental protection; the impacts of climate change on U.S. agriculture; and incentives to control nonpoint pollution from agriculture. She is currently president of AERE. She has previously served as a co-editor and an associate editor of the American Journal of Agricultural Economics and an associate editor of the Journal of Environmental Economics and Management. She has also served as Vice-President and a member of the Board of Directors of AERE. She was a member of the Environmental Economics Advisory Committee of the SAB and vice-chair of the SAB's Committee on Valuing the Protection of Ecological Systems and Services.

## Taylor, Herman

Dr. Herman A. Taylor, Jr. is Shirley Professor for the Study of Health Disparities; Principal Investigator; Jackson Heart Study; University of Mississippi Medical Center; Dr. Herman Taylor is Professor of Medicine and Attending Physician in the Division of Cardiovascular Diseases and Internal Medicine, UMMC; Visiting Professor of Biology in the Division of Natural Sciences at Tougaloo College; and Clinical Professor of Epidemiology and Preventive Medicine at Jackson State University. He is a Fellow in the American College of Cardiology and in the American Heart Association. Dr. Taylor holds the Aaron Shirley Endowed Chair for the Study of Health Disparities at UMMC. Dr. Taylor is the recipient of numerous awards, including the Minority Access Role Model Award and the Herbert W. Nickens Award for Excellence in Epidemiological Research in 2004. Dr. Taylor joined the UMMC faculty and became PI and Director of the JHS in June 1998. Prior to that time, he held Associate and Assistant Professor positions in the School of Medicine, Department of Cardiology at the University of Alabama, Birmingham and as Attending Physician in Cardiology at the University of Alabama Birmingham Hospital and at the Birmingham Veterans Administration Medical Center. Dr. Taylor earned his M.D. degree at Harvard Medical School; he also earned a Masters of Public Health degree from Harvard School of Public Health. Dr. Taylor has cultivated and fostered a unique partnership among the JHS, the participating colleges/universities, the sponsoring NIH Institutes and the community. He envisions helping to create a better understanding of CVD among African Americans as a guide to effective strategies to improve health and eliminate health disparities.

## Thompson, Jr., Barton H. (Buzz)

Dr. Barton H. Thompson, Jr., is Robert E. Paradise Professor of Natural Resources Law at Stanford Law School and the Perry L. McCarty Director and Senior Fellow of the Woods Institute for the Environment at Stanford University. He also serves as a Senior Fellow (by courtesy) at the Stanford Institute for International Studies and a member of both the Core Faculty and Executive Committee of Stanford University's Emmett Interdisciplinary Graduate Program in Environment and Resources. He received an A.B. in Economics from Stanford University in 1972, an M.B.A. from the Stanford Graduate School of Business in 1976, and a J.D. from Stanford Law School in 1976. He has been a member of the Stanford faculty since 1986. Professor Thompson's research and writing focuses on the interdisciplinary analysis (with an emphasis on economics, law, and cognitive psychology) of environmental and natural resource policies and the formulation of innovative tools and approaches for addressing environmental and natural resource issues.

## Tolbert, Paige

Dr. Paige Tolbert is Professor and Chair of the Department of Environmental Health at the Rollins School of Public Health, Emory University. She conducts research in environmental and occupational epidemiology, with emphasis on studies of chemical exposures and acute and chronic health outcomes. She seeks to elucidate etiologic relationships between occupational and environmental exposures and disease, using small intensive molecular epidemiologic approaches as well as large classical epidemiologic study designs. Ongoing studies include studies of air pollution in Atlanta in relation to 1) ER visits for asthma and cardiovascular conditions (funded by NIH, USEPA, and EPRI), 2) arrhythmic events in patients equipped with implanted defibrillators (funded by EPRI), and 3) apnea in high-risk infants (funded by NIH). Another study, jointly funded by NIH and USEPA, is evaluating the occurrence of endocrine-related disorders in 1500 women exposed to polybrominated biphenyls through a farm-feed accident in the 1970s. Dr. Tolbert is currently involved in pilot work for a study of Parkinson's disease and gene-environment interactions. Dr. Tolbert is also studying neurobehavioral outcomes in newborns exposed to polychlorinated biphenyls and lead, and health effects of machining fluid exposure in automotive

## Biosketches of Members of the Chartered Science Advisory Board

manufacturing workers. Recently completed studies include a five-year NIH-funded study of environmental risk factors for lymphomas and sarcomas. A second recently completed study assessed the hypotheses that organochlorine exposure is associated with pancreatic cancer risk and that this association is mediated through k-ras oncogene activation.

### Vena, John

Dr. John E. Vena is the Head of the Department of Epidemiology and Biostatistics and University of Georgia Foundation Professor in Public Health at the College of Public Health, University of Georgia. For the past five years he served as Professor and Chair of the Department of Epidemiology and Biostatistics at the Arnold School of Public Health at the University of South Carolina (USC). Dr. Vena was Professor of Social and Preventive Medicine at the State University of New York at Buffalo, School of Medicine and Biomedical Sciences and a research fellow at Roswell Park Cancer Institute (1981-2003) and Director of the Environment & Society Institute (1999-2003). Dr. Vena received his B.S. in Biology from St. Bonaventure University and his M.S. and Ph.D. degrees in Epidemiology from the State University of New York at Buffalo. Dr. Vena is a Fellow of the American College of Epidemiology and the American Epidemiological Society, a member of the International Society for Environmental Epidemiology, Society for Epidemiologic Research and the American Public Health Association (APHA) and currently serves on the Governing Council for Epidemiology for APHA. He has published extensively in the field of environmental and occupational epidemiology and his studies have included descriptive and analytic studies of air and water pollution, bladder cancer and drinking water contaminants, occupational exposures, health of municipal workers including firefighters and police officers, diet, electromagnetic fields and persistent environmental toxicants. Dr. Vena served on the National Academy of Science Committee for the evaluation of the impact of oceans on human health in 1999 and the Committee on Gulf War and Health: Pesticides and Health, Solvent/ Cancer Panel in 2002-2003. He was a recent invited speaker to the Presidents Cancer Panel. Since 1981, Dr. Vena has taught courses in epidemiologic methods and applications in occupational health and in environmental health and has mentored graduate students, post-doctoral fellows and junior faculty.

### Wallsten, Thomas S.

Dr. Thomas S. Wallsten is professor and chair in the Department of Psychology and a professor in the Program in Cognitive Science and Neuroscience at the University of Maryland-College Park. He received his Ph.D. from the University of Pennsylvania. Following postdoctoral training at the University of Michigan, he was on the faculty at the University of North Carolina-Chapel Hill for 30 years before moving to Maryland in 2000. A cognitive and mathematical psychologist, he has published close to 100 articles and chapters primarily in the areas of probabilistic inference, judgment, choice, and communication under risk and uncertainty. His research support has come primarily from National Science Foundation grants with additional support from other agencies. Among his advisory roles, he was editor of the Journal of Mathematical Psychology, associate editor of Psychometrika and of the Journal of Experimental Psychology: Learning, Memory, and Cognition, and on numerous editorial boards. He served in various advisory roles for NSF, including a grant review panel and Committees of Visitors for two different directorates. He is an elected fellow of the Society of Experimental Psychologists and the American Psychological Association, a charter fellow of the Association for Psychological Science, a past president of the Society for Judgment and Decision Making, and the immediate past-president of the Federation of Behavioral, Psychological, and Cognitive Sciences. Current Federal advisory roles in addition to the EPA Science Advisory Board include being an associate of the National Intelligence Council.

### Watts, Robert

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 sabbatic leave at Batelle in Washington D.C. He is founder and past director of the SouthCentral 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.

### Zoeller, R. Thomas

Dr. R. Thomas Zoeller is Professor of Biology at the University of Massachusetts Amherst. He received his Bachelor's degree in Biology at Indiana University-Bloomington, followed by MS and Ph.D. degrees at Oregon State University. He pursued four years of postdoctoral studies in molecular endocrinology and neuroendocrinology at the National Institutes of Mental Health and Neurological Disorders and Stroke in Bethesda, MD. His first academic appointment in 1988 was as Assistant Professor in the Department of Anatomy and Neurobiology, University of Missouri-Columbia School of Medicine. He later joined the Biology Department at the University of Massachusetts Amherst, becoming appointed as Professor and later as Chair. Dr. Zoeller's research has focused on the role of thyroid hormone in brain development with a focus on the fetal cerebral cortex prior to the onset of fetal thyroid function. His work also includes a focus on environmental contaminants of all kinds that may interfere with thyroid hormone signaling and how best to visualize the effects and consequences of this disruption. Dr. Zoeller currently serves on the chartered Science Advisory Board to the U.S. Environmental Protection Agency and is chair of the Exposure and Human Health Committee. Dr. Zoeller has been a member of the Editorial Board of Endocrinology and Environmental Toxicology and Pharmacology. He was a member of the U.S. EPA's Endocrine Disruptors Screening and Testing Advisory Committee (EDSTAC) Screening and Testing Workgroup as well as on the peer review panels for EPA's risk assessment for Perchlorate and PFOA. He served on the NIH Center for Scientific Review Integrative and Clinical Endocrinology and Reproduction study section. He was named "Scientist of the Year - 2002" by the Learning Disabilities Association of America and won the Samuel F. Conti Award for Research Excellence at the University of Massachusetts Amherst.