

**Invitation for Public Comment on the List of Candidates for the  
EPA Chartered Science Advisory Board  
October 16, 2018**

The U.S. Environmental Protection Agency (EPA) Science Advisory Board (SAB) Staff Office announced in a Federal Register Notice on July 9, 2018 (83 FR 31752-31753) that it was inviting nominations of experts to be considered for the Administrator's appointment to the Chartered SAB. The SAB is a scientific/technical advisory committee. The objective of the SAB is to provide independent advice and peer review on the scientific and technical aspects of environmental issues to the EPA Administrator. While the SAB reports to the EPA Administrator, congressional committees specified in ERDDAA may ask the EPA Administrator to have the SAB provide scientific advice on a particular issue.

The SAB will review scientific issues, provide independent scientific and technical advice on EPA's major programs, and perform special assignments as requested by Agency officials. The SAB Staff Office sought nominations of experts who have demonstrated experience in the following disciplines: analytical chemistry; benefit-cost analysis; causal inference; complex systems; ecological sciences and ecological assessment; economics; engineering; geochemistry; health sciences; hydrology; hydrogeology; medicine; microbiology; modeling; pediatrics; public health; risk assessment; social, behavioral and decision sciences; statistics; toxicology, and uncertainty analysis.

The SAB Staff Office is especially interested in scientists with expertise described above who have knowledge and experience in: air quality; agricultural sciences; atmospheric sciences; benefit-cost analysis; complex systems; drinking water; energy and the environment; epidemiological risk analyses; water quality; water quantity and reuse; ecosystem services; community environmental health; sustainability; chemical safety; green chemistry; homeland security; uncertainty analysis; and waste management.

The SAB Staff Office identified 174 candidates based on their expertise and willingness to serve. We hereby invite public comments on the attached List of Candidates for consideration by the SAB Staff Office. Comments should be submitted to Mr. Thomas Carpenter, Designated Federal Officer no later than November 7, 2018 at [carpenter.thomas@epa.gov](mailto:carpenter.thomas@epa.gov). E-mail is the preferred mode of receipt. Please be advised that public comments are subject to release under the Freedom of Information Act.

**Candidate Biosketches - FY2019 Chartered SAB Annual Membership**

**Aguirre, A. Alonso**

**George Mason University**

Dr. A. Alonso Aguirre is Chair and Associate Professor at the Department of Environmental Science and Policy at George Mason University in Fairfax, Virginia. He leads a collaborative research program that takes an ecological approach to understanding wildlife diseases and their links to conservation and human health. His research has been instrumental in revealing the impact of emerging diseases of marine wildlife populations. A wildlife biologist and veterinarian by training, he co-founded the emerging discipline of conservation medicine. He edited both seminal books on the topic and co-founded the journal *EcoHealth* and the International Association of Ecology and Health. He has published over 160 peer-reviewed papers, books and chapters, advised governments of countries in the Americas, Southeast Asia and Western Europe, and briefed the Mexican and U.S. Congress. He currently serves as co-editor the *EcoHealth* journal, and associate editor of *Journal of Wildlife Diseases* and the *European Journal of Wildlife Management*. His research has been funded by the National Science Foundation, United States Agency for International Development, U.S. Department of Agriculture, National Marine Fisheries Service, and other federal agencies and non-profit organizations. The National Academy of Sciences recently appointed Dr. Aguirre to the Board on Life Sciences in recognition of his contributions to the field of wildlife biology, and he has received numerous awards. Previously, he served as the Executive Director of the Smithsonian-Mason School of Conservation in Front Royal, Virginia and as Senior Vice President at *EcoHealth Alliance* in New York. He has also held appointments at the Consortium for Conservation Medicine, the Center for Environmental Research and Conservation at Columbia University, and the Center for Conservation Medicine at Tufts University Cummings School of Veterinary Medicine.

**Ahrens, Kurt**

**School District of Philadelphia**

Dr. Kurt F. Ahrens is an educator and leader of science curriculum development at The U School, an experimental high school in the Innovation Network of the Philadelphia School District. Dr. Ahrens earned a BA with three majors (Integrated Science Program, Neurobiology, and Physics) at Northwestern University and a PhD in Molecular and Cell Biology at UC-Berkeley, where his research focused on reverse engineering mammalian brain circuitry by combining experimental and computational modeling methods. Dr. Ahrens' postdoctoral research in the Physics department at UC-San Diego expanded his research repertoire to include animal behavior, advanced signal processing and statistical analysis methods, and laser-scanning microscopy. After developing in vivo imaging methods for measuring neural activity in genetically modified animals at the Center for Molecular and Behavioral Neuroscience at Rutgers University, Dr. Ahrens established the Systems Neuroscience Laboratory at the Allen Institute for Brain Science, where his research team combined these techniques with electrophysiology and computational analysis methods to begin labeling, monitoring, and deciphering the interactions of countless brain cells in the living organism. He has published his research in peer reviewed journals and has served as a peer reviewer for the Organization for Computational Neuroscience's annual international conference since 2004. Dr. Ahrens shifted to the education profession in 2012, first teaching biology and research methods at Arcadia University, and currently physics, biology and mathematics. Dr. Ahrens was an active member of the citizen committee that crafted a Sustainability Plan for Cheltenham Township, one of the first in Pennsylvania, and he currently serves as the Chairman of the Environmental Advisory Council, where he and his colleagues provide evidence-based advice on water quality, energy infrastructure and usage, local and sustainable food production, and waste management to the municipal government, local businesses and institutions, and residents. He has no research funding.

**Aldy, Joseph**

**Harvard University**

Joseph E. Aldy is an Associate Professor of Public Policy and Faculty Chair of the Mossavar-Rahmani Center for Business and Government Regulatory Policy Program at the Harvard Kennedy School, a University Fellow at Resources for the Future, a Faculty Research Fellow at the National Bureau of Economic Research, and a Senior Adviser at the Center for Strategic and International Studies. He has been a Non-Resident Fellow at the Center on Global Energy Policy at Columbia University, a Visiting Scholar at the Kleinman Center for Energy Policy at the University of Pennsylvania, and a Lone Mountain Fellow at the Property & Environment Research Center. In 2009-2010, he served as the Special Assistant to the President for Energy and Environment at the White House. Aldy previously served as a Fellow at Resources for the Future, Co-Director of the Harvard Project on Climate Agreements, Co-Director of the International Energy Workshop, Treasurer of the Association of Environmental and Resource Economists, and worked on the staff of the President's Council of Economic Advisers as a Senior Economist, Senior Adviser, and Staff Economist. He earned his doctorate in economics from Harvard University, an MEM degree in resource economics and policy from the Nicholas School of the Environment at Duke University, and a bachelor degree in an independently-designed environmental science program from Duke University. Aldy's research focuses on climate change policy, energy policy, and regulatory policy. This includes publications in economics, science, and law journals on valuing mortality risk reduction, the use of market-based instruments to mitigate greenhouse gas emissions, the competitiveness impacts of climate change policy, the design of international environmental agreements, energy efficiency subsidies, renewable power subsidies, and other topics. He is a Member of the Advisory Committee for the Energy and Environment Program at the Alfred P. Sloan Foundation, a Member of the Advisory Board to The Environmental Forum, a Member of the Editorial Advisory Committee of Nature Energy, and a Member of the Advisory Board of the Economics of Energy and Environmental Policy. He is also a Member of the Board of Trustees to the Robert and Patricia Switzer Foundation. He was a Member of the Peer Review Advisory Committee to the Indiana University Corporate Average Fuel Economy Study (led by John Graham). The Administrative Conference of the United States commissioned a report by Aldy on the retrospective review of federal regulations, which included recommendations for agency practice adopted by the ACUS plenary. Government agencies have formally solicited an external peer review by Aldy on a variety of topics, including mortality risk valuation (EPA, Homeland Security, and Transportation), integrated assessment models (Energy and U.S. Global Change Research Program), guidelines for regulatory impact analysis (Health and Human Services), the benefits and costs of regulations (OMB), energy innovation and low-carbon energy policies (National Research Council and Council of Economic Advisers), and academic research projects (National Science Foundation). Over the past two years, Aldy has received funding from the Harvard Kennedy School, the Alfred P. Sloan Foundation, the National Bureau of Economic Research, and Resources for the Future.

**Allen, Irving**

**Virginia Tech**

Dr. Irving Allen is a faculty member at Virginia Tech in the Department of Biomedical Sciences and Pathobiology at the Virginia Maryland College of Veterinary Medicine. He is an active scientist with over 20 years of experience conducting research using animal models and human subjects, exploring the intersection between inflammatory diseases, cancer, and the environment. Dr. Allen holds a B.S., M.S., and PhD in Genetics and Molecular Biology, with postdoctoral training in Immunology. Early in his career, he conducted research associated with the role of environmental factors in modulating marine dinoflagellate populations and subsequently worked at Duke University studying complex genetic disorders with environmental influences (including asthma and several neurological

disorders). As his career and training advanced, Dr. Allen's research focus shifted towards exploring the role of the immune system in respiratory and gastrointestinal diseases. Over the last decade, Dr. Allen's research has expanded into studies associated with the biological effects of therapeutic and environmental nanoparticle exposure in the lung and gut. Together, he has contributed to over 60 publications in peer-reviewed journals in his various fields of research, and has broad scientific expertise in multiple areas of relevance to the EPA. Complementing his scientific expertise, he also holds a MBA, with a concentration in Bioscience Management. This allows him to view science from both the research and business perspective. He has a unique working knowledge of cost-benefit analysis and financial modeling associated with conducting basic and applied research. Dr. Allen is a current member and has served in leadership positions in several scientific societies. To date, Dr. Allen's research program has been predominately funded through the National Institutes of Health, Foundation Grants, and Private Industry Support. He has not received previous EPA financial support or served on EPA advisory committees.

**Anderson, Henry**

**Wisconsin Division of Public Health**

Dr. Henry A. Anderson, M.D. holds adjunct professorships at the University of Wisconsin-Madison, School of Medicine and Public Health, Department of Population Health Sciences, and the University of Wisconsin Institute for Environmental Studies, Center for Human Studies. In July 2016 he retired from his positions as Wisconsin State Environmental and Occupational Disease Epidemiologist, and Chief Medical Officer in the Wisconsin Division of Public Health, Department of Health Services which he held since 1980. His 35 years of research and programmatic expertise and experience includes public health; preventive, environmental, and occupational medicine; occupational and environmental human health and exposure epidemiology; human health risk assessment; regulatory risk assessment and risk communication. Active research interests include: disease and exposure surveillance systems, cancer and chronic disease epidemiology, reproductive and endocrine health hazards, drinking water contaminants, pesticides and dietary risk assessment including sport fish consumption advisory communication. Dr. Anderson served on the U.S. EPA Science Advisory Board (SAB) Chemical Assessment Advisory Committee from 2013 – 9/2018 and previously served on the EPA National Advisory Committee for Acute Exposure Guideline Levels for Hazardous Substances. He was chair of the Environmental Health Committee of the U.S. EPA Science Advisory Board, served on the U.S. EPA SAB Executive Committee and is past Chair of the Board of Scientific Councilors for the National Institute of Occupational Safety and Health. He has served on five National Academies of Science Committees including "Toxicity Testing for Assessment of Environmental Agents." He serves on the Presidential Advisory Board on Radiation Worker Compensation. He is associate editor of the American Journal of Industrial Medicine. Dr. Anderson received his M.D. degree in 1972 from the University of Wisconsin-Madison. He was certified in 1977 by the American Board of Preventive Medicine with a sub-specialty in occupational and environmental medicine and in 1983 became a fellow of the American College of Epidemiology. Dr. Anderson was a state government employee until 7/2016 and his research has been supported by the State of Wisconsin and grants from U.S. government agencies, primarily U.S. Department of Health and Human Services/Centers for Disease Control and Prevention and the U.S. Environmental Protection Agency. All EPA and other federal government research support ended with his retirement in 7/2016. Dr. Anderson currently serves on the Presidential Advisory Board on Radiation Worker Compensation (2001-2006 and 2009-current), National Academies of Science Roundtable on Environmental Health Sciences, Research, and Medicine (2011-current) and 2013-2018 on the United States Environmental Protection Agency Science Advisory Board, Chemical Assessment Advisory Committee on which he reviewed Ammonia (2014-2015), Ethylene Oxide (2014-2015), and draft Chloroform, nitrate/nitrite, Ethylbenzene IAPs (2016-2017). Beginning in 1997 he served on various U.S. EPA Science Advisory Board committees including the Executive Committee (1997-2003) and

was chair of the Integrated Human Exposures Subcommittee (1997-2001) and then chair of the Environmental Health Committee (2001-2003). He served on the U.S. EPA's National Advisory Committee for Acute Exposure Guideline Levels for Hazardous Substances (2006-2012), the U.S. EPA Children's Health Protection Advisory Council (2004-2009) and the U.S. EPA Endocrine Disruptor Screening and Testing Committee (1997-1999). He was also chair of the Board of Scientific Councilors for the National Institute of Occupational Safety and Health (2004-2006). He served on the Armed Forces Epidemiology Board (1996-2000).

**Auvermann, Brent**

**Texas A&M University**

Dr. Brent Auvermann is Professor of Biological and Agricultural Engineering (BAEN) and Extension Specialist with Texas A&M AgriLife. His position with Texas A&M AgriLife consists of a joint appointment, with 65% Extension and 35% research. He also holds an Adjunct Professor appointment at West Texas A&M University. Dr. Auvermann holds a B.S. (1986) and M.S. (1990) in Agricultural Engineering from Texas A&M University, and a Ph.D. in Chemical and Bioresource Engineering from Colorado State University (1996). His research program centers on environmental aspects of concentrated livestock production, with 15 years of work in air pollution. Dr. Auvermann has obtained competitive and special grants in air-quality topics totaling multi-million dollars over the past ten years. His primary research focus has been particulate matter but has also collaborated in research on ammonia, hydrogen sulfide, dispersion modeling, and wet and dry deposition. Dr. Auvermann supervises and chairs graduate thesis/dissertation committees for M.S. and Ph.D. candidates at both Texas A&M University and West Texas A&M University. His office is located in Amarillo, TX, near the heart of the United States' cattle-feeding industry. Since 2007, Dr. Auvermann has operated the "Canonceta" deposition-monitoring sites for the National Atmospheric Deposition Program (NADP site ID: TX43) and the Clean Air Status and Trends Network (CASTNET site ID: PAL190). He has also worked closely with the concentrated dairy industry in Texas, New Mexico, and Arizona with respect to emissions measurement and mitigation techniques.

**Barton, Hugh A.**

**Independent Consultant**

Dr. Hugh A. Barton is an independent consultant for applications of systems pharmacology and toxicology to drug discovery and safety evaluation or environmental risk assessment. He provides expert advice on physiologically based pharmacokinetic (PBPK) and pharmacodynamic (PD) models and their implementation for decision-making. Dr. Barton was Associate Research Fellow with Biomedicine Design, Pfizer, Inc. for ten years. His focus in drug discovery was applying translational modeling and simulation to oncology, cardiovascular disease, and neurodegenerative diseases to assess PK, PD, and safety. His pharmacokinetic modeling to support safety evaluation for excipients lead to FDA approval of generic Pfizer docetaxel in 2014. He has more than 25 years of experience in biological modeling with Pfizer, US Environmental Protection Agency and consulting/contract companies, developing computational models for use in biologically based dose-response analyses. Dr. Barton worked in environmental consulting for several years doing site specific risk assessments for hazardous waste sites, air permitting, and other environmental regulatory requirements. He has been adjunct professor at Boston University School of Public Health and in Toxicology at The University of North Carolina at Chapel Hill. He received a B.S. in Life Sciences from the Massachusetts Institute of Technology, Cambridge, MA in 1982 and a Ph.D. in Toxicology from the Department of Applied Biological Sciences at MIT in 1988. Dr. Barton has been President of the Risk Assessment and Biological Modeling Specialty Sections of the Society of Toxicology. He has served as an invited peer-reviewer for organizations including Health Canada, NIEHS, US EPA, NAS/NRC and TERA. He is a member of the US EPA Science Advisory Board's Chemical Assessment Advisory Committee, the Simulations Plus, Inc. Science Advisory Board, and the NRC Committee on

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Organohalogen Flame Retardants, and a committee reviewing pesticide PBPK models for Versar under contract to US EPA. He previously served on the NRC Committee on Inorganic Arsenic and WHO IPCS PBPK Modeling working group. He is a reviewer for numerous scientific journals and serves on two editorial boards. Dr. Barton has published more than 50 articles in the scientific literature on physiologically based pharmacokinetic and pharmacodynamic modeling and has received awards from Pfizer, EPA and others for that work and its applications in pharmaceutical safety and risk assessment. Dr. Barton's research currently has no research funding.

### **Bashkin, James**

#### **University of Missouri-St. Louis**

Dr. Bashkin is Professor of Chemistry and Biochemistry at the University of Missouri-St. Louis. He was educated at the Universities of Arizona and California-Irvine and received his doctorate from Oxford (UK), followed by postdoctoral studies at Harvard. Half of Dr. Bashkin's career has been spent in the chemical and pharmaceutical industries and half in academia. He was Associate Editor of Green Chemistry for the Royal Society of Chemistry, served on the Editorial Advisory Board of Chemical Reviews for years for the American Chemical Society, and was just appointed to the Editorial Board of the Asian Journal of Green Chemistry. Dr. Bashkin co-invented a process that significantly decreased industrial pollution in the rubber chemical industry, for which he shared Monsanto's highest scientific award and the Presidential Green Chemistry Challenge Award. This chemistry is now practiced worldwide and has changed the economy of the business for the better since it is less polluting and less expensive. He has also served on the EPA-American Chemical Society (ACS) selection committee for the Presidential Green Chemistry Awards, Chaired the International Gordon Research Conference on Green Chemistry, and served on awards and grant committees for the ACS, NSF, and NIH. He has published over 70 papers and hold 16 US patents.

### **Beck, Barbara**

#### **Gradient Corp.**

Dr. Beck is a principal at Gradient, an environmental risk sciences consulting firm. She is an expert in toxicology and human health risk assessment for environmental chemicals, especially metals and air pollutants. Her broad experience in risk assessment includes toxicological evaluations of many different chemicals in environmental settings, consumer products, and pharmaceuticals. These projects often lead her to work with other scientists from varying backgrounds, including engineers and chemists, to develop an integrated approach to understanding chemical hazards. Dr. Beck has conducted laboratory studies to refine the understanding of chemical exposure and toxicity, and she has applied study findings in a risk assessment context. She has published over 100 book chapters and journal articles, including the development of health-based criteria for several chemicals and probabilistic exposure models. Several of her publications have received awards from organizations such as the Society of Toxicology's Risk Assessment Specialty Section and the US EPA. She has communicated her work to different audiences, including regulatory agencies, the US Congress, and the public. Dr. Beck's participation in advisory committees and expert panels, such as the National Research Council, the International Life Sciences Institute, and the Watertown, Massachusetts Board of Health, has spanned over thirty years. She is a recipient of the Lifetime Achievement Award from the University of Massachusetts, Amherst, School of Public Health and Health Sciences. She is a fellow and past-president of the Academy of Toxicological Sciences, a Diplomate of the American Board of Toxicology, and a European-Registered Toxicologist. Before joining Gradient, she was Chief of Air Toxics Staff and Regional Expert in Toxicology for US EPA Region I. Prior to that, she was a Fellow in the Interdisciplinary Programs in Health at the Harvard School of Public Health (now the Harvard T.H. Chan School of Public Health). She received her Ph.D. in molecular biology and microbiology from Tufts University and her B.A. in biology from Bryn Mawr College (cum laude).

**Becker, Jennifer**

**Michigan Technological University**

Dr. Jennifer G. Becker is an Associate Professor of Environmental Engineering at Michigan Technological University. She holds a B.S. in Environmental Engineering from Michigan Technological University, an M.S. in Civil Engineering from the University of Illinois at Urbana-Champaign, and a Ph.D. in Civil Engineering from Northwestern University. Dr. Becker's research focuses on engineered biological processes for the sustainable treatment of groundwater, wastewater, and residuals. Specifically, she is interested in the bioremediation and environmental fate of hazardous contaminants in the subsurface, the sustainable treatment and management of residuals from municipal wastewater treatment and industrial processes, microbial processes for bioenergy production, and the treatment of emerging pollutants in municipal wastewater. Dr. Becker also has expertise and extensive outreach experience related to animal agricultural practices, their impact on the environment, and the management of their residuals. Core support for Dr. Becker's research has primarily been provided by the federal government via grants from the National Science Foundation (NSF). She is the Past-President of the Association of Environmental Engineering and Science Professors (AEESP) and served on its Board of Directors from 2010 to 2014. Dr. Becker's research has been recognized with the Presidential Early Career Award for Scientists and Engineers (PECASE), the highest honor bestowed by the U.S. government on outstanding scientists and engineers beginning their independent careers, as well as a NSF Early Career Development Program (CAREER) Award, the Robert A. Canham Award from the Water Environment Federation, the AEESP/Montgomery Watson Harza Master's Thesis Award (both as the advisor and student), the Junior Faculty Award from the College of Agriculture and Natural Resources, University of Maryland, College Park and several other awards.

**Begley, C. Glenn**

**BioCurate PTY, LTD**

Dr. C. Glenn Begley is the Chief Executive Officer of BioCurate Pty. Ltd., a joint venture between Monash University and the University of Melbourne. He also serves as a Scientific/Clinical Advisor for several biotech and pharmaceutical companies. Dr. Begley has over 20 years of clinical experience in medical oncology and hematology. His personal research focused on regulation of hematopoietic cells and translational clinical trials. Recently, he has focused attention on the need to improve the quality of scientific research. His pivotal publications highlighted the need for robust, reproducible research. This has catalyzed an ongoing, broad-based discussion within the scientific community and the lay press. He has numerous invitations to present his work including at the President's Science Council, National Academies Meetings, National Institute of Standards and Technology, and biotech/pharmaceutical companies. He has published over 200 papers that are highly cited (total citations 21, 536; h-index 73; i10 index 180; source Google Scholar, May 2018). He graduated from the University of Melbourne with M.B., B.S. degrees (MD-equivalent) in 1978, and trained primarily in Melbourne, Australia, at the Walter and Eliza Hall Institute of Medical Research and at the Royal Melbourne Hospital. He is Board Certified in Australia as a Medical Oncologist and Hematologist (F.R.A.C.P.), is a Fellow of the Royal College of Pathologists, United Kingdom, and received an honorary Fellowship from the College of Pathologists, Australia. He has a Ph.D. in cellular and molecular biology from the University of Melbourne. He has received numerous honors and awards, including being elected as the first Foreign Fellow to the American Society of Clinical Investigation in 2000, and to the prestigious Association of American Physicians in 2008. In 2014 he was an inaugural inductee into the "Hall of Fame" at his alma mater, the Royal Melbourne Hospital, and elected to the Australian Academy of Health and Medical Sciences.

**Belzer, Richard**

**Independent consultant**

Dr. Richard Belzer has been an independent consultant in regulation, risk, economics and information quality. Previously he was a visiting professor of public policy at Washington University in St. Louis and staff economist in the Office of Information and Regulatory Affairs in the Office of Management and Budget. He received his Ph.D. in public policy from Harvard University (1989), Master's in Public Policy (MPP) from the John F. Kennedy School of Government (now Harvard Kennedy School) (1982), and MS and BS degrees in agricultural economics from the University of California at Davis (1979, 1980). Current original research areas include the measurement and estimation of Type I and Type II errors in the identification, placement, and discipline of children with disabilities; the analysis of benefits and costs from banning glider vehicles from the heavy-duty truck market; the development of statutorily appropriate measures of economic feasibility under the Safe Drinking Water Act; the analysis of variability in pulmonary function testing; the development of objective economic indicators to identify adverse human health effects; the improved use of human health risk assessments as inputs to benefit-cost analysis; the analysis of environmental justice ranking schemes; the analysis of patent law and examination practices; the estimation of potential cost reductions to state Medicaid programs from the substitution of electronic for tobacco cigarettes; and the economic value of subjective quality information in U.S. wine markets. Recent consulting projects have included a benefit-cost analysis of rescinding the ban on gliders from the heavy-duty truck market; reviews of California's proposed drinking water standards for hexavalent chromium and 1, 2, 3-trichloropropane; and the critique of predicted human health impacts and monetized risks attributable to air emissions from new facilities designed to achieve federal regulatory standards. Dr. Belzer is a regular contributor to scholarly professions through journal peer review and service to professional societies. He was elected Treasurer of the Society for Risk Analysis (1998, 2000) and elected Secretary-Treasurer of the Society for Benefit-Cost Analysis (2008, 2010). He earned multiple awards for exemplary performance at OMB, given the SRA's Distinguished Service Award (2003), and named a Fellow of the Cecil and Ida Green Center for the Study of Science and Society (1995). He has not received any grants from EPA, any other government agency, or any private entity. He has conducted independent research on behalf of clients or through self-funding; some projects are jointly funded. His clients since 2015 include: Fitzgerald Glider Kits LLC, the American Chemistry Council, the California Manufacturing Technology Association, the R Street Institute, and Exxon Mobil Biomedical Sciences, Inc.

**Bennear, Lori**

**Duke University**

Lori Bennear is the Juli Plant Grainger Associate Professor Energy Economics and Policy at the Nicholas School of the Environment at Duke University and the Associate Director for Educational Programs at the Duke University Energy Initiative. She received her Ph.D. in Public Policy from Harvard University (2004) and also earned an MA in Economics from Yale University (1996) and an AB in Economics and Environmental Studies from Occidental College (1995). Her research focuses on evaluating the effectiveness of flexible environmental policies including information disclosure regulations, management-based regulations, liability regimes, and demand-side management programs. She has applied these evaluations across a range of environmental domains including energy, toxics, and drinking water. Her co-edited book *Policy Shock: Recalibrating Risk and Regulation after Oil Spills, Nuclear Accidents and Financial Crises* was published by Cambridge University Press in September 2017. She is currently working on developing best practices for adaptive regulation of emerging technologies in the energy domain, with a focus on autonomous vehicles and offshore wind.



**Bergendahl, John**

**Worcester Polytechnic Institute**

Dr. John Bergendahl is currently the Director of the Environmental Engineering Program at Worcester Polytechnic Institute, and a tenured Associate Professor in the Department of Civil and Environmental Engineering with a collaborative appointment in Chemical Engineering. John has six years' experience as a practicing engineer in industry, and holds a B.S. in mechanical engineering, an M.S. in environmental engineering, and a Ph.D. in chemical engineering from the University of Connecticut. He conducted postdoctoral research in the Environmental and Water Resources Engineering Program at the University of Texas in Austin. His current research interests are in water quality, water reuse, sustainability, and water-energy relationships; specifically, His research seeks to increase our knowledge of physical and chemical processes for enabling sustainable design of engineered systems including water treatment and wastewater treatment systems, and identification/solution of emerging global water quality threats. John's recent research funding as PI or co-PI has come from the Center for Advanced Research in Drying (NSF and industry funded), Sandia National Laboratories, Triton Systems Inc, and Stantec, Inc. He authored and co-authored 27 peer-reviewed journal articles, participated in 61 professional presentations, authored one textbook and one book chapter, and advised over 8 Ph.D. dissertations, 19 M.S. theses, and 56 Senior engineering projects (some sponsored). He has served on numerous EPA and TRB review panels, and is on the editorial board for Soil and Sediment Contamination, An International Journal. He is also an inducted member of Chi Epsilon and Phi Kappa Phi. Dr. Bergendahl is a registered professional engineer in the State of Connecticut, and has consulted for industry.

**Botkin, Daniel**

**University of California, Santa Barbara**

Dr. Daniel B. Botkin is Professor Emeritus, University of California, Santa Barbara, where he was chairman of the Environmental Studies Program. He has also served on the faculty of Yale University's School of Forestry and Environmental Studies; George Mason University (Professor). He has worked on a wide variety of Environmental Science, from helping NASA use its LANDSAT satellite for the first time to study forests; was one of the leaders in establishing the National Science Foundation Long-Term Ecological Research Program. He has directed studies of toxic waste facilities; reserves for many endangered species, from African Elephants to salmon in the U.S. Pacific Northwest; the 1.3 million birds that used Mono Lake, California, threatened by water diversion. Other research: the effects of high levels of radiation on a New York State forest; and long-term studies of the historic data about bowhead whales and other marine mammals. He developed the first successful ecosystem computer model of forests, in use widely around the world. For 50 years, he has worked on the possibility of human-caused climate change. He has received numerous awards, most recently Who's Who Lifetime Achievement Award. He has authored 15 books, including an award-winning Environmental Science textbook. He has testified before both houses of Congress and various state houses. He earned a B.A. from the University of Rochester; a Master's Degree from the University of Wisconsin; and a Ph.D. from Rutgers University (biology/environmental science).

**Brown, Derick G.**

**Lehigh University**

Dr. Derick G. Brown is a Professor and Associate Chair of the Department of Civil and Environmental Engineering at Lehigh University. His research is in the experimentation and modeling of complex environmental systems, with a strong focus on environmental biotechnology and the relationships between microbial and physiochemical processes. Example research includes contaminant biodegradation, bacterial interactions with surfaces, and enhanced biological energy production and nutrient recovery from municipal and industrial waste streams. Dr. Brown also has expertise on the fate, transport, risk assessment and management of environmental contaminants,

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including pathogenic organisms and complex chemical mixtures. Dr. Brown received a B.S. from Boston University in Aerospace Engineering; an M.S. from University of California, Irvine in Mechanical engineering; and an M.A. and a Ph.D. in Environmental Engineering from Princeton University. He spent eight years in industry working for McDonnell Douglas Space Systems Company (now Boeing) in their Advanced Technology Development division and he has been a faculty member in the Department of Civil and Environmental Engineering at Lehigh University since 2001. Dr. Brown serves or has served on numerous external scientific committees, including the the USEPA Science Advisory Board's Environmental Engineering Committee. He is a Registered Professional Engineer in California and Pennsylvania and is an American Academy of Environmental Engineers and Scientists Board-Certified Environmental Engineer. Dr. Brown's research funding over the past two years includes the National Science Foundation, the Pennsylvania Infrastructure Technology Alliance, the Qatar National Research Fund, and Evoqua Water Technologies. His research has been published in numerous peer-reviewed articles in leading environmental engineering and science journals and Dr. Brown has presented his research at national and international conferences and at invited seminars, panels and workshops.

### Bus, James

#### Exponent, Inc.

Dr. James S. Bus is a Senior Managing Scientist in the Health Sciences Group of Exponent, a leading global consulting firm (May 2013-present). Prior to joining Exponent, Dr. Bus retired from The Dow Chemical Company as Director of External Technology and Fellow in the Toxicology and Environmental Research and Consulting unit (1989-2013). Prior to Dow, he held positions as Associate Director of Toxicology and Director of Drug Metabolism at The Upjohn Company (1986-1989), Senior Scientist at the Chemical Industry Institute of Toxicology (CIIT, 1977-1986), and Assistant Professor of Toxicology, University of Cincinnati (1975-1977). Dr. Bus has served in advisory roles to a variety of institutions including ILSI, ILSI-HESI, The Hamner Institutes (formerly CIIT), American Chemistry Council Long-Research Initiative, and on advisory boards of the EPA (BOSC and Chartered SAB), FDA (NCTR), the National Toxicology Program, and the National Academy of Sciences (BEST). He has served as President of the Society of Toxicology, The American Board of Toxicology, and the Academy of Toxicological Sciences, and in various editorial roles for Toxicology and Applied Pharmacology, Environmental Health Perspectives, and Regulatory Toxicology and Pharmacology. Dr. Bus has received the Society of Toxicology Achievement (1987) and Founders (2010) awards, the Toxicology Forum George H. Scott Award (2013), Rutgers University Robert A. Scala Award (1999), the Michigan State University K.E. Moore Outstanding Alumnus Award, and the International Society of Regulatory Toxicology and Pharmacology International Achievement Award (2015). He received his B.S. in Medicinal Chemistry from the University of Michigan (1971) and PhD in pharmacology from Michigan State University (1975), and currently is an Adjunct Professor in the Dept. Pharmacology and Toxicology at that institution. He has authored/co-authored over 130 publications, books, and scientific reviews. His primary research interests include modes of toxic action of industrial chemicals and pesticides, including the importance of non-linear toxicokinetics as a key consideration for improving the human relevance of in vitro and in vivo toxicity test findings.

### Caneba, Gerard

#### Michigan Tech University

Prof. Gerard T. Caneba is a professor of chemical engineering at Michigan Technological University. He started as a faculty member at Michigan Tech in 1985, and served as director of the Center for Environmentally Benign Functional Materials (CEBFM) in 2007-2015. He finished his bachelor's degree -in 1979 from the University of the Philippines in Quezon City. He was a recipient of a United Nations fellowship for the M.S. degree he obtained from the University of California at Berkeley, CA

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in 1982. He finished his Ph.D. in 1985, and became a faculty member at Michigan Tech the same year. He is a small business owner, which is starting to scale-up a process that was developed initially through a P3 (People, Prosperity, and Planet) Phase I project in 2012. He worked with the Michigan Tech-based Center for Clean Industrial and Treatment Technologies (CenCITT) in the 1990s, which culminated in his generation of a report on environmental aspects of polymer products. He was a faculty fellow at Argonne National Laboratory in 2001, and National Aeronautical and Space Administration (NASA)-Johnson Space Center in 2003-2004. He was an active member of the University Senate in 2008-2013 as a Senator-at-Large; he chaired for 5 years its Administrative Policy Committee, which ran the annual evaluation survey of the university president and vice-presidents. He discovered the free-radical retrograde-precipitation polymerization (FRRPP) process, which has been documented in journal articles and two monographs authored or co-authored by him to generate environmentally responsible polymer materials. Most recently (2017-2018), he authored a book that used chemical engineering concepts to propose a new 12-step mechanism of natural climate change, which emanates from deep in the oceans; he analyzed this deterministic mechanism quantitatively with his own set of model calculations backed by experimental data. He has no research funding in the past two years.

**Cantrell, Louis**

**Profitable Weather, LLC**

Dr. Louis E. Cantrell Jr. is an American Meteorological Society (AMS) Certified Consulting Meteorologist (CCM) currently serving on the AMS CCM Board. He is presently an advisory consultant to Technology Planning and Integration for Observation office at NOAA/NESDIS Silver Spring, MD. He advises the NOAA Observing System Council and NOAA Research Councils on investments in NOAA's nearly \$2.5B annual observing systems portfolio.

**Chandra, Dhyana**

**Roswell Park Comprehensive Cancer Center**

Dr. Dhyana Chandra is an Associate Professor of Oncology in the Department of Pharmacology and Therapeutics at Roswell Park Comprehensive Cancer Center, Buffalo, New York. The focus of research in his laboratory is to understand the underlying mechanisms of drug toxicity in cancer and normal cells. The main objectives of his laboratory are to: understand mitochondria-mediated cell death signaling in cancerous and normal cells; and define the role of heat shock proteins in cell survival and death. He has acquired extensive expertise and experience in mitochondrial biology and cell death. These types of research activities will be important in understanding cellular responses to environmental toxicants including toxic metals and radiation, which have been associated with various human diseases including cancer. He has been serving as an expert reviewer for scientific journals and national / international grants funding agencies. He is a member of editorial board of various science journals, and has delivered lectures at scientific conferences and at academic institutions. He earned his PhD degree in the field of radiation and cancer biology from the Jawaharlal Nehru University, New Delhi, India. During his postdoctoral training at the University of Texas MD Anderson Cancer Center, he studied the mitochondrial regulation of cell death in cancer. His research for the last 2 years has been funded by National Institutes of Health.

**Chen, Celia**

**Dartmouth College**

Dr. Celia Chen is a Research Professor in the Department of Biological Sciences at Dartmouth College and the Director of the Dartmouth Toxic Metal Superfund Research Program. For the last 23 years, she has studied the fate and effects of metal contaminants in freshwater and estuarine ecosystems particularly the bioaccumulation and trophic transfer of mercury. She has also investigated the effects of multiple stressors on aquatic organisms, including the impacts of changes related to

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climate on aquatic food webs. Dr. Chen received a B.A. in Biology at Dartmouth College, M.S. in Biological Oceanography at the University of Rhode Island, and a Ph.D. in Ecology from Dartmouth College. In the Dartmouth Toxic Metals Program, she is also the Core Leader of the Research Translation Core working to communicate scientific information to improve human health and the environment. She has chaired regional and international workshops and meetings on mercury in the environment. She represents Dartmouth College on the United Nations Environment Programme Fate and Transport Partnership and participated in the conferences of the Minamata Convention. She is currently a Review Editor for the journal, *Ecohealth*, and has been a guest editor of special issues in *Environmental Research*, *Environmental Health Perspectives*, *Estuaries and Coasts*, *Ecohealth*, *Science of the Total Environment*, and *Ambio*. She has published over 70 peer-reviewed papers. She served on the U.S. EPA Science Advisory Board Mercury Panel, the Ecological Processes and Effects Committee, and the Lake Erie Phosphorus Objectives Review Panel. She also has served on the Boards of the North Atlantic Chapter of the Society of Environmental Toxicology and Chemistry, Gelfond Fund at Stony Brook University, and the Scientific Advisory Committee of the Lake Sunapee Protection Association. Her research has recently been supported by the NIEHS, the CDC, the USDA, the USEPA, and the Sea Grant Program of NOAA.

**Chitikela, S. Rao**

**RC-WEE Solutions LLC**

Dr. S. Rao Chitikela is a consulting engineer practicing in the water, energy, and environmental compliance specialty areas related to the industrial-manufacturing and municipal water operations. He has significant work experience with both government and private entities, and maintains effective interaction with the academia; currently, he is working with his own firm RC-WEE Solutions LLC. He is a registered professional engineer (P.E.) in the States of OH, IN, MI, PA, DE, NJ, NY, and P.Eng., in Alberta-Canada; also, a Board Certified Environmental Engineer (BCEE) in the Water Supply & Wastewater, and Air Pollution Control specialties. Rao's expertise includes: water and wastewater treatment; air pollution monitoring and control; water infrastructure updating; environmental permitting and auditing; and, energy auditing. His research work included: fate of chemicals in the environment; ammonia emissions of poultry operations; drinking water quality; wastewater and greenhouse gases; air pollutant monitoring, control, and compliance verification; municipal and industrial-manufacturing facilities' environmental permitting and compliance; and, the application of water infrastructure updating via performance infrastructure contracting. He conducted several stakeholder meetings on environmental permitting and negotiations (including enforcement). He was a committee member on 'Chronic Violator Regulation Development' in the State of Delaware (2002). He is an active member of Environmental Permitting, Groundwater Quality, Renewable Energy Technologies, and Sustainability Committees, and Municipal Water Infrastructure Council of the Environmental and Water Resources Institute (EWRI); also, a contact on Government Relations of the American Society of Civil Engineers (ASCE). He is a peer reviewer and, published technical papers and presented on the key topics above. Rao earned his bachelor's, master's, and Ph.D., in Civil Engineering from the Andhra University (India), Nagpur University (India), and University of Delaware (USA), respectively. He did not receive any research grants or funds in the last two (2) years.

**Chorghade, Mukund**

**THINQ Pharma**

Dr. Mukund S. Chorghade is President and Chief Scientific Officer, THINQ Pharma / MVRC Research/ Chicago Discovery Solutions. He holds Adjunct Research Professor / Visiting Fellow / Scientist appointments at Harvard, MIT, Princeton, Cambridge, Caltech, Rutgers, Strathclyde and others. He provides synthetic chemistry and chemical development expertise to academic laboratories, agrochemical, pharmaceutical and biopharmaceutical companies. His research interests are in

Traditional Medicine derived New Chemical Entities and his discovery of “chemosynthetic livers” that find utility in drug metabolism, valorization of biomass and environmental remediation. The livers are proprietary oxidative catalysts to conduct and predict metabolic profiling of chemical entities. (in vitro and ex vivo): Metabolites can be synthesized and screened in multi-gram quantities. Dr. Chorghade earned B. Sc. M. Sc. degrees from the University of Poona, and a Ph. D. at Georgetown University. He completed postdoctoral appointments at the University of Virginia and Harvard, visiting scientist appointments at University of British Columbia, College de France / Universite’ Louis Pasteur, Cambridge and Caltech and directed research groups at Dow Chemicals, Abbott Laboratories, CytoMed and Genzyme. He received three “Scientist of the Year Awards” and is on the Scientific Advisory Board of several corporations / foundations. He is a Fellow of the American Chemical Society, American Association for the Advancement of Science, American Institute of Chemists and The Royal Society of Chemistry, the Maharashtra, Andhra Pradesh and Telengana Academy of Sciences and has been a featured speaker in national and international symposia that have received favorable press coverage. He was ACS Section Chair (Brazoria 1990) and Northeastern (2007). He is Chair-Elect of the Princeton Section (2018). He is an active participant in ACS’ Career Services / Professional Development / Entrepreneurship and the Small Chemicals Businesses Division. He is the Chair of the RSC Committee on Process Chemistry and Technology (2018-9).

**Chorover, Jon**

**University of Arizona**

Dr. Jon Chorover is Professor and Head, Department of Soil, Water and Environmental Science at the University of Arizona (UA). He received his B.S. (Environmental Science) from University of Michigan, and M.S. (Forest Science) and Ph.D. (Soil and Water Chemistry) from UC Berkeley, worked as an NSF postdoctoral fellow in Analytical Chemistry at University of Geneva, and was on the faculty of Penn State University before joining the faculty of University of Arizona. His research group explores the biogeochemistry of soil, sediment and water through laboratory and field-based experiments probed with advanced analytical chemistry techniques. Of particular interest is resolving how mineral-organic interactions influence the weathering of soils, the stabilization of organic carbon, and the speciation, mobility and bioaccessibility of pollutants. His research is funded by the National Science Foundation, the National Institute of Environmental Health Sciences, and the Department of Energy. He directs a core analytical chemistry facility, the Arizona Laboratory for Emerging Contaminants and serves as principal investigator of the Santa Catalina Mountains – Jemez River Basin Critical Zone Observatory (<http://criticalzone.org/catalina-jemez/>), funded by the National Science Foundation.

**Christy, John R.**

**University of Alabama in Huntsville**

Dr. John R. Christy is the Director of the Earth System Science Center, Distinguished Professor of Atmospheric Science and Alabama’s State Climatologist at the University of Alabama in Huntsville where he has been employed for over 30 years. His responsibilities include managing a science center with over 80 employees working on several research projects ranging from developing and launching space-based instruments to studying impacts of significant weather events in developing countries to high-resolution studies of air pollution (air-chemistry and meteorology) in the Southeast. His own research concerns developing, constructing and refining global and regional climate data records which may be used to test claims of climate variability and change and to understand the climate’s sensitivity to various forcing factors, resulting in almost 100 peer-reviewed publications. As State Climatologist he interacts with the government, industry and the public regarding climate resources in Alabama that may be utilized in environmentally and economically sustainable ways. A Fellow of the American Meteorological Society (AMS), Dr. Christy was selected for (a) the AMS Special Award as

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co-author of the first satellite-based global bulk-atmosphere temperature record and (b) NASA's Medal for Exceptional Scientific Achievement. He has served on panels of the National Research Council and National Academy of Sciences as well as the Earth Science Subcommittee of the NASA Advisory Council. He has been called to testify before 20 Congressional Hearings and approved as an expert witness in U.S. Federal Court on climate issues. He earned both the M.S. and PhD. Degrees in Atmospheric Sciences from the University of Illinois. Present research is funded by the State of Alabama, NASA and the Department of Energy.

### Clasen, Thomas

#### Emory University

Thomas Clasen, an epidemiologist, is Professor of Environmental Health and Rose Salamone Gangarosa Chair of Sanitation and Safe Water at the Rollins School of Public Health, Emory University where he teaches courses on the critical appraisal of water, sanitation and hygiene research and on US environmental health law and policy. He has led more than \$40 million in research on household-level environmental health interventions in low-income countries. His work has been published in leading journals, including *The Lancet Global Health*, *The BMJ*, *PLOS Med*, *Environmental Health Perspectives*, *WHO Bulletin*, *Epidemiology*, and the *International Journal of Epidemiology*. His research includes randomized controlled field trials to assess the health impact of water, sanitation and household air pollution interventions, systematic reviews of water quality and sanitation interventions to prevent diarrhoeal disease and enteric infection, assessments of water and sanitation interventions in emergency and outbreak response, and cost and cost-effectiveness analyses of water and sanitation interventions in developing countries. His current research includes a multi-country trial to assess the health impact of LPG stoves; a large-scale trial of a program provide water filters and improved cook stoves to lower income populations in Rwanda; a matched-cohort study to evaluate a rural water and sanitation programmes in Orissa, India; and an evaluation of a slum redevelopment intervention in Fiji and Indonesia. Prof. Clasen is the chief advisor to the World Health Organization in developing the first set of Guidelines for Sanitation and Health. Prof. Clasen holds an MSc (Control of Infectious Diseases) and PhD from the University of London; he also holds a JD (Law) from Georgetown University.

### Clewell, Harvey

#### Ramboll Environment and Health

Dr. Harvey J. Clewell is a research scientist with over forty-five years of experience in environmental quality and toxicology research, chemical risk assessment and hazardous materials management. He is currently a Principal Consultant with Ramboll. He received a Master's Degree in Chemistry from Washington University, St. Louis, and a PhD in Toxicology from the University of Utrecht, the Netherlands. He is a Diplomate of the American Board of Toxicology and a Fellow of the Academy of Toxicological Sciences, and holds the position of Visiting Scientist at the University of Utrecht in the Netherlands. He has authored more than 200 peer-reviewed scientific publications and a number of book chapters. He has gained an international reputation for his work on the incorporation of mechanistic data and mode of action information into chemical risk assessments, having played a role in the first uses of physiologically based pharmacokinetic (PBPK) modeling in cancer and non-cancer assessments by EPA, ATSDR, OSHA, and FDA. Dr. Clewell has served on external peer review panels for a number of EPA guidelines, including those for cancer risk assessment, risk characterization, benchmark dose modeling, and dermal absorption, and has participated in chemical-specific reviews conducted by the EPA Scientific Advisory Board and the FIFRA Scientific Advisory Panel. He also served as a member of the ECVAM Scientific Advisory Panel from 2012 to 2016. Over the years he has performed research for a wide variety of clients, including the EPA, FDA, NIEHS, ATSDR, Health Canada, TCEQ, ACC, CEFIC, Pfizer, DuPont, Dow Corning, EPRI, NIPERA, Syngenta and Cosmetics Europe. In 2007 the Society of Toxicology recognized Dr. Clewell with the

Arnold J. Lehman Award for major contributions to chemical safety and risk assessment.

**Cobb, Kim**

**Georgia Inst. of Technology**

Dr. Cobb is the Georgia Power Chair and Professor in the School of Earth and Atmospheric Sciences (<http://shadow.eas.gatech.edu/~kcobb/>) and the Director of the Global Change Program (<https://globalchange.gatech.edu>) at Georgia Institute of Technology. She is also the ADVANCE Professor for diversity, equity, and inclusion in the College of Science at Georgia Tech. She is the founding Director of the Carbon Reduction Challenge (<http://carbonreduction.gatech.edu>), which partners students with organizations to reduce greenhouse gas emissions while saving money. She received her B.A. from Yale University in Biology and Geology in 1996, and her Ph.D. in Oceanography from the Scripps Institute of Oceanography in 2002. She spent two years as a Postdoctoral Fellow at Caltech before joining the faculty at Georgia Tech in 2004. She is Editor for Geophysical Research Letters, the flagship journal of the American Geophysical Union, serves on the international CLIVAR Pacific Panel, is Co-Chair of the US CLIVAR Working Group on Water Isotopes, and is a Lead Author for the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Dr. Cobb's research uses corals and cave stalagmites to probe the mechanisms of past, present, and future climate change, with a focus on ocean temperature extremes related to the El Niño-Southern Oscillation. She has sailed on multiple oceanographic cruises to the deep tropics and led caving expeditions in the remote rainforests in Borneo for her geochemical and climate research. In her lab at Georgia Tech, Dr. Cobb and her associates measure the geochemistry of rock samples and water samples from across the world, focusing on trace metal and isotope geochemistry, including radiometric dating techniques. More recently, her research has expanded to include the study of climate change impacts on coral reef ecosystems, as well as "smart" sea level sensor networks for coastal emergency planning and response – projects which have her leading and/or participating in large interdisciplinary research teams. Dr. Cobb received a NSF CAREER Award and a Presidential Early Career Award for Scientists and Engineers in recognition of her research accomplishments, and has received federal funding from NSF and NOAA in support of her research program.

**Cohen, Steven**

**Columbia University**

Dr. Cohen is the former Executive Director of Columbia University's Earth Institute, and now serves as a senior advisor for the Institute. He is a former policy analyst and consultant to the U.S. Environmental Protection Agency. Dr. Cohen has served on numerous boards and committees, including the Board of the Pew Faculty Fellowship in International Affairs, the Executive Committee and Committee on Accreditation and Peer Review of the National Association of Schools of Public Affairs and Administration, and the U.S. Environmental Protection Agency's Advisory Council on Environmental Policy and Technology. He currently serves on the Board of Directors of Homes for the Homeless, Board of Directors of the Willdan Group, Inc., Advisory Board of the University of Minnesota's Institute on the Environment, Steering Committee for the Porter School of Environmental Studies at Tel Aviv University. Dr. Cohen also serves on the Judging Committee for the Yidan Prize Foundation and is the Chair of the Lotos Club's Science and Technology Committee. Dr. Cohen is the author of *The Sustainable City* (2017), *Understanding Environmental Policy* (2006, 2014), *Sustainability Management* (2011), *The Effective Public Manager* (1988, now co-authored in its fifth edition), and the co-author of *Sustainability Policy: Hastening the Transition to a Cleaner Economy* (2015), *The Responsible Contact Manager* (2008), *Strategic Planning in Environmental Regulation* (2005), *Tools for Innovators: Creative Strategies for Managing Public Sector Organizations* (1998), and *Total Quality Management in Government* (1993). He has written numerous articles on public management, sustainability management, and environmental policy. Dr. Cohen also writes a weekly blog for the Earth Institute's State of the Planet website.

**Cooper, Cal**

**Apache Corporation**

Dr. Cal Cooper is Director of Special Projects and Emerging Technologies at Apache Corporation in Houston, TX. He earned his Ph.D. in Geology and Geophysics from Rice University and did his undergraduate in Geophysical Sciences at the University of Chicago. He has been an industry leader across broad areas of applied sciences. At Apache Corporation since 2009 he has led teams to enable the recycling and use of produced water instead of using fresh water resources for hydraulic fracturing. He has championed the use of inherently safer chemicals and funded innovative ways to produce highly reactive and useful chemicals on-site in processes that maximize safety and minimize risk to humans and eliminate any residual risk to freshwater resources. He has also researched the availability of groundwater resources, especially brackish water in west Texas. His active research includes advanced water treatment systems, innovative carbon based gas separation devices, developing tools for environmental remediation of salts and how to limit seismicity associated with underground injection. He evaluates methane detection and emissions quantification techniques. Dr. Cooper was among the first industry scientists to participate in EPA workshops on Hydraulic Fracturing. He also testified about proposed EPA studies of hydraulic fracturing to the U.S. House Committee on Space, Science and Technology. He played a pivotal role in the realization of FracFocus, the hydraulic fracturing chemical disclosure register, and acted as an advisor to the Groundwater Protection Council. Prior to joining Apache, Dr. Cooper was ConocoPhillips Corporate Science Fellow as well as Chief Geoscientist and Center Manager of Geosciences in the corporate technology organization. He served as the Vice Chairman of the Carbon Capture Project, and on the boards of several thematically related international projects. He has also served on advisory boards for scores of US university programs. Dr. Cooper has not received any funding from non-employer sources since Ph.D. completion.

**Cruz-Rivera, Edwin**

**University of the Virgin Islands**

Dr. Edwin Cruz-Rivera is an Associate Professor in the Department of Biological Sciences at the University of the Virgin Islands. He holds a B.S. in Industrial Microbiology from the University of Puerto Rico in Mayagüez and a Ph.D. in Marine Science from the University of North Carolina at Chapel Hill. He has over 20 years of experience in the fields of ecology and marine biology, and has published his research in some of the most prestigious journals in the field. Dr. Cruz-Rivera has been faculty in the USA, the Middle East and Asia before joining the University of the Virgin Islands in 2014. He has taught a variety of courses in ecology, marine biology, zoology, environmental sciences, marine biotechnology, research ethics and general science at both undergraduate and graduate levels. His research interests are in marine ecological and evolutionary processes at various levels of organization, ranging from individuals to ecosystems. His research spans chemical ecology, plant-herbivore/consumer-prey interactions, nutritional ecology, parasite ecology and taxonomy, and invasive species. He has worked in broadly diverse ecosystems, including the North Atlantic, the Chesapeake Bay, the Mediterranean Sea, the tropical Pacific, South Australia, the Red Sea, the Caribbean, brackish lakes in Egypt, and the South African intertidal. Before his academic career, he also served as Executive Director of a public-private partnership aimed at improving drinking water quality in Puerto Rico.

**Cushing, Robert**

**Carollo Engineers, Inc**

Dr. Robert Cushing is a Senior Vice President with Carollo Engineers, Inc. In his 21 years with the company, he has been at the forefront of applied research projects for water treatment and improved water quality, as well as studies, plans, designs, cost estimation, and construction of water and sewer infrastructure. Throughout his career, Dr. Cushing has coupled fundamental scientific concepts with



sound engineering practices to provide creative, innovative, and enduring solutions to water and wastewater challenges. Dr. Cushing has practiced nationally, providing service to a broad cross-section of some of the nation's largest and most visible utilities, including New York City and Washington, D.C. Yet he has also provided solutions to smaller agencies with critical and unique water quality challenges, such as the Ouray National Fish Hatchery in Utah. His background and expertise in water and wastewater quality and treatment as well as facility design, construction, and cost estimation, will bring unique and valuable perspectives and insights to the agency and SAB. Dr. Cushing holds a BS in Petroleum Engineering and MS and PhD degrees in Civil Engineering all from the University of Texas at Austin. He is a Registered Professional Engineer and is a Board Certified Environmental Engineer by the American Academy of Environmental Engineers. He has published numerous articles in the peer-reviewed literature and has served on numerous scientific and engineering committees. Dr. Cushing has received no research funding over the past two years.

**Davidson, Eric**

**University of Maryland Center for Environmental Science**

Eric A. Davidson is Director and Professor at the Appalachian Laboratory of the University of Maryland Center for Environmental Science. Previously, he was Senior Scientist, President, and Executive Director at the Woods Hole Research Center, Massachusetts. Davidson received a Ph.D. in forestry from North Carolina State University and held post-doctoral positions in soil microbiology and biogeochemistry at University of California-Berkeley and NASA Ames Research Center. He currently serves as President of the 60, 000-member American Geophysical Union and previously was President of its Biogeochemistry section. He is a Fellow of the American Association for the Advancement of Science. He served as the Coordinator of the North American Center for the International Nitrogen Initiative and was the leader of an NSF Research Coordination Network on Reactive Nitrogen in the Environment. The Institute for Scientific Information Clarivate Analytics lists him as a Highly Cited Researcher. Davidson studies the exchange of plant nutrients from land to streams and groundwater, soil carbon dynamics, and the exchange of greenhouse gases between soil and atmosphere. He has worked in forests, cattle pastures, and agricultural fields of Brazil, Central America, Canada, and the USA. Current USDA-funded research focuses on potential "pollution swapping" at an operational farm on the Delmarva Peninsula, where drainage control structures are a best management practice designed to reduce nitrate leaching to ditches, rivers, and the Chesapeake Bay, but could also increase emissions of the greenhouse gases, nitrous oxide and methane. Other recent funding sources include the National Science Foundation, National Park Service, and Maryland Sea Grant. Davidson collaborates on international synthesis projects regarding global budgets of nitrogen and nitrous oxide. Finally, he is co-leading a National Socio-Environmental Synthesis Center project to develop quantitative biophysical and socio-economic indicators of progress toward the Sustainable Development Goal 2 on alleviating hunger and promoting sustainable agriculture.

**Davis, Alexander**

**Carnegie Mellon University**

Dr. Alex Davis has worked as an Assistant Professor in the Department of Engineering and Public Policy at Carnegie Mellon University beginning in 2015 after working as a post-doctoral researcher and research scientist from 2012-2015. He has served as chair, co-chair, or committee member for the dissertations of 14 PhD students. His expertise is in individual human decision-making at the technological frontier, where members of the public must understand complex and often uncertain technical issues, then express their preferences for alternative courses of action that involve tradeoffs between cost, risk, and benefit. To do this, Dr. Davis draws on his background in Behavioral Decision Research, an interdisciplinary field that uses psychological and economic perspectives to understand decision-making. His research aims to aid decision-making using technology, risk communication, and interventions. He teaches a Ph.D-level course in data analysis, including the causal evaluation of

policy impacts on socio-economic outcomes, and a course Stochastic Discrete Choice Models focusing on characterizing individual preference based on foundational psychophysical and economic theory dating back to the early 1900's up to the modern era. Dr. Davis has published peer-reviewed articles in Nature Climate Change, the Proceedings of the National Academy of Sciences, Environmental Research Letters, Energy Policy, and the Journal of Experimental Psychology, among others. He earned a B.S. in Psychology with minors in Biology and Mathematics from Northern Arizona University, and an M.S. and Ph.D. from Carnegie Mellon University in Behavioral Decision Research. Dr. Davis' research has been funded by the Richard King Mellon Foundation, the Manufacturing Futures Initiative, the Hillman Foundation, the Center for Machine Learning and Health, the Electric Power Research Institute, and the Swedish Foundation for the Humanities and Social Sciences. He has served as an ad-hoc reviewer and panelist for the National Science Foundation and numerous peer-reviewed journals.

**Dayaratna, Kevin**

**The Heritage Foundation**

Kevin D. Dayaratna is Senior Statistician and Research Programmer in The Heritage Foundation's Center for Data Analysis (CDA). An applied statistician, Dayaratna has researched and published on the use of high-powered statistical models in public policy, medical outcomes, business, economics, and even professional sports. Dr. Dayaratna is part of the CDA team that maintains scores of databases and statistical models to support policy research; provides confidential reviews of legislation for members of Congress and the White House; and supplies data and analysis for news organizations. At CDA, Dayaratna instituted the Heritage Energy Model, derived from the Energy Information Administration's National Energy Modeling System, to help policymakers understand the long-term economic effects of energy policy proposals. He has also published extensively on integrated assessment modeling regarding the social cost of carbon, methane, and nitrous oxide. In addition to energy modeling, Dr. Dayaratna also works on statistical modeling pertaining to important climate, tax, labor, health care, welfare, and entitlement policy questions. Regarding energy and climate modeling, Dr. Dayaratna's research has been referenced by both the Obama and Trump administrations. In 2013, Dr. Dayaratna found a mistake in the Obama administration's social cost of carbon modeling, and shortly thereafter, this modeling had been opened up to public comment. In terms of the social cost of carbon and its use in policymaking, Dr. Dayaratna has published both at Heritage and in the peer-reviewed literature, given numerous talks, and has testified twice in front of Congress. Additionally, Dr. Dayaratna's work on energy policy modeling has been recently referenced by the Trump administration. Dayaratna did his undergraduate work at the University of California, Berkeley, majoring in applied mathematics. He also holds a Ph.D. in mathematical statistics as well as two masters' degrees from the University of Maryland, one in business and management and the other in mathematical statistics. Dr. Dayaratna's research has been done as part of his employment at The Heritage Foundation. The Heritage Foundation is a nonprofit 501(c)(3) organization which relies on the financial support of the general public, including individuals, foundations, and corporations. He has also done some independent contract work supported by Lam Research on big data computation.

**Dhanasekaran, Danny**

**University of Oklahoma**

Dr. Danny N. Dhanasekaran is the Deputy Director of Basic Cancer research at the Stephenson Cancer Center of the University of Oklahoma. He is also an Endowed Chair and Professor of Cell Biology at the University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma. He has been employed by the University since 2009 and has managed the cancer center's basic research activities and the infrastructure development for cancer research. Dr. Dhanasekaran serves as the Director of NIH-sponsored Center for Biomedical Research Excellence, a federal initiative to increase research infrastructure in Oklahoma. His tenure also includes his professorship at the Temple University

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School of Medicine, Philadelphia from 1992 to 2009. Dr. Dhanasekaran has graduated with a M.S. in Molecular Biology and Ph.D. in Biochemistry. His research for the past twenty years has been funded by various Federal agencies including National Institutes of Health (NIH), National Aeronautics and Space Administration (NASA), Air Force Research Laboratory (AFRL), Department of Defense (DoD), and Defense Advanced Research Projects Agency (DARPA). He has a strong technical background and research interest in carcinogen identification, chemical and biological effects of carcinogens, their exposure toxicity, and kinetics. He has worked with several federal agencies such as Department of Defense, NASA, and DARPA in monitoring environmental toxicants and detecting water contaminants. Dr. Dhanasekaran has published more than 100 articles in the peer-reviewed literature, serves on numerous external scientific committees, and has provided invited presentations at National and International meetings. He is on the editorial board of several cancer research journals. He has extensive knowledge on federal regulatory and risk assessment issues related to cancer promoting carcinogens and toxicants. He has been granted two patents, one of which is on the detection of chemical toxicants. Dr. Dhanasekaran has been serving as a scientific and technical reviewer for several national and international research agencies. He also serves as an advisor for NIH intramural funding. In addition to participating in scientific meeting and conferences, he has conducted several media interviews.

### Dinov, Ivo

#### University of Michigan

Professor Ivo Dinov is an expert in mathematical modeling, statistical analysis, computational processing, scientific visualization of large datasets (Big Data), and predictive health analytics. He directs the SOCR Resource, the MNORC Integrative Biostatistics and Informatics Core, and the Udall PD Biostatistics and Data Management Core. He co-directs the Center for Complexity and Self-management of Chronic Disease (CSCD Center) and the multi-institutional Probability Distributome Project. Dr. Dinov is an Associate Director for Education and Training, of the Michigan Institute for Data Science (MIDAS). He is a member of the American Statistical Association (ASA), the International Association for Statistical Education (IASE), the American Medical Informatics Association (AMIA), the American Association for the Advancement of Science (AAAS), as well as an Elected Member of the Institutional Statistical Institute (ISI). Dr. Dinov has published over 150 scientific articles in peer-reviewed journals and is the author of the textbook "Data Science and Predictive Analytics". He earned degrees in mathematics and statistics from Sofia University, Michigan Technological University, and Florida State University, and completed a postdoctoral training in computational neuroscience at the University of California, Los Angeles. His recent research is supported in part by the National Science Foundation, the National Institutes of Health, and the Elsie Andresen Fiske Research Fund.

### DuPree, Gabriel

#### University of Florida

Mr. Gabriel Dupree received his Bachelor of Science in Natural Resource Conservation from the University of Florida, where he also completed post-baccalaureate graduate studies in Environmental Policy and Management in Ecological Engineering and was elected to the Student Government Senate. Mr. DuPree has over 13 years of experience in both the public and private sectors working on high profile environmental projects of local, regional, national, and global significance. Geographically, his career experience encompasses the high desert of the West Coast, the Piedmont and Atlantic Coastal Plain of the North and Southeast, prairies and agricultural areas of the Midwest, and subtropical dry forest of Puerto Rico. He worked on the world's largest solar and wind power projects, while also leading numerous environmental compliance field investigations in the nuclear, oil, and natural gas sectors. Mr. DuPree worked at the nation's largest Superfund sites to remediate hazardous waste contamination and at a wide range of military installations across the country,

demonstrating some of the most innovative and cost-effective geophysical and geospatial technologies. Highly skilled in environmental policy analysis, biological monitoring, endangered species assessments, environmental health, and water resources management, Mr. DuPree currently serves as a mayoral appointee on the City of Jacksonville's Environmental Protection Board, where he exercises regulatory authority, oversees the review of environmental permits and enforcement actions, promulgates regulations, and acts as a technical resource for management and staff of the city's Environmental Quality Division. While he is not currently accepting research funding, Mr. DuPree does consider funding requests from citizens that appear before the board. Previously, he served as Vice Chair of the Alachua County Commission's Environmental Protection Advisory Committee advising the County Commission on air quality, water resources and responsible management of public lands. In his spare time, Mr. DuPree enjoys giving back to his community through volunteering, philanthropy, and mentoring.

**Embertson, Nichole M.**

**Whatcom Conservation District**

Dr. Nichole Embertson is a Nutrient Management and Air Quality Specialist with the Whatcom Conservation District, adjunct at Washington State University, and Director of the Washington Discovery Farms program. She is also Chair of the Washington State Center for Technical Development working to improve the professional capacity of Conservation District employees. She received her B.S. from Cal Poly, San Luis Obispo, M.S. from University of California at Davis, and Ph.D. from Colorado State University in Animal Science with specialties in Environmental Management of Livestock Systems and Air Quality. Dr. Embertson currently provides technical assistance on nutrient and environmental issues to farmers, agencies and industry professionals alike. She also conducts applied research focused on finding integrated solutions to nutrient management and resource conservation challenges, as well as development of decision support tools such as her innovative manure application risk management system including a real-time manure advisory and on-line nutrient management planning resources for producers. Her goal through Discovery Farms Washington is to help producers discover new and better land management practices for protection of environmental resources. Her projects have been funded by the Washington State Department of Agriculture, Washington State Department of Health, Washington State Conservation Commission, Natural Resource Conservation Service (NRCS), and Environmental Protection Agency (EPA). Her vision, communication style and unique experience makes her very effective in developing useful materials for producers, as well as providing science based input into policy and programing. Dr. Embertson shares her knowledge and expertise through participation on national science panels for USDA-NRCS and the EPA, and in a leadership role for the Livestock and Poultry Environmental Learning Center. She has been awarded both the Northwest and Washington State Conservation District Employee of the year award, NRCS Partnership Award, and Washington State Dairy Federation President's Appreciation Award for her outstanding work and partnership efforts.

**Enstrom, James E.**

**Scientific Integrity Institute**

Dr. James E. Enstrom is a retired Research Professor/Researcher from the School of Public Health and Jonsson Comprehensive Cancer Center at the University of California, Los Angeles. He is President of the Scientific Integrity Institute in Los Angeles. He received his BS in physics from Harvey Mudd College, an MS and PhD in elementary particle physics from Stanford University, and a MPH and postdoctoral certificate in epidemiology from UCLA. Dr. Enstrom has authored, primarily as first or sole author, about 50 peer-reviewed articles and book chapters on physics, epidemiology, and scientific integrity. He has received research funding from many sources, including NIH, ACS, UC, private foundations, industry sources, and personal donations. He has received no funding recently, but is still conducting original epidemiologic research by using personal assets in innovative and cost-

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effective ways. He has taught graduate classes on environmental health science. He has given numerous lectures on epidemiology and ethics. He has published important articles relating good health practices to reduced mortality and recently has shown that fine particulate matter (PM<sub>2.5</sub>) is not related to total mortality in the ACS Cancer Prevention Study cohorts (CPS I and CPS II). He is the only independent scientist to obtain and analyze original CPS cohort data. His research shows that the EPA PM<sub>2.5</sub> NAAQS is scientifically unjustified and must undergo complete and objective reassessment. His Scientific Integrity Institute website contains thousands of documents on air pollution epidemiology, lifestyle epidemiology, scientific integrity, and critiques of regulations, many of which contain his own research and analysis. He understands air pollution health effects research from the perspectives of both physics and epidemiology and maintains the highest level of integrity. He is a Life Member of the American Physical Society, a Founding Fellow of the American College of Epidemiology, and a current member of the ACE Ethics Committee. In 2015 he received the Heroes of Conscience Award from the American Freedom Alliance in Los Angeles.

### Felter, Susan P.

#### Procter & Gamble

Dr. Susan Felter is a Research Fellow in Procter & Gamble's Central Product Safety organization. She holds a B.S. in Biology from the Massachusetts Institute of Technology and a Ph.D. in Toxicology from the University of Cincinnati. Dr. Felter's primary professional interest is in methods for human health risk assessment. In her Corporate role at P&G, she leads several global teams responsible for the company's methods for human health risk assessment, providing guidance across all geographies and business sectors. She serves on a number of U.S. and European trade association task forces. Prior to joining P&G, Dr. Felter worked for TERA (Toxicology Excellence for Risk Assessment), a nonprofit science organization in Cincinnati, and the U.S. Environmental Protection Agency (Office of Research and Development) where she received the U.S. EPA Bronze Medal for her work in developing the scientific basis to support drinking water regulations for human health. Dr. Felter previously served on the Science Advisory Board of the Food and Drug Administration's National Center for Toxicological Research. She also currently serves on the Science Advisory Board for the Toxicology Forum. She has served as a peer reviewer for the World Health Organization and the National Toxicology Program. Dr. Felter has been a member of the Society of Toxicology since 1996, and has served in elected positions as Secretary-Treasurer of the Risk Assessment Specialty Section, as well as Councilor of the Ohio Chapter of the Society for Risk Analysis. Dr. Felter receives no outside research funding.

### Ferry, John

#### University of South Carolina

Dr. John Ferry has extensive experience in environmental chemistry, including reactive oxygen species, photolysis, advanced oxidation, degradation/transformation of chemicals in the environment, cyanobacterial (algal) toxins, and analytical measurement of environmental contaminants. He has taught environmental chemistry for many years at the University of South Carolina and is one of the most knowledgeable people I have ever met in environmental chemistry. He understands atmospheric chemistry and water chemistry and is very knowledgeable regarding chemical properties. John has served on a STAR Grant review panel several years ago, and is interested in serving on the SAB. He would make an excellent member of the regular SAB or the Chemical Assessment Advisory Committee.

### Fike, David

#### Washington University

Prof. Fike is the InCEES Professor of Biogeochemistry in the Department of Earth & Planetary Sciences at Washington University in St. Louis, where he additionally heads the Environmental

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Studies Program and is the Associate Director of the International Center for Energy, Environment, and Sustainability (InCEES). He obtained B.S. degrees from University of Illinois at Urbana-Champaign in engineering physics, astronomy, and geology, respectively. He obtained a Master's of Philosophy in polar studies from Churchill College, Cambridge University in 2002 and a Ph.D. in geochemistry in 2007 from the Massachusetts Institute of Technology. Subsequently, he was as an O.K. Earl postdoctoral fellow at the California Institute of Technology in 2007–2008, before joining the faculty at Washington University in 2009. His current research interests focus on isotope biogeochemistry, particularly understanding the biological, sedimentological, and diagenetic processes that generate and alter isotopic signatures in mineral and organic phases. Metabolic activity imparts diagnostic stable isotopic signatures into biomass and geochemical phases in the environment and preserved in the geologic record. Broadly speaking, his research uses the stable isotopic signatures of carbon and sulfur species to reconstruct the presence and activity of specific metabolic pathways and processes in natural environments. Specifically, he uses these measurements to probe (micro)biological activity and its dependence on the ambient geochemical environment to address: 1) what controls the rates and types of metabolic activity in the environment; 2) how this activity impacts the ambient geochemical environment; 3) how the resulting chemical signatures get preserved over geologic time; and 4) how to extract information from ancient sediments to best reconstruct paleoenvironmental conditions. Prof. Fike's specific approach involves combining diverse measurements collected across a range of spatial and temporal scales to maximize our understanding of organism-environment interactions in natural systems.

### Fournier, Aime

#### MIT

Dr. Fournier obtained a Physics PhD from Yale and has researched for over 15 years, applying physics, statistics, signal processing, high-performance computing and other disciplines to study complex phenomena in geophysics. These study topics include: global climate and numerical methodology (NCAR Climate Division); turbulence (Institute for Mathematics Applied to Geosciences); and uncertainty quantification (UQ) in weather forecasting (NCAR Meteorology Division). As a Senior Research Geophysicist at Schlumberger, he worked with a team of engineers, geologists, geophysicists and managers on various oil & gas exploration contracts. He learned to listen to clients' concerns and effectively connect those concerns with research & development e.g., how to communicate about UQ, and translate UQ into decision guidance. He has served on advisory committees for the National Research Council, NCAR, the National Science Foundation, Schlumberger, the UK Met Office and Yale, been an Associate Editor for the journal Geophysics and a manuscript referee for numerous journals. Since 2015 he holds 2 positions: Research Associate Professor at University of Colorado Denver Department of Mathematical and Statistical Sciences, teaching upper level courses, advising PhD students and researching UQ in wildfire, weather and atmospheric chemistry models (funded by the US Forest Service); and Principal Investigator at MIT Earth Resources Laboratory, leading a small project on carbon sequestration and monitoring, and 2 large projects, on offshore drilling risk assessment, and on deep neural-network learning. All MIT projects are funded by oil & gas industrial sponsors.

### Francis, Larijai

#### City of Corpus Christi

Lj Francis is the City Project Manager for Water Resources at the City of Corpus Christi. In this current role he is responsible for developing and managing projects to address water issues including projected water demands, water supply availability, water use assessments, watershed management plans, and drought contingency serving as the technical expert on water resources projects. He is the City's representative and board member for both the Groundwater Management Area (GMA) 15 and 16, and is the City Liaison/Administrator at Corpus Christi Aquifer Storage and Recovery

Conservation District (CCASRCD). Lj also participates in several stakeholder groups that engage on Water Supply Management and Protection in the Coastal Bend Region. Lj graduated from the University of South Florida's Civil and Environmental Engineering program – accelerated Masters with a concentration in Water Resources Engineering in 2014, currently expecting his PhD in Environmental Engineering at Texas A&M University and Co-Principal Investigator at National Oceanic and Atmospheric Administration.

**Frazer, Thomas**

**University of Florida**

Thomas K. Frazer is a Professor and the Director of the School of Natural Resources and Environment at the University of Florida. Dr. Frazer holds a Bachelor's Degree in Fisheries Biology from Humboldt State University and a Master's Degree in Fisheries and Aquatic Sciences from the University of Florida. He earned his Ph.D. in Biological Sciences from the University of California, Santa Barbara. His research addresses contemporary and emerging environmental issues, and is, by nature, interdisciplinary. His work involves collaborators from disparate disciplines, and it includes sampling and experiments conducted across a wide range of spatial and temporal scales. During his tenure at the University of Florida, Dr. Frazer has received substantial research funding to address topics pertaining to water quantity and quality, nutrient dynamics, biogeochemical processes, fish population dynamics, food web interactions, and ecological restoration of degraded ecosystems. Funding sources (past two years only) include the National Science Foundation and St. Johns River Water Management District. He has conducted field research in both freshwater and marine systems around the globe, and he is familiar with a broad suite of environmental and natural resource issues (e.g., eutrophication of fresh, estuarine, and coastal waters; invasive species; and the ecological impacts of contemporary environmental change, including coral bleaching, ocean acidification, and sea level rise). Dr. Frazer has authored and/or co-authored more than 175 peer-reviewed publications, technical reports, and book chapters. He serves as Chief Specialty Editor for the Coral Reef Research section of *Frontiers in Marine Science*, and he regularly serves as a referee for leading international journals and granting organizations. Dr. Frazer currently holds an at-large seat on the Gulf of Mexico Fisheries Management Council. He is a member of APLU's Board on Oceans, Atmosphere and Climate, and a past member of the US EPA's Oil Spill Research Strategy Review Panel.

**Fry, Juliane**

**Reed College**

Dr. Juliane L. Fry is associate professor and department chair of Chemistry at Reed College, as well as a founding faculty member of the College's interdisciplinary Environmental Studies program. Dr. Fry obtained a BS in chemistry from the University of Rochester, a PhD in atmospheric chemistry from the California Institute of Technology, and completed post-doctoral training in atmospheric chemistry at the University of California – Berkeley. She holds a Master's degree in environmental, natural resources and energy law from Lewis and Clark Law School. Dr. Fry teaches general, analytical, and environmental chemistry, and an interdisciplinary course on climate change. Dr. Fry's scientific research program is focused on interactions between anthropogenic air pollution and climate change, in particular via the role of nitrogen oxides in chemical mechanisms of particulate matter production; her interdisciplinary scholarship focuses on regulation of secondary pollutants and the role of science in climate litigation. She has been funded by the Environmental Protection Agency (EPA), the National Oceanic and Atmospheric Administration (NOAA), and the Camille and Henry Dreyfus Foundation, and has authored over 40 peer-reviewed papers and over 80 oral and poster presentations. Dr. Fry is a member of the American Chemical Society and American Geophysical Union, has served on the American Meteorological Society Committee on Atmospheric Chemistry and the Urban Ecology Research Consortium Steering Committee, convened panels for the Association for Environmental Studies and Sciences, and served as a proposal reviewer and panelist for NOAA, the

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National Science Foundation, and the Pacific Northwest National Laboratory Environmental and Molecular Sciences Lab. Dr. Fry received an Advanced Study Program Faculty Fellowship from the National Center for Atmospheric Research in 2011, an EPA Early Career Award in 2013, a Fulbright U.S. Scholar Award to the Netherlands in 2016, and the Henry Dreyfus Teacher-Scholar Award in 2017.

**Furtado, Manohar**

**Apton Biosystems Inc.**

Currently working to develop a super resolution based sequencing system that will decrease NGS costs by 100-fold. System is also enabled for single molecule multi-omic applications. Areas of domain expertise include research and product development in Oncology, Infectious diseases, and Genetics. Areas of market driven product expertise with food safety, environmental testing, bioproduction safety, animal health, human health, Human identification / CSI, diagnostics and safety. PhD in protein chemistry, post-doc training in molecular virology, PI and on the faculty at Northwestern University. Vice President, Molecular Medicine & Applied Markets at ABI and Life Technology.

**Gala, William**

**Chevron Energy Technology Company**

Dr. Gala has worked for Chevron for almost 30 years providing technical support and expert advice to Chevron facilities world-wide on matters related to ecological risk assessment, contaminated sediments, and oil spill response. Dr. Gala was recognized as a Chevron Fellow in 2017 in the field of ecological risk assessment. Dr. Gala has provided technical support for numerous ecological risk assessments and site investigations for Chevron facilities, including agricultural chemical plants, marine and pipeline terminals, production facilities and refineries. Dr. Gala's experience at Chevron has afforded him the opportunity to work on a wide variety of contaminated media (e.g., soil, ground water, surface water, sediments), COPCs (e.g., PAHs, metals, chlorinated pesticides, petroleum products and crude oil) and ecological receptors (aquatic life, benthic community, terrestrial and aquatic wildlife). Dr. Gala received his Ph.D. in Environmental Toxicology and Fisheries and Wildlife from Michigan State University. He was previously involved in collaborative research projects with USGS and Stanford University in areas of passive sampling and in situ treatment of sediment contamination. Recent research efforts have focused on bioavailability of metals in sediments working in collaboration with U Texas and Texas Tech University. He has not received external research funding in the last two years – recent effort is solely funded by internal (Chevron) dollars and was previously appointed to Gulf of Mexico Fisheries Management Council Artificial Substrate Panel and currently serve of the Advisory Board for the California Oiled Wildlife Care Network. He is a long-standing member of the Society of Environmental Toxicology and was involved in several annual meetings organizing committees

**Gibbs, Shawn**

**University of Nebraska Medical Center**

Shawn Gibbs is an Associate Professor with the University of Nebraska Medical Center's Department of Environmental, Agricultural & Occupational Health in the College of Public Health. He also serves as the College of Public Health's Director of Masters Programs where he oversees all MS, MPH, and certificate programs. Shawn received a B.S. (1997) in Biology from The Ohio State University, and both a M.S. (2000) and Ph.D. (2002) from the University of Cincinnati in Environmental Science, Water Quality Processes Science. Shawn was a US Fulbright Scholar to Egypt in 2006. He became a Certified Industrial Hygienist (CIH) in 2009. His previous work experience includes three years as a contract Biologist/Toxicologist for the USEPA working on environmental water quality programs. For five years, he was an Assistant Professor at the University of Texas Houston School of Public Health



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where his research included water quality and quantity issues along the US-Mexico border, including issues associated with confined animal feeding operations. His research area is environmental exposure assessment, focusing on environmental microbiology. Primary research interests are on environmental bioaerosols (bacterial, antibiotic resistant bacteria, fungal, viral) from both the indoor and ambient environments, and water exposures. This includes source evaluation, source tracking, and methods to reduce exposure. This includes source evaluation, source tracking, and methods to reduce exposure. Shawn is the author of over three dozen peer reviewed articles. He has served as a reviewer for over a dozen peer reviewed journals and has served as grant reviewer for multiple organizations including the USEPA and Fulbright Commission. Shawn has been an author in over three dozen peer review publications. His currently funded projects include the areas of infection control and Water Reuse.

### **Goldman, Gretchen**

#### **Union of Concerned Scientists**

Dr. Gretchen T. Goldman has expertise in air pollution exposure science, environmental engineering systems, meteorology, and environmental policy. She received a Ph.D. and M.S. in environmental engineering from the Georgia Institute of Technology and a B.S. in atmospheric science from Cornell University. Her research focused on statistical modeling of urban air pollution for use in epidemiologic studies of acute human health effects. Specifically, Dr. Goldman used geostatistical models to characterize measurement error from air pollution monitoring sites in order to assess the impact of this error on health risk assessments in time-series health studies. Following a postdoctoral research position at Georgia Tech, Dr. Goldman is now the Research Director of the Center for Science and Democracy at the Union of Concerned Scientists. Her work here focuses on a range of issues within science policy studies. She researches how decision making is informed by scientific research and the influences that affect science policy development and implementation. Her areas of study have included the National Ambient Air Quality Standards (NAAQS), scientific integrity at federal agencies, climate change policy, and hydraulic fracturing, among other topics. Dr. Goldman currently serves as the Chair of the Air and Climate Public Advisory Committee (ACPAC) for the Metropolitan Washington Council of Governments (MWCOCG), the metropolitan planning organization for the Washington, D.C. region. Dr. Goldman continues to stay active in the academic community, through conferences, publications, and presentations.

### **Goltz, Mark**

#### **Independent Consultant**

Dr. Mark N. Goltz is Distinguished Professor Emeritus of Environmental Engineering and Management at the Air Force Institute of Technology. He holds a B.S. in Electrical Engineering from Cornell University, an M.S. in Sanitary Engineering from the University of California, Berkeley, and a Ph.D. in Environmental Engineering and Science, Stanford University. Since 1982 Dr. Goltz has been studying the fate, transport, and remediation of contaminants in groundwater. His research interests include groundwater contamination remediation technologies, fate and transport of organic contaminants in the subsurface, stimulating commercialization of environmental remediation technologies, mathematical modeling of contaminant transport by groundwater, in situ bioremediation of chlorinated organic compounds in the subsurface, scaling-up from the laboratory to the field, physical and chemical water and wastewater treatment technologies, and environmental modeling. His work has included conducting and modeling field demonstrations of innovative contaminated groundwater treatment technologies, as well as investigation of methods to effectively transfer these technologies to commercial use. He recently has conducted research on the application of nanomaterials to remediate contaminated groundwater. Dr. Goltz developed a graduate program in environmental engineering for U.S Air Force officers, and taught in the program for over 20 years. He has consulted on numerous Air Force water pollution problems, and has a unique perspective, due to

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his background in both academia and the military. Dr. Goltz is currently conducting a research project funded by the Defense Department's Environmental Security Technology Certification Program. Dr. Goltz is a Registered Professional Engineer in the State of Minnesota and is a Board Certified Environmental Engineer in the American Academy of Environmental Engineers and Scientists. He was a member of the Science Advisory Committee for EPA's Midwest/Great Lakes Hazardous Substance Research Center and currently serves as an environmental engineering program evaluator for the Accreditation Board for Engineering and Technology.

### Gordon, Terry

#### New York University School of Medicine

Dr. Terry Gordon holds the rank of Professor of Environmental Medicine at the New York University (NYU) School of Medicine. He holds a B.S. in Physiology, an M.S. in Toxicology from the University of Michigan, and a Ph.D. in Toxicology from MIT, and was appointed to the faculty of the Department of Environmental Medicine in 1989. He has served as an ad hoc member of grant review panels and/or site visit teams for NIEHS, NIAID, National Coalition for Cancer Research, DOD, Bureau of Mines, NASA, Health Canada, NIOSH/CDC, and the EPA. Dr. Gordon is past Chair of the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) committee, a volunteer organization that publishes occupational exposure levels that are used as workplace safety guidelines throughout the world. Dr. Gordon's broad research interest is in inhalation toxicology. The major focus of his research lab is the identification and understanding of the role of genetic host factors in the pathogenesis of the adverse pulmonary effects produced by inhaled environmental and occupational agents. Because inter-individual responses to inhaled particles and gases vary so greatly in both human subjects and test animals, Dr. Gordon has hypothesized that genetic susceptibility factors play a major role in environmental and occupational lung disease. In collaboration with a number of investigators in the department, his laboratory uses classic murine genetics models, computational genomics, and DNA microarrays to identify genes involved in the acute response as well as in the development of tolerance to repeated exposure to inhaled toxicants. Dr. Gordon also plays a major role in the particulate matter (PM) research program at NYU, and was among the first researchers to use concentrator technology to study the adverse cardiopulmonary effects of ambient PM. Dr. Gordon is an active member of the Society of Toxicology (SOT), and has served on the Program, Placement, Membership, and Awards Committees and as President of its Inhalation Specialty Section. He has served as a consultant/author to the EPA on issues of pulmonary toxicology related to the development of various documents, and served on EPA's Clean Air Scientific Advisory Committee (CASAC) Oxides of Nitrogen (NOx) and Sulfur Oxides (SOx) Primary National Ambient Air Quality Standards (NAAQS) Review Panels and is a current member of the PM ad hoc CASAC. Dr. Gordon's current research, supported by NHLBI and NIEHS grants, examines the adverse health effects of environmental and occupational air pollutants, including secondhand smoke from e-cigarettes and hookahs. He is also the Director of NYU's NIEHS-supported Training Grant in Environmental Toxicology.

### Graham, Wendy

#### University of Florida

Dr. Wendy D. Graham is the Carl S. Swisher Eminent Scholar in Water Resources in the Department of Agricultural and Biological Engineering and Director of the Water Institute at the University of Florida, Gainesville. She has a B.S. in environmental engineering from the University of Florida, and a Ph.D. in Civil and Environmental Engineering from the Massachusetts Institute of Technology. Her current research focuses on integrated hydrologic modeling; groundwater resources evaluation and remediation; evaluation of impacts of agricultural production on surface and groundwater quality; evaluation of impacts of climate variability and climate change on hydrologic systems; and stochastic modeling and data assimilation. She has served as principal investigator or co-Principal Investigator

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on over \$25 million in grants and contracts, has supervised 30 doctoral and master's thesis committees, and has served on more than 60 additional graduate student committees. Dr. Graham served as the Hydrologic Sciences Program Director for the National Science Foundation in 2015-2016, and is currently a member of the National Academy of Sciences Water Science and Technology Board. She served as Chair of the University of Florida Agricultural and Biological Engineering Department from 2003-2006. In her current role as Director of the University of Florida Water Institute she coordinates campus-wide interdisciplinary research, education and outreach programs designed to develop and share new knowledge, and to develop and encourage the implementation of new technology and policy solutions needed to ensure a sustainable water future. In the last two years Dr. Graham has received research funding from: the St Johns River Water Management District, Florida Senate Committee on Environmental Preservation and Conservation, Florida Department of Agriculture and Consumer Services, National Science Foundation, U.S. Department of Agricultural National Institute of Food and Agriculture, Tampa Bay Water, and the North Carolina State University-Department of the Interior Southeast Climate Science Center.

### Greenfield, Jeffrey

#### Florida International University

Dr. Greenfield is an Adjunct Professor in the Civil & Environmental Engineering Dept. at Florida International University (FIU). He is a registered Professional Engineer in several states, a Board Certified Environmental Engineer and a Diplomate Water Resources Engineer. He has been teaching Sr. Environmental Engineering Design, Fluid Mechanics, and Engineering Ethics. In the fall, he will be teaching a combined undergraduate/graduate course on Bioremediation Engineering and will also serve as interim faculty advisor for FIU's Engineers Without Borders (EWB). His fulltime job is a Project Manager in the Engineering Division with Broward County Water & Wastewater Services. He currently is managing a \$53M wastewater reclaimed project and several potable water projects which include 1M, 1.5M, and 5 MG ground storage tanks, high service pump stations, standby generators, and new disinfection systems. His professional engineering society leadership positions include former vice chair of the NSPE Licensure & Qualifications Committee, formerly vice chair of the NSPE Committee on Policy & Advocacy, corresponding member of the American Society of Civil Engineers (ASCE) Committee on Licensure, member of the ASCE Committee on Ethical Practice (CEP), member of the NCEEES Environmental Engineering PE Exam Committee for more than 18 years, chair of the American Academy of Environmental Engineers and Scientists Water and Wastewater Subcommittee, past president and state director of the Broward Branch of the Florida Engineering Society, and member and former chair of the Florida Atlantic University Department Advisor Committee for the Department of Civil, Environmental, & Geomatics Engineering. Dr. Greenfield is also a long-time member of the Florida Engineering Society (FES) Committee on Environmental Quality. He has received local and state awards for his engineering society volunteering efforts as well as an adjunct teaching award. He has demonstrated leadership skills for many of the engineering societies of which he has been active including NSPE, FES, AAEES, and ABET.

### Griffin, Michael

#### Carnegie Mellon University

Dr. Griffin is Research Professor Emeritus of Engineering and Public Policy at Carnegie Mellon University (CMU). He has had a long and distinguished career working on a variety of issues in the oil and chemical industries and conducting academic research in the areas of sustainability, life cycle assessment, and ecological and environmental impact assessment. At CMU along with his faculty appointment, he was the Executive Director of the Center for Climate, Energy and Decision Making, Co-Director and Executive Director of the Green Design Institute and had a joint faculty appointment in the Tepper School of Business. Prior to joining the university, he held multiple positions at British

Petroleum, where he directed a microbiology technical service and research group that provided water treatment and corrosion mitigation solutions for the business and developed microbial-based methods to produce biodegradable chemicals and polymers. He later joined Sybron Chemicals as Director of Research where his group provided support for production and bioremediation efforts. He was the Director of Research at the National Environmental Technology Application Corporation and developed methods for evaluating oil spill response tools and products and technical evaluations of various environmental technologies for business and government. Dr. Griffin has published over 70 articles and book chapters of which 50 are in peer-reviewed journals. His current research, with collaboration of colleagues and students at CMU, centers on the analysis of the environmental impacts of energy infrastructure needed to address climate impacts, modeling N<sub>2</sub>O production in hypoxic events, determining potential impacts of adopting renewable alternative fuels, and addressing uncertainty in life cycle assessment. He has a BS and MS in Biology from the University of Dayton and a PhD in Microbiology from the University of Rhode Island. Research funding for the last 2 years was provided NSF and the CMU-Portugal Program.

**Grimalt, Joan**

**Institute of Environmental Assessment and Water Research (IDAEA)**

Dr. Joan O. Grimalt is the director of the geochemistry and pollution group of the Institute of Environmental Assessment and Water Research (IDAEA) from the Spanish Council for Scientific Research (CSIC) in Barcelona. For more than 30 years he has studied organic molecules in the environment to obtain information on the evolution of ecosystems and the impact of organic pollutants in air, water, sediments, soils, organisms and humans in urban and rural areas, rivers, mountains, lakes and marine environments. He has been director of IDAEA for ten years. He has been assessing on environmental pollution management in Catalonia, Spain, France, the United Nations (Geneva), Kuwait and US Research Projects. One outcome of these activities involved the removal of about 750,000 tons of industrial residues dumped into the Ebro River. He has also been assessing on climate change effects for the Spanish Ministry of Environment and the Spanish Parliament. His expertise in these diverse environmental topics may be useful for the EPA Scientific Advisory Board. He has a lot of experience in communication of environmental topics in tv, radio, and direct talks with the general audience. He earned a BS in chemical engineering from the Sarria Chemical Institute (Barcelona) and a PhD in environmental chemistry from the Autonomous University of Barcelona. He performed postdoctoral research stages in the Oregon State University and the University of Bristol. He has published 680 scientific papers quoted more than 20,500 times in the scientific literature. H index = 73. He has supervised 47 PhD thesis and 70 master theses to completion. His research for the past two years was funded by the European Union, the Arctic Monitoring and Assessment Program, the Barcelona Health Agency and the Spanish Ministry of Research and Education. He has not received grant funding from EPA. He is not US citizen.

**Grimm, Nancy**

**Arizona State University**

Dr. Nancy B. Grimm is Virginia M. Ullman Professor of Ecology and Senior Sustainability Scientist at Arizona State University, where she earned her Ph.D. in 1985. She has held visiting or adjunct appointments at the Center for Advanced Studies in Blanes, Spain, Kellogg Biological Station, National Center for Ecological Analysis and Synthesis, and the University of New Mexico. She was President and is a fellow of the Ecological Society of America (ESA), is a fellow of the American Association for the Advancement of Science and the American Geophysical Union (AGU), and was lead author for the Third National Climate Assessment (NCA). She has served as an NSF program director, a staff scientist for the NCA, and as editor or associate editor for numerous journals; currently, she is an editor of AGU's Earth's Future. International and national advisory board service includes Margalef Prize Selection Committee, the National Research Council's (NRC) Standing

Committee to Advise the US Global Change Research Program, the NRC Standing Committee on Hydrological Sciences, and the Advisory Committee for the Australian CRC for Water Sensitive Cities, among many others. Grimm studies the interaction of climate variation and change, human activities, and ecosystems. Her long-term research focuses on how disturbances (such as flooding or drying) affect the structure and processes of desert streams, how chemical elements move through and cycle within both desert streams and cities, and how storm water infrastructure affects water and material movement across an urban landscape. She was the founding director of the Central Arizona-Phoenix LTER program, an interdisciplinary study by ecologists, engineers, physical and social scientists, and she currently co-directs the Urban Resilience to Extremes Sustainability Research Network. In the latter capacity, she works to help cities develop future visions and strategies to increase resilience in the face of extreme events. Grimm has authored or co-authored over 200 scientific publications and delivered over 100 invited or keynote presentations. Her Google Scholar h-index is 72, with her 2008 Science paper, Global Change and the Ecology of Cities, cited over 3000 times.

**Groover, Richard**

**Reynolds Community College**

Dr. Richard Groover has a doctorate in Environmental Science & Public Policy from George Mason University. He is the author of The Environmental Almanac of Virginia, 2nd edition. He is a fellow of the Virginia Academy of Science. He is the treasurer of the Association for Environmental Studies and Science. He is on the Board of Trustees of the Science Museum of Virginia. He was a member of the Governor of Virginia's Climate Commission (2014-2015). He has authored numerous journal articles on ecology and related topics. He is actively researching in the area of aquatic ecology and animal behavior.

**Guckenheimer, John**

**Cornell University**

John Guckenheimer retired as Bullis Professor of Mathematics at Cornell University in 2017, where he also served terms as Director of the Center for Applied Mathematics, as Associate Dean of Computing and Information Sciences and Director of Research Programs for the Theory Center. His research investigates nonlinear dynamical systems. This subject unifies phenomena in disparate disciplines by discovering common mathematical foundations. It provides methods used in the study of complex systems. Within mathematics, Guckenheimer has made substantial advances in describing bifurcations – dynamical changes that occur as system parameters are varied – especially within systems that have multiple time scales. As applications, Guckenheimer has investigated recently the unpredictability of El Niño in the tropical Pacific and inferred a controller for human running from motion capture data. Earlier, he used tools from the theory to analyze nonlinear dynamics within the nervous system. He co-chaired a National Research Council committee that produced the 2016 report “Analytic Research Foundations for the Next-Generation Electric Grid.” Guckenheimer served as President of the Society for Industrial and Applied Mathematics during 1997-98, was founding chair of its Activity Group in the Life Sciences, and was awarded its Jürgen Moser prize. He was also awarded the American Mathematical Society Steele Prize for mathematical exposition with Philip Holmes for authoring the 1983 book “Nonlinear Oscillations, Dynamical Systems and Bifurcations of Vector Fields,” that has become a basic reference for the field. Prior to moving to Cornell in 1985, he was a professor at the University of California, Santa Cruz, where he led a California wide effort to create organized research units for nonlinear science. He received a BA from Harvard College and a PhD from the University of California at Berkeley.

**Haas, Charles**

**Drexel University**

Dr. Charles N. Haas is the L.D. Betz Professor of Environmental Engineering and head of the Department of Civil, Architectural and Environmental Engineering, at Drexel University, where he has been since 1991. He received his B.S. (Biology) and M.S. (Environmental Engineering) from the Illinois Institute of Technology and his Ph.D. in Environmental Engineering from the University of Illinois at Urbana-Champaign. He has served on the faculties of Rensselaer Polytechnic Institute and the Illinois Institute of Technology prior to joining Drexel. He co-directed the U.S. EPA/Department of Homeland Security University Cooperative Center of Excellence – Center for Advancing Microbial Risk Assessment (CAMRA). He is a fellow of the International Water Association, American Academy for the Advancement of Science, the Society for Risk Analysis, the American Society of Civil Engineers the American Academy of Microbiology and the Association of Environmental Engineering and Science Professors. He is a Board Certified Environmental Engineering Member by eminence of the American Academy of Environmental Engineers. He has received the Dr. John Leal Award and the AP Black Research Award of the American Water Works Association, the distinguished achievement award from the Society of Risk Analysis. and the Clarke Water Prize. Over his career, Professor Haas has specialized in the assessment of risk from and control of human exposure to pathogenic microorganisms, and in particular the treatment of water and wastewater to minimize microbial risk to human health. He has over 225 papers, has recent and current funding from National Science Foundation, U.S. EPA, the Water Environment Research Foundation, and industry. Professor Haas has served on numerous panels of the National Research Council. He is a past member of the Water Science and Technology Board of the National Academies, and the U.S. EPA Board of Scientific Counselors. His primary work focuses on assessment of risk from and control of microorganisms in water, wastes and other environments.

**Halloran, Kent**

**Ohio State University**

Mr. Kent Halloran has worked for over 30 years in the field of storm water, potable water, wastewater engineering design and construction. He has also worked as a design and construction engineer in the areas of airport drainage, food processing waste treatment and other industries. He is currently serving as the Ohio State University's water compliance engineer and as an adjunct faculty professor in the Civil, Environmental, and Geodetic Engineering Department. In the past, he has served as the deputy program manager for the City of Fort Wayne's Combined Sewer Capacity Improvement Program and as Interim Program Manager for the City's lift station and storm water programs. He also served as the town engineer for several communities and has promoted the concepts of sustainability throughout his career. He is also pioneering the use of natural systems, such as constructed wetlands, and the conversion of retention basins using native wetland plants to improve storm water retention, increase pollutant removal, and provide pollinator and wetland habitat. He earned a Bachelor of Science in Civil Engineering from The Ohio State University and a Masters of Engineering in Environmental Systems Engineering from Clemson University. He is currently a licensed Professional Engineer in the States of Ohio and Idaho and a Board Certified Environmental Engineer through the American Academy of Environmental Engineers and Scientists. He has also served as a volunteer and Board member for the Friends of the Lower Olentangy Watershed.

**Happer, William**

**Princeton University**

Dr. William Happer, Professor Emeritus in the Department of Physics at Princeton University, is a specialist in modern optics, optical and radiofrequency spectroscopy of atoms and molecules, radiation propagation in the atmosphere, and spin-polarized atoms and nuclei. He is also noted for

work in climate-related physics. Dr. Happer received a B.S. degree in Physics from the University of North Carolina in 1960 and the PhD degree in Physics from Princeton University in 1964. He began his academic career in 1964 at Columbia University as a member of the research and teaching staff of the Physics Department. While serving as a Professor of Physics he also served as Co-Director of the Columbia Radiation Laboratory from 1971 to 1976, and Director from 1976 to 1979. In 1980 he joined the faculty at Princeton University. On August 5, 1991 he was appointed Director of Energy Research in the Department of Energy by President George Bush. While serving in that capacity under Secretary of Energy James Watkins, he oversaw a basic research budget of some \$3 billion, which included much of the federal funding for high energy and nuclear physics, materials science, magnetic confinement fusion, environmental and climate science, the human genome project, and other areas. He remained at the DOE until May 31, 1993 to help the Clinton Administration during the transition period. He was reappointed Professor of Physics at Princeton University on June 1, 1993, and named Eugene Higgins Professor of Physics and Chair of the University Research Board from 1995 to 2005. From 2003 until his retirement in 2014, he held the Cyrus Fogg Brackett Chair of Physics. From 1987 to 1990 he served as Chairman of the Steering Committee of JASON, a group of scientists and engineers who advise agencies of the Federal Government on matters of defense, intelligence, energy policy and other technical problems. He was a trustee of the MITRE Corporation from 1993 to 2011, he is the Chair of the Board of the Richard Lounsbery Foundation, and he is the President of the CO2 Coalition. From 2002 to 2006 he chaired of the National Research Council's Standing Committee on Improvised Explosive Devices that supported the Joint Improvised Explosive Devices Defeat Organization of the Department of Defense. He was a co-founder in 1994 of Magnetic Imaging Technologies Incorporated (MITI), a small company specializing in the use of laser polarized noble gases for magnetic resonance imaging. He invented the sodium guidestar that is used in astronomical adaptive optics to correct for the degrading effects of atmospheric turbulence. He has published over 200 peer-reviewed scientific papers. He is a Fellow of the American Physical Society, the American Association for the Advancement of Science, and a member of the American Academy of Arts and Sciences, the National Academy of Sciences and the American Philosophical Society. He was awarded an Alfred P. Sloan Fellowship in 1966, an Alexander von Humboldt Award in 1976, the 1997 Broida Prize and the 1999 Davisson-Germer Prize of the American Physical Society, and the Thomas Alva Edison Patent Award in 2000.

**Hargiss, Christina**

**North Dakota State University**

Dr. Christina Hargiss is an Assistant Professor at North Dakota (ND) State University in the Natural Resources Management Program. She holds degrees in Natural Resource Management and Science Education. Dr. Hargiss has been conducting research on wetlands and water quality for the past 20 years. During that time her research interests have expanded to also include water use, impacts of energy development on natural resources, environmental education, and urban ecology. Additionally, she is an established expert on environmental law and policy, and the connections between agriculture and natural resources. Recent projects investigated by Dr. Hargiss include assessing change in reference condition wetlands over time, impacts of road dust from energy development on natural resources, potential use of oil-well produced brine as a dust abatement technique, and impacts of brine on clay road binders. Water quality research has focused on source tracking *E. coli* spatially and temporally in stormwater, water quality changes across a gradient of development, evaluating stormwater retention basins water quality during storm events, and assessing harmful algal bacteria. Water use research includes assessing commercial and industrial water use temporally and spatially to determine changes and per capita coefficients across different size municipalities. Funding sources for these projects include the US Geological Survey, US Fish and Wildlife Service, ND State Water Commission, City of Fargo, EPA, ND Department of Health, and ND Soybean Council. Dr. Hargiss currently serves as the President-Elect of the Society of Wetland Scientists North Central Chapter, the

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Vice-President of the Board of Directors of River Keepers, a regional non-profit, and on the advisory committee for the ND Envirothon. She is also a member of the National Science Teachers Association, North American Association of Environmental Educators, the Wildlife Society, and regularly reviews manuscripts for several journals including Wetlands, Ecological Indicators, Environmental Monitoring and Assessment, and Aquatic Biology.

**Hayes, Stanley**

**Ramboll Environ**

Mr. Stan Hayes has more than 40 years of experience in air-related environmental engineering and science for NAAQS- and air toxics-related purposes, with emphasis on air modeling analysis and health risk assessment. He has an MS degree in Aeronautics & Astronautics and a BS degree in Mechanical Engineering, both from Stanford University. Mr. Hayes is the primary author of more than 70 scientific papers and presentations, and several hundred technical reports on air-related subjects. He is a member of the EPA Science Advisory Board Risk and Technology Review (RTR) Methods Panel. He is a Fellow of the Air & Waste Management Association, for whom he has chaired or co-chaired national and international specialty conferences. He is chair of the Advisory Council of the Bay Area Air Quality Management District, which provides science-based counsel to the Board of Directors, the Executive Officer, and other senior staff. He has provided expert testimony before federal, state and local regulatory agencies and in court. For 25 years, until 2015, Mr. Hayes was a Principal with Ramboll (previously ENVIRON). He is now emeritus, with no regular salary, EPA or other grants, benefits, or firm ownership interest. Over his career, Mr. Hayes has conducted research consulting on NAAQS- and air toxics-related topics for a broad range of private- and public-sector clients, including trade associations (e.g., API and others), individual companies, law firms, and regulatory agencies (e.g., EPA and others). Relevant to the work of CASAC, he has conducted NAAQS-related air quality modeling studies, health risk assessments, exposure analyses, control strategy analyses, nonattainment area plan evaluations, air monitoring data analyses, and regulatory and policy reviews.

**Helble, Joseph**

**Dartmouth College**

Joseph J. Helble is Professor and Dean of the Thayer School of Engineering at Dartmouth College. Prior to joining Dartmouth as Dean in 2005, he served as a faculty member and Chair of the Department of Chemical Engineering at the University of Connecticut (UConn), and was also a member of the UConn Environmental Engineering faculty. His research is primarily in the area of air pollution, with specific activities and interests in combustion-derived particulate matter formation and control, mercury, trace metal and air toxics air pollutants, air quality modeling, ambient particulate matter structure, carbon dioxide capture, and particle coalescence. He also initiated a program to produce biodiesel fuel from waste vegetable oil on the UConn campus. Dr. Helble is the author of 100 publications, primarily in the air pollution field, and is a member of the editorial board of the journals Fuel Processing Technology and Environmental Engineering Science. From 2004-2005, Dr. Helble was the holder of the Revelle Fellowship in Global Stewardship from the American Association for the Advancement of Science (AAAS). As the Revelle Fellow, he spent a year working on environmental and technology policy issues in the office of U.S. Senator J. Lieberman. Prior to joining the UConn faculty in 1995, Dr. Helble spent 8 years at Physical Sciences Inc., a small business specializing in environmental and energy technology research and development. He also spent a fellowship period at U.S. EPA headquarters in Washington D.C as a science and policy fellow of AAAS, and received the Barnard Award from AAAS for his work on dioxin as an EPA Fellow in 1993. Dr. Helble is active in the American Association of Aerosol Science, the American Chemical Society, where he is currently Program Chair of the Fuel Chemistry Division for the 2007 national ACS meetings, the American Society for Engineering Education (ASEE), and the science policy



fellowship program of AAAS. He has served on EPA Science Advisory Board panels on air toxics and the first draft report on the environment, and on numerous NSF advisory and review panels in environmental engineering and in combustion. He recently served on the NSF Committee of Visitors (COV) reviewing the combustion program within the NSF Engineering Directorate. Dr. Helble is an elected member of the Connecticut Academy of Science and Engineering. He is a 1982 summa cum laude B.S. graduate of Lehigh University in chemical engineering, and a 1987 chemical engineering Ph.D. graduate of the Massachusetts Institute of Technology.

**Henshaw, Jessie**

**HDS systems design science**

Jessie Lydia Henshaw is a research natural systems scientist in New York consulting on patterns of general emerging systems ecology; or more simply, cultures that “blow up” or “take off.” Her work began with college physics labs asking why every run of experiments somewhat misbehaves, leading later to her general study of the individuality in emerging systems. At St Lawrence she concentrated on physics and math, Russian studies and arts then took math courses at Stoney Brook and Columbia before turning to architecture at the University of Pennsylvania. There she minored in landscape and presented theses on sustainable town design and microclimates, winning a class medal for structures. After school, she made a portable lab for studying the microclimates of homes, noticing as a general pattern the initial growth period of convection currents was when their systems for releasing energy developed. Work on theory and methods followed mostly at night over 25 years as a New York architect. Her public service work includes comment on hazardous waste storage site placement, restoring a 1890s Opera House as a rural arts center, leading a federal survey of shelters for government in the event of conflict. Her proposals include models for naturally responsive market systems as UN Sustainable Development Goals, suggesting a practical scientific method for giving all decision makers information on their share of the global the impacts of their decisions, a bit ahead of its time but still current. She served two years on a UNEP-FI/WRI technical advisory group, consulting on CO2 risk guidance for the financial industry. Her writings address: whole system accounting; why it is healthy cultures have healthy economies; the organizational limits of economies; the strong coupling of GDP, energy, and CO2; growing societal strains of growing disruptive change; and related subjects.

**Hoel, David G.**

**Medical University of South Carolina**

Dr. David G. Hoel is a Distinguished University Professor in the College of Medicine at the Medical University of South Carolina in Charleston. He received an A.B. in both mathematics and statistics from University of California at Berkeley, a Ph.D. in mathematical statistics from University of North Carolina in Chapel Hill and was a post-doctoral fellow in preventive medicine at Stanford University. Prior to joining the Medical University of South Carolina he was Division Director for Risk Assessment at National Institute of Health’s (NIH) Institute National Institute of Environmental Health Sciences (NIEHS) in N.C. Dr. Hoel is a Fellow of the American Association for the Advancement of Science (AAAS), a member of the National Academy of Medicine and a National Associate of the National Academies. His awards include the Spiegleman Gold Medal in Public Health and the Ramazzini Award in Environmental and Occupational Health. He has served on 30 National Academy committees and also numerous governmental committees including the Environmental Health Committee and Radiation Advisory Committee of EPA’s Science Advisory Board. Specifically, on radiation he was a member of the BEIR V committee of the National Academy of Sciences and the World Health Organization’s International Agency for Research on Cancer (IARC)’s cancer monograph committee 100D on radiation and also he was a contributing member of the United Nation’s UNSCEAR 2008 report on radiation health effects. Dr. Hoel’s research has focused on risk assessment methods with particular interest in low-dose radiation exposures and

cancer. This work has resulted in stays for several years in Hiroshima as a Director at the Radiation Effects Research Foundation (RERF) and recently a RERF Scientific Counselor. Dr. Hoel does not currently have any research grants although previously he has had grant support from both the Department of Energy and from the National Aeronautics and Space Administration (NASA).

**Hoffman, Mark**

**Children's Mercy Hospital, University of Missouri Kansas City**

Dr. Mark Hoffman serves as the Chief Research Information officer for Children’s Mercy Hospital and as a faculty member of the University of Missouri - Kansas City School of Medicine in the Departments of Pediatrics and Biomedical and Health Informatics. He earned his Ph.D. in Bacteriology from the University of Wisconsin with a minor in Biotechnology and completed an industry internship with a bioinformatics company, DNASTAR. During his 16 years in the electronic health records industry (Cerner) he led initiatives in public health infectious disease surveillance, molecular diagnostics, clinical decision support and the development and application of major (65 million patients) de-identified clinical data warehouse populated by Electronic Health Record (EHR) data. His interdisciplinary background in software engineering and the biological sciences helped him function effectively as the Vice President for Genomics and Research, a group of more than 120 individuals. Dr. Hoffman is an inventor on 17 issued U.S. patents and 3 issued international patents. In his current role at Children’s Mercy, Dr. Hoffman is responsible for the development of the software platforms and high-performance computing resources used by the Children’s Mercy Genome Center. He works closely with the Children’s Mercy Center for Environmental Health and in his personal research is using the de-identified EHR database to investigate health services and epidemiological aspects of lead exposure on a national level. He has delivered a TEDx presentation, “The Envirome: Where Precision Medicine Meets Public Health”. Dr. Hoffman has served on multiple federal advisory groups, including the HHS Secretary’s Advisory Committee on Genetics, Health and Society task force on the oversight of Genetic Testing (2007) and the CDC sponsored Evaluating Genomic Applications in Practice and Prevention (EGAPP) stakeholders group. Dr. Hoffman is the PI on a CDC funded project to use clinical data warehouses in support of laboratory quality improvement. He has served on the Board of Directors for the Center for Practical Bioethics and other non-profit organizations. His diverse experience in microbiology, data science, engineering, environmental and public health, health sciences, pediatrics and genomics would enable him to contribute to the variety of topics evaluated by the EPA Scientific Advisory Board. His business experience has prepared him to seek consensus and practical solutions to complex problems.

**Hood, Darryl**

**The Ohio State University**

Darryl B. Hood, Ph.D. is an Associate Professor in the Division of Environmental Health Sciences in the College of Public Health at The Ohio State University. Dr. Hood received a BS degree (cum laude) from Johnson C. Smith University in Charlotte, NC. and a Ph.D. in Biochemistry from the Quillen-Dishner College of Medicine at East Tennessee State University. After completing a 4-year postdoc in the Center in Molecular Toxicology at Vanderbilt University, School of Medicine, he accepted a position at Meharry Medical College and served meritoriously until 2013 on the faculty of both institutions. He led what is now referred to as the model program for developing effective scientist-to-scientist interactions between research intensive universities and historically black colleges and universities known as the “Advanced Research Cooperation in Environmental Health (ARCH) Program. The outcomes from ARCH contributed to the database that the EPA used to reassess levels of polycyclic aromatic hydrocarbon emissions. His cumulative work over two decades is apparent in the 2017 Integrated Risk Information System (IRIS) Assessment for the environmental contaminant benzopyrene that cited multiple articles from his laboratory as a basis for recalibrating the reference concentrations for inhaled benzopyrene exposures in reproductive and neuro-toxicity

studies. His overall contributions to the Academy via service on multiple advisory committees and professional societies have resulted in confirmation that common environmental contaminants such as benzopyrene can have direct, negative impacts on the developmental expression of key regulators of glutamatergic signaling with associated negative impacts on behavioral learning and memory processes. At the Ohio State University, he has continued innovation in discovery as co-architect of the Public Health Exposome framework and proposes to interrogate hypotheses to determine if there are associations between the built, natural, and social environment and disparate health outcomes as a co-investigator on a recently awarded EPA-STAR grant.

**Hu, Zhiqiang**

**University of Missouri**

Zhiqiang (Zack) Hu is Professor and Chair of the Department of Civil and Environmental Engineering at the University of Missouri-Columbia. He received his M.S. and Ph.D. degrees at the University of Connecticut and completed his postdoctoral training at Cornell University. He is a registered professional engineer in environmental engineering. Dr. Hu's areas of expertise and research activities include wastewater treatment and biological nutrient removal, environmental nanotechnology and biotechnology, wetlands, algae treatment and water reuse, biofilm formation and control, pathogen detection and removal, emerging renewable energy issues, anaerobic digestion, anaerobic membrane bioreactors, bioreactor landfills, microbial electrolysis systems and bioelectrochemistry, and integrated biochemical and physicochemical treatment. Dr. Hu serve as an EPA Food Quality Protection Act (FQPA) Science Review Board Member, an ad hoc member of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Scientific Advisory Panel, US EPA, from 2009 to 2015. He is currently a member of the Advisory Committee, Nano-Micro Conference 2018. He also serves as an academic editor of PLOS ONE, an Associate Editor of Water Environment Research and an ASCE Journal of Hazardous, Toxic, and Radioactive Waste.

**Hufford, Walter R.**

**Talisman Energy USA Inc. - REPSOL**

Mr. Walter R. Hufford is the Director of U.S. Government & Regulatory Affairs for Talisman Energy USA Inc., a part of the Repsol Group. He holds a B.S. in Earth Sciences - Geology from Middle Tennessee State University, an M.S. in Geology from Texas A&M University, and a Masters in Management – Business Administration from Pennsylvania State University. Mr. Hufford has 32 years of experience in the energy industry, working with environmental issues associated with both legacy and current operations. He provides internal technical and regulatory support in his company's North America exploration and production operations, and serves on committees with trade organizations at the regional and national level. He has been integral to internal company activities relating to drilling and completions. Mr. Hufford participates on industry and state regulatory committees that address new legislation and rulemaking including oil and gas provisions. Mr. Hufford serves as a corporate advisor regarding hydraulic fracturing, gas migration and stray gas matters. Additionally, Mr. Hufford is a member of the graduate faculty at Texas A&M University as a Professor of Practice teaching graduate level seminar courses. He sits on the board of directors for STRONGER (State Review of Oil, Natural Gas, Environmental Regulations) and has served as a board member with the Pennsylvania Environmental Council and the Pennsylvania Resource Council. His prior experience includes management of multimillion dollar environmental liabilities including nuclear fabrication and disposal sites; chemical plants; petrochemical facilities; manufacturing locations; and refinery projects with complex environmental and liability issues. He has successfully closed hundreds of environmentally-impacted sites regulated at the federal and state level throughout the United States. He served in a leadership role during the 2010 Macondo Deep Water Horizon gulf response, coordinating and advising as a company liaison with the U.S. Coast Guard, EPA, Departments of Homeland Security & Interior, U.S. Fish and Wildlife Service, as well as multiple

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state regulatory agencies. He also served as a spokesperson for BP's community outreach effort, conducting town hall meetings for residents and elected officials along the Gulf Coast. Mr. Hufford was selected to present at the EPA 2011 workshops dealing with hydraulic fracturing. Mr. Hufford has received no external research grants from either government agencies, private companies, or foundations during his tenure with Talisman or BP.

**Humphreys, James**

**ABB**

I am the North American Product Specialist for the ABB Lewisburg W. Virginia Factory. Currently manufacture Process Gas Chromatographs, Reid Vapor Pressure Analyzers, And MultiWave Photometers IR and UV. I specialize in ensuring customers are compliant with EPA regulations as well as state in local regulations based on technologies available.

**Hurt, George**

**University of Maryland, College Park**

Professor Hurt received his Ph.D from Princeton University in 1997. From 1998-2010, Dr. Hurt worked at the University of New Hampshire in the Institute for the Study of Earth Oceans and Space and Department of Natural Resources, finally becoming Chair of the Natural Resources and Earth System Science Ph.D. Program, UNH's largest doctoral program, and Director the Complex Systems Research Center, UNH's main center focused on Earth System Science. In 2010, Dr. Hurt joined the University of Maryland Department of Geography as Professor & Research Director, and in 2011 he was named Associate Director of the Joint Global Change Research Institute, and Associate Director of Research Innovations at the National Socio-Environmental Synthesis Center (SESYNC). Dr. Hurt is involved in multiple collaborative research projects including the North American Carbon Program, NASA's Vegetation Structure Working Group, NASA's Carbon Monitoring System, and DOE's Integrated Earth System Modeling project. He previously led the international effort on global land-use harmonization for CMIP5 in preparation for the IPCC 5th assessment, and a NASA interdisciplinary science investigation focused on the role of natural disturbances on the Earth's coupled carbon-climate-human system. He is currently co-chair of the Land Use Model Intercomparison Project (LUMIP) for CMIP6, Science Team Leader for the NASA Carbon Monitoring System, Science Team Member for the NASA-GEDI mission, Associate Editor of Global Biogeochemical Cycles, Guest Editor for Environmental Research Letters, and Contributing Faculty Member to the Global Change Ecology section of Faculty of 1000. He is Chair of the University Research Council, Member of the University Environment Work Group, and leads the UMD/NASA-GSFC Joint Global Carbon Cycle Center.

**Jacobsen, Grant**

**University of Oregon**

Dr. Grant Jacobsen is an associate professor at the University of Oregon and the Director of the Master of Public Administration Program. He received an M.A. and Ph.D. in Economics from the University of California-Santa Barbara, where he was a fellow in the National Science Foundation's Economics and Environmental Science IGERT program. His research focuses on the use of applied empirical techniques to evaluate and inform the design of environmental policies. His work has addressed topics related to renewable energy, energy efficiency, air pollution, extraction of natural gas and oil, carbon offsets, climate change awareness, and voluntary environmental protection. He has published articles in leading academic journals, including the Economic Journal, the Review of Economics and Statistics, and the Journal of Public Economics. He is a member of the editorial council of the Journal of Environmental Economics and Management. He has served as a program reviewer for the U.S. Department of Energy and as an adviser to the Eugene Water & Electric Board. Dr. Jacobsen's research has been supported by the W.E. Upjohn Institute for Employment Research.

**Juturu, Vijaya**

**OmniActive Health Technologies Inc.**

Dr. Juturu has a doctoral degree in Clinical Nutrition (Cardiovascular Nutrition) from S.V. University in India (1996) and completed her postdoctoral research in Cardiovascular Nutrition at Penn State University (1997-2000). Dr. Juturu is currently working as Director of Clinical Affairs at OmniActive Health Technologies Inc. Her research focuses on the effects of bioactive nutrients on established and emerging risk factors for cardiometabolic syndrome, vision health and inflammation. Her research integrates clinical and basic research including nutrigenomics to evaluate underlying molecular mechanisms of action in disease and health. She conducts preclinical (basic) efficacy, toxicology studies for safety and controlled clinical studies designed to evaluate the role of bioactive nutrients on risk factors in health and disease. These studies have evaluated established and emerging risk factors in health and disease. Dr. Juturu is also as a consultant for consumer research companies and she is an adjunct faculty. She was a consultant and worked for Ocean Spray Cranberries as cardiovascular scientist, Senior Scientist and then as Director of Scientific Affairs at Nutrition 21, Inc., Avon Products, Inc, Unilever cosmetics, United Soybean Board/QUALISOY and the Natural Standard of Integrative Medicine and Cochrane Research Group. Dr. Juturu was the recipient of the Dr. Tinsley R. Harrison Award in 2008 from The Society of Clinical Investigation (SSCI) and the American Journal of Medical Sciences; Dr. Mark Bieber Distinguished Industry Scientist Award in 2008 from the American College of Nutrition; the Young Scientist Award given by the Indian Society of Atherosclerosis Research in 1995; and the Indian Medical Scientist Award in Nutritional Sciences, given by the Indian Council of Medical Research in 1997. She received the Diabetes Education Stipend Award in 2005 and the Diabetes Care Education and Professional Excellence Award in 2007 from the Nutrition in Complementary Care Dietetic Practice Groups of the American Dietetic Association (ADA). She received best communicator award ribbon twice from the Association of Research in Vision and Ophthalmology (ARVO). In addition, she received research and presentation awards from other organizations. Dr. Juturu is the author of several publications including book chapters, patents, and submissions of qualified health claims. She is an invited author, invited speaker, reviewer, council/committee member, and editorial board member for several reputed journals. She was nominated to Board of Editors for three years 2019-2022, Academy of Nutrition and Dietetics. She was nominated as Research and Development Chair for the Medical Nutrition Practice Group of ADA, nominated to HOD/PID research and development, and is working as an Evidence Analysis Library analyst/committee member for Academy of Nutrition and Dietetics, and is involved in a women's working group committee of the American Diabetes Association. Dr. Juturu is a member of numerous professional organizations including the Academy of Nutrition and Dietetics, American Heart Association, American Diabetes Association, ARVO, American Society for Nutritional Sciences, American College of Nutrition, and the American Oil Chemists Society. She is a Fellow of the Academy of Nutrition and Dietetics (FAND) and the American College of Nutrition (FACN.).

**Keating, Christopher**

**Austin Community College**

Dr. Christopher F. Keating has an M.S. and the Ph.D. in physics from the University of Texas at Dallas and is currently an adjunct professor of physics at Austin Community College. He has previously served as a professor of physics at the U.S. Coast Guard Academy and the U.S. Naval Academy. His area of research is in planetary geophysics, providing him with an in-depth understanding of a broad range of topics affecting planetary environments. He is a member of the American Geophysical Union (AGU). His work has been published in several peer-reviewed scientific publications and presented at scientific conferences. He has recently been working with ranchers and farmers in the central-Texas area in an effort to be better informed of the issues and problems they face on a daily basis. He has long been engaged in public outreach, speaking at public events,

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conducting media interviews, and has authored non-fiction books on science topics for the general public. He personally funds all of his research activities himself and does not receive any financial considerations from any government or industrial organization for his scientific work. In addition to his academic career, Dr. Keating served in the U.S. Navy and Naval Reserve, retiring from the latter in 2012 after 35 years of combined service. His military duties included supervising production teams and service as an in-depth analyst, producing reports that were briefed to all levels of the government. He served on numerous boards, committees, and flag staffs providing scientific and technical expertise for a variety of projects.

### Kersting, Annie

#### Lawrence Livermore National Laboratory

Dr. Annie Kersting is Director of University Relations and Science Education at the Lawrence Livermore National Laboratory (LLNL). She holds a B.S. in Geology and Geophysics from the University of California, Berkeley, and an M.S. and Ph.D. in Geology and Geophysics from the University of Michigan. Dr. Kersting previously served as the Director of the Glenn T. Seaborg Institute in the Physical and Life Sciences Directorate, where she focused together with her deputies, Ian Hutcheon and Dawn Shaughnessy, on collaborative research between LLNL and the academic community in nuclear forensics, super heavy element discovery and environmental radiochemistry. Dr. Kersting's research interests include the fields of radiochemistry, isotope geochemistry, and environmental chemistry. Her current research focuses on the geochemical mechanisms that control actinide transport in the soil and groundwater, and on identifying the dominant bio-geo-chemical processes and the underlying mechanisms that control actinide (U, Pu, Np, Am) transport. In particular, she is interested in understanding how nanoparticles facilitate transport of contaminants in both the saturated and unsaturated environment. Dr. Kersting was a Board member of the Nuclear and Radiation Studies Board, National Research Council 2010-2012, and a Committee member on the National Academy Sciences National Research Council, Nuclear and Radiation Studies Board Committee from 2006-2007. She served on the Environmental Management Sciences Program Review Panel of the U.S. Department of Energy's Office of Science in 2006, and served as a scientific advisor on the Actinide Migration Committee for Rocky Flats from 2000-2003. Her current research funding comes from the Department of Energy's Office of Science, Biological & Environmental Research. As University of Relations Director, she reports to the Director of Science & Technology in the Director's office.

### Khubchandani, Jagdish

#### Ball State University

Dr. Jagdish Khubchandani is a Professor of Community Health at Ball State University. He also serves as an ad-hoc Biostatistician for the College of Health and has previously served as a fellow of Center for International Development and Global Health Institute at Ball State University. He received his Doctorate in Clinical Medicine from India, Masters in Public Health from Western Kentucky University, and PhD in Health Education and Epidemiology from University of Toledo. Currently, he teaches in the areas of environmental health, global health, social epidemiology, and public health education in community and clinical settings. Within the past decade, he has mentored over 100 students pursuing undergraduate and graduate degrees in the field of public health, nursing, or medicine. In the past 5 years, he has coauthored more than 75 research articles in prestigious journals such as the Lancet, Journal of American Medical Association, and the New England Journal of Medicine on a broad range of issues including morbidity and mortality associated with environmental health problems. Within the past 2 years, Dr. Khubchandani has received research funding from Merck Neuroscience Laboratories and Ball State University Foundation. Previously, he has also mentored racial/ethnic minority students on NSF and NIDDK funded projects. More recently, his research has received widespread attention from prominent media outlets such as Fox News, CNN,

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CNBC, MSN, Bloomberg News, Chicago Tribune, WSJ, and Huffington Post. Dr. Khubchandani also serves as an Associate Editor or Editorial Board Member for six journals in the field of public health and biomedical sciences. In 2017, he was also elected Director of the World Association of Medical Editors. Dr. Khubchandani has received many prestigious honors such as the Indiana Governor's Service Learning Award (2012), Hurley Goodall Distinguished Faculty Award (2012), Hero of Health Education (2012) and Open Society Award (2017) from Society for Public Health Education, Outstanding Junior Faculty Award (2014) and Outstanding Diversity Researcher (2017) from Ball State University.

### **Kieft, Jeffrey**

#### **University of Colorado**

Dr. Jeffrey Kieft is a tenured Professor and Vice Chair of the Dept. of Biochemistry and Molecular Genetics at the University of Colorado School of Medicine, and Director of the University of Colorado School of Medicine Structural Biology and Biophysics Core Facilities. Dr. Kieft earned his B.S. in Chemistry at West Point, served as a U.S. Army officer, earned a Ph.D. in Chemistry from the University of California Berkeley, then conducted several years of post-doctoral research at Yale University. From 2001-2002, Dr. Kieft was the Roger Revelle/AAAS Fellow in Global Stewardship in the White House Office of Science and Technology Policy (OSTP). There, his portfolio included global climate change, ocean issues, gulf coast hypoxia/eutrophication, green chemistry, container and shipping security, vetting new security technologies, and anthrax spore mitigation. Within OSTP, Dr. Kieft was responsible for preparing congressional testimony, researching and drafting "white papers," chairing or serving on various interagency working groups, traveling to represent the White House in diverse forums, reviewing and analyzing scientific reports, and preparing scientific summaries to aid decision makers. Dr. Kieft then joined the faculty of University of Colorado School of Medicine. His research program focuses on virology, RNA biochemistry, biophysics, and structural biology. In 2009-2016, he received an Early Career Scientist Award from the Howard Hughes Medical Institute (HHMI), given to the top 50 promising biomedical researchers in the nation. He is a Fellow of the American Society of Microbiology, recognizing him as one of the premier scientists in that field. In addition, Dr. Kieft maintains interest in a broad range of scientific topics and in science policy beyond his own research. He is not currently serving on any national advisory committees. His current and recent research funding is from the National Institutes of Health. Professor and Vice Chair

### **Kinney, Patrick**

#### **Boston University School of Public Health**

Dr. Kinney has a broad background in environmental health sciences, with specific training and expertise in air pollution exposure assessment, epidemiology, and climate change. He completed his doctoral studies in Environmental Science and Physiology at the Harvard School of Public Health in 1986. As a junior faculty member at New York University, he developed and led epidemiologic research on lung function and inflammatory biomarker changes in relation to chronic exposures to ozone and other air pollutants. Moving to Columbia in 1994, he expanded his research to include community-based studies of traffic pollutant exposures and health outcomes in underprivileged neighborhoods in New York City, leading and contributing to several large-scale studies over the following 22 years. He has contributed to the periodic reviews of the National Ambient Air Quality Standards for ozone and particulate matter, and served on the EPA Clean Air Scientific Advisory Committee for reviews of the Nitrogen Dioxide and Sulfur Dioxide standards. He developed and directed the Climate and Health Program at Columbia, which trains students and postdocs in research on the health dimensions of climate variability and change. He also directed research on indoor and outdoor air quality and health in Africa, including a randomized stove trial in Ghana funded by NIEHS. Current funding sources include the National Oceanic and Atmospheric Administration, the National Aeronautics and Space Administration. In January 2017, Dr. Kinney was named the

inaugural Beverly A Brown Professor of Urban Health at Boston University.

**Klein, Levente**

**IBM T. J. Watson Research Center**

Dr. Levente Klein is a Research Staff Member in the Internet of Things and Industry Solution at the IBM T.J. Watson Research Center, Yorktown Heights, NY. His work at IBM span multiple research topics from material science, nano-optics and wireless sensing solutions with strong focus to apply research technologies to industrial problems. Levente obtain a PHD in Physics from University and Utah and since joining IBM Research in 2006, he developed technologies to enable energy efficient cooling in data centers, monitoring fugitive methane gas in oil and gas industry, and application of wireless sensing solution in agriculture and healthcare. Current research interests focus on environmental monitoring of greenhouse gases, application of wireless sensing in outdoor environment and physics based modeling and analytics. His work was recognized by 3 IBM's Outstanding Technical Achievement award and multiple IBM Research Division Award.

**Koziel, Jacek**

**Iowa State University**

Professor Jacek Koziel is a nationally and internationally recognized expert with multidisciplinary knowledge and experience in the following disciplines: air quality, community odor, atmospheric sciences, livestock agriculture, environmental science, analytical chemistry, complex systems on the nexus of food, energy and water; toxicology; benefit-cost analysis; sustainability; chemical safety; green chemistry; and waste management. His work (over 120 articles) was cited more than 2, 500 times (h index = 30, Web of Science). He earned awards for peer-review of more than 175 manuscripts in 65 journals. He has been serving on editorial boards for three journals including Atmosphere, International Journal of Environmental Research and Public Health, and AgriEngineering. Dr. Koziel's work has been featured in Nature, Scientific American, National Geographic, Smithsonian, The Economist, and on the History Channel. He has served as peer-reviewer and panelist for international science funding programs. He earned Ph.D. in Civil Engineering, M.S. degrees in Mechanical Engineering and Environmental Quality Engineering. He is serving at Fulbright Association (Iowa Chapter) and is a member of the American Association for the Advancement of Science, Sigma Xi, American Society of Agricultural and Biological Engineers, and the International Society of Animal Hygiene.

**Krantz, William**

**University of Colorado at Boulder**

I received a B.A. (1961) in chemistry from Saint Joseph's College, B.S. (1962) in chemical engineering from the University of Illinois, and a Ph.D. (1968) in chemical engineering from the University of California. I am a licensed Professional Engineer. I have held faculty positions at the University of Colorado, University of Notre Dame, University of Cincinnati, National University of Singapore and Nanyang Technological University (Singapore). I also have worked at Chevron Research and Development (CalTex) and the 3M Company. I presently am serving as a consultant to the Singapore Membrane Technology Center in the area of water desalination and wastewater treatment. I am the author or co-author of 265 technical papers and two recent books, and am co-inventor on 19 patents. I have worked in a broad spectrum of areas spanning several disciplines including chemical, mechanical, civil and environmental engineering, geophysics, and chemistry. I have consulted for several companies as well as the National Institute of Standards and Technology, National Science Foundation, U.S. Air Force, and U.S. Department of Energy.



**Kronenberg, Amy**

**Lawrence Berkeley National Laboratory**

Dr. Amy Kronenberg is a Staff Biophysicist at the Lawrence Berkeley National Laboratory. Her research interests include radiation biology, cancer biology, charged particle radiation biophysics and mutagenesis. She has conducted extensive research on molecular mechanisms of mutagenesis and aspects of genomic instability. She is a Council Member of the National Council on Radiation Protection and Measurements (NCRP). Dr. Kronenberg is very active in national and international professional societies and institutions. She is currently a Senior Editor for the journal Radiation Research and is also a member of the editorial board of the Journal of Radiation Research (Japan). She was an invited speaker at a symposium on radiation carcinogenesis at the Radiation Effects Research Foundation (RERF) in Hiroshima, Japan. She was co-organizer of the American Statistical Association Conference on Radiation and Health (2006), in addition to many other venues. Dr. Kronenberg serves as a member of the External Advisory Board for the National Space Biomedical Research Institute, and as a member of an international review panel for the GSI Helmholtz Zentrum in Germany. Her research has been supported by Federal funding sources. Dr. Kronenberg received her A.B. in Biology at Brown University, and her Sc.D. in Cancer Biology from the Harvard School of Public Health.

**Landis, Wayne**

**Western Washington University**

Dr. Wayne Landis is Professor and Director, Institute of Environmental Toxicology Huxley College of the Environment, Western Washington University. He holds a B.A. in Biology from Wake Forest University, (1974), an M.A. in Biology from Indiana University (1978), and a Ph.D. in Zoology from Indiana University (1979). Dr. Landis' areas of expertise and research activities include: environmental toxicology, the effects of toxicants on populations, and ecological risk assessment at large spatial and temporal scales. His research contributions also include: co-development of the Community Conditioning Hypothesis, the use of multivariate analysis in microcosm data analysis, creation of the Action at a Distance Hypothesis for landscape toxicology, the application of complex systems theory to risk assessment, and development of the Relative Risk Model for multiple stressor and regional-scale risk assessment and specialized methods for calculating risk due to invasive species and emergent diseases. Dr. Landis has authored over 150 peer-reviewed publications and government technical reports, participated in over 400 scientific presentations, edited four books, and wrote the textbook, Introduction to Environmental Toxicology, now in its sixth edition. He has consulted for industry; nongovernmental organizations as well as federal (U.S. and Canada), state, provincial, and local governments. Dr. Landis' research has been supported by grants and contracts from federal agencies (U.S. Air Force, Environmental Protection Agency, U.S. Forest Service,), industry (DuPont, BP and Teckcominco Ltd.), with additional grant support from state, provincial and local governments, industry, NGOs and foundations. Dr. Landis has served on the American Society of Testing and Materials (ASTM) Committee on Publications overseeing a variety of environmentally related symposia proceedings. He currently serves on the editorial boards of the journals Risk Analysis and is an editor for Integrated Environmental Assessment and Management, and retired as the ecological risk area editor for Risk Analysis. Dr. Landis is a member of the Society of Environmental Toxicology and Chemistry (SETAC) and served on the SETAC Board of Directors from 2000-2003. In 2007 he was named a Fellow of the Society for Risk Analysis and in 2016 a Fellow for the Society for Environmental Toxicology and Chemistry. He was selected for his second term on the Science Panel of the Puget Sound Partnership, a state of Washington agency charged with the restoration of Puget Sound. More recently he served on the NASEM panel that resulted in a keystone document on the future of synthetic biology and specifically the use of gene drives "Gene Drives on the Horizon: Advancing Science, Navigating Uncertainty, and Aligning Research with

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Public Values.”

**Lange, Sabine**

**Texas Commission on Environmental Quality**

Dr. Sabine Lange is the section manager for the Toxicology Division at the Texas Commission on Environmental Quality (TCEQ). Dr. Lange’s responsibilities include overseeing health effects risk assessments of air permit applications, ambient air monitoring projects, and hazardous waste sites; overseeing the development of chemical toxicity factors; and conducting and overseeing systematic reviews and independent analyses of risk assessments. Dr. Lange serves as a technical resource for the State and citizens of Texas for human health and environmental risk assessment, especially related to air and water quality. Dr. Lange’s research interests include the toxicology of criteria air pollutants, and risk assessment methods used for derivation of toxicity factors. In these areas she has published articles, given invited talks, presented posters, and served as a workshop panel member. On behalf of the TCEQ, she has intensively reviewed the documents released by the US EPA on the National Ambient Air Quality Standards (NAAQS) for ozone, particulate matter, sulfur dioxide, nitrogen dioxide, and lead. Dr. Lange and colleagues have provided comments to the US EPA on the assessment documents supporting these standards, particularly as they relate to principles of toxicology, risk assessment, and the State’s perspective on these rules. She has also served as a peer reviewer for EPA on chemical hazard assessments for regulations under the Toxic Substances Control Act. Dr. Lange’s work since joining TCEQ has been entirely funded by the State of Texas. Dr. Lange received a Bachelor’s degree from the University of Western Ontario in Canada, and completed a Ph.D. and post-doctoral training in biochemistry and molecular carcinogenesis at the University of Texas at Houston and MD Anderson Cancer Center. Dr. Lange is a Diplomate of the American Board of Toxicology.

**Lawler, Desmond F.**

**University of Texas**

Dr. Desmond F. Lawler is the Nasser I. Al-Rashid Chair in Civil Engineering, and Distinguished Teaching Professor in the Environmental and Water Resources Engineering Program within the Department of Civil, Architectural and Environmental Engineering at the University of Texas at Austin. He holds a B.S. in Civil Engineering from the University of Notre Dame (1968) and M.S. and Ph.D. degrees in Environmental Engineering from the University of North Carolina at Chapel Hill (1975 and 1980). Dr. Lawler has been at the University of Texas since 1980 and is now the W.A. Cunningham Professor of Engineering and a member of the University’s Distinguished Teaching Academy. He was recognized in 1999 by the American Water Works Association with the A.P. Black Award for sustained contributions to drinking water research. His paper on flocculation with M.Y. Han was recognized with the 2005 Association of Environmental Engineering and Science Professors (AEESP) Outstanding Publication Award as one that has withstood the test of time and influenced environmental engineering practice. Dr. Lawler has served on the Board of Directors of the Association of Environmental Engineering Professors, has been on several committees within AWWA, and is now on the Board of Trustees of the Water Science and Research Division of AWWA. Along with Dr. Mark Benjamin of the University of Washington, he is currently writing a graduate textbook on Physical/Chemical Treatment Processes for Water and Wastewater to be published by McGraw-Hill.

**Lenczewski, Melissa**

**Northern Illinois University**

Dr. Melissa Lenczewski is an associate professor in the department of Geology and Environmental Geosciences at Northern Illinois University (NIU). She is also the Director of NIU’s Institute for the Study of the Environment, Sustainability, and Energy (the Institute). The Institute integrates

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perspectives and methods from the natural sciences, social sciences, humanities, technology, and engineering for interdisciplinary research that addresses environmental and sustainability issues. Dr. Lenczewski holds degrees in Microbiology (B.S., University of Arizona), Soil and Environmental Sciences (M.S., University of Arizona) and Geological Sciences (Ph.D., University of Tennessee). She has served in numerous leadership capacities within the National Groundwater Association including as a director on the Scientist and Engineers Section Board of Directors, Government Affairs Committee, and Education and Awareness Subcommittee. Her main research focuses on contaminant hydrogeology by bringing together geochemistry, microbiology and physical flow hydrogeology. In Illinois, her research centers on a hyperalkaline site (~pH 12) in the Calumet region where she is examining geochemistry and microbiology of this unique extreme environment. She heads a research team that includes geochemists, geophysicist, public health, and geographers to examine the impact of tourism on the karst aquifer in Mexico. Lastly, she is working in Southeast Asia, especially Myanmar and Cambodia, on capacity building in higher education by training local faculty and graduate students in hydrogeology while researching local aquifers and determining major water quality issues. During the last two years Dr. Lenczewski's research has been funded by the National Science Foundation and National Ground Water Association Foundation.

### Li, An

#### University of Illinois at Chicago

I am an environmental chemist, with research interests on how human activities influence the natural environment and how the changes in turn affect human health. My team focuses particularly on the transport and fate of persistent, bioaccumulative, and potentially toxic (PBT) organic chemicals in water. The major projects for which I served as PI since 2001 include three on PBTs in the Great Lakes sediment (funded by USEPA), one on the fate of brominated flame retardants (funded by NSF), and a few on cross-placenta transfer of PBTs (funded by NIEHS and as a part of the National Children's Study). We have discovered unexpected organic pollutants while analyzing legacy toxins; we developed novel analytical methods for trace halogenated PBTs; we are also very interested in quantitative structure-activity relationships. In recent years, I become more interested in "larger pictures" on how our scientific data are helping government make decisions, affecting the view of the general public, and impacting the society. I am the first Dr. Samuel and Catherine Epstein Term Professor at our UIC School of Public Health. I have published about 90 peer-reviewed journal articles with about one third in the Environmental Science and Technology (ES&T), in addition to 2 books and a number of book chapters as well as about 170 invited talks and conference publications. I served in review panels of NIH, NSF, EPA, and other funding agencies, and am a reviewer for >140 manuscripts from 38 journals. In research supervision, I have worked with >10 postdocs and visiting scholars, 23 PhD and 17 MS research assistants, and dozens of undergraduates.

### Lohmann, Rainer

#### University of Rhode Island

Dr. Rainer Lohmann is Professor of Oceanography at the University of Rhode Island (URI)'s Graduate School of Oceanography. He obtained a Ph.D. in Environmental Science from Lancaster University (UK), and a BSc in Chemical Engineering from EHICS (Strasbourg, France). His educational background combines work in chemical / environmental engineering (postdoctoral work at the Massachusetts Institute of Technology, MIT) with marine, atmospheric and environmental chemistry. His group conducts research on the sources, transport, and bioaccumulation of anthropogenic pollutants. Dr. Lohmann has performed work at sites contaminated with legacy hydrophobic organic contaminants using novel passive samplers to assess transport, bioavailability and food-web magnification of these chemicals. He is Director of the new NIEHS-funded Superfund Research Center at URI focused on the sources, transport, exposure and effects of per- and polyfluorinated chemicals (PFASs). Dr. Lohmann has published over 100 articles in the leading

journals in the field (notably the American Chemical Society's Environmental Science and Technology), and has given over 100 invited presentations. He serves as Editor for the Society of Environmental Toxicology and Chemistry (SETAC)'s journal Environmental Toxicology and Chemistry, and is member of several editorial advisory boards, including Environmental Science and Technology, Environmental Science and Technology Letters, and Environmental Pollution. He serves on EPA's Board of Scientific Counselor's sub-committee on sustainable and healthy communities. Dr. Lohmann received the Roy F. Weston Environmental Chemistry Award by SETAC, the INNOLEC Visiting Lectureship by Masaryk University, Brno (Czech Republic) and fellowships by the Alexander-von-Humboldt foundation, the Research Center for Ocean Margins at the University of Bremen and the German Academic Exchange Service. He has received funding from the National Institute of Environmental Health Sciences (NIEHS), the Strategic Environmental Research and Development Program (SERDP), state and private foundations.

**Lowery, Darrin L.**

**Chesapeake Watershed Archaeological Research Foundation**

Dr. Darrin L. Lowery is the director of Chesapeake Watershed Archaeological Research. He has been the director of this group since 2001. He has held a research professor position and currently serves as an adjunct professor within the Department of Geology at the University of Delaware. From 2009 to 2014, he maintained a research fellowship position at the Smithsonian Institution. He has managed over fifty research projects since 1992 and served as the principal investigator or co-investigator for these projects. His responsibilities include overseeing field investigations, managing field crew, synthesizing the research results, and preparing final summary reports. He has a strong technology background and research interests in long-term human-environmental interactions, geology, geoarchaeology, biogeochemistry, hydrology and water resources, soil morphology and pedology, environmental isotope analyses, coastal erosion and sediment dynamics, paleoclimatology, and marine-estuarine ecosystems. Dr. Lowery has served as an expert witness concerning coastal resources as well as global positioning issues. He has been the principal author and/or co-author on forty-six peer-reviewed articles or book chapters, as well as fifty-six monographs. He earned both a B.A. in Anthropology and a Ph.D. in Geology from the University of Delaware. He also earned an M.A. in Archaeology from Temple University. His research for the past two years was funded by the Commonwealth of Virginia and the State of Maryland.

**Lu, Kun**

**University of North Carolina**

Dr. Lu is an associate professor in the Department of Environmental Sciences and Engineering, Gillings School of Global Public Health, University of North Carolina at Chapel Hill. The overarching goal of Dr. Lu's research is to better understand health effects of environmental exposure and individual response. He has strong technical background and expertise in analytical chemistry, microbiome, exposome, omics profiling, and biomarker development. Dr. Lu's lab works on numerous important environmental chemicals ranging from formaldehyde, heavy metals to pesticides, as well as others with significant public health concerns. One of his research thrusts is to develop DNA/protein adduct biomarkers and sensitive mass spectrometry assays to understand the carcinogenicity of chemicals and their risk assessment. Dr. Lu also studies how gut microbiome interacts with environmental exposure, how microbiome affects disease susceptibility, and how host factors crosstalk with microbiome to influence its response. Another focus of Dr. Lu's research is to map exposome for human disease to characterize exposures over the lifespan via high-resolution mass spectrometry, understand the health impact of the exposome, and to design strategies to reduce exposure-associated adverse effects. He has published numerous peer-reviewed articles and served on a number of external scientific review panels/committees. Dr. Lu received the Best Publication Award from the Society of Toxicology in 2011 for his work in the risk assessment of formaldehyde using

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DNA adducts as chemical-specific biomarkers. He was also awarded with the Outstanding New Environmental Scientist Award in 2015 from the National Institute of Environmental Health Sciences. He earned BE, MS and PhD in chemistry and material sciences from Beijing University of Chemical Technology and University of North Carolina at Chapel Hill, followed by a postdoctoral training at Massachusetts Institute of Technology. His research for the past two years was funded by the National Institutes of Health.

**Lupo, Anthony**

**University of Missouri**

Dr. Anthony R. Lupo is Professor of Atmospheric Science in the School of Natural Resources, which is housed in the College of Agriculture, Food and Natural Resources at the University of Missouri. He received an AS in Math and Science from Cayuga County Community College, a BS in meteorology from the State University of New York at Oswego, an MS and PhD in Atmospheric Science at Purdue University, and post-doctoral training in synoptic and large-scale meteorology at The State University of New York at Albany. Since 1997, he has received funding through the National Science Foundation, the United States Department of Agriculture, United States Department of Energy, Civilian Research and Development Foundation Global, and the State of Missouri. His research topics have included atmospheric dynamics, synoptic meteorology, long-range forecasting, tropical meteorology, and climate variability and change, especially as related to agriculture. Dr. Lupo has authored 110 peer-review papers and book chapters. He teaches graduate level courses in atmospheric dynamics, chaos theory, tropical meteorology, the general circulation, and climate science. He has advised 46 graduate students, been a member of 47 graduate committees in atmospheric science, mathematics, education, and political science, and hosted five post-doc or visiting scientists. Dr. Lupo has served on review boards for many journals, government and private research funding agencies, and academic boards. He has been a contributing author and expert reviewer for the Intergovernmental Panel on Climate Change. He is a member of many professional societies and served on committees, such as the American Meteorological Society Board of Certified Consulting Meteorologists (2017), and as associate director of Research and Doctoral Constituency for Sigma Xi (2016-2018). He has received two Fulbright Teaching and Research awards, as well as a research specialist award, and is currently on the Fulbright Specialist roster.

**Mace, Robert E.**

**Texas State University**

Dr. Robert E. Mace is a Deputy Executive Administrator for the Texas Water Development Board, managing the Water Science and Conservation office at the agency, a group of 66 scientists, engineers, and technicians focused on better understanding Texas' water resources. His technical background is in hydrogeology with an emphasis on numerical modeling, aquifer characterization, and geostatistics; however, he also has experience in groundwater contaminant transport, groundwater management, surface water, water conservation, water loss, desalination, water reuse, aquifer storage and recovery, water planning, drought response, and rainwater harvesting. He is recognized as an effective communicator of science to policymakers and is sought out to explain complicated water issues to non-technical audiences. Dr. Mace's work has been recognized by the U.S. Department of Interior (Partners in Conservation Award as part of an ensemble effort), National Ground Water Association (Technology Award), Texas State University (Distinguished Texas Hydrogeologist), Austin Geological Society (Distinguished Service Award), Barton Springs/Edwards Aquifer Conservation District (Conservation Award in Research), and Haskell Simon (Rosetta Stone Award). He is the chair of the Multi-State Salinity Coalition, a founding member and current board member and associate editor of the Texas Water Journal, a fellow of the Center for Public Policy Dispute Resolution, a board member of the Scientists and Engineers Board of the National Ground Water Association, a member of the Advisory Committee on Water Information, a member of the Water

Conservation Advisory Council, a member of the Groundwater Contemporary Issues Council (California), a member of the Edwards Aquifer Habitat Conservation Plan Science Committee, the chair of the Texas STATEMAP Project Advisory Panel, and a former president of the Austin Geological Society. He is also a registered professional geoscientist with the Texas Board of Professional Geoscientists. Dr. Mace received his B.S. degree in Geophysics and an M.S. in Hydrology from the New Mexico Institute of Mining and Technology and a Ph.D. in Hydrogeology from The University of Texas at Austin. He and his research group are primarily funded by direct appropriations from the state of Texas but also receives or has received financial support from the U.S. Army Corps of Engineers, U.S. Bureau of Reclamation, U.S. Environmental Protection Agency, and University Corporation for Atmospheric Research. His group also works cooperatively with the U.S. Geological Survey.

**Marty, Sue**

**The Dow Chemical Company**

Dr. Sue Marty received her Bachelor of Science (B.S.) in biology and a Master of Public Health (MPH) in toxicology from The University of Michigan (Ann Arbor, MI). After a year at the Eberhard-Karls Universität in Tübingen, Germany, she returned to the University of Michigan to complete a Doctor of Philosophy (Ph.D.) degree in toxicology. Her dissertation was in the area of reproductive toxicology, looking at the effects of toxicants on labor onset and progression. Subsequently, she was a postdoctoral fellow at Michigan State University, studying the neurotoxic effects of methylmercury on calcium homeostasis in primary cerebellar neurons. In 1997, she joined The Dow Chemical Company in Midland, Michigan, where she served as a Lead Scientist in the Reproductive and Developmental Toxicology group. After six years, Dr. Marty became a business consultant for Dow's glycol ethers business. In 2006, she decided to return to the laboratory and became a Senior Toxicology Leader in Dow's Neuroendocrine Toxicology group. In 2014, she accepted her current role on the Chemicals and Health Leadership Team at The Dow Chemical Company; this group develops internal programs to address issues related to chemicals and health, including research projects for Dow's toxicology laboratory. Dr. Marty is a diplomate of the American Board of Toxicology (D.A.B.T.) and a member of the editorial board for Birth Defects Research Part B: Developmental and Reproductive Toxicology. She is past president of both the Michigan Regional Chapter of the Society of Toxicology (2007-2008) and the Midwest Teratology Association (2005-2006). She has served on the Continuing Education Committee (2005-2008), Program Committee (2007-2008) and Science Committee (2009) for the Teratology Society, and councilor for the Neurotoxicology Specialty Section of the Society of Toxicology (2009-2011). Dr. Marty has served on expert panels for the National Toxicology Program (NTP) Center for Evaluation of Risks to Human Reproduction (CERHR; 2004-2006). Currently, Dr. Marty serves on several industry panels, including the Endocrine Policy Forum. She serves on several international expert committees, including the Organisation for Economic Cooperation and Development (OECD) Expert Group for Reproductive Toxicology, the OECD Working Group of the National Coordinators of the Test Guidelines Programme (WNT), and the United Nations Environment Programme (UNEP) Endocrine Advisory Group. She also serves on an advisory board for the Humane Society of the United States. Dr. Marty has published over 50 scientific papers in peer-reviewed journals. Her research interests are primarily focused on: 1) endocrine disruption with a focus on the specificity and sensitivity of endocrine endpoints in toxicity studies; 2) effects of toxicant exposure during critical life stages of development; and 3) evaluation of ToxCast and ExpoCast data to evaluate potential toxicity. She is working with the Royal Society of Chemistry (UK) on a project to evaluate low dose/non-monotonic dose responses with endocrine-active compounds. Over the past two years, Dr. Marty's research funding has come from The Dow Chemical Company.

**McConnell, Charles**

**William Marsh Rice University**

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I serve as the Executive Director of the Energy and Environment Initiative (EEi) at Rice University in Houston, TX. EEi is a program that leverages the multi-discipline expertise at Rice to promote collaborative research in the areas of energy and environment science, engineering, economics, policy, and humanities. Our mission is to impact the marketplace with relevant and impactful transformative technology and research that will result in marketplace impact. Our efforts also extend externally to government, public partnerships, and industry to ensure collaboration and focus on market driven challenges to ensure excellence in energy access and reliability, affordability and economic competitiveness, and environmentally responsible solutions for the future. I have over 30 years of industry experience, have served as Assistant Secretary of Energy at the US Department of Energy, and have 5 years most recently at Rice University. During this period of time I have testified numerous times in both House and Senate committees (House Science and Technology being one of them) on a number of scientific energy related topics.

### **McKean, Deborah**

#### **Independent Consultant**

Dr. Deborah McKean is a toxicologist specializing in human health risk assessment, risk-based decision-making, risk communication and training. She received her M.S. degree from the Department of Pharmacology and Toxicology at the University of Arizona and her Ph.D. from the Department of Pathology and Laboratory Medicine at the University of Cincinnati Medical Center. In addition to her experience in emergency response and remediation activities, she has been involved in the development of national policy, risk assessment guidance and chemical-specific, health-based criteria for the U.S. Environmental Protection Agency (EPA). She was an assistant professor at the University of Cincinnati where she taught Anatomy and Physiology, Pharmacology, Pathophysiology and Environmental Science. Dr. McKean served as a Division Director within U.S. EPA's National Homeland Security Research Center before becoming the Chief of Technical Assistance for EPA's Denver Regional office. Dr. McKean has also provided expert witness testimony for litigations involving hazardous waste issues and has been certified as an Environmental Unit Leader within EPA's Incident Command System for emergency response. Dr. McKean was also a member of EPA's Regional and National Incident Management Teams and is certified as an adult trainer and instructor. She recently retired from federal government service and is currently self-employed.

### **Meredith, Justin**

#### **Tennessee Department of Environment and Conservation**

Mr. Justin Meredith is the Technical Assistance Manager at the Tennessee Department of Environment and Conservation (TDEC) Nashville, Tennessee. Mr. Meredith manages the Technical Assistance section, which performs a wide variety of scientific reviews and technical services for the entire Division and for external customers. These positions have state-wide responsibility. This section is made up of seven technical staff, representing: 1.) Divisional Risk Assessment team; 2.) Dry Cleaner's Environmental Response program; 3.) Community assistance to local governments and development districts applying for or have been awarded EPA Brownfields grants; 4.) Research on contaminated sites and what companies or individuals may have caused the contamination; and 5.) Hydrogeological expertise. In addition to managing the technical section Mr. Meredith is the petroleum contamination remediation expert, a human health and ecological risk assessor, and project manager. Mr. Meredith presents at conferences and has trained several hundred individuals including internal staff as well as external consultants on several aspects involved in the remediation process. Prior to TDEC-DoR, Mr. Meredith worked for TDEC-Underground Storage Tanks program and prior to that worked in the private sector, as a field geologist. Mr. Meredith is a trainer for the Interstate Technology & Regulatory Council's training course on light non-aqueous phase liquid remediation technology overview. Mr. Meredith has received no research funding. Mr. Meredith has been active in ITRC since 2014 and is serving as Tennessee's ITRC Point of Contact

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<https://www.itrcweb.org/About/State>. Mr. Meredith earned a B.S. in Environmental Geosciences from Valdosta State University in Valdosta, Georgia.

**Meselhe, Ehab**

**Tulane University**

Ehab Meselhe, Ph.D., P.E., has more than 20 years of experience researching coastal wetland hydrology, sediment transport, and computer modeling of coastal wetland, estuarine, and riverine systems. His multi-layered background includes work as an educator, researcher, and practitioner with extensive experience working with academic institutions, government agencies, and the private sector. He has been heavily involved in large-scale coastal ecosystem restoration programs in south Louisiana and the Florida Everglades. As the Institute's former Director of Natural Systems, Dr. Meselhe served as Louisiana's technical lead for the Mississippi River Hydrodynamic and Delta Management Study and helped build the numerical models that provided a foundation for Louisiana's 2017 Coastal Master Plan. Dr. Meselhe is heavily involved in the numerical modeling being used by Louisiana to help refine the design of sediment diversions at Mid-Barataria and Mid-Breton along the Mississippi River. Prior to joining The Water Institute of the Gulf, Dr. Meselhe directed the Institute of Coastal Ecology and Engineering at the University of Louisiana-Lafayette, where he also served as distinguished professor for the Department of Civil Engineering. During his tenure at UL Lafayette, he established and sustained an externally funded research program from federal and state agencies. He is a registered Professional Engineer in the states of Iowa, Louisiana, Texas, and Arkansas. He also served as an Associate Editor of the Journal of Hydrology (Elsevier), and the Journal of Hydraulic Research (International Association of Hydraulic Research).

**Moo-Young, H. Keith**

**Washington State University, Tri-Cities**

Dr. H. Keith Moo-Young is Chancellor of the Washington State University, Tri-Cities, Richland, Washington. Prior to assuming this position in April 2013, he served as 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, a B.S. degree in Civil Engineering from Morgan State University 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. Dr. Moo-Young is a Board Certified Environmental Engineer by the American Association for Environmental Engineers and a Fellow of the American Society of Civil Engineers. 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's current research is funded by the National Science Foundation to acquire an Ultra-Centrifuge for geoenvironmental research and education, renovate core facilities, fund the GK-12 Fellowship Program, and support the CREST Center for Sustainable Energy; Naval Surface Warfare Center (NSWC) to support its education partnership agreement with the College of Engineering, Computer Science and Technology at California State University, Los Angeles; the California Air and Resource Board to support the Hydrogen Refueling Station; the Department of Defense, to support the Great Minds in Science, Technology, Engineering and Math (STEM) careers program; Department of Education to increase engineering transfers students from East Las Angeles College and Los Angeles Trade Technical College; various corporations to support the 'Senior Design' project; and National Oceanic and Atmospheric Administration to support the University Research Center. 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 and was the Honorary Chair for the ISEG 2012 The XII International Symposium on Environment, Energy and Global Sustainable Development. 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 200 refereed papers and invited talks in peer-reviewed journals, books and conference proceedings, workshops and invited lectures. He is also the co-inventor of one patent.

**Mora-Zacarias, Miguel**

**Texas A&M University**

Dr. Mora is currently a Professor and Associate Department Head for Undergraduate Programs in the Department of Wildlife and Fisheries Sciences, Texas A&M University (TAMU). He also has a joint appointment in the Department of Veterinary Pathobiology, College of Veterinary Medicine, and is a member of the Intercollegiate Faculty of Toxicology. Dr. Mora earned a BS in Biochemical Engineering at the National Polytechnic Institute, Mexico City, an MS and Ph.D. in Ecology from the University of California, Davis, and a post-doc in ecotoxicology from Michigan State University. Over the last 30 years, Dr. Mora's research has focused on evaluating the impacts of persistent organic pollutants, metals, and other contaminants on animal populations, with emphasis on aquatic birds, migratory birds, and endangered species. He has over 80 publications in the peer-reviewed literature in addition to many government reports and other publications. Dr. Mora is a Fellow of the American Ornithologists' Union, and he received the "Distinguished Scientist Award" from the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) in 2013. In 2016, he also received the Dean's Outstanding Achievement Award for Excellence in Diversity from the College of Agriculture and Life Sciences, TAMU. Dr. Mora has served on the Board of the Society of Environmental Toxicology and Chemistry (SETAC) for 3 years, and on the SETAC World Council for five years. He also served on the SACNAS Board for six years. Dr. Mora is an Associate Editor for Ecotoxicology (since 2008) and has served on the Editorial Board of Environmental Toxicology and Chemistry (9 years), Chemosphere (15 years), and Environmental Pollution (6 years). He has served on numerous review panels (NSF, EPA, Universities) and reviews articles for various other journals on a regular basis. For the last two years, Dr. Mora's research has been funded by State and Federal agencies (USGS).

**Morgan, Christine**

**Texas A&M University**

Cristine Morgan is a Professor of Soil Science with emphasis in soil hydrology and pedometrics at Texas A&M University in College Station, TX. Her research program focuses on the role of soil science in addressing global challenges of water security, food security, environmental quality, and human health. Her technical expertise is in water movement through soil and across landscapes, novel sensing systems to quantify soil in situ, and measuring and modeling soil properties across landscapes. Dr. Morgan provides leadership in a global effort to secure soil for current and future generations. Her soil security efforts include involvement in a coalition of non-profit organizations, federal agencies, and businesses to address soil health, as well as implementation of research strategies to link soil science with economics and sociology to affect changes in soil management in agriculture. She leads interdisciplinary teams of physicists and plant scientists to develop novel techniques that measure roots, in undisturbed soils. Outcomes of her research program provide innovative measures of

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spatially and temporally variable soil properties and improvement on our ability to quantify soil ecosystem services affected by soil properties and soil management at the farm and watershed scale. Dr. Morgan's research program and students have been nationally and internationally recognized for their work advancing knowledge in soil science. Her program has recently been funded by Texas Commission on Environmental Quality, US Departments of Agriculture and Energy, and Agricultural Industry. Dr. Morgan serves on the board of directors for the Soil Science Society of America, is co-editor in chief of the global soil science journal, *Geoderma*, and participates in committees for the International Union of Soil Scientists. Dr. Morgan earned her M.S. and Ph.D. in Soil Science from the University of Wisconsin-Madison. Her Bachelor's degree is in Plant and Environmental Soil Sciences from Texas A&M University.

**Morgan, Kevin**

**Aventis Pharmaceuticals Inc**

Kevin Morgan holds the DVM and Ph.D. degrees and is a Board Certified Veterinary Pathologist. Dr. Morgan has published extensively on the pathology of the nasal turbinates and in particular the effect of irritants on the structure. One of the most prominent of agents studied is formaldehyde. Additionally, he has worked with acetaldehyde and vinyl acetate.

**Neagu, Carmen**

**ABB Inc**

Mrs. Carmen Neagu is Technical Specialist for FTIR technology for all industries and their subsectors. She held several key positions from 1997 while working for Exxon, Albemarle and Akzo Nobel in research and development, process, analytics and consulting. Her extensive experience in the Science field corroborated with her technical expertise, led to 12 patents in the Polymers field, new tires compounds formulations, new composite materials as well as new organic peroxides reformulations used in medical field, specialty chemicals and life sciences. She has been employed by ABB Inc since 2014 where the primary focus was to offer her expertise to thousands of companies, suggesting technologies and their implementation, FDA regulations implementations. Her responsibilities include coordination and implementation of testing and technology implementation to reduce health effects, improve air quality, testing and detection technology implementation for toxic materials, and she is part of advisory boards of dozen of private companies monitoring air quality and environment protection. She has a strong technical background and research interest in hazard identification, inhalation dosimetry, permits. Mrs. Carmen Neagu serves as a technical resource for hundreds of commercial companies, management and staff on issues concerning air and water quality, pesticides, bacteria removal and products contamination. She has an extensive knowledge on state and federal permitting, remediation, and risk assessment issues, and served as the environmental safety officer at Akzo Nobel, for the safety department. Carmen has published numerous articles in the peer-reviewed literature, serves or has served on numerous external scientific committees, and presented scientific papers and materials on newest science discoveries at various conferences held by American Chemical Society. She earned both a B.S. in Chemical Engineering and a MS in Organic Compounds Synthesis from the Polytechnic University of Bucharest, Romania.

**Nespoli, Lisa Marie**

**Covestro LLC**

Ms. Lisa Marie Nespoli manages Product Safety and Stewardship at Covestro. She has been employed by Covestro since 2010 and manages a group of various science, health and safety experts. She holds a B.S. in Biology from Allegheny College and a M.S. in Biology and M.S. in Environmental Science and Management from Duquesne University. Her Bachelor's thesis was in the area of reproductive toxicology, looking for thyroid and behavioral effects of chemical toxicants on future generations and her Master's thesis was in the area of environmental reproductive toxicity and endocrine disruption.

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Lisa Marie's primary professional interests are in chemical product safety and stewardship, sustainability and green chemistry, and human health risk assessment. In her corporate role at Covestro, she leads several global teams to provide guidance and expertise on the company's product safety, stewardship, and sustainability initiatives, methods for product prioritization and risk characterization, and informs Covestro's businesses and leadership teams. She was also responsible for developing and implementing global product stewardship core processes and risk characterization procedures for the company. Lisa Marie is known as an expert in product stewardship and sustainability, and has been asked to speak on these topics at numerous venues, including summits on Safer Sustainable Products. Lisa Marie serves in leadership roles on a number of professional and trade associations, such as the American Chemistry Council (ACC), Adhesive and Sealant Council (ASC), the American Coatings Association (ACA), Product Stewardship Society (PSS), and previously Society of Environmental Toxicology and Chemistry (SETAC). Prior to joining Covestro, Lisa Marie provided Environmental Consulting expertise for the Federal Aviation Administration with BAE Systems, where she held various health, safety and environmental positions. Ms. Nespoli receives no outside research funding.

### **Nuckols, John**

#### **Colorado State University**

Dr. John R. Nuckols is an Emeritus Professor in Environmental Health Sciences (Colorado State University), and Principal of JRN-Environmental Health Sciences (N. Bethesda, MD). He holds BS (Texas A&I U), MS (Northwestern U) and PhD (U Kentucky) degrees with Civil, Environmental Health, and Agricultural Engineering emphasis, respectively. His largely self-supported professional career (1975- present) is strongly rooted in "science for the public interest", focused on understanding fate and transport of environmental contaminants, and integration of this knowledge into design of intervention strategies for environmental and public health protection. Notable achievements since 1974 include a USEPA Academic Fellowship Award, the Kentucky Conservation Society Conservationist of the Year Award, lead on technical arguments for the first designation in the USA of a land parcel (a municipal watershed) as unsuitable for surface coal mining, Founder/Director of one of the first academic programs in the world devoted to integration of geospatial sciences in health risk analysis (Environmental Health Advanced Systems Laboratory, CSU), two National Institutes of Health Intergovernmental Personnel Agreement awards based on EHASL's contributions to improving exposure assessment in environmental epidemiology, Co-nominee - Centers for Disease Control Charles C. Shepard Science Award, and most recently finalist for the prestigious 2017 American Association for the Advancement of Science Revelle Fellowship. Throughout his career Dr. Nuckols has served on numerous local, state and federal panels or work groups, including Kentucky Task Forces on State Primacy for Coal Mining Regulations and on Oil Shale Mining, the Kentucky Water Quality Advisory Committee, the Lexington Fayette County Kentucky Emergency Response Local Planning Committee, the Colorado Task Force on Non-point Source Pollution, the Larimer County Colorado Farm Bureau Board of Directors, Advisory committees for Environmental Health Tracking Network Programs in CA, NJ, NM, NY, WA, and WI, the National Cancer Institute Long Island Breast Cancer Study Project Advisory Committee, the National Academy of Science Committee on Contaminated Drinking Water at Camp Lejeune, NC, and as NAS reviewer on Exposure Science in the 21st Century report, the European Science Foundation working group on setting the future for water and health research, and currently as representative of the Colorado Water Institute on the US committee of the UNESCO International Hydrology Program. Dr. Nuckols has received no USEPA research funding since 2002.

### **Oerther, Daniel**

#### **Missouri University of Science and Technology**

Dr. Daniel Oerther is a professor of environmental health engineering at Missouri S&T and an

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Agricultural Policy Advisor to the U.S. Secretary of State representing the U.S. at the Second International Conference on Nutrition (ICN2), the Committee on World Food Security (CFS), the Blue Growth Network, and the Our Ocean Conference. Previously, he was professor and head of Civil and Environmental Engineering at Cincinnati. Dan's education includes a doctorate in environmental engineering (UIUC) and postgraduate training in environmental health (Cincinnati), public health (Hopkins Bloomberg), and public administration (IU Bloomington). Dr. Oerther is a Professional Engineer (PE), Board Certified Environmental Engineer (BCEE), Certified Environmental Health Specialist (CEHS), and Diplomate of the American Academy of Sanitarians (D.AAS). He is a Fellow of the Royal Society for Public Health (F.RSPH), the Chartered Institute of Environmental Health (F.CIEH), and the Society of Environmental Engineers (F.SEE), and he is a lifetime honorary Fellow of the American Academy of Nursing (F.AAN) and the Academy of Nursing Education (ANEF). Dan's professional practice, academic research, interdisciplinary teaching, and entrepreneurial outreach apply environmental biotechnology and community based participatory research (CBPR) to advance the UN Sustainable Development Goals (SDGs) at the interface of food, energy, and water systems (FEWS). Dr. Oerther is currently a trustee and the treasurer of the American Academy of Environmental Engineers and Scientists (AAEES), a board member of Sigma Theta Tau the International Honor Society of Nursing, an associate editor of both the "Journal of Environmental Engineering, ASCE" and "Water Environment Research," a Program Evaluator (PEv) for the Accreditation Board of Engineering and Technology (ABET), and previously a director and Chief Information Officer (CIO) of the Association of Environmental Engineering and Science Professors (AEESP). Dan has been recognized by the National Academies with the Jefferson Science Fellowship, the Keck Futures Initiative, and the Frontiers in Engineering Education Symposium; by AAEES with the Frederick G. Pohland Medal (integrating research, teaching, practice), the Superior Achievement Award (best project in 2016), and the Stanley E. Kappe Award (advancing public awareness to the betterment of the total environment); by AEESP with the Steven K. Dentel Award for Global Outreach and the Excellence in Environmental Engineering and Science Education Award (training practitioners); and by the U.S. Department of State with a Meritorious Honor Award from the Secretary's Office for Global Food Security, as a Fulbright Scholar to India in 2005, and as the inaugural Fulbright-ALCOA Distinguished Chair in Environmental Science and Engineering to Brazil in 2012. Dr. Oerther's current funding originates from the U.S. Department of State.

### Oris, James

#### Miami University

Dr. James Oris is a Professor in the Department of Zoology and is the Associate Dean for Research and Scholarship at Miami University in Oxford, Ohio. He received a B.A. in Biology from Wittenberg University (1979) and a Ph.D. in Environmental Toxicology and Fisheries and Wildlife from Michigan State University (1985). Dr. Oris's areas of research interest center on the ecological toxicology of chemicals in aquatic systems. His primary interest is the study of the fate and effects of polycyclic aromatic hydrocarbons and mercury in freshwater systems. Sediment toxicity, photo-induced toxicity, long-term reproductive toxicity, routes of uptake, and environmental factors that may alter fate and effects have been areas of study. These studies have ranged from the use of molecular biomarkers to landscape-scale ecological assessments. Dr. Oris is also interested in standard toxicity test development and methodology, including the statistical modeling and analysis of toxicity dose-response relationships. He has published over 90 peer-reviewed scientific research articles and over 170 abstracts for presentations at scientific meetings. Dr. Oris has served on editorial or review boards of 8 journals, 6 books and 9 granting agencies. He served as the President (2004-2005) of the Society of Environmental Toxicology and Chemistry (SETAC) North America.

**Orlov, Alexander**

**State University of New York, Stony Brook**

Dr. Alexander Orlov is an Associate 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, Chemistry Department and the Institute for Advanced Computational Science. In addition Dr. Orlov is the European Research Council (EU) and National Science Foundation (US) funded Visiting Professor of Chemistry at the University of Cambridge. Furthermore, he is President and Founder of the Sustainable Nanotechnology Corporation. Dr. Orlov has already a substantial experience on providing advice to policy makers on environmental, consumer protection and agricultural matters. From 2007 till 2014 he was appointed by two UK Secretary of States for Environment, Food and Rural Affairs to advice the Government on such issues as hazardous substances, sustainability, environmental health/engineering and environmental impact of nanotechnology. More specifically he provided guidance on risk assessment of more than dozen chemicals and nanomaterials, where he evaluated submissions to the UK government and the European Chemicals Agency (ECHA). In particular, he was co-author of reports on DecaBDE toxicity, cumulative toxic effects of phthalates, behavior of pharmaceuticals in the environment and risk assessment of nanosilver/nanoseria to name a few. Several of his current NSF funded projects are focused on development of new technologies for air purification using waste materials, water and air remediation utilizing novel catalytic materials and risk analysis for nanomaterials release in the environment. Dr. Orlov has 5 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 (US). He also holds Diploma in Economics from the London School of Economics. Among his current activities Dr. Orlov is contributing to work of the United Nations Environmental Program (Lead Author for the GEO report and reviewer of various UN reports) and the US-EU working group on Risk Assessment of Nanomaterials under auspices of the US White House and European Commission cooperative program on nanotechnology research. He serves as expert for over 20 Governmental agencies throughout the world, which includes grant reviewing for the NSF (13 Programs), DOE, DOD and the EU Commission. He also chairs the American Institute of Chemical Engineering Committee on Research and New Technologies, and participates in the Executive Committee of the American Chemical Society Environmental Division. Dr. Orlov was awarded the US National Science Foundation CAREER Award and the UK National Endowment for Science Technology and Arts CRUCIBLE award. He was also selected to the Fellowship of the UK Royal Society of Chemistry, the US National Academy of Engineering (NAE) Frontiers of Engineering (US), the EU-US (NAE) Frontiers of Engineering and was made Kavli Fellow in 2014 by the Kavli Foundation and the US National Academy of Sciences. In 2016 Dr. Orlov has been named Sigma Xi Distinguished Lecturer and was recognized by the State University of New York with Chancellor's Award of Excellence in Scholarship and Creative Activities. In addition to research awards, Dr. Orlov has received several teaching awards, including the 2015 NAE Frontiers of Engineering Education selection and the 2017 American Chemical Society Award for Incorporating Sustainability into Chemistry Education.

**Osenberg, Craig**

**University of Georgia**

Craig W. Osenberg (PhD, Michigan State University; BA, UC Santa Barbara) is a Professor of Ecology in the Odum School of Ecology at the University of Georgia. Previously, he was on faculty at UC Berkeley and the University of Florida, where he also served as Chair of the Biology Department. His ecological research tackles basic and applied problems across a diversity of habitats (terrestrial, freshwater, estuarine, and marine) and organisms (fish, amphibians, plants, invertebrates), and is

organized around several interrelated themes: (1) size- and spatially-structured population dynamics; (2) the development and application of statistical tools to quantify impacts of human activities (e.g., gas and oil development and marine reserves) on ecosystems; and (3) the development and application of meta-analysis and quantitative synthesis. During the past two years, his research has been supported by the National Science Foundation, US Department of Energy, US Fish and Wildlife Service, and the Marsden Fund of New Zealand. He and the students working in his lab have published ~170 papers, and he co-edited the influential book, *Detecting Ecological Impacts: Concepts and Applications in Coastal Habitats*. Professor Osenberg was elected a Fellow of the Ecological Society of America (ESA) in 2015. He also was Chair of the Aquatic Section of ESA, Editor-in-Chief of *Oecologia*, served on the editorial boards of *Ecology*, *Ecological Monographs* and *Frontiers in Marine Science*, and was on the Science Advisory Board of NCEAS. He has served as a consultant to a diversity of groups applying science to important environments issues, including human impacts in marine systems, the design and assessment of marine protected areas in Costa Rica, French Polynesia, and the Mediterranean, and restoration of the Everglades and the Gulf of Mexico.

**Otim, Ochan**

**Environmental Monitoring Division, City of Los Angeles**

Dr. Ochan Otim is a Senior Chemist in the Environmental Monitoring Division of the City of Los Angeles, and teaches chemistry at University of California, Los Angeles. He holds a B.Sc. in Chemistry from Makerere University (Uganda), and M.Sc. degree in Chemistry from University of Regina (Canada) and a Ph.D. degree from Wichita State University. Dr. Otim's primary interest is in developing methods for quantifying, and assessing health risk associated with organic and metal contaminants in environmental samples. In his roles with the City of Los Angeles, Dr. Otim has lead the development of numerous methods to assess the levels of organic contaminants in ocean sediments, fish tissues, wastewater, biosolids, stormwater and receiving water (which includes ocean, creeks, rivers and lakes) for which he was recognized by the City. He has also represented the City of Los Angeles on the Contaminant Impact Assessment committee, a policy body of the Southern California Bight Regional Monitoring Program involving over 60 educational, local, state, and federal agencies. Dr. Otim serves on the Environmental Engineering Body of Knowledge committee of the American Academy of Environmental Engineers and Scientists, and on the membership committee of the Society of Environmental Toxicology and Chemistry (NA). He is a Board Certified Environmental Scientist. At UCLA, was awarded the 2017 Distinguished Instructor award for refocusing classroom experience toward contemporary issued in applied chemistry. Prior to joining the City of Los Angeles, Dr. Otim taught chemistry and biology at California State University (Fullerton) and was a Developmental Biology Research Fellow at the California Institute of Technology. Dr. Otim receives no outside research funding.

**Otte, Marinus**

**North Dakota State University**

Otte is currently a Professor at NDSU, Fargo, ND, and has studied wetlands for about 30 years, around the world. He carried out his PhD on coastal wetlands in The Netherlands, studied saltmarshes in South Carolina, then worked on many different systems in Ireland, and more recently in the US (ND, MN), China, and Montenegro. He is a lifetime member of the Society of Wetland Scientists, and since 2012 is the Editor-in-Chief of the authoritative scientific journal 'Wetlands'. He served as a Head of Department at NDSU, represented Ireland at EU level scientific panels (COST) and is currently on the K-12 Science Standards Committee for the ND Department of Public Instruction. Since arriving in ND in 2006, most of his research funding has come either directly or indirectly (via the ND Dept. of Health, Water Division) from EPA.

**Parkerton, Thomas F.**

**ExxonMobil Biomedical Science**

Dr. Thomas Parkerton joined ExxonMobil Biomedical Sciences, Inc. (EMBSI) as an Ecotoxicologist in 1992. He holds a B.S. in Environmental Science with an emphasis in Environmental Chemistry from Rutgers University and M.S. degrees in Aquatic Biology/Toxicology and Environmental Engineering from North Texas State University and Manhattan College, respectively. He received a Ph.D. in Environmental Science/Exposure Assessment from Rutgers University. Dr. Parkerton's area of expertise is in the development and application of computer models to predict the physio-chemical fate, bioaccumulation, trophic transfer and toxicological effects of chemicals entering the environment. Prior to joining EMBSI, Dr. Parkerton had gained experience in the development of scientifically defensible effluent, water and sediment quality criteria to protect aquatic life, wildlife and human health. Dr. Parkerton has coordinated numerous laboratory-based research programs to support environmental hazard classification and risk assessment of Exxon Mobil products. Other responsibilities have included performing multi-media exposure and environmental risk assessments in support of existing or new regulations. Dr. Parkerton relocated to Brussels in 1998 and served as the European ecotoxicology advisor for four years. In this role, Dr. Parkerton provided technical assistance to Exxon Mobil business units, industry associations and European regulatory agencies on environmental science issues relevant to both products and facility operations. In 2004, Dr. Parkerton became head of the EMBSI environmental sciences section that is headquartered in Annandale, New Jersey. In this position, Dr. Parkerton managed a group of approximately 20 consultants and laboratory staff. Over the next few years, Dr. Parkerton also led industry efforts to develop innovative methods, data and models to comply with the European REACH regulation. In 2011, Dr. Parkerton relocated to Houston Texas to assume a new position as senior environmental technical advisor. In this role, Dr. Parkerton is coordinating EMBSI technical support to its Houston-based clients and is providing expertise in helping EM address a variety of environmental issues. Dr. Parkerton has received no external grants from either government agencies, private companies, or foundations.

**Pastore, Christopher**

**Thomas Jefferson University**

Dr. Christopher Pastore is Professor of Transdisciplinary Studies at Thomas Jefferson University. He holds a PhD in Materials Science and Engineering, MS in Mathematics and BA in Mathematics. Chris has published over 100 refereed papers and 8 books in addition to numerous conference presentations. He is a Fulbright Specialist, and also serves as Honorary Research Professor at Durban University of Technology. His work has focused on the role and design of materials, including textiles and composites, for a wide range of industrial applications. He has been researching sustainability of materials for the past twenty years. This work has been funded by government and industry. Dr. Pastore's work in Sustainability has been recognized through a number of awards including Citation for Distinction from the National Institute of Building Sciences for the MS Sustainable Design, Best Practices in Communication (for EcoMan and The Skeptic podcast) from the Council for the Advancement and Support of Education, Excellence in Education Award, (for MS in Sustainable Design) from the United States Green Building Council, Excellence in Sustainability Education from the Delaware Valley Green Building Council, Philadelphia Sustainability Award from the Pennsylvania Environmental Council, and Leadership in Sustainable Building from the Pennsylvania Resources Council.

**Patisaul, Heather**

**North Carolina State University**

Dr. Heather Patisaul is Professor of Biological Sciences in the Center for Human Health and the Environment at North Carolina State University. She received her B.S. in Zoology in 1995 from the

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University of Florida and her Ph.D. from Emory University in 2001 in Population Biology, Ecology and Evolution but specializes in developmental neuroscience. Her research explores the mechanisms by which exposure to endocrine disruptors, during critical windows of development, impacts sex specific neuroendocrine physiology and behavior. Compounds of interest include Bisphenol A (BPA), phytoestrogens, and fire retardants. An NIEHS ONES Award recipient, Dr. Patisaul has a broad background in neuroanatomy, neuroendocrinology, developmental neuroscience and animal behavior. A key aspect of her research is exploring sex differences in susceptibility and neurodevelopment. She also participated in the CLARITY-BPA consortium in conjunction with scientists at the National Toxicology Program and the National Center of Toxicological Research, and was the first to publish and complete all aims. Dr. Patisaul has participated in over 20 national and international expert panels and workshops on health effects associated with neurotoxicants and endocrine disruptors, including the 2012 Workshop on Low Dose Effects of Endocrine Active Chemicals co-organized by the US National Institute for Environmental Health Sciences (NIEHS) and the Joint Research Centre's Institute for Health and Consumer Protection, and two National Academy of Sciences panels. She chaired the 2016 Gordon Research Conference on Environmental Endocrine Disruptors and served on the program committee for the 2017 Copenhagen Workshop on endocrine disruptors. She is an active member of the Society for Neuroscience, the Society for Behavioral Neuroscience, the Society of Toxicology and the Endocrine Society where she leads working groups on endocrine disruptors, adverse outcome pathway development, and BPA. She is also a member of the Endocrine Society's Advocacy and Public Outreach Core Committee. Dr. Patisaul has a diverse group of active collaborators spanning academia, industry and governmental agencies (including EPA and NIEHS). She has published over 70 papers, and given over 65 invited talks, including five keynotes. She also co-authored the 2017 book Endocrine Disruptors, Brain and Behavior. Dr. Patisaul's work has been supported by the National Institutes of Health and the Department of Defense.

### Paustenbach, Dennis J.

#### Chemrisk, Inc

Dr. Dennis Paustenbach is a board-certified toxicologist and industrial hygienist with nearly 35 years of experience in risk assessment, environmental engineering, ecotoxicology, and occupational health. He is also a degreed chemical engineer who practiced for the better part of 5 years in the chemical industry. Currently he is the President of Cardno ChemRisk, a division of Cardno. This division specializes in human and ecological risk assessment, as well as, risk analysis of chemical and radionuclides in consumer products, contaminated sites, pharmaceuticals and medical devices. Dr. Paustenbach specializes in the areas of industrial and environmental toxicology, occupational health, historical state-of-knowledge regarding environmental issues, and ecological and human risk assessment and has also directed the scientific aspects of toxic tort cases. In addition, he has also provided expert witness testimony in public meetings and as many as 400 depositions and two dozen trials concerning the health effects of chemicals in sediments, air, soil, consumer products, groundwater, and the workplace. He has been an adjunct professor at five universities. He has been an invited technical reviewer for prominent journals and of proposed regulations. Dr. Paustenbach has published approximately 300 peer-reviewed articles and written more than 50 book chapters in the fields of industrial hygiene, human and aquatic toxicology, engineering, and risk assessment. His two textbooks on risk assessment are among the most popular that have ever been published and they have been adopted by a number of universities in various countries.

### Peltier, Richard

#### University of Massachusetts

Dr. Richard Peltier is an Associate Professor in the Department of Environmental Health Sciences at the University of Massachusetts Amherst. He is an expert in air quality assessment and human exposure science and has substantial focus in chemical speciation of aerosol components, source



apportionment, and attribution of specific sources to specific health outcomes. He has extensive experience in conducting research projects in remote locations where traditional research approaches are particularly difficult. As an empiricist, his laboratory is centered on high quality data analysis, uncertainty in sparse datasets, and reducing exposure misclassification, and has resulted in nearly 50 publications to date. Effective science communication to engage the public is also of significant interest, and he is involved in production of effective dissemination tools of scientific findings through mass media. Dr. Peltier completed a BS in Biology of the University of Massachusetts, a MPH in Environmental Health Science at Columbia University, and a PhD in Atmospheric Chemistry from the Georgia Institute of Technology. He conducted postgraduate training at the Institute of Environmental Medicine at New York University's Langone School of Medicine. A former Rosenblith awardee from the Health Effects Institute, Dr. Peltier has prior or current funding from US EPA, the Institute for Advanced Sustainability Studies (Germany), World Resources Institute Ross Center for Sustainable Cities, Worldwide Universities Network, Climate and Health Research Network, and the Commonwealth of Massachusetts Department of Energy Resources. Dr. Peltier is a recipient of a US-UK Fulbright award, and is the Deputy Editor in Chief of the Journal of Exposure Science and Environmental Epidemiology.

**Portier, Kenneth**

**Independent Consultant**

Dr. Kenneth M. Portier is a retired biostatistician with a limited private consulting practice. Previously, Dr. Portier was Vice President of the Statistics & Evaluation Center at the American Cancer Society (ACS) home office in Atlanta, GA, and an Affiliate Professor of Biostatistics in the School of Public Health, Emory University. A native of south Louisiana, Dr. Portier holds a BS in Mathematics from Nicholls State University in Thibodaux, Louisiana (1973), and an MS in Statistics (1975) and PhD in Biostatistics (1979) from the University of North Carolina, Chapel Hill. Dr. Portier was with ACS from January, 2006 to June, 2017, providing statistical and administrative support in ACS's Intramural Research Department. From January, 1979 to December, 2005, Dr. Portier was on the statistics faculty of the University of Florida and a statistical consultant to researchers in agriculture, natural resources and the environment. He has coauthored over 175 publications in many of the premier journals in agriculture, natural resources and environmental sciences and collaborated on 36 funded research grants from numerous agencies and private companies, with core research support from multiple federal agencies (NSF, USDA, NOAA, EPA, DOI). Dr. Portier is an affiliate researcher with UF's Center for Environmental and Human Toxicology. He has participated in over 60 US-EPA Scientific Advisory Panel (FIFRA-SAP) meetings since 1999 and five EPA Science Advisory Board science review panels. In addition, Dr. Portier has served on expert and advisory panels for the US National Institutes of Health (NCI, NIEHS, NTP, FDA), and the World Health Organization (WHO/FAO).

**Prather, Michael**

**UC Irvine**

Dr. Michael Prather is Distinguished Professor of Earth System Science at the University of California, Irvine (UCI). He joined UCI in 1992 after working at the National aeronautics and Space Administration (NASA) as program manager for atmospheric chemistry modeling and aviation effects. His education and work experiences are broad and technical. Prather holds degrees in mathematics (Yale), physics (Oxford) and finally astrophysics (Yale). While working at Harvard University and Goddard Institute for Space Studies in New York, he developed 3D atmospheric chemistry models as well as the simple box model of global chemistry used by the Environmental Protection Agency. His research remains focused on the simulation of the physical, chemical, and biological processes that determine atmospheric composition including ozone and greenhouse gases. It is far-reaching, about 200 peer-reviewed publications, with tens of thousands of citations. Prather was

editor-in-chief of Geophysical Research Letters overseeing its transition to digital publishing. In addition to his NASA career, he worked in the State Department for a year on leave from UCI as a Jefferson Science Fellow. He has been asked to organize expert meetings on greenhouse gases and air quality by governmental agencies, including Office of Technology Assessment (now defunct), State Department, and Framework Convention on Climate Change. In the role of scientific expert and lead author, Prather has participated in the many international assessments of ozone depletion and climate change over the past three decades. In this role he worked extensively with the governments in plenary to explain and characterize the quality of the science behind the assessment. Prather's current endeavor is as proposer/deputy of the NASA Atmospheric Tomography Mission, which just completed a four-season sweep of the remote ocean basins, identifying the human influence. Prather's research is now funded by NASA and the Department of Energy.

**Ramos, Kenneth**

**University of Arizona**

Dr. Kenneth Ramos is Associate Vice President for Precision Health Sciences and Professor of Medicine at the University of Arizona Health Sciences Center. He also serves as Director of the Center for Genetics and Genomic Medicine. He is a leading expert in the study of gene-environment interactions and personalized and genomic medicine. A major focus in his laboratory is the elucidation of molecular mechanisms of reactivation of mammalian retroelements and their role in reprogramming the human genome. Dr. Ramos completed a B.S. in Pharmaceutical Sciences and Chemistry (Magna Cum Laude) at the University of Puerto Rico, a Ph.D. in Biochemical Pharmacology at the University of Texas at Austin, and an M.D. degree with postgraduate training in Internal Medicine at the University of Louisville Health Sciences Center. He previously held faculty positions at the University of the Sciences in Philadelphia, Texas Tech University Health Sciences Center, Texas A&M University and the University of Louisville School of Medicine. He is currently affiliated with the Arizona Respiratory Center, Arizona Cancer Center and BIO5 Institute. Dr. Ramos is a recipient of the Society of Toxicology Achievement Award, Astra Zeneca Traveling Lectureship Award and Distinguished Service Award from the American Heart Association. He was named Associate of the National Academy of Sciences and Fellow of the Academy of Toxicological Sciences. His recent sources of grants include the National Institute of Environmental Health Sciences, the National Cancer Institute, Astra Zeneca, and the Kentucky Lung Cancer Research Program. He has published over 250 peer-reviewed publications and served on numerous national and international committees in the areas of environmental health sciences, genomics, molecular medicine and toxicology.

**Randtke, Stephen J.**

**University of Kansas**

Dr. Stephen Randtke is a Professor in the Civil, Environmental, and Architectural Engineering Department, University of Kansas, Lawrence, KS. He holds a B.S. degree in Civil Engineering from Loyola Marymount University and M.S. and Ph.D. degrees in Civil & Environmental Engineering from Stanford University. He is a licensed professional engineer and a diplomate in the American Academy of Environmental Engineers. Professor Randtke has broad interests and experience in the field of environmental engineering and science. Areas of emphasis in his teaching and research activities include control of chemical contaminants in water supplies through source control and conventional and advanced treatment technologies; sources and transformations of organic chemical contaminants in water supplies, including disinfection byproducts, pesticides and their metabolites, taste- and odor-causing compounds, and algal toxins; lake and reservoir management as it pertains to water supply and water quality; water recycling and reuse for potable and non-potable purposes; and management of water associated with oil and gas production (produced water). His sources of research funding during the past two years were the National Science Foundation, the U.S. Environmental

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Protection Agency (EPA), the Water Research Foundation, the Kansas Water Office, Black & Veatch, and assorted drinking water utilities. He is a member of the American Water Works Association (AWWA), the American Association for the Advancement of Science, the Association of Environmental Engineering and Science Professors, the North American Lake Management Society, the Water Environment Federation, and the International Water Association. Dr. Randtke has served as a member of the Research Advisory Council of the AWWA Research Foundation (1986-1988), President of the Association of Environmental Engineering and Science Professors (1994-95), Chair of the Research Division of the American Water Works Association (1995-1998), Technical Editor for the 5th edition of Water Treatment Plant Design (2012; prepared under the auspices of AWWA and the American Society of Civil Engineers), Chair of the Kansas Section of AWWA (2013-2014), as a member of the Drinking Water Committee of EPA's Science Advisory Board (2009-2016). He previously served on the SAB's Hydraulic Fracturing Study Plan Review Panel (2010-2011), Drinking Water Committee Augmented for the Review of the Effectiveness of Partial Lead Service Line Replacements (2011), Hydraulic Fracturing Research Advisory Panel (2013-2017). He frequently provides expert advice to utilities, consultants, public officials, and others seeking practical solutions to a broad array of environmental problems.

### Rangan, Cyrus

#### Los Angeles County Department of Public Health

Cyrus Rangan MD, FAAP, FACMT, graduated from the Medical College of Pennsylvania in 1995 (now Drexel University School of Medicine). He completed his residency in Pediatrics at Children's Hospital Los Angeles in 1998, and a fellowship in Medical Toxicology at University of California San Diego in 2000, with dual board-certification in Pediatrics and Medical Toxicology. He is a fellow of both the American Academy of Pediatrics and the American College of Medical Toxicology. Dr. Rangan is Director of Toxicology and Environmental Assessment Branch at the Los Angeles County Department of Public Health. He investigates community reports of environmentally related illnesses or disease clusters, and provides expert consultation and education to medical providers, hospitals, agencies, and other impacted professionals about medical issues regarding toxic exposures, hazardous materials, epidemiology, and environmental health. Dr. Rangan is also an Assistant Medical Director with the California Poison Control System, and serves as the Director of the Los Angeles Area Medical Toxicology Education Program, providing lectures and media support for hospitals, physician groups, nurses, EMT/paramedics/first responders, social workers, healthcare groups, health agencies, and schools. Dr. Rangan is also an attending physician and Medical Toxicologist at Children's Hospital Los Angeles, providing bedside consultations and clinical education to medical students, residents, and medical staff. He is the author of dozens of peer-reviewed journal articles, textbook chapters, web-based publications, and educational videos. Dr. Rangan also provides consultation to scriptwriters and news & media on Medical Toxicology topics.

### Ready, Richard

#### Montana State University

Dr. Richard Ready is Professor of Economics at Montana State University. Previously, he was a faculty member at Pennsylvania State University, the Norwegian University of Life Science, and the University of Kentucky. Dr. Ready received an M.A. and a Ph.D. in Agricultural and Resource Economics from the University of Wisconsin and a B.S. in Fishery Science from Cornell University. Dr. Ready's research focuses on the economic valuation of ecosystem services with particular emphasis on how ecosystem services are affected by land use change, climate change, and invasive species. Dr. Ready's research integrates models of ecological, geophysical, and demographic processes into economic valuation models to evaluate future changes in ecosystem services and their values, and how those values would be affected by policy actions. He has served on editorial boards of Land Economics and American Journal of Agricultural Economics. Dr. Ready's research has been

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supported by the U.S. Environmental Protection Agency, the U.S. Department of Agriculture, the U.S. Forest Service, and the U.S. Army Corps of Engineers.

**Rhomberg, Lorenz**

**Gradient**

Lorenz R. Rhomberg, Ph.D. Fellow ATS, is a Principal at Gradient, an environmental consulting firm based in Cambridge, Massachusetts, where he specializes in critical review of toxicological information, weight-of-evidence evaluation, human health risk assessment, quantitative risk analysis, and science policy issues for environmental and consumer chemical exposures. He is a member of several scientific societies, including the Society for Risk Analysis, for which he served as a Councilor (2002-2004), and as President of the New England Chapter (1997-1998), as well as the Society of Toxicology, serving as a Councilor of the Risk Assessment Specialty Section (2003-2005), Councilor for the Regulatory and Safety Evaluation Specialty Section (2012-2014), and on the Scientific Program Committee (2016 to present). He served on the Chemical Assessment Advisory Committee (2013-2108), a standing committee of the U.S. Environmental Protection Agency (EPA) Science Advisory Board. Before joining Gradient in 1999, he was on the faculty of the Harvard School of Public Health. From 1984-1994 he was a risk assessor at the U.S. EPA in Washington, specializing in quantitative risk assessment. Dr. Rhomberg earned his Ph.D. in population biology from the State University of New York at Stony Brook and an Honours B.Sc. in biology from Queen's University in Ontario. He was named 2009 Outstanding Risk Practitioner of the Year by the Society for Risk Analysis, and was awarded the Arnold Lehman Award by the Society of Toxicology in 2017. He is a Fellow of the Academy of Toxicological Sciences. He has served on seven committees convened by the National Academy of Sciences, two as chair, and on several advisory panels convened by the U.S. EPA.

**Richardson, Mary Jo**

**Texas A&M University**

Dr. Mary Jo Richardson is a Regents' Professor of Oceanography and Geology and Geophysics, (2006-present) at Texas A&M University. She researches the dynamics and biogeochemistry of particle formation, sinking, resuspension, transport and deposition in the ocean from the continental shelf to the deep sea and from surface waters to the seafloor. She seeks to quantify particulate organic carbon (POC) in the ocean through the development of algorithms from satellite ocean color that are sea-truthed with in-situ POC and transmissometer data to unravel global ocean processes of carbon recycling. She is dedicated to increasing the participation and advancement of women in academic science and engineering careers as well as increasing diversity in Geoscience disciplines and improving Geoscience education opportunities through enhanced undergraduate and graduate experiences. Dr. Richardson obtained her Ph.D. from the MIT/WHOI Joint Program in Oceanography in 1980 and has served in professorial and academic administrative roles at Texas A&M University. She has lived in Greece (4 months) while on faculty development leave in 2009 and led a geoscience-based study abroad program at Texas A&M University's Santa Chiara Center in Castiglion Fiorentino, Italy during fall 2011. Dr. Richardson is an award-winning teacher receiving the Texas A&M University's Association of Former Students Teaching Award in 1991 and 2016. She has served on advisory committees for the National Science Foundation and on the Board of Trustees for the University Corporation for Atmospheric Research.

**Rodewald, Amanda D.**

**Cornell University**

Amanda D. Rodewald is the endowed Garvin Professor and Senior Director of Conservation Science at the Cornell Lab of Ornithology and the Department of Natural Resources at Cornell University. Prior to joining the Cornell faculty in 2013, she spent 13 years as a professor in the School of

Environment and Natural Resources at The Ohio State University. Dr. Rodewald received a B.S. in Wildlife Biology from University of Montana (1992), an M.S. in Zoology from University of Arkansas (1995), and a Ph.D. in Ecology from Pennsylvania State University (2000). She is a fellow of the American Association for the Advancement of Science, American Ornithological Society, Peter Wall Institute for Advanced Studies, Public Voices, and the CIC Academic Leadership Program. Her leadership roles have included serving on the Science Advisory Board of US EPA, the Scientific Review Committee of the National Socio-environmental Synthesis Center (SESYNC), nominating committee of the American Association for the Advancement of Science, council of the American Ornithologists Union, editorial boards of scientific journals, and the Faculty Advisory Board for the Atkinson Center for a Sustainable Future. Dr. Rodewald has built an interdisciplinary, international research program in ecological and sustainability sciences that addresses global challenges linked to changing climate, land cover, and human activities in temperate and tropical working landscapes that need to serve both social and ecological needs. Since 2000, she has generated nearly \$8 million in research funding, including competitive awards from National Science Foundation. She has published 125 scientific papers, 9 book chapters, as well as many popular outreach articles for broad audiences, and she consistently extends and applies her research through programs for managers, decision-makers, community members, and private sector partners. 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, USDA Forest Service, U.S. Fish and Wildlife Service, Ohio Department of Natural Resources, and North American Bird Conservation Initiatives.

**Rohrs, Allison**

**Saint Francis University Institute for Energy**

Allison Rohrs serves as the Executive Director at the Saint Francis University Institute for Energy in Loretto, Pennsylvania. As Director, Ms. Rohrs manages multiple energy related projects that include: providing renewable energy assessments and energy audits to agricultural producers and small businesses; wind energy data collection and wind farm development assistance; local and state energy policy research; developing curriculum and teaching under the energy technology and policy minor program at SFU; and providing community outreach and education on a variety of environmental and energy topics. Ms. Rohrs holds a Master's degree in Energy and Mineral Engineering from Penn State and a Bachelor's degree from the University of Colorado in Environmental Science. Ms. Rohrs' graduate research was partially funded by the Wind Energy Foundation and focused on the construction aspects and economic analysis of wind farm decommissioning which was inspired by her work in the field as a wind turbine technician. She has been recognized by the Women of Wind Energy as a Rudd Mayer Fellow for outstanding personal commitment and potential to advance the field of renewable energy. Ms. Rohrs spent the early years of her career working for the U.S. Fish and Wildlife Service as well as working in Grand Teton National Park. Her experience in the Natural Resources field led to a passion to preserve the planet and ultimately a career in Energy.

**Rosen, Barry**

**Florida International University**

Barry P. Rosen is currently Distinguished Professor at the Herbert Wertheim College of Medicine, Florida International University in Miami, Florida since 2009. He was Associate Dean for Basic Research and Graduate Programs from 2009-2016. For 22 years he was Chair and Distinguished Professor of Biochemistry and Molecular Biology at Wayne State University School of Medicine in Detroit, Michigan. He received his B.S. from Trinity College, Hartford, Connecticut in 1965 and his M.S. (1968) and Ph.D. (1969) from the University of Connecticut and was an NIH postdoctoral fellow at Cornell University (1969-1971). He is an expert in environmental microbiology, biochemistry and toxicology, with more than 320 papers, reviews and books in top journals including PNAS, Chemical Research

in Toxicology, Environmental Science and Technology, Nature Plant and Annual Reviews of Earth and Planetary Science. He is currently funded by R01 grants from NIGMS and NIEHS and was the holder of an NIH MERIT Award. He is recipient of numerous awards, including Basil O'Connor Award from the March of Dimes, Maryland Distinguished Young Scientist Award and Josiah Macy Jr. Faculty Scholar Award. He was elected as President of the Association of Medical and Graduate Departments of Biochemistry and is an elected fellow of both the American Association for the Advancement of Science (AAAS) and the American Society for Microbiology (ASM). He is a sought-after speaker at international meetings, most recently Plenary Lecturer at AS2018: the 7th International Congress on Arsenic in the Environment in a Changing World. He has been on many national and international panels at NIH, NSF, and American Heart Association, and on multiple editorial boards. Most recently he served as a reviewer for the NIH CounterACT (Countermeasures Against Chemical Threats) Program and as an external reviewer of the FDA policy on inorganic arsenic in infant rice cereal.

**Rosenberg, Andrew A.**

**Union of Concerned Scientists**

Andrew A. Rosenberg is director of the Center for Science and Democracy at the Union of Concerned Scientists. He has more than 25 years of experience in government service and academic and non-profit leadership. He is the author of scores of peer-reviewed studies and reports on ecology and natural resource management and has published on the intersection between science and policy making. He has extensive expertise in environmental science, statistical modeling, the development and implementation of scientific integrity policies and transparency in government. Dr. Rosenberg previously served as Chief Scientist at Conservation International, Dean of Life Sciences and Agriculture at the University of New Hampshire and Deputy Director of NOAA's National Marine Fisheries Service. Dr. Rosenberg appointed to serve on the US Commission on Ocean Policy by President G.W. Bush. He served on the Ocean Studies Board of the National Academy of Sciences, the US Navy Ocean Research Advisory Committee and the National Academy's America's Climate Choices study. Dr. Rosenberg also served on the advisory committee for the US National Climate Assessment and was the convening lead author of the oceans chapter. He was also a lead author for the UN World Ocean Assessment. Dr. Rosenberg received his Ph.D. in biology from Dalhousie University in Halifax, Canada, and an M.S. in Oceanography from Oregon State University. In his current position Dr. Rosenberg is employed by a 501c3 charitable organization entirely funded from members and private philanthropy.

**Rosol, Thomas**

**Ohio State University**

Thomas Rosol, DVM, PhD, MBA is a professor of veterinary and toxicologic pathology, Chair of Biomedical Sciences at the Ohio University Heritage College of Osteopathic Medicine and diplomate of the American College of Veterinary Pathologists. He has served as dean of the College of Veterinary Medicine and senior associate and interim vice president for research at Ohio State University and on advisory boards or panels to the National Institutes of Health (NIEHS, NTP, NCI, NCRR), USDA (NAREEE), EPA, FDA, and American Veterinary Medical Association, and has provided testimony to the European Chemical Agency (ECHA). Rosol serves as a consultant for industry in preclinical safety and toxicology in the areas of endocrine, bone, and reproductive pathology and animal models of cancer, and serves on the expert panel for the Flavor and Extract Manufacturer's Association GRAS reviews. Rosol is an expert in safety assessment, risk analysis, and human relevance for the toxicity of environmental chemicals, pesticides and herbicides, foods and food additives, and pharmaceuticals. Rosol chaired the international nomenclature committee for

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endocrine lesions in rats and mice (2014-2018) and the monograph now serves as the basis for standardized nomenclature for regulatory documents in the United States, Europe, and Japan. The Rosol laboratory investigates the pathogenesis of animal models of human cancer and metabolic diseases, mechanisms and treatment of metastasis, and endocrine and bone diseases, and has been funded by the NIH (NCI, NIBIB, NIAMS) for over 30 years including two research career awards. Rosol has over 300 publications (H-index of 52; 19 papers with 100-400 citations; and 10,000 total citations) and served as the mentor for 50 PhD students and postdoctoral trainees. The laboratory specializes in molecular, toxicologic, and genomic investigations using animal models, in vivo imaging (microCT, PET, MRI, and bioluminescence), in vitro tissue and cell cultures, and computerized machine learning for automated pathological image analysis. Rosol is an elected fellow of the American Association for the Advancement of Science and was recognized by Ohio State University as a Distinguished Scholar (one of the university's highest honors). Rosol was awarded the Annual Distinguished Mentor Award from the Society of Toxicologic Pathologists (2015) and the ACVP Distinguished Member Award (2016).

### Runge, Steven

#### University of Central Arkansas

Dr. Steven Runge is a 1986 graduate of the University of Wisconsin-Green Bay where he majored in Biology, Chemistry and Human Adaptability. He followed his undergraduate training with graduate work at The Ohio State University where he earned a Ph.D. in Biochemistry in 1991. Dr. Runge joined the University of Central Arkansas (UCA) as an Assistant Professor in the Department of Biology in 1991, earning the rank of Associate Professor in 1995 and the rank of Professor in 2004. Dr. Runge began serving as an administrator in 2003 when he was appointed as Interim Chair of the Department of Biology. One year later he was appointed as the Chair and served in this capacity until 2009 when he was appointed as Interim Dean of the College of Natural Sciences and Mathematics (CNSM). He assumed the position of Dean of the College in July 2010. In February 2012, Dr. Runge was appointed Interim Provost and Vice-President for Academic Affairs at UCA and became Provost and Vice President for Academic Affairs in February 2013. As of July 1, 2014, he was named Executive Vice President and Provost and served in that capacity until July 31, 2017. He is currently serving as a Professor in the Department of Biology. Dr. Runge has developed and taught courses in molecular and cellular biology ranging from the freshman level through graduate offerings and, until 2014, he maintained an active research program studying cell death mechanisms in cultured breast cancer cells. Dr. Runge has also published peer-reviewed articles on his educational innovations. Dr. Runge is heavily involved in a wide variety of academic and non-academic activities at UCA and in Arkansas. He has served as Chair of the Arkansas STEM Coalition; he served as the UCA representative on the Arkansas INBRE (IDEA Network for Biomedical Research Excellence) Steering Committee and is currently a member of the Board of Directors for Arkansas Preschool Plus, Inc. Dr. Runge also served ten years on the Board of Directors for Mayflower Public Schools. He has two adult daughters, Monica and Sabrina. Monica is a graduate of UCA (Biology) and the School of Veterinary Medicine at Louisiana State University. She is a practicing veterinarian in Arizona. Sabrina is also a graduate of UCA (Creative Writing and MBA) and is currently completing the coursework in the Arkansas Coding Academy.

### Ruscher, Paul

#### Florida State University

Dr. Paul Ruscher holds the Doctorate in Atmospheric Science from Oregon State University. As a member of the faculty at Florida State University since 1988, he has had extensive experience in teaching, research, and professional service across the atmospheric sciences. In particular, his research on mesoscale coastal processes has included work on air quality modeling and assessment of air pollution events, including ozone precursors and high exceedance episodes, statistical analysis,

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mercury transport issues (atmosphere), and also the teaching of air pollution meteorology (undergraduate) and atmospheric chemistry (graduate, interdisciplinary). In addition, he has held numerous consulting positions or state advisory positions with Florida state agencies and private and non-profit entities, related to air quality and air pollution events. These are enumerated on my vita under consulting.

**Sabo-Attwood, Tara**

**University of Florida**

Tara Sabo-Attwood, PhD is an Associate Professor and Chair of the Department of Environmental and Global Health, College of Public Health and Health Professions and Center of Environmental and Human Toxicology at the University of Florida (UF). She has broad expertise in environmental molecular toxicology with an emphasis on water and airborne contaminants. She earned a B.S. in genetics and Ph.D. in Biomedical Sciences, Pharmacology and Toxicology as a National Institute of Health (NIH) Fellow from UF and was awarded a NIH Postdoctoral Fellowship at the University of Vermont in Pulmonary Pathology. Dr. Sabo-Attwood's research centers on elucidating how pollutants, both historical and emerging (asbestos, endocrine disruptors, nanomaterials) perturb molecular pathways that contribute to adverse health outcomes. Her work encompasses aquatic and mammalian models and spans controlled laboratory approaches and field projects. Her current work focusses on the innate immune system as a target of inhaled or dietary chemical exposure with an emphasis on susceptibility of organisms to pathogenic infections. Based on her contributions she was named a Kavli Fellow in Nanotechnology by the National Academy of Sciences (NAS). Her work is currently funded by the NIH, National Science Foundation (NSF), and the US Department of Agriculture (USDA). In addition to her research contributions, Dr Sabo-Attwood teaches courses in environmental health, one health, toxicology and has trained numerous masters and doctoral students. She serves in several leadership positions including Director of Graduate Programs, Department Chair and elected Councilor for the Nanotoxicology Specialty Section Board for the Society of Toxicology (SOT). She participates on international and national advisory committees including the International Academy of Sciences, routinely participates on Environmental Protection Agency (EPA), NIH, and NSF review panels, is an associate editor for Nano Impact Journal and a long standing member of Society of Toxicology and Chemistry (SETAC) and SOT

**Sagers, Cynthia**

**Arizona State University**

Dr. Sagers is vice president for research at Arizona State University with research expertise in evolutionary ecology and population biology. She completed a Ph.D. at the University of Utah and was a post-doctoral fellow at UC Berkeley before assuming a faculty position in the Department of Biological Sciences at the University of Arkansas. She received additional training as a fellow of the National Science Foundation and Smithsonian Institution working at the Smithsonian Tropical Research Institute, Panama, and as a research associate from the National Research Council working at the US Environmental Protection Agency, National Health and Environmental Effects Research Lab (NHEERL), Oregon. As a scientist, she secured additional programmatic support for research from the US EPA, National Science Foundation, US Department of Agriculture, and US Department of Energy. Before joining Arizona State University in 2018, she held leadership roles in research administration with the National Science Foundation, University of Arkansas, and Oregon State University. Dr. Sagers sets strategic direction for ASU's research enterprise and works to expand its impacts on the state and nation. Her distinguished record of administering research includes broad experience dealing with funding agencies, policy makers, commercial enterprises and the industrial/business sector. She has proven management experience in education, research, strategy development, budget administration, public relations, policy formulation, program implementation, and personnel management. Throughout her decades-long academic career, she has demonstrated



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exceptional leadership skills with the ability to create and sustain large, interdisciplinary collaborations at home and abroad.

**Saiers, James**

**Yale University**

Professor Saiers studies water quality and supply. He runs experiments, collects observations, and develops models to illuminate how human activities affect the chemical composition of drinking water resources and alter freshwater flows within aquifers, wetlands, and river basins. His recent research projects address water quality impacts of fossil fuel development, carbon and nutrient transport through watersheds, radionuclide migration in groundwater, and climate change effects on water resources in Africa. This research is executed collaboratively with students, postdoctoral associates, and faculty from Yale and other Universities. Professor Saiers' teaching addresses various applied and theoretical aspects of surface water and groundwater hydrology.

**Sakaji, Richard**

**Independent Consultant**

Although recently retired as Water Quality Manager for the East Bay Municipal Utility District, Dr. Richard Sakaji recently joined the State Water Resources Control Board, Division of Drinking Water to work on a variety of drinking water quality and public health issues. In his former positions, his activities ranged from reviewing and providing guidance on testing or study protocols in the subject areas of treatment technology and invasive species to serving on technical committees that aid in the establishment of drinking water regulations and public policy. To this end he has reviewed technical protocols for U.S. EPA's Environmental Technology Verification program and for the National Sanitation Foundation for their technical merit. His educational background includes marine biological sciences (A.B., University of California, Berkeley), environmental engineering (M.S. and Ph.D., University of California, Berkeley). Throughout his career, he has brought a public health perspective to various advisory committees and workgroups, such as those serving the National Academy of Sciences, the National Water Research Institute, the Water Research Foundation (formerly the American Water Works Association Research Foundation, and the U.S. EPA. He has also represented the California Department of Public Health as a representative on the Santa Ana River Water Quality and Health Study. He has worked with the National Water Research Institute/AWWA Research Foundation in the development of their ultraviolet disinfection guidelines.

**Salvito, Daniel**

**RIFM**

Dr. Daniel Salvito is the Research Institute for Fragrance Materials' (RIFM) Science Fellow for Environmental Sciences and Computational Chemistry. Dr. Salvito started his career with RIFM in 1999 and has led their efforts in establishing a program to study the environmental fate and effects of organic compounds in the environment. Prior to his joining RIFM, he worked extensively for Public Service Electric and Gas on water quality and permitting issues. He has a strong technical background in the fate and effects of organic chemicals in the environment, development and application of tools for environmental risk and hazard assessment, bioaccumulation science, approaches for risk assessing multicomponent substances, methodological development for the use of chemical similarity in toxicology and ecotoxicology, and the use of animal alternatives in ecotoxicology. He has extensive knowledge of national and international regulatory programs on chemicals management and water quality. Dr. Salvito has served on several external scientific committees including the New Jersey Department of Environmental Protection Drinking Water Quality Institute, the Scientific Committee of the European Center for Ecotoxicology and Toxicology of Organic Chemicals, the Health and Environmental Sciences Institutes' Environmental Risk Assessment of Multi-constituent Substances Project Committee, and ECHA's REACH Implementation Project on Chemical Categories. He

currently serves as an editor for Environmental Toxicology and Chemistry. He has published numerous research papers in the peer-reviewed literature and has presented at national and international conferences. Dr. Salvito received his Ph.D. from Rutgers University in Environmental Sciences, his M.S. in Chemistry from SUNY at Stony Brook, and his B.S. in Chemistry from Adelphi University. His research has been funded solely by RIFM.

**Santelmann, Mary**

**Oregon State University**

Dr. Mary Santelmann is currently the Director of the Water Resources Graduate Program and Research Faculty at the Department of Geosciences Oregon State University. Academically, she holds three degrees: PhD in Ecology University of Minnesota, Minneapolis, MN, M.S. in Biology University of Michigan, Ann Arbor, MI and B.S. in Botany University of Minnesota, Minneapolis, MN (Honors College). In addition to her affiliation at the Water Resources Graduate Program, she is a member of International Association for Landscape Ecology, American Water Resources Association, Society of Wetland Scientists, British Ecological Society, Ecological Society of America and The Nature Conservancy. Her current research includes Ecosystem response to human land use and management practices; Environmental and anthropogenic influences on species composition and species richness in agricultural, urban and wetland ecosystems and Ecology and biogeochemistry of wetlands and riparian systems.

**Savitz, David**

**Brown University**

Dr. David Savitz is Professor of Epidemiology, with joint appointments in Obstetrics and Gynecology and Pediatrics at Brown University, where he previously served as Vice President for Research. He has held faculty appointments at the University of Colorado School of Medicine, the University of North Carolina School of Public Health where he served as the Carey C. Boshamer Distinguished Professor and Chair of the Department of Epidemiology, and as the Charles W. Bluhdorn Professor of Community and Preventive Medicine at Mount Sinai School of Medicine. Dr. Savitz received his undergraduate training in Psychology at Brandeis University and a Masters degree in Preventive Medicine at Ohio State University, and his PhD in Epidemiology from the University of Pittsburgh Graduate School of Public Health. He was elected to membership in the Institute of Medicine in 2007. He has served on 11 National Academy of Medicine Committees and was Chair of 4 of those, all of which concerned environmental health issues. Dr. Savitz's research is focused on reproductive and environmental epidemiology. He has conducted studies of the causes of adverse pregnancy outcome, including miscarriage and preterm birth, as well as pregnancy complications, birth defects, and child health problems. His environmental interests include a wide range of chemical and physical exposures, including perfluorinated chemicals, pesticides, drinking water treatment by-products, and non-ionizing radiation. In addition to his substantive expertise in environmental epidemiology, Dr. Savitz has strong methodologic expertise and has authored a book on the application of epidemiologic research, *Interpreting Epidemiologic Evidence: Connecting Research to Applications*. Dr. Savitz serves as Chair of the Research Committee of the Health Effects Institute and as Co-Chair of the Scientific Advisory Board of ISGlobal, the Barcelona Institute for Global Health. During the past two years, his research support has come from the National Institutes of Health.

**Schneider, David**

**Memorial University**

Dr. David C. Schneider is a Professor at the Department of Ocean Sciences, Memorial University of Newfoundland, St. John's, Canada. His area of expertise is biological oceanography and the impact of human activities on the coastal marine environment. His research activity in benthic habitats include rates of recolonization after physical disturbance, impact of predators on benthic assemblages, and the development of environmental monitoring programs in relation to oil extraction and to at sea-disposal of dredge spoils. His research activities in pelagic habitats include physical oceanographic determinants of the distribution and dynamics of fish and marine birds. Of particular note is a history of collaboration with sociologists to understand the course of interactive restructuring of marine ecosystems, a sequential process of initial impact, environmental change, and subsequent interactive effects in response to environmental change. He has published over 120 refereed articles and book chapters in biological oceanography, coastal processes, spatial scaling as it influences measurement in marine systems, contaminants in the aquatic environments (oil, methyl mercury, mining dust). He has 25 years cumulative experience on advisory panels: Science Advisory Council for the EPA multiscale ecosystem project, the Scientific Review Committee to monitor and assess the impact of low-level jet training, the Science Advisory Board for the Caribou Research Program (Newfoundland Dept. of Environment), the Validation Monitoring Panel (fisheries impacts) at the University of Washington, and the Science Advisory Board to address nutrient loading in south Florida waters (EPA). He 12 cumulative years experience providing statistical advice as a consultant to: Mobil Consortium (Hibernia), Newfoundland Transhipment Facility, US National Park Service, Environment Canada, Baffinland Iron Mines. Of particular note is development of a gradient monitoring design for point source contaminants at the Hibernia site, a design that became standard for oil development projects in eastern Canada.

**Sherman, Michael**

**North Carolina Farm Bureau Federation**

M. Paul Sherman is the Associate State Legislative Director with the North Carolina Farm Bureau Federation (NCFB). In this position, he represents NCFB's 500, 000+ member families on engineering, air quality, energy, renewable energy, global climate change, transportation, and other regulatory issues. In this capacity, Paul has advocated for North Carolina's farmer and rural citizen energy interests through participation on many stakeholder groups, boards, and commissions such as: North Carolina's Strategic Plan for Biofuels Leadership, NC Legislative Commission on Global Climate Change, NC Legislative Subcommittee on Offshore Energy Exploration, NC Agricultural Open Burning Stakeholder Group, and NC Idle Reduction Stakeholder Group. Paul has served or continues to serve on the boards of the NC Irrigation Society and the NC State University Biological and Agricultural Engineering department advisory board. He was the agricultural representative during the development and ongoing implementation of the NC Renewable Energy and Energy Efficiency Portfolio Standard. Paul was the project administrator for the NC Farm Energy Efficiency Project where he facilitated farm energy audits and farm scale renewable energy projects including wind, solar, swine methane, and hydro putting farmers in control of their own energy use and production. Paul attended North Carolina State University where he earned a Bachelor of Science degree in Biological and Agricultural Engineering. He is certified as a Professional Engineer in North Carolina. His previous work experience includes livestock confinement design, construction engineering, animal waste management, and environmental permitting. Prior to joining Farm Bureau, Paul worked for the North Carolina Department of Environment and Natural Resources where he directed the animal waste permitting program and served on the technical advisory panel researching alternative swine waste treatment options (Smithfield Agreement). No research funding was received for these activities.

**Shipp Hilts, Asante**

**New York State Department of Health**

Dr. Asante Shipp Hilts is the Senior Project Coordinator for the CDC funded Climate Ready States and Cities Initiative within the Office of Public Health Practice at the New York State Department of Health (NYSDOH), where she coordinates research to evaluate the impacts of Hurricane Sandy and other Climate and Health initiatives. Dr. Shipp Hilts has presented her Sandy research and led a dissemination workshop at the 2015 Hurricane Sandy Conference: Translating Research into Practice. Her Sandy research has been published in the Disaster Medicine and Public Health Preparedness Journal, Environmental Law in New York, the Journal of Emergency Management and the Assistant Secretary for Preparedness and Response Hurricane Sandy Recovery Science Newsletter. Dr. Shipp Hilts is a member of the National Institute of Health Best Practices Working Group for the development of special considerations for Institutional Review Board (IRB) review of disaster and emergency related public health research. She is also on the CDC Disaster Epidemiology Curriculum Development Committee. Dr. Shipp Hilts previously served as the Director of a County Health Department in NYS that was devastated by both Hurricane Irene and Tropical Storm Lee. Asante has worked in public health evaluation and research in New York at the community, local and state level and was appointed to the NYSDOH IRB. Dr. Shipp Hilts is an Assistant Professor in the Epidemiology and Biostatistics department at the University at Albany, State University of New York, where she earned her BS in Biology, MPH in Epidemiology, and Doctor of Public Health degrees.

**Simon, Ted**

**University of Georgia**

Dr. Ted W. Simon operates a solo consulting practice in Winston, GA near Atlanta. He holds a B.A. in Biology from Middlebury College and a Ph.D. in Neuroscience from Georgia State University. Dr. Simon worked at EPA's Region 4 offices from 1993 until 2006. There he served as the senior toxicologist in the Waste Management Division. At EPA, he was a lead author of Risk Assessment Guidance for Superfund: Volume III – Part A, Process for Conducting Probabilistic Risk Assessment. He also received bronze medals for his work on the Base Realignment and Closure effort and for a method for assessing the efficacy of institutional controls for risk mitigation at military facilities. After leaving EPA, he has provided consultation to clients in both the public and private sectors including the Ontario Ministry of the Environment, Health Canada, trade associations including the American Chemistry Council and the European Chemical Industry Council, and others. He has served as a peer reviewer for the journals Regulatory Toxicology and Pharmacology, Environmental Health Perspectives, Critical Reviews in Toxicology and a number of other journals. He has been a member of the Society of Toxicology since 1993. Dr. Simon is the author of over 40 scientific publications including a graduate level textbook, Environmental Risk Assessment: A Toxicological Approach publishing in 2014 by Taylor and Francis. His scientific interests include: 1) the use of dose response analysis to inform mode of action; 2) Bayesian methods for characterizing uncertainty in risk assessment; and 3) endocrine-active substances. Over the past four years, he has received consulting fees from corporations in the US and England, attorneys in the US, and government entities such as the Los Angeles County Sanitation Division and the Fairfax County Virginia Police Department. He is not currently a recipient of research grants from the Environmental Protection Agency, other federal agencies, or the private sector.

**Skoglund, Robert**

**Covestro LLC**

Dr. Robert Skoglund is the Head of Product Safety and Regulatory Affairs for Covestro LLC, a world-leading manufacturer of high-tech polymer materials. In addition, he holds an adjunct faculty appointment in the Department of Environmental Health Sciences of the Richard M. Fairbanks School of Public Health at Indiana University and adjunct faculty and graduate school appointments in the

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Division of Environmental Health Sciences of the School of Public Health at the University of Minnesota. Dr. Skoglund received his MS in toxicology and PhD in environmental chemistry from the University of Minnesota and is working on an MBA in sustainable business at Maryhurst University. In addition, he is certified in toxicology by the American Board of Toxicology and industrial hygiene by the American Board of Industrial Hygiene. With over 30 years of experience in regulatory and applied toxicology, environmental chemistry, and industrial hygiene, areas of proficiency include product EHS and stewardship, hazard and risk assessments, fit for purpose and alternative analyses, chemical management regulations, and sustainability, but he has not engaged in any externally funded research in the last two years. Dr. Skoglund teaches in graduate level courses, sits on MS and PhD committees, and has authored a number of peer-reviewed abstracts, papers, and book chapters. He presently serves on the EPA Science Advisory Board's chemical assessment advisory committee and on an advisory board for the NIEHS hazardous waste worker training program. Dr. Skoglund is active in various professional and trade organizations with a focus on the training of public and environmental health practitioners, the funding of student research, and advocacy for science-based regulations.

**Smith, Eric**

**Virginia Tech**

Dr. Eric Smith is a professor in the Virginia Tech Department of Statistics. An acknowledged expert in the application of statistical methods to environmental and ecological applications, he is the author or coauthor of more than 120 peer reviewed papers, 45 book chapters, and two books, Dr. Smith is a Fellow of the American Statistical Association, an Elected member of the International Statistics Institute, and he has received the Distinguished Achievement Award from the American Statistical Association's Section on Environmental Statistics. Dr. Smith has served on eleven workshops, panels and committees, including: \* Panel Member for EPA's Science Advisory Board review of Lake Erie Phosphorus Levels (2015-16) \* Member NRC Panel on Effective Approaches for Monitoring and Assessing Gulf of Mexico Restoration Activities (2015-16) \* Panel member for the Scientific Advisory Board reviewing EPA's technical support document: National-Scale Mercury Risk Assessment Supporting the 25 Appropriate and Necessary Finding for Coal and Oil-Fired Electric Generating Units (2011). \* Deepwater Horizon SEAMAP Surveys Planning Committee Workshop (2010).

**Stevenson, David**

**Caesar Rodney Institute**

David T. Stevenson is an economist (Bachelor of Science in Agricultural Economics from Rutgers University), served on the Environmental Protection Agency Presidential Transition Team, and has worked in the field of energy and environmental policy as an analyst for the last seven years at the Caesar Rodney Institute, a state policy think tank. Stevenson led six major business development projects at the DuPont Company and has founded six businesses as an independent entrepreneur providing a strong perspective for balancing economic development and environmental regulation. He has been involved in numerous Public Service Commission dockets as an intervener and consultant, providing guidance on Solar Renewable Energy Credit auctions, electric grid resilience and reliability, electricity and natural gas pricing and service expansion, and electric supply strategies. He has analyzed Delaware's compliance with National Ambient Air Quality Standard's on six criteria pollutants and ozone down to the individual Air Quality Monitoring Station level. He has extensive experience with cost versus benefit analysis, including for proposed Environmental Protection Agency regulations. Stevenson has a strong background in conservation starting with taking the very first environmental science course offered at Rutgers University, creating the first crankcase oil recycling program and greenways land use plan as Conservation Commission Chairman in Southbury, CT. He was part of a team involved in creating today's solar industry in the United States and India, and also

in approving Material Safety Data Sheets as a lab supervisor for the DuPont Company. As a board member of the Delaware Home Builders Association Stevenson co-founded Delaware's Green Building Council along with building the first "gold" level green home in Delaware using the beta program of the National Association of Home Builders Green Building Program. The transition team briefing experience provided a foundational understanding of the Environmental Protection Agency priorities, organization, budget, and mandated deadlines for 2017/18. He has received no research grants in the last two years.

**Stuart, Amy**

**University of South Florida**

Amy L. Stuart, Ph.D. is a Professor at the University of South Florida (USF) in the Department of Environmental and Occupational Health, College of Public Health. She holds a joint appointment in the Department of Civil and Environmental Engineering, and courtesy appointments in the Center for Urban Transportation Research, and the Patel College of Global Sustainability. She is also the founder and director of the Graduate Certificate Program in Environmental Health at USF. Dr. Stuart earned a BS in chemical engineering, a MS in civil engineering, and a PhD in civil and environmental engineering from Stanford University. She completed postdoctoral training at the Center for International Security and Cooperation at Stanford. Dr. Stuart leads multi-disciplinary research and teaching initiatives related to air pollution, public health, and environmental sustainability. Her research has contributed to understanding the impacts of urban design and transportation on air pollution exposures and their social distribution, the fate of volatile chemicals during cloud freezing, mercury contamination and exposures, and associations between air pollution and birth defects, resulting in over 100 scholarly publications. During the last two years, Dr. Stuart's work has been funded by the National Institute of Environmental Health Sciences and by the United States Department of Transportation. She is also a previous recipient of a National Science Foundation Career award. Dr. Stuart is professionally involved in the Association of Environmental Engineering and Science Professors, currently serving on the Lectures Committee. She is a member of the Air and Waste Management Association, including previous service as the Chair of the Student Awards Committee of the Higher Education Council, and is a member of the International Society of Exposure Sciences. She regularly serves as a reviewer of manuscripts for several scientific journals and of proposals for grant sponsors on air pollution topics.

**Stubblefield, William**

**Oregon State University**

Dr. William Stubblefield is a senior research professor in the Department of Molecular and Environmental Toxicology at Oregon State University. Dr. Stubblefield has more than 25 years of experience in environmental toxicology, human and environmental risk assessment, derivation of water, sediment and soil criteria, and aquatic and wildlife toxicology studies. He has authored more than 50 peer-reviewed publications and technical presentations in the areas of aquatic and wildlife toxicology and risk assessment. He has conducted a variety of research programs aimed at the evaluation of the toxicity of metals and hydrocarbons in the environment. Dr. Stubblefield's research has examined acclimation induced changes in the responses of aquatic organisms to copper, zinc, and cadmium; evaluated the acute and chronic toxicity of manganese, cobalt, aluminum, methyl tert-butyl ether, petroleum hydrocarbon mixtures, and a variety of other compounds; quantified the effects of water quality characteristics, e.g., hardness, alkalinity, dissolved organic carbon, on the toxicity of several metals (e.g., nickel, lead, and silver). His current research examines methods/models that can be used to predict the toxicity of metals and hydrocarbons to aquatic organisms. Current sources of research funding include the Cobalt Development Institute, the European Aluminum Association, Iron Platform, and British Petroleum. Dr. Stubblefield is an active member of the Society of Environmental Toxicology and Chemistry (SETAC), where he served as President of the Society, member of the

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Society's Board of Directors, chairman of the SETAC's Metals Advisory Group, and member of the Editorial Board for Environmental Toxicology and Chemistry. He has been an invited participant at a number of national and international scientific and regulatory conferences, served on U.S. EPA and National Institute of Environmental Health Sciences (NIEHS) peer-review panels, and frequently acts as a technical reviewer for a number of scientific publications. Dr. Stubblefield has a Ph.D. in Zoology and Physiology (emphasis in Environmental Toxicology) from the University of Wyoming, a M.S. degree in Toxicology/Toxicodynamics from the University of Kentucky, and a B.S. in Biology from Eastern Kentucky University.

**Suski, Jamie**

**EA Engineering, Science, Technology, Inc., PBC**

Dr. Suski is a senior scientist within the Department of Water and Natural Resources at EA Engineering, Science and Technology, Inc., PBC. She has been in this position 1.5 years and has successfully secured one million dollars in project funding. The projects support both industry and federal government clients. Industry projects are focused on the efficacy and safety of antiseptic agents for consumer and healthcare users and federal client projects include laboratory and desktop research on the effects of contaminants to wildlife receptors including species listed as threatened and endangered (T&E). Specifically, Dr. Suski (Principle Investigator) was recently awarded funding to investigate potential risk to T&E species that occupy habitat on military sites contaminated with per- and polyfluoroalkyl substances (PFAS) and is a co-PI on research evaluating physiological, ecological and environmental determinants of PFAS uptake in fish. Dr. Suski received her Master of Science degree from University of Maryland in environmental toxicology and her Doctoral degree from Texas Tech University in Ecology with a focus on Eco-physiology. She did her post-doctoral studies with Dr. Christopher Swan at University of Maryland Baltimore County focusing on aquatic community responses to pesticides. She currently serves as an active member on the Interstate Technology Regulatory Council (ITRC), PFAS team as an expert in the field of ecotoxicology. Her role involves writing technical regulatory documents and fact sheets for the ITRC. She also serves on the board of the regional chapter of the Society of Environmental Toxicology and Chemistry (SETAC). She is a professional reviewer for a number of peer-reviewed journals including, Environmental Toxicology and Chemistry, Science of the Total Environment and Journal of Environmental Management.

**Tan, Shirlee**

**King County Dept Public Health**

Shirlee Tan, PhD has been working in the field of science policy for over 17 years, with a focus on the effects of chemicals on human health. Her career has primarily focused on chemical regulation and science policy at the national, international, and now local levels. Her early career began at the US Environmental Protection Agency (EPA) where she served as an Environmental fellow for the American Association for the Advancement of Science and has since worked for the Smithsonian Institution, the EPA, the Organization for Economic Cooperation and Development (OECD) in Paris, France, as an independent consultant to the OECD and the Endocrine Society, and now as the lead toxicologist for Public Health Seattle and King County.

**Tharakan, John**

**Howard University**

Dr. John Tharakan is Professor of Engineering in the Department of Chemical Engineering at Howard University, College of Engineering and Architecture. He has served as Chair, Director of Graduate Studies and is founding Faculty Adviser, Engineers Without Borders, HU Chapter. He received his BS (chemical engineering) at Indian Institute of Technology, Madras, MS and PhD in Engineering Science (Biochemical Engineering) from the University of California, San Diego, with post-doctoral training at American Red Cross, Plasma Derivatives Laboratory and then appointed Research

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Scientist, prior to joining Howard. His research expertise is in environmental engineering and biotechnology, appropriate technology development, engineering education, sustainable development and ethics in science and engineering, with funding from US EPA, DOD and NSF. He was Fulbright Senior Scholar, India ('06-'07), researching biological methods of waste treatment in South India. With Engineers Without Borders, he has worked on clean water, sanitation and renewable energy technology implementation in Senegal, Kenya and El Salvador. Dr. Tharakan is Co-Chair of an on-going series of biennial International Conferences on Appropriate Technology held across Africa facilitating knowledge and technology transfer for social justice, and has served as Editor for published conference proceedings. He was Fulbright-Nehru Senior Scholar ('15-'16) at Cochin University of Science and Technology, India, researching social impact assessment of innovative technology implementation. Dr. Tharakan has authored over 50 peer-reviewed papers and book chapters. He teaches undergraduate and graduate engineering courses in chemical, environmental and bioprocess engineering, hazardous waste treatment, and appropriate technology. Dr. Tharakan served two terms on the Executive Committee of the Board of Scientific Counselors and on the BOS-EC Subcommittee on Safe and Healthy Communities. Dr. Tharakan has served on the editorial and review boards of scientific journals, government agencies and academia, and has chaired sessions at national and international scientific and engineering conferences. His research over the past two years has been funded by Department of State Fulbright program, and his EWB service by various Foundations.

**Theis, Thomas**

**University of Illinois at Chicago**

Thomas L. Theis is Professor of Civil and Materials Engineering and Director of the Institute for Environmental Science and Policy (IESP) at the University of Illinois at Chicago. IESP focuses on the development of new cross-disciplinary research initiatives in the environmental area. He was previously at Clarkson University, where he was the Bayard D. Clarkson Professor and Director of the Center for Environmental Management. He is past editor of the Journal of Environmental Engineering, and served on the chartered Science Advisory Board of the USEPA from 2000-2009. His areas of expertise include the mathematical modeling and systems analysis of environmental processes, industrial pollution prevention, industrial ecology, material flow analysis and life cycle assessment, the environmental chemistry of trace organic and inorganic substances, interfacial reactions, subsurface contaminant transport, and hazardous waste management.

**Thomas, Evan**

**University of Colorado at Boulder**

Dr. Evan Thomas is the Director of the Mortenson Center in Engineering for Developing Communities, and holds the Mortenson Endowed Chair in Global Engineering at the University of Colorado at Boulder. He is an Associate Professor in the Civil, Environmental and Architectural Engineering Department. He has a technical background in water and air quality and treatment across a range of applications from developing communities to operational spacecraft. He has founded several companies based on these activities, including SweetSense Inc. which is presently supported by USAID and the National Science Foundation to develop and apply satellite connected remotely monitored sensors for drinking water services and quality in developing countries. His team is presently monitoring a million people's water supply across east Africa on a daily basis. Dr. Thomas was previously an Associate Professor at Portland State University. As Chief Operating Officer of DelAgua Health from 2012-2016, where he was responsible for conceptualizing, designing and operating a \$25 million dollar public health intervention in Rwanda in partnership with the Government of Rwanda. The program reached 350,000 households with cookstoves and 102,000 households with water filters, across over 7,500 villages and 1.6 million people. Dr. Thomas was previously a civil servant at the NASA-Johnson Space Center in Houston, Texas from 2004-2010, working on microgravity fluid management technologies and water recovery systems. He has a PhD in



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Aerospace Engineering Sciences from the University of Colorado at Boulder, is a registered Professional Engineer, and has a Masters in Public Health from the Oregon Health and Science University. His research has been funded by the National Science Foundation, the World Bank, the United States Agency for International Development, the United Nations Foundation, the United States Centers for Disease Control and Prevention, the United Kingdom Department for International Development, the Gates Foundation, and others.

**Thurston, George**

**New York University**

Dr. George Thurston is a Professor at the New York University School of Medicine's Department of Environmental Medicine, where he is Director of the Program in Human Exposure Assessment and Health Effects. He received his Bachelor of Science in Engineering from Brown University (with Honors), and his Masters and Doctorate in Environmental Health Sciences from the Harvard University School of Public Health. He has been a faculty member at the New York University School of Medicine since 1984. He has previously served on the EPA's CASAC Committee on NOx and SOx from 2007 to 2010, and is presently the Chair of the American Thoracic Society's Environmental Health Policy Committee. Professor Thurston's research has focused on the human health effects of air pollution exposures. His research in recent years has been funded by the NIH through both R01 and R21 grant mechanisms, as well as under the NYU-NIEHS Center of Excellence grant. He has also received research support from the NYU/Abu Dhabi Institute for Public Health Research. Recent awards for his scientific research include: the 2012 "Haagen Smit Prize" given by the scientific journal Atmospheric Environment, and; "The Top Science Paper of 2012" by the journal Environmental Science & Technology for a Global Burden of Disease report on global particulate matter air pollution exposures around the world. In May, 2018, Dr. Thurston also received the American Thoracic Society's "Public Service Award".

**Tormey, Daniel**

**Catalyst Environmental Solutions Corporation**

Dr. Daniel Tormey is an expert in energy, water resources, and land management, and conducts environmental reviews for both government and industry. He works with the environmental aspects of all types of energy development, including oil and gas, including hydraulic fracturing, produced water management, pipelines, LNG terminals, refineries and retail facilities; and all types of electrical generation and transmission. He studies sediment transport, hydrology, water supply, water quality, and groundwater-surface water interaction. He has led over two hundred studies requiring fate and transport analysis of chemicals in the environment. He has managed studies of the environmental effects of some of the most controversial land management projects in the US including the largest dam removal, deregulation of the electrical generation industry in California, the first offshore LNG terminal, and the environmental effects of coal mine and power plant closures, including socioeconomic effects. He has studied climate change and climate change adaptation since 1994. He was on the Steering Committee of the 2015 study of the effects of Hydraulic Fracturing in California being led by the California Council on Science and Technology (CCST), led the only focused study of environmental effects of hydraulic fracturing in the country (at a Los Angeles oil field), and submitted technical reports to the EPA SAB in their consideration of the environmental effects of hydraulic fracturing. He was named by the US National Academy of Sciences to the Science Advisory Board for Giant Sequoia National Monument; is a Distinguished Lecturer for the Society of Petroleum Engineers; recipient of the 2018 SPE award for Environment, Safety, and Corporate Social responsibility; is on the review committee on behalf of IUCN for the UNESCO World Heritage Site List and member of the IUCN Geoscientist Specialist Group; is volcanologist for Cruz del Sur, an emergency response and contingency planning organization in Chile; was an Executive in Residence at California Polytechnic University San Luis Obispo; and is a Professional Geologist in California.

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He has worked throughout the USA, Australia, Indonesia, China, Italy, Chile, Ecuador, Colombia, Venezuela, Brazil, Senegal, South Africa, Armenia and the Republic of Georgia. He has an active research program in volcanology, glaciovolcanic effects, volcano-seismic interaction, and biophysical risk analysis and communication. He has a Ph.D. in Geology and Geochemistry from MIT, and a B.S. in Civil Engineering and Geology from Stanford.

### 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. Dr. Trasande's 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. He has also published a series of studies which document increases in hospitalizations associated with childhood obesity and increases in medical expenditures associated with being obese or overweight in childhood. These studies have been cited in the Presidential Task Force Report in Childhood Obesity, and another landmark study identified that a \$2 billion annual investment in prevention would be cost-effective even if it produced small reductions in the number of children who were obese and overweight. He serves on the Executive Committee of the Council for Environmental Health of the American Academy of Pediatrics, on the CDC's World Trade Center Health Program Scientific and Technical Advisory Committee, and on a United Nations Environment Programme Steering Committee which is developing a Global Outlook on Chemicals Policy. He recently served on the Board of Scientific Counselors for the National Center for Environmental Health at the Centers for Disease Control and Prevention. 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. He has testified before the Senate's Environment and Public Works committee and Democratic Policy Committee. His work has been featured on the CNN documentary Planet in Peril and in National Geographic, and frequently appears on national media, including NBC's Today Show, ABC's Evening News and National Public Radio. He currently receives funding from the National Institute for Occupational Safety and Health NIOSH for clinical care for children exposed to the World Trade Center disaster; National Institute of Environmental Health Sciences (NIEHS) & Fogarty for a study of prenatal methylmercury exposure; and NIEHS, Fogarty & NIOSH for building studies of air pollution and children's health in China.

### Trindade, Sergio

#### SE2T International, Ltd.

Dr. Sergio C. Trindade is a New York based global consultant on sustainable business. He started his career designing, building and operating a sorbitol plant. Later, at the MIT Chemical Engineering Graduate Practice School, in Oak Ridge National Laboratories, TN, and at American Cyanamid chemical plants, NJ, he got exposed to American research and industry. His MIT PhD dissertation focused on magnetic demineralization of coal. Next, he joined Arthur D. Little, Inc. in Cambridge, MA, and later headed ADL's Brazilian office. Next, he founded the first private technology center in Brazil at PROMON, working on renewable energy, sustainable chemicals and telecommunications. He then began international consulting on energy and environment. He became the Assistant Secretary-General of the United Nations and Director of the Centre for Science and Technology for

Development - CSTD, in New York. There he created and tested the concept of stakeholders' dialogues to achieve consensus on policy priorities. He supervised studies on environmentally sounder technologies. Later, as a consultant he designed and implemented in Japan the UNEP International Environmental Technology Centre, on environmental issues of large cities and fresh water lakes and reservoirs. He did extensive consulting work for private companies and international organizations such as UNEP, the World Bank, IEA, OECD, Inter-American Development Bank. For International Fuel Technology, MO, he helped develop and market, diesel/biodiesel fuel enhancement additives. He is/was member: chair of the International Symposia on Alcohol Fuels, where the S.C. Trindade Award was established to reward the best paper at each Symposium; vice-chair, Studies Committee, World Energy Council; Advisory Board, UNEP International Environmental Technology Centre in Japan; Supervisory Board, US Congress Office of Technology Assessment study on weapons of mass destruction and means of delivery; Intergovernmental Panel on Climate Change - IPCC on technology issues, honored with the 2007 Nobel Peace Prize; vice-chair and chair of the Audit Committee, Board of Trustees, World Agroforestry Centre, Nairobi. Published numerous peer-reviewed articles and book chapters. He has been often a keynote speaker in public meetings, lately on climate change and sustainability in the Arctic, and has conducted many media interviews. He earned a PhD, ChE, MSc from MIT in chemical engineering with minors in technology management, energy economics and international business, and from the University of Brazil a BSc in chemical engineering.

**Turner, Jay**

**Washington University**

Dr. Jay Turner is an Associate Professor of Energy, Environmental and Chemical Engineering, and Vice Dean for Education in the School of Engineering & Applied Science at Washington University in St. Louis. Dr. Turner holds B.S. and M.S. degrees from UCLA (1987) and a D.Sc. from Washington University (1993), all in Chemical Engineering. Following his M.S. studies, he spent two years at the University of Duisburg, Germany, where he was a DAAD Fellow. Following his D.Sc. studies, Dr. Turner spent eight months on assignment with the Federal Highway Administration, U.S. Department of Transportation, as an Air Quality Specialist. He subsequently joined the Washington University faculty in 1994 as an Assistant Professor of Engineering & Policy. Dr. Turner's research primarily focuses on air quality characterization and control with emphasis on field measurements and data analysis to support a variety of applications in the atmospheric science, regulation and policy, and health studies arenas. He was the Principal Investigator of the St. Louis – Midwest Fine Particulate Matter Supersite. He manages a field site in East St. Louis that has hosted several Federal Equivalent Method testing campaigns and was recently one of two U.S. Environmental Protection Agency (EPA) coarse particulate matter pilot speciation study sites. Current and recent research projects include estimating lead emissions from piston engine aircraft, source apportionment of ambient particulate matter in Hong Kong, assessing intraurban variability of air toxics metals, long-term fence line monitoring for gaseous air toxics and particulate matter species at an industrial facility, and air quality measurements to support health studies. Recent consulting activities include monitoring guidance and/or data analyses for agencies in four states in support of State Implementation Plan development. He is currently Washington University lead investigator on a contract from the Airport Cooperative Research Program (ACRP) to Sierra Research, Inc. to develop approaches to mitigate lead concentration hot spots at general aviation airports, and Co-PI on an NIH grant to examine relationships between air pollution and neurodegenerative disease. His consulting work is currently funded by The Organisation for Economic Co-operation and Development (OECD) to assess the state of air quality monitoring in 51 countries and develop a framework for estimating air quality indicators, and by the Hong Kong Environmental Protection Department through Hong Kong University of Science and Technology to develop a conceptual model for particulate matter air quality over the Pearl River Delta. Dr. Turner has served on several state and local air quality-related advisory committees and the Science and Technical Support Workgroup of the Federal Advisory Committee Act (FACA)

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Subcommittee for Ozone, Particulate Matter, and Regional Haze Implementation Programs. He currently serves on EPA's chartered Science Advisory Board (SAB), the Ambient Monitoring and Methods Subcommittee (AMMS) of EPA's Clean Air Scientific Advisory Committee (CASAC), and the Independent Technical Advisory Committee of the Texas Air Quality Research Program. He recently served on the Science and Technology Achievement Awards (STAA) Committee of the EPA Science Advisory Board and on the Health Effects Institute project panel for the National Particle Components Toxicity Initiative. Dr. Turner was general chair for the 2007 Annual Conference of the American Association for Aerosol Research (AAAR) and is the immediate past president of AAAR. He is a Visiting Scientist at the Harvard T.H. Chan School of Public Health for the period January-July 2016. He previously served on the Science and Technology Achievement Awards (STAA) Committee of the EPA Science Advisory Board (term 2012-2015).

**Tyner, Robin**

**US Navy Retired**

Captain Robin Tyner, Retired, recently transitioned from an active duty Navy career. She qualified/served as Department of Defense (DoD) Science and Technology (S&T) Manager Level III (highest), Surface Warfare Officer, Naval Aviation Observer, In-flight Meteorologist, Hurricane/Typhoon Forecaster, Ship Router, and Information Warfare Officer. She is trained/experienced in nuclear/WMD hazard prediction. She holds a BS in Physics/Oceanography (U.S. Naval Academy), dual-MS in Meteorology and Physical Oceanography (Navy Post-Graduate School), and MBA (Southern New Hampshire University). She completed the Navy Corporate Business Course (University of Virginia, Darden), and begins the Harvard Kennedy School's Executive Climate Change and Energy program September 2018. She is a member of the American Geophysical Union and American Association for the Advancement of Science. She was a voting member on the DoD Space Experiments Review Board (2014-2017), which approves and prioritizes military science experiments for rides on DoD satellites. Through 2017 she served as Deputy Department Head, Office of Naval Research, managing a \$305 million S&T portfolio including: oceanography, meteorology, hurricanes, Arctic/cryosphere, coastal prediction, acoustics, remote sensing, signal processing, unmanned vehicles, etc. Congress provided her department additional funding in 2016 for anti-submarine warfare research. She oversaw dozens of PhD Program Officers, engineers, military officers, technical and support contractors - evaluating proposals and awarding competitive grants/contracts to academia, government/private labs, industry, and small businesses. Her Arctic experience includes: her Arctic oceanography thesis, establishment of Navy Arctic, Energy and Climate policy, oversight of multi-year research efforts and field experiments - and experiments at ICEX 2016 (Arctic Ocean ice camp), and selection as one of five DoD attendees at the 2015 Secretary of State-hosted GLACIER conference. She serves on the Exeter, NH Planning Board and Energy Committee, the Oceans 2022 Steering Committee (joint symposium hosted by the Marine Technology Society and Institute of Electrical and Electronic Engineers), and as Senior Fellow, DEPLOY/US.

**Ulsh, Brant**

**M. H. Chew & Associates**

Dr. Brant Ulsh is a Certified Health Physicist, and has over thirty years of academic training, and governmental, academic, and private industry work experience in radiation fields including health physics, radiation biology, radiation ecology, and nuclear engineering. Dr. Ulsh's diverse work experience includes regulatory compliance at nuclear power plants and Department of Energy sites, environmental monitoring, and radiation dose reconstruction. He is currently a Principal Health Physicist with M. H. Chew & Associates in Cincinnati, and he serves as the Editor-In-Chief for the Health Physics journal. From 2003-2012, Dr. Ulsh served as a Senior Research Health Scientist with the National Institute for Occupational Safety and Health in the largest radiation worker compensation program in the world. In that position, he had extensive interaction with the Presidentially-appointed

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Advisory Board on Radiation Worker Health. Dr. Ulsh's research interests and expertise focus on the biological and environmental effects of low doses of radiation on humans and the environment. He has performed only unfunded research in these areas over the past two years. He earned a Bachelor of Science degree in Nuclear Engineering and a Master of Science degree in Health Physics, both from the University of Cincinnati, and a Ph.D. in Radiological Health Sciences from Colorado State University. Dr. Ulsh completed a postdoctoral appointment at the McMaster University Institute of Applied Radiation Sciences in Canada, with a research focus on low-dose radiation biology. He has authored one book chapter, 19 peer-reviewed publications, 23 scientific presentations, 10 scientific poster presentations, and 6 scientific abstracts. He serves as an affiliate faculty member of Colorado State University, and the Northern Ontario School of Medicine. Dr. Ulsh has held numerous leadership positions in both the Cincinnati Radiation Society, and the Health Physics Society, and he served as a member of the International Radiation Protection Association Radiation Protection Strategy and Practice Committee.

### Uppu, Rao

#### Southern University and A&M College

Dr. Rao M. Uppu is the James and Ruth Smith Endowed Professor of Environmental Toxicology and Chemistry in the College of Sciences and Engineering at Southern University-Baton Rouge (SUBR). He is a highly accomplished scientist recognized internationally for his work in environmental chemistry and molecular toxicology. His major scientific contributions include analytical methods for determining biological reactive intermediates (alloxan, epoxides, and alpha, beta-unsaturated carbonyls) and semi-persistent organic pollutants (bisphenols), apoptotic and/or necrotic cell signaling by 'ozone-specific' oxysterols, free radical nitration and nitrosation in nitric oxide-producing biological systems, modeling of oxidative and free radical reactions of ozone at the air-lung interface, and molecular docking and dynamic studies of environmental estrogen binding to estrogen receptors. In addition to publishing in peer-reviewed journals and books, Uppu has trained numerous MS and PhD students, postdoctoral fellows, and junior faculty and received several accolades including election as Fellow of the Royal Society of Chemistry (FRSC), Fellow of the Academy of Toxicological Sciences (FATS), Fellow of the American Association for the Advancement of Science (FAAAS), Board Certified Environmental Scientist (BCES), Diplomate of the American Board of Toxicology (DABT), Registered Environmental Health Specialist/Registered Sanitarian (REHS/RS), and membership in the CyHABs Research Consortium (Ames, IA). Uppu was a recipient of honors for student mentoring from both within and outside the Southern University System including the Telugu Association of North America Excellence in Science Award and the Becoming Everything You Are (BEYA) STEM Innovators Award. After obtaining his PhD degree in biochemistry from Osmania University (Hyderabad, India), Uppu undertook postdoctoral assignments at the Eppley Institute for Research in Cancer (Omaha, NE) and the Biodynamics Institute at Louisiana State University (Baton Rouge, LA) and worked under the tutelage of Drs. Ercole Cavalieri, Eleanor Rogan, and William Pryor. Uppu's research for the past two years was supported by the U.S. Department of Education, the National Science Foundation, and the USDA National Institute of Food and Agriculture.

### Vandenberg, Laura

#### University of Massachusetts – Amherst

Dr. Vandenberg's research explores how early life exposures to chemicals and chemical mixtures can predispose individuals to diseases that manifest later in life. Classical toxicology often focuses on how fetal chemical exposures can produce birth defects, an important part of chemical safety. Her work instead addresses how low doses of chemicals during critical windows of development can alter gene expression, cell differentiation, and tissue organization in subtle ways that can lead to adult diseases such as cancer, obesity, and infertility. She is specifically interested in the class of chemicals termed

'endocrine disruptors' and have worked extensively with chemicals used as plasticizers and flame retardants. Her work also focuses on how traditional toxicology assays have failed to identify a number of ubiquitous endocrine disruptors, and how current risk assessment practices can be improved in the study and regulation of this class of chemicals.

**Vepachedu, Venkata**

**Pennsylvania Department of Health, COPA**

Dr. Venkata Vepachedu, Ph. D. is presently working as Chief/Supervisory Microbiologist leading the Molecular Microbiology/Advanced Molecular Detection (AMD) unit in the division of clinical microbiology at Bureau of Laboratories, Pennsylvania Department of Health, Exton, PA. Dr. Venkata obtained his Ph.D. in biochemistry. His dissertation includes extensive studies on Chromium toxicity and active site directed metal complex synthesis (Chromium and Copper-Uric Acid complexes) & characterization. The lab is accredited for its highly quoted research in studying the mechanisms of metal toxicities and metal reclamation from industrial sewage. Dr. Venkata gained extensive research experience in the area of molecular microbiology as applied to health and environment. Dr. Venkata is an established scientist, successfully completed novel research projects focusing on global warming, environmental health and food-borne outbreaks as evidenced by research publications. He possesses, expertise in the design and running of environmental and public health research & surveillance projects in collaboration with national institutes such as CDC, EPA and FDA. Dr. Venkata gained hands on experience running experiments using advanced instruments in biological research, including, Whole Genome Sequencing, MALDI-TOF. Bioinformatics analysis and program design. He regularly performs compilation of results obtained from different projects to assess a food-borne outbreak investigations/environmental concern and draw conclusions to take decisive action. Dr. Venkata is involved in the review/discussion of various environmental issues in Pennsylvania while working at department of environmental protection. His views, project design and presentations are highly appreciated as he tailors the presentation to the audience. Dr. Venkata is involved and gained knowledge in all aspects of projects i.e. design, writing proposals, performing experiments, result analysis and presentations. He worked with both laboratorians, environmental field staff and epidemiologists. Dr. Venkata worked on field sample collection & analysis and human sample analysis. He completed research projects working with various biological systems namely, Archaea, bacteria, fungi, insects, fish, mice, rats, and human systems (found in curriculum vitae). This made him a suitable candidate to review projects related to different environmental and health issues for field and lab studies.

**Viana, Louis R.**

**LRV NY LLC**

Mr. Louis Viana has been practicing the profession of Environmental Engineering for the last 23 years. During his professional tenure he has operated and designed multiple Wastewater Treatment Plants (Anaerobic & Aerobic) and Potable Water Treatment systems, advised Fortune 100 companies in compliance with NPDES permit, Clean Water Act, Clean Air Act, RCRA, CERCLA, SARA, dealt with Asbestos and Lead abatements, cleaning of soil with Hydrocarbons, designed sampling protocols for contaminated sites, Environmental Impact Statements, Phase I & II among others. This knowledge and pass experience allowed him to develop LRV NY, LLC an Environmental Engineering Firm which has been providing services to assist fortune 100 companies to operate in a responsible and sustainable manner while complying with all applicable environmental laws and regulations. Mr. Viana is currently a Ph.D. candidate at Columbia University School of Engineering at the Department of Environmental Engineering and Earth Sciences. His research is being done on Surface Phenomena Changes on Archaea Cell Membrane to Enhance Metabolic Reaction of Glucose and Increase Biogas Production. The results of the research will propel the Anaerobic Digester treatment of high COD loads by helping the industries to reduce COD discharge to the ocean and therefore protect the

environment and its habitat. Mr. Viana is currently a member of the Industrial Advisory Board of the Columbia University, the Florida University Center for Particles and Surfactant System (CpASS), and the American Association for the Advance of Science (AAAS).

**Wauchope, Robert D**

**USDA-ARS**

Don Wauchope has chemistry degrees from UNC-Chapel Hill (BS) and NC State University at Raleigh (MS, PhD). After an NIH Postdoctorate at Oregon State University's Department of Agricultural Chemistry he joined the newly-formed USDA – Agricultural Research Service (ARS) Southern Weed Science Laboratory at Stoneville, MS in 1972. Don published research on the analysis and environmental chemistry of arsenical agricultural chemicals, and water quality impacts of pesticides. He was part of the original CREAMS nonpoint agricultural pollution simulation model development team. Don moved to the ARS Southeast Watershed Research Laboratory and later the ARS Nematodes Weeds and Crops Research Laboratory, both at Tifton, Georgia in 1984, retiring in 2008. He developed the pesticide module of the ARS-RZWQM pollution model and the USDA-ARS Pesticide Properties Database, and has had a national and international leadership in minor use pesticide registration, exposure risk assessment and pesticide physical chemistry. He has published 135 journal papers and book chapters, 2 books, and made over 150 presentations. Two of his papers have been cited over 1000 times. Don is a Fellow of the Weed Science Society of America and is a Fellow and past Chair of the Agrochemical Division of the American Chemical Society. He was North American Editor of the Journal "Pest Management Science" and a leader and collaborator on many technology transfer activities of the International Union of Pure and Applied Chemistry (IUPAC), organizing publication projects, meetings and workshops in 16 countries. He has served on several ad hoc EPA and European Union Food Safety Authority technical advisory committees. Except for some cooperative studies with University collaborators, Don's entire research career was funded by USDA in-house and grant funds.

**Werth, Charles**

**University of Texas at Austin**

Dr. Charles J. Werth is a Professor and the Bettie Margaret Smith Chair in Environmental Health Engineering in the Department of Civil, Architecture and Environmental Engineering at the University of Texas at Austin. Dr. Werth's areas of expertise include the fate and transport of pollutants in the environment, the development of catalytic technologies for drinking water treatment, and the mitigation of environmental impacts associated with energy production and generation. In his research, he develops and/or uses noninvasive imaging, environmental microfluidics, nanotechnology, spectroscopic analysis, numerical modeling, and life cycle assessment. He has been consulted by law firms litigating cleanup of hazardous waste sites, oil and gas companies treating produced water, and industry developing innovative groundwater cleanup technologies. Dr. Werth has published 110 peer-reviewed journal articles, with research support during the last two years from the Department of Energy (DOE), National Science Foundation, National Aeronautics and Space Administration, United States Geological Survey, Dow Chemical, and Texas Hazardous Waste Research Center. Dr. Werth previously served on the Association of Environmental Engineering and Science Professors (AEESP) board, the AEESP Foundation board, the User Executive Committee for DOE's Environmental Molecular Science Laboratory (EMSL), the External Advisory Board for a DOE Energy Frontier Research Center, and the USEPA Science Advisory Board (2014-2017). The quality of his work has been recognized by appointment as a Wiley Research Fellow at the DOE's EMSL, appointment as Editor-and-Chief of Journal of Contaminant Hydrology, two Best Paper Awards from the journal Environmental Science and Technology, a Humbolt Research Fellow Award, a National Science Foundation CAREER Award, and an Award for Innovation in Undergraduate Instruction. Dr. Werth received a B.S. in Mechanical Engineering from Texas A&M University, an M.S. and Ph.D. in

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Environmental Engineering from Stanford University, and a Ph.D. minor in Chemistry from Stanford University.

**Wiesner, Mark**

**Duke University**

Dr. Mark R. Wiesner holds the James L. Meriam Chair in Civil and Environmental Engineering at Duke University where he has appointments in the Pratt School of Engineering and the Nicholas School of Environment. He serves as Director of the National Science Foundation's Center for the Environmental Implications of NanoTechnology (CEINT). Dr. Wiesner's research in the area of environmental nanotechnology, examines the application of nanotechnologies for environmental quality control and initiated a consideration of the possible environmental implications of nanomaterials. He co-edited/authored the book "Environmental Nanotechnologies" and serves as Associate Editor of the journals Nanotoxicology and Environmental Engineering Science. Professor Wiesner also pioneered research in area of applications of low-pressure membranes to water treatment. He co-edited and -authored the book "Water Treatment Membrane Process," served as the founding Chair of the American Water Works Association's Membrane Research Committee, and serves on the editorial board of the journal Desalination. Professor Wiesner is a Fellow of both the American Association for the Advancement of Science and the American Society of Civil Engineers. Before joining the Duke University faculty in 2006, Professor Wiesner was a member of the Rice University faculty for 18 years where he held appointments in the Departments of Civil and Environmental Engineering and Chemical Engineering and served as Associate Dean of Engineering, and Director of the Environmental and Energy Systems Institute. Prior to working in academia, Dr. Wiesner was a Research Engineer with the French company the Lyonnaise des Eaux, in Le Pecq, France, and a Principal Engineer with the Environmental Engineering Consulting firm of Malcolm Pirnie, Inc., White Plains, NY. Wiesner received the 1995 Rudolf Hering medal from the American Society of Civil Engineers and the 2004 Frontiers in Research Award from the Association of Environmental Engineering and Science Professors. In 2004 Dr. Wiesner was also named a "de Fermat Laureate" and was awarded an International Chair of Excellence at the Chemical Engineering Lab of the French Polytechnic Institute and National Institute for Applied Sciences in Toulouse, France. Wiesner was the 2011 recipient of the Clarke Water Prize for his work in improving water quality through advancements in membrane and nanotechnology research. He is a past President of the Association of Environmental Engineering and Science Professors (AEESP).

**Williams, David**

**Oregon State University**

Dr. Williams is Helen P. Rumbel Professor for Cancer Prevention at Oregon State University (OSU) in the Department of Environmental and Molecular Toxicology and Linus Pauling Institute. He obtained his BS from Reed College, MS and PHD from OSU and post-doctoral training at the Medical College of Wisconsin. Dr. Williams is widely recognized as a leading researcher in environmental toxicology and has been funded continuously for 32 years as Principal Investigator by the National Institutes of Health (NIH), primarily the National Institute of Environmental Health Sciences (NIEHS). These grants were both individual research projects as well as multi-individual, multi-disciplinary and multi-institutional. He served as Director of the OSU Superfund Research Program, funded by NIEHS, for 6 years and currently directors a research project. Dr. Williams is also currently funded (2017-2022) by NIEHS to, for the first time ever, determine the pharmacokinetics of an important environmental carcinogen, benzo[a]pyrene, in humans. His recent and current service on external advisory committees include the National Water Research Institute's Santa Ana River Monitoring Review Panel (2005-present); NIEHS U19 (long-term health effects of the Deepwater Horizon spill) programs at the University of Texas, Galveston and University of Florida (2010-2015); standing member of 3 NIH study sections (Alcohol/Toxicology1, 1998-2003, Chair 2001-2003;



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Xenobiotic and Nutrient Disposition and Action, 2009-2013, Systemic Injury by Environmental Exposure (SIEE), 2014-2017); NIEHS Superfund Research Programs (P42) at Michigan State University (2014-present) and Baylor University (2015-2016); National Cancer Institute's PREVENT program, 2013-present; ad hoc service on a number of other NIH and EPA panels, most recently Cancer Disease and Prevention (June, 2018) and SIEE (June, 2018). Dr. Williams is an active member of the Society of Toxicology, serving on a number of elected and appointed committees, the International Society for the Study of Xenobiotics and the American Association for Cancer Research.

**Williams, Lance**

**University of Texas at Tyler**

Dr. Lance Williams is Chair and Professor of Biology at The University of Texas at Tyler and the Center for Environment, Biodiversity, and Conservation. He has been at UT Tyler since 2007, and before that he was an Assistant Professor at The Ohio State University. Dr. Williams has extensive experience in river ecology and conservation and has been PI or co-PI on nearly 6 million dollars in extramural grants. In the past 20 years, he has served as the major professor for over 20 graduate theses on conservation topics in Eastern U.S. rivers. His most recent grants have focused on endangered mussel and crayfish species in East Texas rivers, and also water quality monitoring of military bases in Texas and Louisiana. He currently has grants from the Texas National Guard, the U.S. Army, the Texas Comptroller's Office, and the Texas Commission on Environmental Quality. Dr. Williams has served on numerous advisory committees and is currently the Managing Editor for the journal Southwestern Naturalist. He earned a B.S. in Zoology from the University of Oklahoma, an M.S. in Zoology from Oklahoma State University, and a Ph.D. in Biological Sciences from Mississippi State University.

**Williams, Richard A.**

**MarginalRegulation**

Dr. Richard A Williams is a consultant with his firm, MarginalRegulation.com. He has received compensation from the formaldehyde council at the American Chemistry Council in 2017. He is retired from the U.S. Food and Drug Administration with 27 years experience. At FDA, he was responsible for economic analysis, consumer studies and epidemiology for the Center for Food Safety and Nutrition. Subsequently, he was a Vice President for Policy at the Mercatus Center at George Mason University for nine years. He is currently a Senior Affiliated Scholar with the Mercatus Center and with Utah State's Center for Growth and Opportunity. He is also on the Board of Trustees for the International Life Sciences Institute. He has served on a National Academy of Sciences panel, served as President of the Virginia Chapter of the Society for Risk Analysis and has served as an advisor to the Harvard Center for Risk Analysis. He has extensive knowledge of risk analysis including risk/risk, health/health and benefit-cost analysis. Dr. Williams has created and taught classes on risk analysis for USDA and FDA. He has been invited to testify before the House and Senate multiple times on regulatory issues and has appeared on radio and television, including CNBC, National Public Radio, Reuters, Bloomberg, the New York Times and the Wall Street Journal. He has been invited to speak in multiple countries. He frequently writes op-eds that have a national audience on risk, economic and regulatory issues. He is currently working on the effects using linear, no-threshold dose-response curves as a default for chemicals and radiation. He has given keynote speeches within the last several years to the Governance of Emerging Technologies at ASU and the International Life Sciences Institute on emerging technologies. Dr. Williams received his Ph.D. in economics from Virginia Tech and his BS in business administration from Old Dominion University.

**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.

**Zhao, Feng**

**NOAA**

Feng Zhao earned M.S. and Ph.D. in Geography from The University of South Carolina, and Boston University in 2005 and 2010, respectively. After an extended post-doc at the University of California at Berkeley, Dr. Zhao held a Research Assistant Professor position at University of Maryland at College Park in 2012. Since 2017, he has served as a research scientist at Center for Satellite Application and Research (STAR), National Atmospheric and Oceanic Administration (NOAA). Dr. Zhao's research interests are broad, but a recurrent theme is the use of remote sensing to study the dynamics of terrestrial ecosystem and processes, including Vegetation Index (VI) and Green Vegetation Fraction (GVF) product development from NOAA satellite series, forest disturbance history mapping from Landsat and forest structural retrieval using LiDAR system.

**Zwiernik, Matthew**

**Michigan State University**

Dr. Matthew Zwiernik is a Professor of Ecotoxicology in the Department of Animal Science at Michigan State University (MSU). He is, a member of the MSU Institute for Integrative Toxicology and is the Director of the MSU Wildlife Toxicology Laboratory (MSU-WTL). Dr. Zwiernik received a B.S. in Biochemistry and a Ph.D. in Environmental Toxicology from the Michigan State University Department of Biochemistry and College of veterinary medicine respectively. Dr. Zwiernik has been a faculty member at MSU since 1999 and in that time has conducted multiple long-term litigation quality studies, assessing the impacts of human activities on wide array of wildlife populations in differing ecosystems. Dr. Zwiernik is an expert in assessing the effects of complex contaminant mixtures on riverine ecosystems. His team has pioneered work pertaining to wildlife species sensitivity to contaminate mixtures, and wildlife exposure and effects assessments. The MSU-WTL approach of combining laboratory based site-specific contaminant exposure protocols with direct field measures of exposure and individual and population health has informed and streamlined the ecological risk assessment process for numerous superfund sites. Dr. Zwiernik specializes in quantifying population dynamics in response to fluctuations in resources and stressors, utilizing a data

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driven multiple lines of evidence, hypothetic-deductive approach, including adverse outcome pathway assessment. Dr. Zwiernik is particularly interested in improving the certainty of the quantification of the ecological risk associated with wildlife exposure to complex contaminant (stressor) mixtures by improving approaches for the identification of contaminant interactions, site-specific chemodynamics, the identification of germane measurement parameters to derive risk estimates that inform sustainable remedial decisions. Dr. Zwiernik's funding is derived from a wide range of sources including industry, local community advisory groups, and state and federal government organizations including EPA, DOD and others. Dr. Zwiernik is a member of the Society of Environmental Toxicology and Chemistry. He has been an expert consultant to the International Joint Commission on Issues of Emerging Contaminants in the Great Lakes. Additional information on projects and qualifications including greater than 85 peer-reviewed publications, 22 invited papers, 3 keynote addresses, and greater than 150 scientific presentations and reports, as well as three book chapters pertaining to wildlife impact assessment can be obtained at [www.riverwildlife.msu.edu](http://www.riverwildlife.msu.edu).