

**Invitation for Public Comment on the List of Candidates for the
EPA Chartered Science Advisory Board
September 7, 2017**

The U.S. Environmental Protection Agency (EPA) Science Advisory Board (SAB) Staff Office announced in a Federal Register Notice on June 27, 2017 (Vol. 82, No. 122, 29077 - 29079) 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's Administrator. While the SAB reports to the EPA Administrator, congressional committees specified in Environmental Research Demonstration and Development Authorization Act may ask the EPA Administrator to have the SAB provide scientific advice on a particular issue.

The *FR* Notice sought nominations of experts 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 as 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 132 candidates based on their expertise and willingness to serve. We hereby invite public comments on the attached List of Candidates under consideration for appointment to the SAB. Comments should be submitted by email to Mr. Thomas Carpenter, Designated Federal Officer no later than September 28, 2017, at carpenter.thomas@epa.gov. Please be advised that public comments are subject to release under the Freedom of Information Act.

List of Candidates with Biosketches for 2017 SAB Annual Membership

2017 Chartered SAB Annual Membership

Anastas, Paul

Yale University

Dr. Paul Anastas is a Senior Research Fellow at Harvard's Center for International Development, Director of the Green Chemistry Institute in Washington, D.C., and a Roy Fellow at the Environment and Natural Resources Program at Harvard's Kennedy School of Government. He was Assistant Director for Environment at the White House Office of Science and Technology Policy (OSTP) from 1999-2004 where his responsibilities covered a wide range of environmental science issues including furthering international public-private cooperation in areas of science for sustainability such as Green Chemistry. Anastas served as the Chief of the Industrial Chemistry Branch of the U.S. Environmental Protection Agency (EPA) from 1989-1998. During that period he was responsible for regulatory review of industrial chemicals under the Toxic Substances Control Act and the development of rules, policy and guidance. In 1991, he established the industry-government-university partnership Green Chemistry Program, which was expanded to include basic research, and the Presidential Green Chemistry Challenge Awards. Prior to joining the EPA, he worked as an industrial consultant to the chemical industry in the development of analytical and synthetic chemical methodologies. Anastas received his MA and PhD in Organic Chemistry from Brandeis University and his BS in Chemistry from the University of Massachusetts at Boston.

Anderson, Henry

Wisconsin Division of Public Health

Dr. Henry A. Anderson holds positions as the State Environmental and Occupational Disease Epidemiologist, and Chief Medical Officer in the Wisconsin Division of Public Health, Department of Health Services, and 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. He holds a B.A. in Biology from Stanford University, and an M.D. from the University of Wisconsin-Madison. Dr. Anderson's expertise includes public health; preventive, environmental, and occupational medicine; respiratory diseases; epidemiology; human health risk assessment; and risk communication. His active research interests include: disease surveillance, childhood asthma, lead poisoning, reproductive and endocrine health hazards, drinking water contaminants, occupational and environmental respiratory disease and sport fish consumption advisory communication. Dr. Anderson served on the U.S. Environmental Protection Agency's (EPA) National Advisory Committee for Acute Exposure Guideline Levels for Hazardous Substances. He was chair of the Environmental Health Committee of the EPA Science Advisory Board, served on the chartered EPA SAB, and is past Chair of the Board of Scientific Councilors for the National Institute of Occupational Safety and Health. Dr. Anderson has served on five National Academy of Sciences Committees including Toxicity Testing for Assessment of Environmental Agents and just completed service on the Committee, Water Reuse: Potential for Expanding the Nation's Water Supply Through Reuse of Municipal Wastewater. He was a founding member of the Agency for Toxic Substances and Disease Registry Board of Scientific Councilors (1988-1992). Dr. Anderson serves on the Presidential Advisory Board on Radiation Worker Compensation. He has served on the Armed Forces Epidemiology Board and the Centers for Disease Control and Prevention (CDC)/ National Center for Environmental Health Director's Advisory Committee. Dr. Anderson is a fellow of the

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Collegium Ramazzini and the American Association for the Advancement of Science. He is associate editor of the American Journal of Industrial Medicine. Dr. Anderson 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. He is a state government employee 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 Social Services/Centers for Disease Control and Prevention and the U.S. Environmental Protection Agency.

Andrews, Rodney

University of Kentucky

Rodney Andrews is Director of the University of Kentucky Center for Applied Energy Research (UK CAER) and Associate Vice President for Research at UK. Dr. Andrews has been Director of UK CAER since 2007. Prior to that appointment, he served as Acting Director and was an Associate Director of CAER responsible for the Carbon Materials group since 2001. He joined the research staff at the Center in 1999. His research interests include technologies for utilization of coal and biomass resources, with particular focus on development of high-value carbon materials. He is an Associate Professor for the Department of Chemical and Materials Engineering at UK, with a joint appoint in Mechanical Engineering. Dr. Andrews has directed major multi-university and industry-academic collaborative projects. He has published more than 70 peer reviewed journal articles and three book chapters. He has been granted six patents. In addition to his UK achievements, he is on the Executive Council of the American Carbon Society, and served as the society's 2011 Graffin Lecturer. The US Secretary of Energy appointed him to the National Coal Council in 2014. Dr. Andrews is Program Director of Kentucky NSF EPSCoR, a statewide initiative to increase research infrastructure within the Commonwealth. He is on the Editorial Advisory Board for the journal Carbon. Dr. Andrews received his Bachelor of Science degree in chemical engineering from Michigan State University and his Ph.D. in chemical engineering from the University of Kentucky. He is a licensed Professional Engineer in Kentucky.

Aneja, Viney

North Carolina State University

Dr. Viney Aneja is a Professor in the Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University (NCSU). He holds a B. Tech. degree in Chemical Engineering from the Indian Institute of Technology, Kanpur, India (1971); and an M.S. (1976) and Ph.D. (1977) in Chemical Engineering from North Carolina State University. His research has focused on agricultural air quality. Before joining the faculty of the Department of Marine, Earth, and Atmospheric Sciences at NCSU, Dr. Aneja conducted and supervised research at Corporate Research and Development, General Electric Company, New York, and Northrop Service, in Research Triangle Park in the areas of environmental engineering and separations technology. The U.S. Secretary of Agriculture appointed him as a member of the U.S. Agricultural Air Quality Task Force. Dr. Aneja was a member of the U.S. Environmental Protection Agency's (EPA) Science Advisory Board (SAB) Environmental Engineering Committee, and also is a member of EPA's SAB Integrated Nitrogen Committee. He is a Member Representative of the University Corporation for Atmospheric Research, Boulder, CO. Dr. Aneja won the Noryl Division Proprietary Innovation Award from General Electric in 1983, the Air Pollution Control Association Award for Distinguished Service in 1984, the General Electric Managerial Award in 1986, and at NCSU he received the 1991-92 Outstanding Extension Service Award. In 1998 the Air and Waste Management Association gave Dr. Aneja its Frank A.

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Chambers Award, the Association's highest scientific honor; in 1999 he became a Fellow of the Association; in 2001 he received the Association's Lyman A. Ripperton Award for distinguished achievement as an educator. He is the recipient of the 2007 North Carolina Award in Science, the highest award a civilian can receive from the Governor of North Carolina. In 2009 Dr. Aneja received the Senior National Research Council (NRC) Research Associateship. In 2010 he was invited by the U.S. White House Council on Environmental Quality to assist in the BP Gulf Spill. In 2010 Dr. Aneja received Distinguished Alumnus Award from the Indian Institute of Technology Kanpur, India. He served as a Director of the Air and Waste Management Association, and Chair of the Association's Education Council. Dr. Aneja has served on the editorial boards of the journals Environmental Pollution, Chemosphere, Journal of the Air and Waste Management Association, and Environmental Manager. He currently serves as Editorial Board Member of the international journal Atmospheric and Climate Science. Dr. Aneja is Associate Editor for the following journals: International Journal of Air Quality, Atmosphere, and Health; International Journal of Physical Review & Research International; International Journal of Applied Environmental Sciences; International Journal of Atmospheric Pollution Research; The Open Environmental & Biological Monitoring Journal; Journal of Marine Science: Research & Development; Journal of Environmental Research and Management; and the Scientific Journals International; and the Reader Advisory Panel of Nature.

Barnett, Mark

Auburn University

Mark Barnett is a Professor of Environmental Engineering and Associate Chair in the Department of Civil Engineering at Auburn University, where he has been on the faculty for eighteen years. He also serves as an administrative judge for the U.S. Nuclear Regulatory Commission. Dr. Barnett has a B.S. in Chemical Engineering and an M.S. in Environmental Engineering from the University of Tennessee and a Ph.D. in Environmental Sciences and Engineering from the University of North Carolina. Dr. Barnett has over twenty-five years of national and international environmental engineering and science experience in industry, government, and academia. His technical research focuses on the chemical processes controlling water quality and contaminant behavior in natural and engineered systems. He has been a principal or co-principal investigator on fifteen grants totaling over \$7.5 million, and he has published over fifty peer-reviewed journal articles, several book chapters, and a book that collectively have received over two thousand citations (h-index=24). He is a licensed professional engineer and a board certified member of the American Academy of Environmental Engineers and Scientists with technical experience in potable water and industrial wastewater treatment; site assessment and remediation; soil and groundwater contamination; human-health risk assessments; contaminant bioavailability; environmental forensics; environmental and aquatic chemistry; low-level radioactive and hazardous waste management; and nuclear environmental engineering. Dr. Barnett has taught fundamental and applied courses in environmental and aquatic chemistry; drinking water supply, treatment, and distribution; environmental engineering principles and design; and sustainable design and development. His work has been supported by industry, the National Science Foundation, the Department of Energy, the Department of Defense, the Environmental Protection Agency, and the Water Research Foundation. His current interests are environmental policy; sustainable development; and water, sanitation, and health in underserved communities, with research over the past two years funded by Auburn University.

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Barton, Charles

Valspar Corporation

Dr. Charles (Chuck) Barton works for Valspar Corporation as Global Manager of Toxicology. He has experience with a variety of industries, including academia, government, pharmaceutical industry and consumer product industry. He was the State Toxicologist of Iowa for seven years. Dr. Barton has been appointed to six National Academy of Sciences committees, six U.S. Pharmacopeia committees, and one ISO committee. He served on the Board of Directors for the American Board of Toxicology. Dr. Barton is the Editor-in-Chief for MOJ Toxicology (MOJT) and an Editor for Open Access Journal of Toxicology (OAJT). In addition, he has served on the adjunct faculty for several universities. He is a member of over a dozen professional societies, having served as an officer in several. Furthermore, Dr. Barton has over 90 various publications. His professional practice has focused on evaluating potential public and occupational health risks associated with exposure to chemicals in the environment, workplace, pharmaceuticals, and consumer and personal care products. Dr. Barton received his Ph.D. in Toxicology at the University of Louisiana in Monroe, LA. He completed postdoctoral training in toxicology at Michigan State University. He is a Diplomate of the American Board of Toxicology. Dr. Barton has no outside research funding sources.

Belzer, Richard

Independent consultant

Since 2001, 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 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 into benefit-cost analysis; the analysis of environmental justice ranking schemes; the analysis of patent law and examination practices; estimation of potential cost reductions 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 benefit-cost analyses 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 include: Council of Producers & Distributors of Biotechnology, R Street Institute, Exxon Mobil Biomedical Sciences, Inc., American Chemistry Council and the California Manufacturing Technology Association.

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Bernthal, Frederick

Universities Research Association

Dr. Fred Bernthal was President of Universities Research Association for 17 years and now serves as Senior Advisor to the Board of Trustees. The URA consortium has for 50 years been contractor to the U.S. Department of Energy (DOE) for management of Fermi National Accelerator Laboratory. URA is also part of the three-member Honeywell-led team recently awarded the DOE contract for management of Sandia National Laboratories. From 1990-94, Dr. Bernthal was Deputy Director of the National Science Foundation, where he was for one year acting Director and a member of the National Science Board. From 1988-90, he was Assistant Secretary of State for Oceans, Environment and Science, where he chaired the 50-nation Response Strategies Working Group of the U.N. Intergovernmental Panel on Climate Change and led negotiations for the 1990 US-USSR Agreement for Cooperation in Basic Sciences. He also spearheaded initiatives which banned the export of U.S. hazardous wastes and prohibited the import of elephant ivory. From 1983-88 he was a Member of the U.S. Nuclear Regulatory Commission, where he gained approval for the Commission's first Advanced Reactor Policy Statement. In the wake of the Chernobyl disaster, he led a delegation to the Soviet Union where in 1987 he negotiated and signed the first US-USSR nuclear safety protocol. From 1970-80, he was a professor of chemistry and physics at Michigan State University and was granted tenure. In 1978 he joined the staff of U.S. Senator Howard Baker as a Congressional Science Fellow, and he served as Chief Legislative Assistant to Majority Leader Baker from 1980-83. Bernthal holds a B.S. in chemistry from Valparaiso University and a Ph.D. in nuclear chemistry from the University of California at Berkeley. He did postdoctoral study at Yale University and was a NATO Senior Scientist Fellow at the Niels Bohr Institute in Copenhagen in 1977. He was a director of PPL Corporation for 18 years, and subsequently of the PPL spin-off Talen Energy Corporation, until Talen was sold in late 2016. From 2001-2008 he was a director of the Society for Science and the Public. The author of more than 40 peer-reviewed scientific publications, he is a Fellow of the American Physical Society and of the American Association for the Advancement of Science.

Berry, Edwin

Climate Physics LLC

Dr. Edwin Berry is CEO of Climate Physics, LLC, in Bigfork, Montana. He received his BS in Engineering from the Caltech, his MA in Physics from Dartmouth, and his PhD in Physics from the University of Nevada. Berry's PhD mentor was Winterberg, the top student of Heisenberg. Berry's PhD thesis is still cited as a breakthrough in the physics of rain and in numerical modeling. Berry is an American Meteorological Society (AMS) Certified Consulting Meteorologist, and a pilot, with glider, power, and instrument ratings. Berry was chief scientist for Nevada's Desert Research Institute airborne research facility. He was the only civilian in a Department of Defense (DOD) top-secret weather modification project. Berry was National Science Foundation's Program Manager for Weather Modification, where he managed the Metropolitan Meteorological Experiment (METROMEX), the National Hail Research Experiment (NHRE), and university research. The Federal Aviation Administration (FAA) used Berry's methods to reduce wind shear accidents at major airports. The California Energy Commission funded Berry to perform the southern California desert wind-energy study. Berry has been an expert witness in many climate-related legal trials. His courtroom numerical model involving climate helped win a major criminal trial. Berry's model later won the "People's Choice Award" at Microsoft's "Windows World Open" software contest. The University of Nevada Alumni Association awarded Berry with its Professional Achievement Award. Berry led Montana's successful fight against the "Our Children's Trust" climate lawsuit. In sports,

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Berry has won international and national sailing competitions, track events, and currently holds first places in Concept 2 worldwide rowing competition. Berry has self-funded his climate research since 2001. His website, edberry.com, provides climate education and information for the public. His current abstract to an AMS Conference shows human emissions contribute less than 18 ppm to the present 400 ppm, and, therefore, do not cause climate change.

Bilec, Melissa

University of Pittsburgh

Dr. Melissa Bilec is an Associate Professor of Civil and Environmental Engineering at the University of Pittsburgh Swanson School of Engineering. She serves as the Deputy Director of the Mascaro Center for Sustainable Innovation and as a Roberta A. Luxbacher Faculty Fellow. Dr. Bilec earned her Ph.D. in Civil and Environmental Engineering from the University of Pittsburgh. Her current work encompasses urban community health, the built environment, life cycle assessment, and indoor air impacts. She is particularly interested in improving system-level environmental performance of buildings, while developing a deeper understanding of indoor environmental quality, occupant impacts, and energy use. Dr. Bilec has 106 peer reviewed publications and has secured external funding from diverse sources, including 9 National Science Foundation grants. She has also been funded by the Heinz Endowments, Pennsylvania Department of Transportation, National Collegiate Inventors and Innovators Alliance, State of Pennsylvania, National Institute of Health via Clinical and Translational Science Institute, and the Department of Energy. Dr. Bilec is passionate about improving undergraduate and graduate education and recently developed a new M.S. degree and led in the creation of a University-wide Undergraduate Certificate. She has been recognized with four education excellence awards, including the Carnegie Science Center Award in Higher Education. She was an invited speaker at the National Academy of Engineers Frontiers of Engineering Education Symposium in 2014 and served as the local lead for the White House Frontiers Conference in 2016. She currently serves in leadership positions with the Green Building Alliance; International Living Futures, Living Product Hub; Embodied Carbon Network; and the National Institute of Health, Health in Buildings Roundtable. Dr. Bilec's work prior to academia included tenure at the Urban Redevelopment Authority of Pittsburgh where she worked on large-scale brownfield developments, green infrastructure projects, including the conversion of a 100-year railroad bridge into a pedestrian bridge.

Bishop, Paul

Univ. of Rhode Island

Dr. Paul L. Bishop is the Associate Dean of Engineering for Research at the University of Rhode Island. In 2016, also served as Fulbright Specialist to Birla Institute of Science and Technology in Hyderabad, India. He recently was Visiting Professor at the University of Parthenope, Naples, Italy, where in 2013 he served as the Fulbright Distinguished Chair of Environmental Engineering. He was the Environmental Engineering Program Director at the National Science Foundation (NSF) from 2008-2011. Dr. Bishop received his B.S. from Northeastern University and his M.S. and Ph.D. from Purdue University in environmental engineering. He was a professor and department head at the University of New Hampshire. He then served at the University of Cincinnati as department head, associate dean, and Associate Vice President for Research. While there, he developed close ties with the EPA National Risk Management Research Laboratory. He also directed the NIH-funded University of Cincinnati Superfund Basic Research Program. He has directed over \$19 million of environmental research and is the author or co-author of five textbooks and over 500 technical

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publications. He is a Registered Professional Engineer; a Fellow of the American Society of Civil Engineers, the Water Environment Federation, the Association of Environmental Engineering and Science Professors, and the International Water Association; and is a Board Certified Environmental Engineer of the American Academy of Environmental Engineers (AAEE). He has served as President, board member or director of many national and international professional societies and organizations. Dr. Bishop's research interests include drinking water security, biological treatment, contaminated soil bioremediation, development of environmental microsensors, and pollution prevention technologies. He has been awarded the Frontiers in Research Award by AEESP, the Outstanding Service Award from the International Water Association, the Simon Freese Prize from the Environmental and Water Resources Institute, and the Perry L. McCarty/AEESP Founders Award.

Blanz, Bob

Arkansas Department of Environmental Quality

Dr. Robert E. Blanz, PhD, P.E. currently serves as the Chief Technical Officer, Office of the Director, Arkansas Department of Environmental Quality (ADEQ) with an additional assignment as Senior Operations Manager for the Office of Water Quality. Dr. Blanz earned a BA and MS in Zoology from the University of Arkansas, Fayetteville and a PhD in Civil/Sanitary engineering from Texas A&M University, College Station. Dr. Blanz brings over 40 years of governmental and private sector experience in the implementation of environmental statutes and regulations. He began writing NPDES permits, moved to Director of the Kentucky Division of Water Quality, and later to Deputy Director and Interim Director of the Arkansas Department of Pollution Control and Ecology which is now ADEQ. He spent 27 years in private practice, retiring from CH2M HILL and managing Blanz Engineering. During the various tenures with state agencies he obtained delegation of the RCRA and NPDES programs and chaired government/industry workgroups to update the state water quality standards and the State Implementation Plan. In the private sector he served on numerous professional Boards and committees. In addition to various awards from professional societies, he is an inductee into the Arkansas Academy of Civil Engineering. His on-the-ground experience from both a regulatory and private sector perspective includes the NPDES, RCRA, CERCLA, and the Clean Air Act programs. Dr. Blanz is a licensed professional engineer.

Blint, Richard

N2Kinetics Research, LLC

Richard (Dick) Blint specializes in after treatment modeling, high throughput discovery of new catalytic materials, combustion and flame kinetics and theoretical chemistry (molecular quantum mechanics). Dick was at the General Motors Research and Development Center from 1976 through September of 2009 and was a Technical Fellow there from 2003-2009. He received his BA degree from St. Mary's College in Winona, Minnesota and his PhD from the California Institute of Technology. He had postdoctoral positions at Brookhaven National Laboratory, Wright-Patterson Air Force Base and the University of Illinois Materials Research Laboratory before joining General Motors. While at GM, Dick has received three John Campbell awards for research and one Award of Excellence. Other awards include the PNGV medal and an Advanced Combustion Special Recognition Award from the DOE for co-founding the CLEERS after treatment technology group which includes industry, national laboratory and academic participation. Dr. Blint was recently elected a SAE Fellow. Since retiring Dick has consulted for the DOE, CLEERS, John Deere, GE, Texas A and M University, Key Logic, Gamma Technologies and FCA. Richard has authored and/or

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co-authored over 70 peer reviewed articles. He has some patents and has made numerous presentations both invited and contributed. Among the sponsored research projects in which Richard has participated is one where he was the principal investigator in a new catalytic materials high throughput, catalyst material discovery program. That program helped Dick develop his skills for managing a large, multi-institutional research and development project. This project did result in a material which was successfully tested on diesel medium duty truck. This silver/hydrocarbon reductant after treatment system was not a sufficiently improved system to push the urea/zeolite after treatment system out of the market. Richard also served as a mentor on an I-Corps project for a mobile after treatment reactor to evaluate new catalysts on the power train test site. His industry contacts allowed the team to access all the suppliers and OEM's in the technology. He also was presented with the DOE distinguished Achievement Award for leadership in conducting the CLEERS initiative while performing reviewing assignments at the DOE's Annual Merit review in Washington, June 8th, 2017. Dick is presently after treatment technologist for his company, N2Kinetics Research, LLC

Brewer, Todd

City Utilities of Springfield

Dr. Todd F. Brewer is Manager – Water Quality & Optimization for City Utilities of Springfield, Missouri. He holds a secondary appointment as half-time lecturer for the Cooperative Engineering Program at Missouri State University, through the Missouri University of Science & Technology. He received his PhD in Civil/Environmental Engineering from the University of Nevada, Reno, MS in Chemical Engineering from the University of Tulsa, and BS in Chemistry and Mathematics (double major) from Northeastern Oklahoma State University. Dr. Brewer has more than 21 years of experience in the drinking water industry as a utility employee, is a certified Water Treatment Operator in Missouri – Class “A” - and has taught operator certification classes for more than 15 years. He currently serves as a subject matter expert for the Missouri Department of Natural Resources Operator Certification Unit in the development of standardized exams for assessment of operator competency. Over his career in the water industry, he has consistently engaged in teaching university-level science and environmental engineering courses. He continues to be actively involved in state and national professional organizations – primarily the American Water Works Association and the Partnership for Safe Water. He currently serves as the Chair-Elect for the Missouri Section of the American Water Works Association. Currently, he also serves as Vice-Chair for the Program Effectiveness Assessment Committee of the Partnership for Safe Water – Distribution Optimization Program. During his professional career, Dr. Brewer has conceived, conducted, and directed research focused on public health protection. Student interns have completed master's theses focused on a range of topics such as: occurrence of endocrine disrupting chemicals in wastewater, bacterial source tracking for identification of contamination sources, chlorate formation and control in drinking water, and assessment of algal toxin occurrence and production in drinking water source reservoirs. Dr. Brewer currently receives no federal research funding.

Brouder, Sylvie M.

Purdue University

Dr. Sylvie Brouder is a Professor and Wickersham Chair of Excellence in Agricultural Research in the Agronomy Department at Purdue University and Director of Purdue's Water Quality Field Station (WQFS). In the peer review literature, she has authored over 60 research publications and 35 publications and training guides for agricultural professionals and farmers; she has authored an

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additional 60 technical publications and conference proceedings. A foundational theme of her program as well as that of the WQFS research portfolio is to advance quantitative approaches and ecological accounting frameworks to inform the valuation of multiple ecosystem services (ES) and their synergies and tradeoffs. She is an expert in ecological / sustainable intensification of mixed use landscapes and her research focuses on field-to-landscape scale nutrient cycling with an emphasis on crop ecology, water quality, greenhouse gas emissions and nutrient balances and losses in agro-ecosystems. Her work is recognized through awards and advisory appointments. She is a Fellow of the American Society of Agronomy and of the Food Systems Leadership Institute (Cohort 8) and has received numerous publication and educational / Extension materials awards from professional societies. She is a Certified Senior Ecologist through the Ecological Society of America and currently serves on their Board of Professional Certification. She has served in an array of short-term, appointed advisory roles including for Packard Foundation, Bill and Melinda Gates Foundation, FAO CGIAR Independent Science and Partnership Council and Independent Evaluation Agreement, USAID Feed the Future Initiative and DOE Bioenergy Technology Office's Sustainability and Analysis Platform. Dr. Brouder received her B.A. in Biology from Harvard University and her Ph.D. in Ecology from the Ecology Graduate Group at the University of California – Davis. Her current, tenured appointment at Purdue is split between research, Extension education, and on-campus teaching and she has received extramural support for all three mission areas. Funding sources in the last two years are USDA National Institute for Food and Agriculture, USDA/DOE North Central Sungrant Program, DOE Bioenergy Technology Office, and the International Plant Nutrition Institute (for assessing tradeoffs among provisioning, regulating and supporting ES with bioenergy crop production in prime and marginal landscapes). Additional funding for educational materials development and capacity building is from NSF Research Experience for Undergraduates (for summer research projects in nutrient cycling), USAID International Science Education (for internationalizing crop, soil and environmental science curricula), and USDA National Needs Fellowship (for graduate education to meet the agro-ES challenge) Programs.

Burton, G. Allen

University of Michigan

Dr. G. Allen Burton, Jr. is a Professor in the School for Environment and Sustainability and also Department of Earth & Environmental Sciences. He has an Honorary Doctorate from the University of Roskilde, a Concurrent Professor at Nanjing U. and Honorary Professor at the State Key Laboratory of Environmental Criteria and Risk Assessment in Beijing. He is also the Editor-in-Chief of Environmental Toxicology & Chemistry, and a Fellow and past President of the Society of Environmental Toxicology & Chemistry. While at the U. of Michigan he has served as Director of the Water Center and NOAA's Cooperative Institute of Limnology and Ecosystems Research. He was a Distinguished Faculty Fellow of the Graham Sustainability Institute (2014-2016) and Brage Golding Distinguished Professor of Research (2000-2003). He received a BS in biology-chemistry from Ouachita Baptist U., MS in microbiology from Auburn U., PhD in aquatic toxicology from the U. of Texas at Dallas, and a Post-doctoral Fellowship in biochemistry at the U. of Colorado. He has been continuously funded since 1985, totaling over \$10 million from all sectors. Funding during the past 2 years came from SERDP, CH2M, the Nickel Producers Environmental Research Association, the Copper Alliance, and U. of Michigan. His research has focused on sediment and stormwater contaminants, understanding bioavailability processes, ecological risk at multiple trophic levels, and ranking stressor importance. He assisted the U.S. EPA in developing their sediment toxicity test methods and has served on numerous national and international panels and advisory committees,

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such as the National Research Council (Committee on Evaluation of the Effectiveness of Dredging at Contaminated Sediment Sites), 7 U.S. EPA's Science Advisory Panel and Science Advisory Board ad hoc committees, Chair of NIEHS Special Emphasis Panel, and NIEHS Basic Superfund Research Program review panel. Dr. Burton has authored 197 peer-reviewed papers, including books and chapters.

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.

Carlin, Alan

Retired Federal Employee

As discussed extensively in my multidisciplinary 2015 book on climate change, EPA needs to use good science and good economics in carrying out its responsibilities to the extent allowed by statute. I offer expertise in both subject areas after 50 years of experience and research in both the physical science and economic aspects of environmental protection. This provides the ability to evaluate environmental protection risks and proposed protection measures from both perspectives. This has proved invaluable in such environmental issues as climate change, which must be evaluated from multiple disciplines if it is to be accurately evaluated. In the case of climate change, for example, important current research can be found in a sub-field of economics, not just the physical sciences, although both need to be carefully considered. My strong belief in supporting valid science without regard to its current popularity was honored in 2014 with the Climate Change Whistleblower Award at the Heartland Institute's Ninth International Conference on Climate Change in Las Vegas. My

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academic background reflects this multidisciplinary approach. I have a PhD in economics from the Massachusetts Institute of Technology and a BS in physics from the California Institute of Technology. I worked at the RAND Corporation as an Economist for almost 8 years and at the US Environmental Protection Agency as a manager and a Senior Operations Research Analyst for almost 39 years. At EPA the US Office of Personnel Management determined that I was fully qualified in both the physical sciences and economics. I have about 40 publications, including one commercially published book and one published both commercially and by USEPA, and about 20 published in professional journals or as chapters in books. I worked at EPA primarily as a physical scientist for over 7 years, including supervising the production of pollutant assessment documents at EPA and by the National Academy of Sciences. I supervised research in both the Office of Research and Development and the Office of Policy, Economics, and Innovation at the multi-million dollar level for many years and have worked in many areas of environmental protection.

Cohen, Samuel

University of Nebraska Medical Center

Dr. Samuel M. Cohen is Professor of Pathology and Microbiology and Havlik-Wall Professor of Oncology at the University of Nebraska Medical Center, Omaha, NE, and a member of the Buffett Cancer Center. He received his MD and PhD (Experimental Oncology) from the University of Wisconsin-Madison, residency training in anatomic and clinical pathology at St. Vincent Hospital, Worcester, MA and is board certified in anatomic and clinical pathology. He continues to be active as a surgical pathologist and in basic research, and teaches medical and graduate students, pathology residents and fellows. His research has been in chemical carcinogenesis, toxicology, and pathology, with an emphasis on extrapolation from animal models to humans. He has published over 400 peer reviewed articles and book chapters, and has served on numerous national and international panels and committees, including for the National Institutes of Health (NIH), National Academy of Sciences, Environmental Protection Agency, Food and Drug Administration, International Programme on Chemical Safety, International Agency for Research on Cancer, National Comprehensive Cancer Network, and the Expert Panel of the Flavor and Extract Manufacturers Association. He also has served on the Boards of Scientific Counselors of the National Toxicology Program and the National Institute of Environmental Health Sciences, and has been on the Board of Trustees of the International Life Sciences Institute (ILSI) and Health and Environmental Sciences (HESI). His research is funded from the NIH, Arsenic Science Task Force, Sumitomo Chemical Company, and Kumiai Chemical Company. He has received numerous awards, including the Lehman and Merit Awards from the Society of Toxicology, the Lifetime Achievement Award from the Society of Toxicologic Pathology, and the Distinguished Scientist Award from the American College of Toxicology. He is a fellow of the Academy of Toxicological Sciences and the International Academy of Toxicologic Pathology.

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

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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 filtration systems, innovative carbon based gas separation devices, developing tools for environmental remediation of salts and attempting to understand 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.

Cox, Tony

Cox Associates

Tony Cox is President of Cox Associates, a Denver-based applied research company specializing in quantitative health risk analysis, epidemiology, causal analytics, and operations research. Since 1986, Cox Associates' mathematicians and scientists have applied epidemiological and biomathematical models, biostatistical and computational risk analyses, causal data mining, machine learning, artificial intelligence, bioinformatics, and operations research models to measurably improve health risk assessment and decision-making for public and private sector clients. In 2006, Cox Associates was inducted into the Edelman Academy of the Institute for Operations Research and Management Science (INFORMS), recognizing outstanding real-world achievements in the practice of operations research and the management sciences. In 2012, Dr. Cox was inducted into the National Academy of Engineering (NAE), "For applications of operations research and risk analysis to significant national problems." He has served as a member of the National Academies' Board on Mathematical Sciences and their Applications and has served on many National Academies and National Research Council committees dealing with health and safety risk analysis. In 2013, he co-founded NextHealth Technologies, a Denver-based company offering advanced data analytics solutions to healthcare plans to reduce health, financial, and member attrition risks. Since 2015, Dr. Cox and Cox Associates have received funding from The George Washington University Regulatory Studies Center to develop statistical software for causal analysis of epidemiological data; the American Chemistry Council to develop predictive analytics software and research lung diseases caused by crystalline silica and other poorly soluble particles; the American Petroleum Institute and its members for research on methods of causal analysis applied to epidemiological data on asthma, coronary heart disease, all-cause mortality, and other adverse health effects associated with exposure to fine particulate matter and ozone; the U.S. EPA for expert review of research proposals; the National Stone, Sand, and Gravel Association for research on the statistical reliability and variability of laboratory measurements of crystalline silica in air filters; the European petroleum consortium CONCAWE for research on low-dose metabolism of benzene among Chinese workers; plaintiff's attorneys for expert opinions on the use of statistical methods and models in construction defect litigation; and telecommunications companies for research and software on high-reliability optical

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networks. Dr. Cox holds a Ph.D. in Risk Analysis and an S.M. in Operations Research both from MIT; an AB from Harvard University; and is a graduate of the Stanford Executive Program. He is Clinical Professor of Biostatistics and Informatics at the University of Colorado Health Sciences Center and has served at the University of Colorado, Denver as Honorary Full Professor of Mathematics, lecturing on decision and risk analysis, biomathematics, health risk modeling, computational statistics and causality; and on the Faculties of the Center for Computational Mathematics and the Center for Computational Biology. He has taught many graduate and professional courses in decision and risk analysis, causal analytics, computational statistics, and biomathematical modeling. Dr. Cox is Editor-in-Chief of *Risk Analysis: An International Journal*. He is Area Editor for Real World Applications for the *Journal of Heuristics*, and is on the Editorial Board of the *International Journal of Operations Research and Information Systems*. He is an Edelman Laureate of INFORMS, a member of the American Statistical Association, and a lifetime Fellow of the Society for Risk Analysis. He has authored and co-authored over 200 journal articles and book chapters on these fields. His most recent books are *Breakthroughs in Decision Science and Risk Analysis*, *Improving Risk Analysis*, *Risk Analysis of Complex and Uncertain Systems* and the *Wiley Encyclopedia of Operations Research and Management Science*, which Dr. Cox co-edited. He has over a dozen U.S. patents on applications of artificial intelligence, signal processing, statistics and operations research in telecommunications. His current research interests include computational statistical methods for causal inference in public health risk analysis, data-mining, and advanced analytics for risk analysis and public policy applications.

Cromar, Kevin

New York University

Dr. Kevin Cromar is the Director of the Air Quality Program at the Marron Institute of Urban Management at New York University and a member of the Utah Air Quality Board. An environmental epidemiologist by training, he has appointments in the departments of Population Health and Environmental Medicine at NYU School of Medicine. He is recognized as an expert in environmental health policy having previously worked as a research fellow at NYU School of Law Institute for Policy Integrity and currently serves on the Environmental Health Policy Committee for the American Thoracic Society. His translational health and policy work has led to improvements in transportation, energy, and health policy at the local level both in the US and internationally. His current research includes collaborations with NASA, UNICEF, UNEP, and SEDEMA (Mexico) and currently serves on the science advisory committee for the Air Quality Health Index of Health Canada. Cromar has published research on the health effects of air pollution using a variety of study designs including ecologic, cohort, and animal toxicology studies. He was part of the international expert panel that produced the joint ERS/ATS policy statement on what constitutes an adverse health effect of air pollution and served as the organizing chair of the inter-agency (ATS, US EPA, NASA, NIEHS) workshop on air pollution monitoring for health research and patient care. Cromar has presented his scientific research on critical aspects of the Clean Air Act, particularly as it relates to the National Ambient Air Quality Standards, at international conferences and at invited talks at EPA NCEE, National Association of Clean Air Agencies, and other governmental and professional meetings. This research includes: the importance of non-incremental mortality risks in estimating economic benefits of air pollution mitigation, understanding local preferences regarding economic and health impacts of air pollution regulation, assessing the effectiveness of risk communication using the Air Quality Index, and addressing the unique needs of states in the Intermountain West in the planning and implementation of NAAQS.

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D'Aleo, Joseph

WeatherBELL Analytics, LLC

Joseph S. D'Aleo is a chief meteorologist/climatologist at WeatherBELL Analytics, LLC. He is a Certified Consulting Meteorologist, a Fellow of the AMS, formerly chair of the AMS Committee on Weather Analysis and Forecasting and a Councilor of the Society. He co-chaired national conferences for both the American Meteorological Society and the National Weather Association. He received BS and MS degrees in Meteorology from the University of Wisconsin, and received a Doctoral Traineeship grant in Air Resources from NYU (ABD). He helped establish the meteorology program at Lyndon State College where he was a professor and chair of the department of Meteorology and Climatology for 6 years. He was co-founder and the first Director of Meteorology at the cable TV Weather Channel. He was chief meteorologist at WSI Corporation and chief scientist at their Intellicast division. He was a partner and chief forecaster at Hudson Seven LLC and then WeatherBELL Analytics. Since the 1970s, he has focused on, lectured on, authored or co-authored papers, research reports and books on how natural cycles in the oceans, sun and volcanism along with urbanization and land use changes can explain most all the changes in temperatures and extremes of our weather and climate and on the many challenges with attempts to estimate temperature trends. Since the 1980s, he has developed and refined skillful statistical multi-season forecasting models incorporating these factors to advise clients in industry.

Dasgupta, Purnendu

University of Texas at Arlington

The nominee is currently the Jenkins Garrett Distinguished Professor and the Hamish Small Chair in Ion Analysis at the University of Texas in Arlington; he is also an adjunct Professor of Physics. He received his PhD in Analytical Chemistry with a minor in Electrical Engineering from Louisiana State University (LSU) in 1977 and has worked in various capacities at LSU, The University at California at Davis and previous to his present position as Paul Whitfield Horn Professor at Texas Tech University. His major recognitions include Benedetti-Pichler Award of the American Microchemical Society (1989), American Chemical Society (ACS) Award in Chromatography (2011), Dal Nogare Award in Chromatography (2012), ACS J Calvin Giddings Award in Chemical Education (2015), Fellow of the Institute of Electrical and Electronics Engineers (2015), honorary membership of the Japan Society of Analytical Chemistry (2015), Eastern Analytical Symposium Fields of Analytical Chemistry Award (2016). The majority of his 400+ peer-reviewed publications are published in Analytical Chemistry and Environmental Science and Technology, the flagship journals of these disciplines. At the present time the nominee has authored more papers in Analytical Chemistry than any other individual. The air and water environment both feature in a major fashion in the nominee's research. His work on environmental perchlorate and its general occurrence in human milk was the first to bring general attention in this area – two different publications in ES&T in 2005 were respectively the most cited paper of the year for the journal and the Editor's Choice for the Best Science Paper of the year. The nominee has been a pioneer in designing air quality instrumentation. Extant approaches to comprehensive simultaneous gas-particle measurements rely on his work. He has a great interest and understanding of the ultimate effects of contaminants – his interest in perchlorate ultimately led him to examine the status of iodine nutrition in this country, for example. He has been a pioneer in atmospheric measurement instrumentation – extant approaches to comprehensive simultaneous gas-particle measurement are based on his work. The nominee has received various competitive EPA research grants in the past and has served as a reviewer for various Federal Agencies.

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Dayaratna, Kevin

The Heritage Foundation

Kevin D. Dayaratna, Ph.D is Senior Statistician and Research Programmer in The Heritage Foundation's Center for Data Analysis (CDA). He is also an adjunct professor of Mathematics and Data Science at the George Washington University. An applied statistician, he has researched and published on the use of high-powered statistical models in public policy, medical outcomes, business, economics, and even professional sports. In terms of policy specifically, Dayaratna has published statistical work on energy, climate, tax, health care, welfare, and labor policy. Regarding climate policy, Dr. Dayaratna has published extensively on the social cost of carbon, both at The Heritage Foundation and in the peer-reviewed literature. He has also testified on the topic twice in front of Congress. Dr. Dayaratna's work on energy policy has been referenced by the Trump Administration. Dr. Dayaratna did his undergraduate work at the University of California, Berkeley, majoring in applied mathematics with a specialty in mathematical physics. He also holds two masters degrees from the University of Maryland, one in business and management and the other in mathematical statistics. In 2014, Dayaratna completed his Ph.D. in mathematical statistics from the University of Maryland with specialties in Bayesian modeling and statistical computing.

Diez Roux, Ana V.

Drexel University

Ana Diez Roux, M.D., Ph.D., is Professor of Epidemiology and Dean of the Drexel School of Public Health. Before joining Drexel she was Chair of Epidemiology and Director of the Center for Social Epidemiology and Population Health at the University of Michigan School of Public Health. Dr. Diez Roux has been an international leader in the investigation of the social determinants of health, the application of multilevel analysis in health research, and the study of neighborhood health effects. Her research areas include social epidemiology and health disparities, environmental health effects, urban health, psychosocial factors in health, and cardiovascular disease epidemiology. Recent areas of work include social environment-gene interactions and the use of complex systems approaches in population health. She has led large NIH and foundation funded research and training programs in the United States and in collaboration with various institutions in Latin America. She has been a member of the MacArthur Network on Socioeconomic Factors and Health and is a Co-Director of the Network on Inequality, Complexity and Health. Dr. Diez Roux has served on numerous review panels and advisory committees including most recently the Clean Air Scientific Advisory Committee (CASAC) of the Environmental Protection Agency, the Board of Scientific Counselors (BSC) of the National Center for Health Statistics, the Committee on Health and Wellbeing in the Changing Urban Environment of the International Council for Science (ISCUS) and the Editorial Board of the Annual Review of Public Health. She was awarded the Wade Hampton Frost Award for her contributions to public health by the American Public Health Association. She is an elected member of the American Epidemiological Society, the Academy of Behavioral Medicine Research, and the Institute of Medicine of the National Academy of Sciences. Dr. Diez Roux received an M.D. from the University of Buenos Aires, a master's degree in public health and doctorate in health policy from the Johns Hopkins School of Hygiene and Public Health.

Driessen, Paul

Global-Comm Partners

Paul Driessen is president of Global-Comm Partners, a sole proprietorship that conducts research, prepares reports and articles, and gives interviews and speeches on scientific ethics and integrity,

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corporate social responsibility, climate change, renewable and fossil fuel energy, land use, sustainability, malnutrition, biotechnology, pesticides, disease control, economic development and human rights. He has been active in these areas since 1976, and is the author of four books, dozens of reports and hundreds of articles on these topics. He has a BA in geology, biology and ecology, and a JD emphasizing environment and natural resources law. Following a year with state government, three years with an energy trade association, and eight years with the U.S. Senate and U.S. Department of the Interior, since 2005 he has served as a policy analyst and advisor on these issues for the Committee for A Constructive Tomorrow (CFACT) and Congress of Racial Equality (CORE). He held leadership roles with the Public Relations Society of America but has not served previously on an EPA or other government advisory board.

Easton, Zachary

Virginia Polytechnic Institute and State University (Virginia Tech)

Dr. Zachary Easton is an Associate Professor in Biological Systems Engineering at Virginia Tech. He holds a B.S. in Soil Science from the University of Massachusetts, and an M.S. and Ph.D. in Hydrology from Cornell University. The primary focus of Dr. Easton's work is to improve the understanding of hydrologic and terrestrial processes that control biogeochemical cycles and fluxes with the ultimate goal of developing policies and management practices that protect water, soil, and other natural resources. Water is typically Dr. Easton's central focus because it is arguably the most critical and at-risk resource to humans and ecosystems. His research addresses both native and managed systems, considers processes at plot- to large river basin-scales, and is relatively evenly divided among field study/monitoring, modeling, and application of results to real world problems. Three broad and somewhat overlapping research themes around which Dr. Easton focuses are: (1) Impact of land use and climate change on water quality and quantity, (2) Impact of watershed management practices on water quality, and (3) Bridging basic research and modeling to management and application. Ongoing projects funded by the National Science Foundation (NSF), the U.S. Department of Agriculture (USDA), and the U.S. Environmental Protection Agency (EPA) focus on determining relationships among biogeochemical hotspots, landscape hydrology, and the impact that climate change and variability have on these processes, and how climate change impacts the phenology of agricultural management and the ensuing effect on water quality. His research also focuses on the Chesapeake Bay watershed. He is the Virginia representative to the USDA Southeast Region Climate Hub, an elected member of the EPA Chesapeake Bay Scientific and Technical Advisory Committee, past chair of SERA-43 (the "Water" SERA), and an advisor to the Natural Resources Conservation Service (NRCS) on revisions to the 590 Nutrient Management Standard P-Index. His research over the past two years has been supported by the NSF, USDA's Natural Resources Conservation Service (NRCS), the Pratt Endowment, the Delmarva Land Grant Institution Collaborative Research Seed Funding Program, and EPA.

Enstrom, James

University of California, Los Angeles

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 a BS in physics from Harvey Mudd College, a 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

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scientific integrity. He has received research funding from many sources, including NIH, ACS, UC, foundations, industry sources, and personal donations. He has received no funding in recent years, but has still conducted important research by using innovative and cost-effective methods. 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 most recently has shown that fine particulate matter (PM2.5) is not related to total mortality in the ACS CPS I and CPS II cohorts. He is the only independent scientist to obtain and analyze original ACS CPS cohort data. His research shows that the EPA PM2.5 NAAQS must undergo complete and objective reassessment. His Scientific Integrity Institute website contains thousands of documents relevant to air pollution epidemiology, lifestyle epidemiology, statistics, and scientific integrity. He understands air pollution health 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.

Farland, William

Colorado State University

Dr. William H. Farland is the Vice President for Research at Colorado State University in Fort Collins, CO. He is also a Professor in the Department of Environmental and Radiological Health Sciences, School of Veterinary Medicine and Biomedical Sciences at that institution. He serves as the chief institutional advocate and facilitator for faculty research activities and is responsible for programmatic excellence in research. Specific responsibilities of the position include oversight and promotion of external research funding and associated regulations, needs and capabilities; serving as liaison with federal research officials and agencies; identification of research opportunities; and development and oversight of interdisciplinary programs and research centers. In 2006, Dr Farland was appointed Deputy Assistant Administrator for Science in the US Environmental Protection Agency's (EPA) Office of Research and Development (ORD). He had served as the Acting Deputy Assistant Administrator since 2001. In 2003, Dr. Farland was also appointed Chief Scientist in the Office of the Agency Science Advisor. He served as EPA's Acting Science Advisor throughout 2005. Formerly, he was the Director of the ORD's National Center for Environmental Assessment (NCEA) which had major responsibility for the conduct of chemical-specific risk assessments in support of EPA regulatory programs, the development of Agency-wide guidance on risk assessment, and the conduct of research to improve risk assessment. Dr. Farland's 27-year federal career was characterized by a commitment to the development of national and international approaches to the testing and assessment of the fate and effects of environmental agents.

Flint, Courtney

Utah State University

Dr. Courtney Flint is a Professor of Natural Resource Sociology at Utah State University. She was previously faculty in the Department of Natural Resources and Environmental Sciences at the University of Illinois at Urbana-Champaign. Dr. Flint received her B.S. in Geography from Northern Arizona University, M.S. in Geography from the University of Colorado at Boulder, and her Ph.D. in Rural Sociology from The Pennsylvania State University. Dr. Flint has authored over 50 peer-reviewed journal articles and several book chapters. She has led and collaborated on research funded by federal agencies including the National Science Foundation (NSF), the US Department of

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Agriculture (USDA), the US Fish and Wildlife Service (USFWS), and the Environmental Protection Agency (EPA). Dr. Flint's expertise is on community and regional response to environmental disturbance and risk as well as the integration of social science and environmental science to address natural resource related vulnerabilities. Her research has focused on numerous natural resource contexts including water management, forestry, agriculture, subsistence tribal resources, and mountain landscapes. She employs qualitative, quantitative, and participatory research methods. Dr. Flint has collaborated with an interdisciplinary array of scientists as well as community and regional stakeholders in North America, Europe, and recently South Africa. Dr. Flint has served on the Executive Committee of the US EPA Board of Scientific Counselors (BOSC) and as Vice Chair of the Sustainable and Healthy Communities Subcommittee of the BOSC. She serves on the Advisory Board of the Afromontane Research Unit at the University of the Free State in South Africa. She is an associate editor for the journal *Society and Natural Resources* and she is the treasurer-elect of the International Association for Society and Natural Resources.

Fowle, John

Science to Inform, LLC

Since 2012 Dr. Jack Fowle has been in solo practice as an independent consultant about 1) the use of science to inform decisions regarding environmental risk, and 2) in the development and use of more informative and efficient approaches to traditional toxicity testing. Previously he worked for 33 years for the US Environmental Protection Agency. His last position was to serve as the Deputy Director of EPA's Health Effects Division in the Office of Pesticide Programs (OPP) in Washington, DC where he directed the health risk assessment activities supporting the re-registration of existing pesticides. He also managed the integration of new Toxicity Testing in the 21st Century approaches into OPP's human health risk assessments. Before OPP he was Acting Director of EPA's Neurotoxicology Division, as well as Assistant Laboratory Director for Chemical Safety, at the National Health and Environmental Effects Research Lab (NHEERL) in Research Triangle Park, NC. There he managed a research division and helped develop alternatives to animal approaches and to establish the Agency's computational toxicology program. He also served as Deputy Director of EPA's Science Advisory Board, and as the Science Advisor to U.S. Senator Daniel Patrick Moynihan. He serves on the Board of Directors for the Institute of In Vitro Sciences in Gaithersburg, MD and the Center for Alternatives to Animal Tests (CAAT) at the Johns Hopkins University. He is President of the Board of Trustees for the Evidence Based Toxicology Consortium, also at the Johns Hopkins University, and is an AltTox Editor. He is Councilor for the American Society for Cellular and Computational Toxicology as well as Past President of the Society of Toxicology's In Vitro and Alternative Methods Specialty section and past Treasurer of the Society for Risk Analysis. He is a member, and former Vice Chair, of the American Chemical Society's Committee on Environmental Improvement (CEI) that helps develop ACS policy statements and advice about chemical safety and sustainability. He serves on a science advisory committee to a tobacco company. He received his baccalaureate and doctoral degrees in genetics from George Washington University in Washington, D.C., and he is a board certified toxicologist.

Frampton, Mark

University of Rochester

Dr. Mark W. Frampton is Professor Emeritus in Medicine in the Pulmonary & Critical Care division, at the University of Rochester Medical Center (URMC), Rochester, NY. Dr. Frampton holds an M.D. from New York University. During pulmonary specialty training at URMC in the late 1980s, Dr.

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Frampton became interested in the adverse health effects of air pollution, at a time when epidemiology studies were beginning to provide strong links between ambient particulate air pollution and mortality. Working with Dr. Mark Utell and utilizing the human clinical studies facility at URMC, he expanded the focus of human clinical air pollution studies beyond pulmonary function effects to include effects on airway inflammation, host defense against viral infection, and cardiovascular effects. Dr. Frampton's laboratory was the first to conduct human clinical studies of ultrafine particles (smaller than 100 nm), first using laboratory generated elemental carbon particles, and subsequently with concentrated ambient ultrafine particles, using the Harvard ultrafine concentrator system. Over the years his laboratory has studied healthy subjects as well as those considered to have increased susceptibility, including older subjects and people with mild asthma, chronic obstructive pulmonary disease, type 2 diabetes, and even genetic susceptibility. Dr. Frampton's laboratory is one of three centers completing a study of the cardiovascular effects of ozone exposure in healthy older subjects, funded by the Health Effects Institute. These studies have helped to understand the physiological changes and pathways to adverse effects that occur in response to pollutant exposure, and have helped to inform the EPA's promulgation of rational ambient air quality standards. Funding for these studies has come from the National Institutes of Health, the U.S. EPA, the Health Effects Institute, the New York State Energy Research and Development Authority, CONCAWE, ExxonMobil, the American Petroleum Institute, and others. Dr. Frampton has served on numerous scientific review panels with the National Institutes of Health and other scientific funding organizations. He has been active in the Environmental and Occupational Health Assembly of the American Thoracic Society, serving as its Chair in 2001-2003. At the request of the ATS President at the time, Dr. Frampton chaired a Task Force on Bioterrorism, and helped to form a new Section on Bioterrorism, serving as its first Chair in 2003-2005. He recently served as a member of the ATS committee preparing a revision of the important and oft-cited document, "What Constitutes a Health Effect of Air Pollution?", which has now been published. Dr. Frampton has served as a consultant and reviewer for the Health Effects Institute, a health research organization jointly funded by EPA and the automobile industry. He is currently a member of the Science Review Committee for the Health Effects Institute. He participated in an HEI review panel on the health effects of traffic-related air pollution, and chaired an HEI Review Panel on ultrafine particles, which produced a recent HEI Perspectives, "Understanding the Health Effects of Ambient Ultrafine Particles". Dr. Frampton has served as a consultant to the EPA in developing and reviewing Integrated Scientific Assessments (formerly Criteria Documents) for nitrogen dioxide, ozone, and particulate matter. In addition, he has served on several EPA grant and fellowship review panels and scientific workshops, and has been invited to speak at EPA functions. He currently serves on the CASAC PM 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

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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 35 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 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.

Fulks, Gordon

Gordon Fulks and Associates

Gordon J. Fulks, PhD is an experimental astrophysicist who has worked on a wide variety of important science, from the basic science of galactic cosmic ray propagation through the spiral magnetic fields of the heliosphere to the applied science of nuclear weapon effects to the evaluation of many scientific scares using the concept of 'acceptable risk.' Dr. Fulks has done extensive work on the climate issue and is considered a national expert. He has a BS, MS, and PhD, all from the University of Chicago, and all in physics. In a paper published in 1975, he correctly predicted that the heliosphere, filled by the solar wind, stretched beyond the farthest planet, a view substantially at odds with opinion at the time. The greatest reward for a scientist is to be proven correct, and NASA spacecraft did just that decades later. In his work for Mission Research Corporation, Dr. Fulks studied nuclear weapon effects, under contract to Defense Nuclear Agency. He also worked on hardening of various systems and facilities against electromagnetic attacks. When the threat environment changed at the end of the Cold War, Dr. Fulks worked on hardening US Embassies against physical and electromagnetic attacks. This included the US Embassy in Moscow during the period when Reagan was negotiating with Gorbachev. After the demise of the Soviet Union, Dr. Fulks began consulting for businesses and government agencies concerned about a proliferating number of scientific scares. He has researched the climate paradigm and helped to educate many as to what is real and what is not. He has also reviewed epidemiological studies on diesel particulates for the California Air Resources Board and the South Coast Air Quality Management District and is thoroughly familiar with the Linear No Threshold controversy. All his efforts in recent years have been pro bono.

Galloway, James

University of Virginia

Dr. James N. Galloway is Sidman P. Poole Professor of Environmental Sciences at the University of Virginia. He received the B.A. degree in Chemistry and Biology from Whittier College. He received a Ph.D. degree in Chemistry from the University of California, San Diego. After a postdoctoral appointment with Gene Likens at Cornell University, he joined the faculty of the University of Virginia. He was the founding chair of the International Nitrogen Initiative from 2003 to 2008, and was a member of the U.S. Environmental Protection Agency Science Advisory Board from 2003 to

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2009. Most recently he served as a lead author on the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment and as a coordinating lead author on the U.S. Third National Climate Assessment. His research on biogeochemistry includes the natural and anthropogenic controls on chemical cycles at the watershed, regional, and global scales. His current research focuses on beneficial and detrimental effects of reactive nitrogen as it cascades between the atmosphere, terrestrial ecosystems and freshwater and marine ecosystems, and on the interactions of sulfur, nitrogen, and carbon biogeochemical cycles. Dr. Galloway is currently funded by: the U.S. EPA (to develop nitrogen footprint tools for a number of stakeholders); and The Organic Center (to include questions related to organic food production and the nitrogen footprint of food).

Gordon, Terry

New York University School of Medicine

Dr. Gordon is a Professor of Environmental Medicine at New York University's School of Medicine. He is the Director of a National Institute of Environmental Health Sciences (NIEHS) T32 Training Grant and is the Deputy Director of NYU's NIEHS-supported Core Center. Dr. Gordon received a B.S. in Physiology and an M.S. in Toxicology from the University of Michigan and his PhD from the Massachusetts Institute of Technology (MIT). He has been funded by the National Institutes of Health (NIH), Centers for Disease Control and Prevention (CDC), and Environmental Protection Agency (EPA) for nearly 3 decades. Dr. Gordon's broad research interest is in inhalation toxicology with a major focus on the identification and understanding of the role of individual susceptibility and genetic factors in the pathogenesis of the adverse pulmonary effects produced by inhaled environmental and occupational agents. Other major research foci include identifying PM components which contribute to the adverse effects of PM and the toxicity of alternative tobacco products such as secondhand hookah smoke. Dr. Gordon teaches graduate level courses and has authored over 130 papers and chapters. He has served as a consultant/author to the Army, NIEHS, National Aeronautics and Space Administration (NASA), and EPA on a number of issues of pulmonary toxicology and air pollution that are related to the development of various documents and on EPA's Clean Air Science Advisory Committee (CASAC) ad hoc advisory panels. Dr. Gordon has also served on a number of committees for the Society of Toxicology and is currently an Associate Editor for Environmental Health Perspectives and a member of the Threshold Limit Value (TLV) committee. Dr. Gordon's research is funded by grants from NIH and NYU/Abu Dhabi Institute. 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 (1974) and an M.S. in Toxicology (1976) from the University of Michigan, and a Ph.D. in Toxicology from Massachusetts Institute of Technology (1981), 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 the National Institute of Environmental Health Services (NIEHS), National Institute of Allergy and Infectious Diseases (NIAID), National Coalition for Cancer Research (NCCR), U.S. Department of Defense (DOD), Bureau of Mines, Health Canada, and the U.S. Environmental Protection Agency (EPA). Dr. Gordon currently serves as Chair of the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value 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

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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. He also led a large collaborative effort amongst EPA's five original PM research centers to evaluate the in vitro and in vivo toxicity of size-segregated PM collected in the U.S. and Europe. Dr. Gordon's research has been supported by grants from both government agencies and private companies, with core grant research support primarily being from the federal government (U.S. Environmental Protection Agency, Centers for Disease Control, National Institute of Environmental Health Sciences), with additional grant support from state and local governments, and industry. Dr. Gordon is an active member of the Society of Toxicology (SOT), and has served on the Program Committee (2002-2005), the Placement Service (1998-2001), Membership Committee (2009-2012), and as President of its Inhalation Specialty Section during 2002-2003. He has served as a consultant/author to the EPA on issues of pulmonary toxicology related to the development of various documents, and he served on EPA's Clean Air Scientific Advisory Committee (CASAC) Oxides of Nitrogen (NO_x) and Sulfur Oxides (SO_x) Primary National Ambient Air Quality Standards (NAAQS) Review Panels.

Graham, John D.

Indiana University

John D. Graham has been Dean of the School of Public and Environmental Affairs (SPEA) at Indiana University (Bloomington and Indianapolis) since 2008. His previous academic roles include Dean of the Pardee RAND Graduate School in California (2006-2008) and tenured Professor of Policy and Decision Sciences at the Harvard School of Public Health (1985-2001), where he founded and led the Harvard Center for Risk Analysis. At the request of President George W. Bush, Dean Graham also served in the Executive Office of the President as Administrator of the U.S. Office of Management and Budget's Office of Information and Regulatory Affairs (2001-2006). In this capacity, Dean Graham led the regulatory-review, statistical, and information-policy functions of the federal government. Dean Graham earned his BA in economics and politics from Wake Forest University (1978), his MA in public affairs from Duke University (1980), and his Ph.D. in public affairs from Carnegie-Mellon University (1983). As an EPA-funded post-doctoral fellow in environmental health at the Harvard School of Public Health (1984-5), he was trained in the methods of risk assessment. He is an author or co-author of over 200 scientific articles and ten books, several that focus on environmental science and public policy: *In Search of Safety: Chemicals and Cancer Risk* (Harvard University Press, 1988), *Harnessing Science for Environmental Regulation* (Praeger Press, 1991), *Risk Versus Risk: Tradeoffs in Protecting Health and the Environment* (Harvard University Press, 1995), *The Greening of Industry: A Risk Management Approach* (Harvard University Press, 1997), and *Persistent, Bioaccumulative, and Toxic (PBT) Chemicals: Technical Aspects, Policies and Practices* (CRC Press, 2016). As a professor, Dr. Graham has taught courses in risk analysis, decision analysis, benefit-cost analysis, and policy analysis. Dean Graham is an elected fellow of the National Academy of Public Administration, has served on several NRC/NAS Committees on various topics, has served the EPA Science Advisory Board as a committee member, and is the recipient of the highest honor of the Society for Risk Analysis, its distinguished lifetime achievement recognition for contributions to the field of risk analysis. During the last two years, Dean Graham has been principal

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investigator of two grants, one on the economics of fuel-economy regulation (Alliance of Automobile Manufacturers) and another on regulatory reform (Searle Freedom Trust). Dr. Graham has consulted widely with government agencies and legislatures, non-profit organizations, businesses, and trade associations around the world.

Green Jr., Johney

National Renewable Energy Laboratory

Dr. Johney Green Jr. is the Associate Laboratory Director for Mechanical and Thermal Systems Engineering at NREL. He oversees the laboratory's transportation, buildings, wind, water and geothermal research programs. Green comes to NREL from Oak Ridge National Laboratory (ORNL), where he has held a number of leadership roles including director of the Energy and Transportation Science Division and group leader for Fuels, Engines, and Emissions Research. Green managed a broad science and technology portfolio and user facilities that made significant science and engineering advances in building technologies; sustainable industry and manufacturing; fuels, engines, emissions, and transportation analysis; and vehicle systems integration. It was during his tenure as a division director that ORNL developed the Additive Manufacturing Integrated Energy (AMIE) demonstration project.

Haas, Charles

Drexel University

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 BS (Biology) and MS (Environmental Engineering) from the Illinois Institute of Technology and his PhD 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 USEPA/DHS 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 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 200 papers, has recent and current funding from NSF, USEPA, 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 US EPA Board of Scientific Counselors. His primary work focuses on assessment of risk from and control of microorganisms in water, wastes and other environments.

Harrington, Joseph

MineWater LLC

Mr. Joseph G. Harrington is President of MineWater. MineWater researches, develops and implements innovative cleanup strategies for addressing environmental impacts of abandoned hard

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rock mine sites. Properly treating these sites is critical for the United States to grow our industrial output and enable rapid industrial permitting and production of resources such as silver, copper, zinc and uranium. Mr. Harrington led the design/build for the Gold King spill interim clean-up under emergency conditions which delivered a fully operational treatment plant within 21 days. Mr. Harrington has published over 40 papers, conference talks and proceedings on strategies for addressing mine waste pollution issues. Mr. Harrington invented 6 patents on mine drainage source treatment. Mr. Harrington also led the 4 year in situ bioremediation cleanup of the Globe Smelter in Denver Colorado, one of the first hydrometallurgical smelters in the United States to have been remediated, delisted from the National Priorities List (Superfund) and fully redeveloped for commercial use. 1, 000 jobs have been created at the 80-acre Globe Smelter site that was slated for 300 years of pump and treat in the original (1993) ROD. Mr. Harrington was a 2004 delegate of the United States to the International Atomic Energy Agency for the preparation of the uranium guidance document (Uranium Redbook). Mr. Harrington was an advisory board member of Energy Metals and then for Uranium One (ending before the well-publicized sale to Russian interests). Mr. Harrington completed studies at the University of Idaho in biohydrometallurgy (undergraduate, magna cum laude) and conducted graduate studies in metallurgy (masters work at University of Idaho) and medicine (first year, Loma Linda University). Mr. Harrington received the John B. George award in metallurgy (University of Idaho), and was awarded a Barry Goldwater fellowship (1995). Mr. Harrington's only source of research funding during the past two years was provided by his own company." Immediately after the Gold King spill in 2015, the Denver Post published a front page article which documented that there were 240 mine sites in Colorado alone, each of which discharged without treatment a volume of wastewater equal in volume to that which was spilled from the Gold King Mine. Obviously the EPA and States cannot construct treatment plants at 240 mine sites in one state, and therefore there is a substantial risk of reoccurrence of Gold King type spills unless a method is developed to address and reduce risk at many sites rapidly and in a less costly manner. My research over the past 20 years has focused on development of science and engineering for scalable ways to rapidly screen underground mines and determine if contaminated water is building within underground mines and to reduce mass loading at abandoned mine sites. We can use this basic science to observe (infer) the existence of hidden contamination and the potential for certain methods to prevent further contamination at the source. I also developed innovative soil treatment strategies for addressing soil contamination to address urban air pollution about the Globe Smelter which is generally applicable at numerous sites throughout the United States.

Hattis, Dale

Clark University

Dr. Dale Hattis is Research Professor with the George Perkins Marsh Institute at Clark University. For the past 37 years he has been engaged in the development and application of methodology to assess the health, ecological, and economic impacts of regulatory actions. His work has focused on approaches to incorporate interindividual variability data and quantitative mechanistic information into risk assessments for both cancer and non-cancer endpoints. Recent research (nearly all funded directly or indirectly by EPA) has explored PBPK-based dosimetry for chlorpyrifos, based on observations of blood levels in pregnant women and their newborn infants, possibilities for the use of new in vitro gene expression and similar measurements as contributors to risk assessments, use of continuous biomarkers such as birth weight and thyroid hormone levels to predict effects on infant mortality and IQ, quantitative analysis of uncertainties for cancer and non-cancer health risks of dioxin, and age-related differences in sensitivity to carcinogenesis and other effects. He is a leader in

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efforts to replace the current system of uncertainty factors with distributions based on empirical observations. He has been a member of the Environmental Health Committee of the EPA Science Advisory Board, and for several years he served as a member of the Food Quality Protection Act Science Review Board. He has also served as a member of the National Research Council Committee on Estimating the Health-Risk-Reduction Benefits of Proposed Air Pollution Regulations. He has been a counselor and is a Fellow of the Society for Risk Analysis. Recently (12/11) he received the Society's Distinguished Educator award. He holds a Ph.D. in Genetics from Stanford University and a B.A. in biochemistry from the University of California at Berkeley. His research is funded directly or indirectly (e.g. via consulting firms) from EPA.

Hollis, Adrienne

WE ACT for Environmental Justice

Dr. Hollis is the Director of Federal Policy at WE ACT for Environmental Justice and adjunct professor at American University's Washington College of Law and George Washington University's School of Public Health. She has a degree in biology, a doctorate in biomedical sciences and a law degree. She completed her postdoctoral study at Harvard School of Public Health, focusing on antioxidants, ozone exposure and the respiratory system. She was a Section Chief at the Agency for Toxic Substances and Disease Registry, performing health assessments and reviewing environmental data on exposures to hazardous chemicals. She was an associate professor in the Master of Public Health Program at Florida A&M University's Institute of Public Health, and developed the Environmental and Occupational Health track, focusing on the disproportionate impact of environmental contamination on the poor and underserved. She attended Rutgers Law School and is admitted to the Bars in New Jersey, Pennsylvania, and the Court of Appeals for the Third Circuit. She has been a member of the American Public Health Association, the American Bar Association, the National Bar Association, the Florida Public Health Association and was editor for the Journal of Environmental Health and reviewer for the National Institute of Environmental Health Sciences. Dr. Hollis has worked as a senior policy analyst for EPA's National Environmental Justice Advisory Council. She was recently appointed to EPA's Clean Air Act Advisory Committee and EPA's Chemical Data Reporting Inorganic Byproducts Negotiated Rulemaking Committee. Dr. Hollis has received numerous research grants in the past from agencies including the Environmental Protection Agency, the Agency for Toxic Substances and Disease Registry and others. Although she is not currently a principal investigator on any research grant, she is the lead on a number of foundation grants received by WE ACT, including the JPB Foundation and the Environmental Defense Fund.

Honeycutt, Michael

Texas Commission on Environmental Quality

Dr. Michael E. Honeycutt is the director of the Toxicology Division of the Texas Commission on Environmental Quality (TCEQ). He has been employed by the TCEQ since 1996 and has managed the division of 14 toxicologists since 2003. His responsibilities include overseeing health effects reviews of air permit applications, overseeing the review of the results of ambient air monitoring projects, and overseeing the reviews of human health risk assessments for hazardous waste sites. Dr. Honeycutt spearheaded the updating of TCEQ's Effects Screening Levels (ESLs), or toxicity factors for chemicals (<http://www.tceq.texas.gov/toxicology/esl/guidelines/about.html>). He has a strong technical background and research interest in hazard identification, dose-response assessment, dose-dependent transitions in mode of action and toxicity, inhalation dosimetry, inter- and intra-species differences in toxicokinetics and toxicodynamics, high-dose to low-dose extrapolation issues, and

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weight-of-evidence evaluations. Dr. Honeycutt serves as a technical resource for TCEQ management and staff on issues concerning air and water quality, drinking water contamination, soil contamination, and emergency response. He has extensive knowledge on state and federal permitting, remediation, and risk assessment issues. He also serves as an expert witness in public and state legislative hearings, participates in public meetings, and has conducted hundreds of media interviews. Dr. Honeycutt is an adjunct professor in two departments at Texas A&M University, has published numerous articles in the peer-reviewed literature, serves or has served on numerous external scientific committees, and has provided invited testimony at Congressional hearings. He earned both a B.S. and a Ph.D. in Toxicology from the University of Louisiana at Monroe. His research for the past two years was funded entirely by the State of Texas.

Hood, Darryl

The Ohio State University

Dr. Darryl B. Hood is an Associate Professor of Environmental Health Sciences in the College of Public Health at The Ohio State University. He also holds a courtesy appointment as Associate Professor in the Department of Neuroscience in the OSU College of Medicine. Dr. Hood is the co-architect of the innovative and novel Public Health Exposome framework. This paradigm altering framework interrogates hypotheses focused on determining if there are associations between the built, natural and social environment and disparate health outcomes observed in vulnerable populations. Dr. Hood received a BS in Biology/Chemistry 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 his postdoctoral at the Center in Molecular Toxicology at Vanderbilt University School of Medicine in 1993, he served until 2013 meritoriously on the faculty of Meharry Medical College in the Department of Pharmacology and Neuroscience. During this time the \$11.2 million dollars of research funding awarded to Dr. Hood in the various units, centers and laboratories at Meharry resulted in confirmation that common environmental contaminants such as benzo(a)pyrene 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. Dr. Hood has authored 115 peer-reviewed articles and book chapters and has mentored over 30 MSPH/MPH, 20-PhD and 11 Postdoctoral trainees. He has served on numerous and varied editorial and review boards for scientific journals, government agencies, and academia. Most recently (2010-2016), he served on the US EPA Exposure and Human Health Subcommittee of the Science Advisory Board. He was elected Vice-President, Toxicologists of African Origin, a Society of Toxicology special interest group which he covets as a very special honor.

Hornberger, George

Vanderbilt University

George M. Hornberger is University Distinguished Professor and Director of the Vanderbilt Institute for Energy and the Environment. He is the Craig E. Philip Professor of Engineering and Professor of Earth and Environmental Sciences. He previously was a professor at the University of Virginia where he held the Ernest H. Ern Chair of Environmental Sciences. He has been a visiting scholar at the Australian National University, Lancaster University, Stanford University, the U.S. Geological Survey (USGS), the University of Colorado, and the University of California, Berkeley. His current research is aimed at understanding complex water-energy-climate interrelationships with funding from the National Science Foundation (NSF). Dr. Hornberger is a fellow of the American

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Geophysical Union, the Geological Society of America, and the Association for Women in Science. He has served on numerous boards and committees of the National Academies of Sciences, Engineering, and Medicine including as chair of the Commission on Geosciences, Environment, and Resources (1996-2000); chair of the Board on Earth Sciences and Resources (2003-2009); and chair of the Water Science and Technology Board (2013-2017). He completed a term as Chair of the Advisory Committee for the Geosciences Directorate at NSF in 2017. Dr. Hornberger was elected as a member of the National Academy of Engineering in 1996. He holds a B.S. degree in civil engineering and a M.S. degree in hydrology from Drexel University and a Ph.D. degree in hydrology from Stanford University.

Hufford, Walt

Repsol

Walt Hufford is the United States Director of Government and Regulatory Affairs at Repsol with 31 years of experience in the energy industry including upstream – E&P and downstream – R&M. Under Mr. Hufford’s direction and counsel, hundreds of sites across the United States have achieved environmental regulatory closure. Mr. Hufford was recently appointed to USEPA’s Science Advisory Board Ad Hoc Panel providing counsel to the agency’s efforts in evaluating the potential impact to drinking water resources associated with hydraulic fracturing. He has also joined the Texas A&M graduate faculty as a Professor of Practice. Hufford has served on various boards including Pennsylvania Environmental Council (PEC), Pennsylvania Resource Council (PRC), NAEM, and on trade organizations (MSC and AXPC).

Idso, Craig

Center for the Study of Carbon Dioxide and Global Change

For the past 20 years Dr. Idso has worked as the Chairman of the Center for the Study of Carbon Dioxide and Global Change, a non-profit science educational organization based out of Gilbert, AZ. His Ph.D. degree is in Geography, where he was trained in climatology at Arizona State University. His Masters Degree is in Agronomy (Agricultural Meteorology) from the University of Nebraska. His research activities and area of expertise include the biological and climatological impacts of carbon dioxide on the biosphere. Dr. Idso’s research has appeared many times in peer-reviewed journals and he is the author of several books. In 2009, he became the lead author and editor for the Nongovernmental International Panel on Climate Change (NIPCC), overseeing a team of internationally renowned scientists in the production of several major reports on climate change. He also holds numerous affiliations with professional scientific organizations and think tanks.

Jacksier, Tracey

Air Liquide

Dr. Tracey Jacksier is an International Senior Expert and Director of the Analytical Sciences Global Lab at the Newark, Delaware Research and Technology Center of Air Liquide. She holds a B.S. in Biochemistry from Purdue University (1983) and a Ph.D. in Physical Chemistry from the University of Massachusetts (1992). Dr. Jacksier is responsible for defining the world-wide development of key technologies in specialty gases used for environmental compliance and improved industrial process quality, as well as the recommendation of new analytical technologies within the Air Liquide Group. She is also the Project Manager covering research entitled “Assessment of CO₂ Compression and Purification Technology for Near Zero Emissions from Oxy-Coal Combustion” on a CRADA (cooperative research and development agreement) with the National Risk Management Research

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Laboratory of the U.S. Environmental Protection Agency. She has conducted research for measuring many criteria emissions, both domestically and internationally. She has been with Air Liquide for 20 years; prior to her current position, she has served as Analysis Group Manager, Project Manager for Elemental Analysis, and Postdoctoral Researcher. Her research includes impurity measurements in alternative fuels and gaseous emissions at ultra-low concentrations. Prior to joining Air Liquide, Dr. Jacksier served in the Cooperative Education Program and as a Chemist at International Business Machines in New York. She has authored or co-authored more than 100 articles and technical presentations and holds patents in the areas of gas purification and standard manufacturing. Dr. Jacksier currently serves on the advisory board of Princeton University Engineering Research Center on Mid-Infrared Technologies for Health and the Environment. She is also a member of the Committee of Visitors for the Engineering Education and Centers Division of the Directorate for Engineering of the National Science Foundation. Dr. Jacksier's research has been supported by funding from Air Liquide, and she has received no external grants from government agencies, private companies, or foundations.

Jackson, C. Rhett

University of Georgia

Dr. Jackson's research focuses on the effects of human land use activities, specifically forestry, agriculture, and urbanization, on water quality and aquatic habitat. He conducts applied research into the effectiveness of best management practices (BMPs) in reducing nonpoint pollution. His interests in the basic science of hillslope hydrology inform his research on the fate and transport of nonpoint pollutants. His recent findings on the relative role of shallow lateral subsurface flow in hillslopes have implications for understanding and modeling the transport of dissolved pollutants like nitrate nitrogen. A particular current interest of his is the relationship between riparian vegetation, channel structure, and stream temperature. Given that BMPs are never fully effective, he has lately pondered the question, "How much water quality and habitat change is too much?" His work is trans-disciplinary, and he frequently collaborates with ecologists, animal biologists, and biogeochemists. Dr. Jackson's work has influenced the development of BMPs for forestry and urban development. He currently receives research support from the Dept. of Energy, the USDA Forest Service, USDA AFRI, NSF, and USEPA. Other agencies that have supported his work include the USACE, USFWS, the states of Washington and Georgia, and NGOs. Dr. Jackson earned BSE and MSE degrees in Civil and Environmental Engineering from Duke University and a PhD in Civil and Environmental Engineering from the University of Washington.

Jayjock, Michael

Drexel University

Dr. Michael A Jayjock is the Sole Proprietor of Jayjock Associates, LLC and Senior Analyst of the 501(c)3 non-profit LifeLine Group. He has a BS in Secondary Education with a major in chemistry from The Pennsylvania State University. He also has an MS and PhD in Environmental Engineering from Drexel University. Dr. Jayjock's research includes the development of chemical and substance exposure models and model input data for human health risk assessment. All of his income and founding has been through clients, with his primary client being The Dow Chemical Company. Recent service on other national advisory committees or national professional organizations includes being a reviewer of the EPA Draft Guidelines for Human Exposure Assessment in 2016, a member of the Hanford Tank Vapor Assessment Team (U.S. DOE) in 2014, a member of the Peer Review Panel for the Draft Risk Assessment for Trichloroethylene (TCE)/Degreaser Arts/Crafts Uses (U.S.

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EPA) in 2013. Mike was also on the EPA Science Advisory Board Panel on Lead Exposure and the EPA Peer Consultation Panel for Perfluorooctanoic Acid (PFOA) Site-Related Environmental Assessment Program.

Kang, Juhyon

University of Nebraska-Lincoln

Juhyon Kang is a post-doctoral research associate at University of Nebraska-Lincoln. She is currently working on the lignocellulosic biomass valorization. She received her Ph.D degree from Iowa State University with dissertation on microalgal environment pollutant mitigation. Her research interest includes clean air, water, and energy for future generation. Although she has not served any advisory committees outside of the school, she has a zeal on keeping eyes on the environmental policies and regulations. She supports several environmental non-profit organizations, such as Union of Concerned Scientists, Peoples Climate Movement, and Catholic Relief Services. Her hope by applying this advisory board staff is to build a bridge between academic research endeavors and public awareness of on-going achievements. She also wants to gain an insight on policy making level and expend her expertise to general environment and energy realm.

Keen, Richard

University of Colorado

Dr. Keen is a meteorologist who has taught classes and researched climate change, weather, and severe storms at the University of Colorado, National Center for Atmospheric Research, National Oceanic and Atmospheric Administration, National Park Service, Juneau (Alaska) Ice Field Research Program, and the U.S. Army. He is the author and co-author of more than a dozen books, including Skywatch West: The Complete Weather Guide and The Audubon Society Pocket Guide to Clouds and Storms. His research papers on climate topics (such as el Nino, glaciers, and volcanoes) have been published in major journals, including Science, Monthly Weather Review, Journal of Climate, Annals of Glaciology, Geophysical Monographs, Bulletin of the Global Volcanism Network, and International Comet Quarterly. He is currently an expert reviewer for the International Panel on Climate Change (IPCC) Fifth Climate Assessment Report. An avid “chaser” of natural phenomena (especially those in the sky), Keen has seen four total solar eclipses, four annular eclipses, 24 total lunar eclipses, 230 comets, 40 tornadoes, the eyes of two hurricanes, and 2 erupting volcanoes. Keen also enjoys photographing the sky, and his cloud photographs have appeared in the WMO International Cloud Atlas and on United States postage stamps. He now resides in the Colorado Rocky Mountains, where he records 4-foot snow storms at a high altitude weather station for the National Weather Service, continuing a tradition of volunteer climate observation begun by Ben Franklin and Thomas Jefferson. Higher in the sky, Keen co-discovered Nova Cygni, the brightest “new star” in the past 70 years, and is honored with a mountain-sized asteroid, (4129) Richelen, bearing his (and his wife’s) name. He has spotted the asteroid with his home built 12-inch telescope.

Kenny, Leo

PLANET SINGULAR

Dr. Kenny is a technology consultant, based in the SF Bay Area, focusing on several key areas based on my expertise: green chemistry/engineering and materials design, environmental technology development and Design for Environment (specifically for the semiconductor, chemical and electronics industries), and IoT, sensors and smart cities/infrastructure, and holds BS degrees in both

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Ecology & Evolutionary Biology and Chemistry from the University of Arizona in Tucson, and a Ph.D. in Physical Inorganic Chemistry from Tufts University in Boston. Previously, he managed Intel's first US Smart City Project for San Jose, and he was a Senior Materials Development Engineer for Intel Corporation, where he oversaw Intel's programs for green chemistry and alternative assessment methodology development. Prior to that role, he was a Senior Engineering Manager for Environmental Process Engineering at Intel's Technology Development factory in Santa Clara and was a senior development engineer for Mitsubishi Corporation in Epitaxial Silicon. He has conducted research in diverse areas of study, including thin film batteries, electro-chromic window thin film devices (including the design and construction of two CVD systems), agricultural rangeland re-vegetation, marine algal life cycles, molecular laser spectroscopy on small gas molecule structure and the development of a spectral diagnostic for a fiber optic device to treat atherosclerotic plaque in humans, holding a patent in this area. He is a long time member of the American Chemical Society, affiliated with the IRDS (long range semiconductor roadmap), INEMI (electronics industry roadmap), Tsensors Organization, Meeting of the Minds (urban sustainability group) and an Executive in Residence at the Silicon Valley Leadership Group, based in San Jose, CA.

Kersting, Annie B.

Lawrence Berkeley 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.

Kissel, John

University of Washington

Dr. Kissel is Professor Emeritus of Environmental and Occupational Health Sciences at the University of Washington in Seattle, where he has been a member of the faculty since 1990. He held a prior position in the School of Public and Environmental Affairs at Indiana University. Dr. Kissel holds a Ph.D. in Civil/Environmental Engineering from Stanford University, an S.M. in

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Environmental Engineering from Harvard University, and a B.S. in Civil Engineering from the University of Notre Dame. He is a registered Professional Engineer. Dr. Kissel's research interests generally involve human exposure assessment, with emphasis on exposures related to waste management, agricultural and residential use of pesticides, and consumer products. He is particularly interested in probabilistic prediction of aggregate exposure and reconciliation of model predictions with observed biomarker data. Dr. Kissel and his students have produced multiple papers describing human exposure to soil that are listed as "key studies" in US Environmental Protection Agency's Exposure Factors Handbook and have conducted both in vitro and in vivo investigations of dermal exposures to chemicals. Dr. Kissel is a former President of the International Society of Exposure Science and also served one term as chair of the Exposure Assessment Specialty Group within the Society for Risk Analysis. He has served on two National Academy of Sciences Committees, multiple US EPA FIFRA Science Advisory Panels, US EPA's Human Studies Review Board, and as a reviewer of the World Health Organization environmental health criteria document on Dermal Exposure. He is currently a member of EPA's Science Advisory Committee on Chemicals and the NIOSH/NORA Immune, Infectious and Dermal Disease Prevention Cross-Sector Council. His research activities have been funded by US EPA, US Department of Energy, US Department of Defense, National Institute of Occupational Safety and Health, and the Washington State Departments of Ecology, Health, and Labor and Industries.

Klaunig, James

Indiana University

Dr. James E Klaunig is Professor of Environmental and Occupational Health at Indiana University School of Public Health at Bloomington. He also holds an appointment in the IU School of Public and Environmental Affairs. Dr. Klaunig received a BS in Biology from Ursinus College, an MA in Biology from Montclair State University, and a PhD in Experimental Pathology from the University Of Maryland School Of Medicine. He completed post-doctoral training in carcinogenesis and toxicology at the Medical College of Ohio and CIIT. From 1991 to 2010 he served as Professor and Director of Toxicology at Indiana University School of Medicine. During this period he also served as State Toxicologist for Indiana and as Associate Director of the IU Cancer Center. His laboratory has been continually funded by extramural sources for almost three decades. His funding sources have included Department of Defense, NIH, US EPA, the State of Indiana and corporate sources. His research is hypothesis driven and involves the application of systems biology, pathology and toxicology in understanding the toxicological and pathological effects of chemical agents including pharmaceuticals with application to human risk assessment. Dr. Klaunig has authored over 250 peer-reviewed papers and book chapters. His publications are highly referenced and cited as is evident by his designation in 2013, 2015, and again in 2017 as a highly cited author in pharmacology and toxicology by the Thomson Reuters. He teaches undergraduate and graduate level courses on environmental health, toxicology, risk assessment and pathology and has mentored over 70 graduate students and postdoctoral fellows. He has served on a many of editorial and review boards for scientific journals, government agencies, and academia. He is past editor in chief of Toxicologic Pathology and Associate Editor of Toxicological Sciences. He has served on NIH study sections and has been a member and chair of multiple review panels for USEPA, NTP, and the National Academy of Sciences. He is the recipient of several awards including George H. Scott Award (Toxicology Forum), Sagamore of the Wabash (Indiana Governor), Benjamin F. Trump Lectureship (Aspen Cancer Conference), Ken Dubois Award (Midwest SOT), IU Trustees Teaching Excellence Award, Freehold HS Hall of Fame, and Chairman's Award (Indiana Criminal Justice Institute). He has also

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been recognized as a fellow of the Academy of Toxicological Sciences and a fellow of the International Academy of Toxicological Pathology.

Kleinman, Michael T.

University of California, Irvine

Dr. Michael T. Kleinman is an Adjunct Professor of Toxicology in the Department of Medicine's Occupational and Environmental Medicine Division at the University of California, Irvine (UCI), with a joint appointment in the Program in Public Health. He was previously employed by the U.S. Atomic Energy Commission (AEC) as an environmental scientist and he directed the Aerosol Exposure and Analytical Laboratory at Rancho Los Amigos Hospital in Downey, CA. He has more than 40 years of experience researching the health effects of environmental contaminants. He holds a M.S. in Chemistry (Biochemistry) from the Polytechnic Institute of Brooklyn and a Ph.D. in Environmental Health Sciences from New York University. He is the Co-Director of the Air Pollution Health Effects Laboratory at UCI. He has published more than 115 peer-reviewed journal articles on effects of environmental contaminants on cardiopulmonary and immunological systems and on global and regional distribution of environmental contaminants including heavy metals and radioactive contaminants from nuclear weapons testing. He has directed more than 50 controlled exposure studies of human volunteers and laboratory animals to ozone and other photochemical oxidants, carbon monoxide, ambient particulate matter (PM) and laboratory-generated aerosols containing chemically or biologically reactive metals such as lead, cadmium, iron and manganese. He has served on two National Academy committees to examine issues in protecting deployed U.S. Forces from the effects of chemical and biological weapons. Dr. Kleinman's current research focuses on neurological and cardiopulmonary effects of inhaled particles, including nanomaterials and ultrafine, fine and coarse ambient particles in humans and laboratory animals. His recent health effects studies have the role of inhaled combustion-generated particles on the promotion of airway allergies and acceleration of development of cardiovascular disease and how these effects are mediated by organic and elemental carbon components of PM. Dr. Kleinman's current research grants and contracts include a grant to examine the effects of inhaled particles on brain stem cells related to tumor development from the California Brain and Lung Tumor Foundation, a contract from the California Environmental Protection Agency to study the role of semi-volatile components of fine and ultrafine PM on cardiac function and atherosclerosis, and a contract to examine the effects of long term inhalation exposure to concentrated fine particles on brain inflammation. Dr. Kleinman has previously served on the U.S. EPA Clean Air Scientific Advisory Committee (CASAC) Ozone, PM and NO₂ panels and was appointed to Chair the Scientific Review Panel for Toxic Substances for the state of California. Dr. Kleinman's current research focuses on neurological and cardiopulmonary effects of inhaled particles, including nanomaterials and ultrafine, fine and coarse ambient particles in humans and laboratory animals. His recent health effects studies have the role of inhaled combustion-generated particles on the promotion of airway allergies and acceleration of development of cardiovascular disease and how these effects are mediated by organic and elemental carbon components of PM. Dr. Kleinman is a co-Investigator on grants from NIH and NSF as well as contracts from the California Brain and Lung Tumor Foundation and from the California Environmental Protection Agency to study the role of semi-volatile components of fine and ultrafine PM on cardiac function, atherosclerosis, and effects of subchronic and chronic inhalation exposures to concentrated fine particles on brain inflammation.

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Kontou, Eleftheria

National Renewable Energy Laboratory

Dr. Eleftheria (Ria) Kontou is a Postdoctoral Researcher at the Transportation and Hydrogen Systems Center of the National Renewable Energy Laboratory (NREL). She received a B.Sc. from the National Technical University of Athens, a M.Sc. from Virginia Tech, and a Ph.D. from University of Florida, all in civil engineering focusing on transportation systems. Starting 2017, she is appointed for three years to the Committee on Alternative Transportation Fuels and Technologies of the Transportation Research Board of the National Academies of Science, Engineering, and Medicine. Dr. Kontou is particularly interested in solving problems at the transportation/energy nexus; her research interests lie in the fields of emerging vehicle technologies, sustainable transportation planning, operations, and economics. The research projects that she is currently involved in at NREL are funded through the Vehicle Technologies Office and the Office of Energy Policy and Systems Analysis of the Department of Energy, as well as the California Energy Commission. Dr. Kontou has also conducted research at the Center of Transportation Analysis of the Oak Ridge National Laboratory and at the Office of Safety of the Turner-Fairbank Highway Research Center, Federal Highway Administration during her tenure as a graduate student. At that time, she also collaborated with Shanghai Maritime University, University College of London, and Cornell University on a project funded by Lloyd's Register Foundation. Finally, she has contributed on projects sponsored by the Florida Department of Transportation and the National Science Foundation. Dr. Kontou is an associate member of the American Society of Civil Engineers and has received fellowship/recognition awards from the Society of Women Engineers, the Women's Transportation Seminar, and the International Road Federation.

Kotchen, Matthew

Yale University

Dr. Matthew Kotchen is an Associate Professor of Environmental Economics and Policy at Yale University. His primary appointment is in the Yale School of Forestry and Environmental Studies, with affiliated appointments in the Yale School of Management and the Department of Economics. He is also a faculty research fellow at the National Bureau of Economic Research (NBER). Professor Kotchen's research interests lie at the intersection of environmental and public economics, and ongoing projects employ both theoretical and empirical methods covering a range of topics, including energy, climate change, "green" markets, corporate social responsibility, and applied game theory. Several projects involve collaborations with ecologists and political scientists. Dr. Kotchen joined the Yale faculty in 2009 and has held previous and visiting positions at Williams College, University of California (Santa Barbara and Berkeley), Stanford University, and Resources for the Future (RFF). Dr. Kotchen has received no external research funding over the last two years.

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,

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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, made over 235 scientific presentations, edited four books, and wrote the textbook, Introduction to Environmental Toxicology, now in its fourth 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, 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 Human and Ecological Risk Assessment and Integrated Environmental Assessment and Management, and just 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. He has just been 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.

Legates, David

University of Delaware

Dr. David R. Legates is Professor of Climatology in the College of Earth, Ocean, and Environment at the University of Delaware and holds adjunct appointments in the Department of Applied Economics and Statistics as well as the School of Marine Science & Policy. Dr. Legates is the co-founder of the Delaware Environmental Observing System – a statewide network of about fifty weather stations that report in real-time. He also serves as the Coordinator of the Delaware Geographic Alliance and the Delaware Geography Bee and has served as the Delaware State Climatologist and Director of the Center for Climate Research. Dr. Legates received a BS in mathematics and geography (double major) and an MS and a PhD in climatology from the University of Delaware. He has served on the faculty of the University of Oklahoma and Louisiana State University and has taught at the University of Virginia. Over the past two years, Dr. Legates has been funded by the State of Delaware and the National Geographic Society. Dr. Legates has authored more than 80 peer-reviewed papers and book chapters. He teaches both undergraduate- and graduate-level courses in climatology, hydrology, and statistics and has mentored 15 MS and PhD students. Dr. Legates has served on several editorial and review boards for scientific journals. He is the recipient of the Courage in Defense of Science Award, sponsored by the Texas Public Policy Foundation, and was awarded the 2002 Boeing Autometric Award for the Best Paper in Image Analysis and Interpretation by the American Society of Photogrammetry and Remote Sensing. He also participated in the joint USA/USSR Working Meeting on Development of Data Sets for Detecting Climatic Change in Obninsk, USSR – the first cooperation between the USA and the USSR in exchanging climate data for climate change research.

Lewis, Jeffrey

Exxon Mobil Biomedical Sciences, Inc

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Jeffrey Lewis is a Senior Scientific Associate with ExxonMobil Biomedical Sciences, Inc. In this position, Dr. Lewis is responsible for providing support to ExxonMobil's epidemiology and health risk assessment scientific programs. He currently manages company scientific programs related to children's health, emerging environmental health issues, legislative/regulatory affairs and regulatory impact analysis (e.g., benefit-cost analysis). He has served on a number of industry trade association scientific committees, external science advisory boards (e.g., Peer Consultation panel for EPA's Voluntary Children's Chemical Evaluation Program), and is a member of ExxonMobil's Occupational Exposure Limits committee. Dr. Lewis also has an adjunct faculty appointment at the University of Texas School of Public Health and is currently Treasurer Elect of the Society for Risk Analysis. Dr. Lewis received his Bachelors of Science degree in biology from the University of Kansas in 1985 and a M.S. and Ph.D. in Epidemiology from the University of Texas School of Public Health in 1987 and 1990, respectively. In addition, he earned a Masters in Business Administration from Rutgers University in 1997.

Lindstrom, Merlin R.

Phillips 66 Research Center

Dr. Merl Lindstrom is vice president of Technology for Phillips 66 Company, a diversified energy manufacturing and logistics company. He has more than 35 years of experience in research and development (R&D) and has been a champion of safety, technical innovation, sustainable research, and employee development. Dr. Lindstrom received a BS and PhD in polymer chemistry from North Dakota State University (NDSU). Through his 39-year career, Lindstrom has had leadership roles in refining management, corporate planning, exploration, production, and downstream technology management. Research areas included: exploration, production, seismic modeling, chemicals, carbon fibers, polymers, natural gas to liquids, biofuels, alternative energy, water and air. A strong supporter of technical collaboration and partnership, Lindstrom initiated a 7.5-year joint research effort with Iowa State University, Archer Daniel Midland (ADM), Haldor-Topsoe and ConocoPhillip for the development of biofuels from a wide variety of biomass feedstocks, and a 4-year technology demonstration project with UPM, Gas Technology Institute, Andritz, Haldor Topsoe and Phillips 66 to convert waste wood into gasoline. Additionally, collaborative work with Tyson Foods to produce diesel fuel from oils, fats, and algal lipids; ADM to hydrothermally convert cellulose to starches, sugars and sugar alcohols and conversion of those molecules to gasoline; and Sapphire Energy to grow and convert algae to fuels. In 2012, after Phillips 66 was spun off from ConocoPhillips, Lindstrom expanded the sustainability research in four distinct areas: Organic Photovoltaics (OPV), Solid Oxide Fuel Cells (SOFC), Water minimization and purification, and particulate matter formation in air. Under Lindstrom's leadership, Phillips 66 holds the world record for OPV efficiency, is developing novel technology in support of water use and recycle, and is performing fundamental research in dark reaction mechanisms of VOC's in air. Lindstrom owes his success to embracing diversity of thought, enabling success in others, and always being curious. Lindstrom is a distinguished alumni of NDSU, inducted into the University of Tulsa Engineering Hall of Fame, sits on the boards of i2E (technology incubator), Woolaroc Museum and Nature Preserve, Jane Phillips Medical Center, and several other philanthropies.

Lohmann, Rainer

University of Rhode Island

Dr. Rainer Lohmann joined the University of Rhode Island's Graduate School of Oceanography in 2004. He will be Full Professor of Oceanography as of July 1, 2013. He received a degree in

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chemical engineering at the European Higher School of Chemistry in Strasbourg (France) in 1996, and Ph.D. in Environmental Science from Lancaster University, England, in 2000. Dr Lohmann currently serves as Editor for Environmental Toxicology and Chemistry and Clean - Air, Soil and Water, and is on the Editorial Board for Environmental Pollution, among others. He has been included in the Pool of Experts for the upcoming World Ocean Assessment organized by the UN EP. Dr. Lohmann has published over 70 peer-reviewed articles covering the atmospheric and marine fate of organic pollutants, the effect of geochemistry on the sorption and bioavailability of organic contaminants and the use of passive samplers in detecting various contaminants in air and water. Current research efforts cover the cycling of legacy and emerging organic pollutants in the Great Lakes, the Arctic and Antarctic and Superfund sites. Dr. Lohmann has been awarded national and international awards and fellowships for his contributions to environmental engineering and chemistry. His research has been supported by grants from and contracts with both government agencies and private companies, with core research support primarily being from the federal government (U.S. Environmental Protection Agency, and the National Science Foundation), with additional support from the Hudson River Foundation.

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. Dr. Lupo has authored more than 100 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 44 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, currently serving as chair of the American Meteorological Society Board of Certified Consulting Meteorologists, and as associate director of Research and Doctoral Constituency for Sigma Xi. He has received two Fulbright Teaching and Research awards and is currently on the Fulbright Specialist roster.

Marinas, Benito

University of Illinois

Dr. Benito J. Mariñas is Ivan Racheff Endowed Professor of Environmental Engineering, and Department Head of Civil and Environmental Engineering (CEE), University of Illinois at Urbana-Champaign (UIUC). He is also Director of the UIUC Safe Global Water Institute and past Director of the Center for Advanced Materials for the Purification of Water with Systems, a recent graduate

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of the National Science Foundation Science and Technology Centers program. Dr. Mariñas holds a B.S. in civil engineering from the Universidad Politecnica de Madrid, Spain (1982); and M.S. (1985) and Ph.D. (1989) degrees in civil (sanitary and environmental) engineering from the University of California at Berkeley. Dr. Mariñas has taught courses covering fundamental, laboratory experimentation, and design aspects of environmental engineering and science. His research explores mechanistic aspects of chemical and ultraviolet light disinfection processes, formation and control of nitrogenous disinfection by-products, and membrane technologies. His research funding comes from federal government (National Science Foundation-NSF, US Environmental Protection Agency), industry (BP International, Suez), and philanthropy (UIUC Institute for Sustainability, Energy and Environment). Dr. Mariñas has served on the Board of Directors of Association of Environmental Engineering and Science Professors (AEESP), editorial boards of Journal American Water Works Association (AWWA) and American Society of Civil Engineers (ASCE) Journal of Environmental Engineering, project advisory committees for the Water Research Foundation, conference/workshop steering committees for the International Water Association (IWA) and NSF, chair/organizer for American Chemical Society and IWA conference themes and sessions. Dr. Mariñas has received awards for his teaching and research including making twenty one (21) times the UIUC List of Teachers Ranked as Excellent, holding the Arthur and Virginia Nauman Endowed Faculty Scholar award at UIUC-CEE, and advising student recipients of the AEESP Parsons Engineering Science Doctoral Thesis Award, and several best oral and poster presentations at professional meetings.

Marlborough, Sidney

Noble Energy, Inc

Dr. Sidney Marlborough is currently a Senior Environmental Toxicologist with Noble Energy, Inc. in Houston, Texas. He is responsible for corporate chemical stewardship program and is responsible for the risk evaluation of new products for oil and gas exploration and production. He received a BS in Environmental Management Systems, MS in Environmental Toxicology and Ph.D. in Environmental Science minoring in molecular genetics from Louisiana State University. He has 18 years of experience in environmental risk management, toxicology, risk assessment, litigation, and research. He has worked for state government, academia, private consulting and industry. He has developed numerous human health and ecological risk assessments for expert reports and remedial cleanup requirements. He has studied the toxicity of metals, chlorinated solvents, poly-aromatic hydrocarbons and pesticides in both human and ecological receptors. Dr. Marlborough has developed an uptake kinetic model simulating the phytoremediation of arsenic with various plant species. He has developed formulas for the extrapolation of toxicity of arsenate and arsenite as part of ecological risk assessment. He has conducted published research in the areas of marine toxicity to benthic invertebrates, arsenic speciation toxicity in ecological receptors, TNT exposure to benthic fish, phytoremediation of metals, and microsatellite instability in squamous cell carcinoma. Dr. Marlborough is currently a member of the Society of Toxicology and the Society of Petroleum Engineers.

Marsit, Carmen

Emory University

Dr. Carmen Marsit is Professor in the Department of Environmental Health at the Rollins School of Public Health of Emory University and is a member of the Cancer Prevention at Control research program at the Emory Winship Comprehensive Cancer Center. He received a BS in biochemistry from Lafayette College, a PhD in the Biological Sciences in Public Health from Harvard University

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and completed a post-doctoral fellowship in molecular environmental epidemiology at the Harvard School of Public Health. He has been continuously funded by the NIH for nearly a decade as well as serves as a project leader in a Children's Environmental Health and Disease Prevention Research Center co-funded by the National Institute of Environmental Health Sciences and the EPA. He directs a research laboratory engaging trainees at all levels in studies of how the environment during pregnancy impacts children's health with a particular focus on examinations of molecular mechanisms underlying these relationships. His laboratory utilizes state-of-the art genomic approaches to characterize the impact of exposures to toxic metals, cigarette smoke, air pollution, inhaled fibers, endocrine disruptors, and non-chemical stressors such as psychosocial factors on epigenetic features to characterize not only the environment's impact on these gene-regulator mechanisms, but also their impact on children's health outcomes including growth and neurobehavioral development. Dr. Marsit has authored or co-authored over 200 peer reviewed papers, and has mentored more than 20 MS, MPH, PhD, and postdoctoral trainees. Dr. Marsit currently serves as a regular member of a chartered NIH grant study section, is an advisor to NIH funded program projects and centers, and has or continues to serve as a reviewer and editorial board member for scientific journals and academic institutions. He received the National Institute of Mental Health Biobehavioral Research Award for Innovative New Investigators in 2011.

Matthews, H. Scott

Carnegie Mellon University

Scott Matthews is a professor in the Department of Civil and Environmental Engineering and the Department of Engineering and Public Policy at Carnegie Mellon University. He is also a member of the Green Design Institute, an interdisciplinary research consortium at Carnegie Mellon focused on modeling energy and environmental problems as systems, building decision support tools, and supporting robust policy decisions under uncertainty. Matthews's research and teaching focuses on valuing the socioeconomic implications of social systems, such as energy and transportation infrastructure. His work intends to facilitate economic and social decision-making under uncertainty via large datasets, computation, and visualization methods.

Mauzerall, Denise

Princeton University

Dr. Denise Mauzerall is Professor of Environmental Engineering and International Affairs at Princeton University holding a joint appointment between the Woodrow Wilson School of Public and International Affairs and the Department of Civil and Environmental Engineering. Her research examines linkages between air pollution origin, transport and impacts, including impacts on human health, food security and climate change. She explores potential co-benefits for air quality, health and climate of various energy strategies including increased use of natural gas, wind and solar energy. Recent research has focused on China and has evaluated air quality, health and climate implications of China's synthetic natural gas development, shale gas development, various air pollution mitigation strategies in the power, transport, residential and industrial sectors, long-distance electricity transmission, deployment of renewable energy, and potential of sectoral electrification to improve air quality and reduce carbon emissions. Additional research has examined, inter-continental transport of air pollution, and an evaluation of nitrogen management in agriculture. Prior to Princeton Dr. Mauzerall was a post-doctoral fellow at the National Center for Atmospheric Research, a program manager in the Global Change Division of the U.S. EPA where

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she implemented the Montreal Protocol, and an environmental consultant. She has authored over 65 peer-reviewed papers, has lectured widely around the world, and currently is on the editorial board of the journal Atmospheric Environment. Her research has been funded by NASA, NOAA, and various foundations. Dr. Mauzerall received a Sc.B. in chemistry from Brown University, an M.S. in Environmental Engineering from Stanford University and a Ph.D. in atmospheric chemistry in the Earth and Planetary Science department at Harvard University.

McConnell, Charles

William Marsh Rice University

The Honorable Charles D. McConnell is currently the Executive Director of the Energy and Environment Initiative at Rice University in Houston, TX. He joined Rice in 2013 after having served 2 years as Assistant Secretary of Energy at the U.S. Department of Energy (2011 – 2013). Prior to that, Mr. McConnell spent 2 years at the Battelle Memorial Institute as Vice President of the Carbon Management and Energy Business, directing and leading the Regional Carbon Sequestration Partnership activities as well as working directly with the National Laboratories operated by Battelle. His early career was spent working in international energy technology and business management for 32 years at Praxair, Inc. Mr. McConnell's publications over the past several years have been placed in the Wall Street Journal, Forbes Magazine, The Hill, and others, all on the subject of energy sustainability for U.S. and global energy strategic policy. While at Rice University, he developed and launched an online course entitled "Leadership and Decision Making in the Energy Industry," which teaches the fundamentals of energy markets, value chains, and the decision making framework necessary to assess risk, returns, and investment choices, all rooted in the need for technology solutions and optionality within the framework. His professional associations include serving on the Board of Trustees for the Energy & Environmental Research Center Foundation in North Dakota, the Gasification & Syngas Technology Council, the Gulf Coast Carbon Center, the Clean Carbon Technologies Foundation of Texas, the Pittsburgh Coal Council, and the Greater Houston Partnership. He also has a pending 2017 nomination to the National Coal Council. He received a BS degree in Chemical Engineering from Carnegie-Mellon University and an MBA from Cleveland State University.

McDonald, William

JBS Five Rivers Cattle Feeding LLC

William Thomas (Tom) McDonald is Vice President of Environmental Affairs for JBS Five Rivers Cattle Feeding LLC. His primary responsibilities include ensuring regulatory compliance and developing sustainable environmental systems at JBS Five Rivers' twelve beef cattle feed yards. Tom received his B.S. degree in Animal Science from West Texas A&M University and his M.S. degree in Beef Cattle Production and Management from the University of Tennessee. Tom currently serves on the Board of Directors, Executive Committee and Past Chairman of the Texas Cattle Feeders Association, and the Board of Directors and Executive Committee of the National Cattlemen's Beef Association. Tom was a charter member of the EPA Farm, Ranch and Rural Communities Federal Advisory Committee. He has chaired NCBA's environmental working group for 16 years and served on the TCFA Legislative and Regulatory Committee for 19 years. McDonald, now a third generation rancher oversees their family's 3,000-acre ranch located in eastern New Mexico. The time he spends with his family caring for the cattle and natural resources lets him see first-hand the importance of conserving our natural resources for future generations. In addition, he understands the economic challenges facing small, family farming enterprises. Tom

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oversees the environmental research conducted by JBS Five Rivers Cattle Feeding. Areas of focus include: best management practices for dust control, phosphorus and nitrogen reduction and recovery in feedyard wastewater, gasification conversion of beef cattle manure to energy, evaporation losses in the central plains, reducing pathogen loading in feedlot wastewater, crop yield response to various combinations of commercial fertilizer and manure and comparing various soil amendments effect on soil pH. Most of the research is conducted in-house and therefore not published, however, we have cooperated with West Texas A&M University, Texas A&M AgriLife Extension Service, Colorado State University and The University of Arizona.

Melaina, Marc

National Renewable Energy Laboratory

Dr. Marc W. Melaina is a Senior Engineer and Team Lead for Infrastructure Systems Analysis within the Transportation and Hydrogen Systems Center at the U.S. Department of Energy's National Renewable Energy Laboratory (NREL). His research addresses early market transitions for alternative fuels, with a focus on scenario development, market barriers, and fueling infrastructure. Before joining NREL in 2007, Dr. Melaina was the Policy and Business Strategy research track director at the Institute of Transportation Studies at the University of California at Davis. He has worked for Argonne National Laboratory, the National Academy of Sciences, the Defense Logistics Agency, the City of Ann Arbor Energy Office, and the National Transportation Research Center at Oak Ridge National Laboratory. Dr. Melaina graduated from the University of Michigan in 2005 with a Ph.D. from the School of Natural Resources and Environment and an M.S.E. in Civil and Environmental Engineering. He has a B.A. in Physics.

Merritt, Robert W.

Total

Prior to his upcoming retirement at the end of 2017, Rob Merritt has been a manager in the geoscience domain for Elf and then Total for more than three decades. He received a BS in Geology from the University of Kansas before pursuing a MS in Structural Geology at the University of Texas. He has worked in petroleum industry settings throughout the United States, onshore and offshore, from Alaska to the Gulf of Mexico and a dozen states in between. Rob is recognized as an expert in oil and gas industry data sources, and has had a hand in the design and development of a number of successful commercial and public database systems. His primary focus has been on the application of information technology to improving efficiency in the exploration and production of oil and gas, both in his own organization and as part of industry-wide consortia, including chairing national client users groups for major information suppliers like Petroleum Information (now IHS Markit) and leadership roles in petroleum industry standards development initiatives like POSC (now Energistics), where beside chairing the Well and Production Data Design Committee, he directed the Well Industry Pilot Project which performed the first commercial tests of this standard. Because the innovative use of information has the potential to benefit so many fields of endeavor, he has participated in a number of activities beyond the normal scope of a geologist or geoinformation specialist, including nuclear waste storage, minimization of environmental impact of industrial activities in the Arctic, disaster response following Hurricanes Ivan and Katrina, venture capital analysis, and as an expert witness in pipeline litigation. This year Rob was awarded company-wide recognition for his role in the Smart Predictive Analytics project, which used artificial intelligence algorithms to allow better prediction of the performance of new wells.

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Monique, Mark

The Savogran Company

Small business leader as the president of The Savogran Company. Over twenty years' experience in the chemical enterprise. Would provide a small business prospective to the heavily weighted academic represented board. B.Sc. Chemistry.

Monroe, Larry

Southern Company

Dr. Larry Monroe is an energy and environmental consultant in Braselton, GA. Dr. Monroe recently retired as the Chief Environmental Officer of Southern Company, a large public utility based in Atlanta, GA. Simultaneously, he served as the Senior Vice President responsible for leading Southern's research and development department. Dr. Monroe received a Bachelor of Science in chemical engineering from Auburn University and a Doctor of Philosophy in chemical engineering from the Massachusetts Institute of Technology. He has served in the electric utility industry in various roles in research of emissions control technologies, demonstrating the first project to control mercury from a full scale power plant in the US. Dr. Monroe also served as a general manager of air compliance and analytical services for Georgia Power. He specializes in forward looking strategic research investments, water and air emission controls for power plants, environmental and business strategies, and environmental regulation and compliance. Over the past two years, Dr. Monroe – on behalf of the Southern Company research organization – received research funding from the US Department of Energy, the Electric Power Research Institute, and other utilities. He is currently a member of the External Advisory Council of the National Renewable Energy Laboratory. Dr. Monroe has served in various leadership positions in national utility organizations including the Electric Power Research Institute, the Utility Air Regulatory Group, and the Coal Utilization Research Council. He has direct experience as a stakeholder in the regulatory process at the Environmental Protection Agency, participating as an industry representative in the Environmental Protection Agency's Clean Air Act Advisory Committee stakeholder process for developing regulations for controlling mercury emissions from coal-fired power plants and for greenhouse gas Best Available Control Technology guidance.

Mooney, Laura

City of Tallahassee

Laura Mooney received her Bachelor of Science and Master of Science in Geology from Auburn University in 1994 and 1997, respectively. While at Auburn University, her research focus was the structural geology and metamorphic petrology of the Lofoten Archipelago in Northern Norway. Laura is the Regulatory Compliance Manager for the City of Tallahassee (COT), Natural Gas Utility. Prior to, she was the operations manager for a small scale environmental construction and consulting engineering firm. Mrs. Mooney's work is diverse; she has over 20 years of experience in the regulatory and private industry, specializing in environmental assessment and remediation of petroleum and chlorinated solvent cleanup sites. Her expertise includes project management, technical plan formulation, data compilation, evaluation and interpretation, monitor well design and installation. She has experience in review and assessment of rulemaking activities at the Federal and State levels. Since 2015, she has managed the COT gas operations including construction, maintenance and cathodic protection, and serves as the regulatory compliance representative to the Florida Public Service Commission. Additionally, she leads the management of environmental and safety training for the Natural Gas Utility. Other areas of responsibility are preparation and submittal

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of the Pipeline and Highway Materials Safety Administration gas distribution system annual report, Environmental Protection Agency Greenhouse Gas Report and oversight of the Distribution Integrity Management Program. Laura is a member of the Florida Natural Gas Association Government Relations Committee and a licensed Professional Geologist with the State of Florida.

Moore, Christopher

Gas Technology Institute

Dr. Chris Moore is a senior scientist at the Gas Technology Institute where he is the principle investigator for the Center for Methane Research. Dr. Moore currently conducts research focused on determining methane emissions from the natural gas industry and how to efficiently and economically reduce those emissions. He holds a BS in chemistry from West Virginia University Institute of Technology, an MS in environmental science from the University of Virginia, a PhD in marine-estuarine environmental sciences from the University of Maryland, and has conducted post-doctoral work at the Desert Research Institute in Reno, NV before joining the faculty there. Dr. Moore also served on the graduate faculty of the environmental sciences and health and atmospheric sciences departments at the University of Nevada, Reno. He has mentored one postdoctoral fellow, eight graduate students, and one undergraduate student. Dr. Moore has more than 13 years of experience studying pollutant cycling through the environment with an emphasis on air quality, air toxics ambient air measurements, and gaseous surface-atmosphere exchange (flux) measurements. Dr. Moore has worked extensively in extreme environments from the cold of the Arctic to the heat of the Mediterranean. Two of Dr. Moore's 20 peer-reviewed scientific papers have focused on changes occurring in the Arctic and have been published in the journal Nature. Dr. Moore has also presented on the air quality impacts of unconventional natural gas development and published a critical review paper on the topic in Environmental Science & Technology. He has been a member of the American Geophysical Union since 2007, has received funding from NSF and NASA, and currently receives funding from DOE and Operations Technology Development, NFP.

Moore, James C.

Spire Inc

Jim Moore is an experienced executive with over 34 years in the energy business. Jim has experience at engineering firms, gas and electric utilities, brokers and consultants. Jim has been involved in coal, power, natural gas, refined products, crude oil and environmental products. Jim has wide ranging experience in many aspects of the utility business including: engineering design, risk analysis, commodity trading, resource planning, rate making, analytics, demand side planning, reliability analysis, budgeting and reporting. Jim earned his bachelor's degree in electrical engineering from Missouri University of Science & Technology, and a master's in business administration from Washington University, John M. Olin School of Business. He was awarded the Advanced Certificate in International Affairs from the Washington University, School of Arts and Sciences with an emphasis on the Far East energy business. Moore is a certified Professional Engineer in Missouri, a Senior Member of IEEE, earned NFA Series 3 and Series 30 certifications and is an ABET accreditation evaluator.

Morello-Frosch, Rachel

University of California, Berkeley

Rachel Morello-Frosch is Associate Professor of Environmental Science, Policy and Management and the School of Public Health at the University of California, Berkeley. She has an M.P.H. in

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epidemiology and biostatistics and a Ph.D. in environmental health sciences from UC Berkeley's School of Public Health. Dr. Morello-Frosch's research examines race and class determinants of environmental health among diverse communities in the United States. A focus of her current work is assessing the relationship between social inequality, psychosocial stress and how these factors may interact with chemical exposures to amplify pollution/health outcome relationships and produce environmental health inequalities. Much of her work has examined this question in the context of ambient air pollution and indoor chemical exposures and children's health, often using community-based participatory research approaches for data collection and risk communication. As part of this work she also explores the scientific challenges and bioethical considerations associated with exposure assessment and chemical biomonitoring research in economically and racially marginalized communities. Dr. Morello-Frosch has also examined ways in which measures of material deprivation (e.g. poverty) and social inequality (e.g. racial residential segregation) may modify observed relationships between pollution exposures and poor perinatal outcomes such as low birth weight and risk of preterm delivery. Finally, in collaboration with scientific colleagues and regulatory scientists, she has worked to develop scientifically valid and transparent tools for assessing the cumulative impacts of chemical and non-chemical stressors to inform regulatory decision-making and environmental policy in ways that advance environmental justice goals and that address the disparate impacts of chemical and non-chemical stressors in vulnerable communities. Other Experience and Professional Memberships: She has served on the California Air Resources Board, Research Screening Committee: Environmental Health Perspectives, Editorial Review Board Member; Environmental Health, Editorial Review Board Member; Center for Occupational and Environmental Health, UC Berkeley; Robert Wood Johnson Health and Society Scholars Program Faculty, UC Berkeley and UCSF; and the Energy and Resources Group, UC Berkeley, Affiliated Faculty.

Mueller, Thomas

University of Tennessee

Dr. Thomas C Mueller is Professor of Plant Sciences at the University of Tennessee, which is housed within the University of Tennessee Institute of Agriculture. He received a BS in Agronomy from the University of Illinois, MS in Crop Sciences from the University of Kentucky, PhD in Crop Science from the University of Georgia and completed post-doctoral training in soil microbiology with USDA-ARS in Stoneville, MS. Dr. Mueller directs a research program focusing upon the environmental fate of pesticides, with a priority to examine herbicides. His research endeavors to provide pest management systems that are effective and economical to end users and environmentally sustainable. He has been funded by commodity groups, especially the Tennessee Soybean Promotion Board, and by the Tennessee Agricultural Experiment Station. Dr. Mueller has authored > 130 peer-reviewed papers that have been published in > 20 different journals. He teaches undergraduate courses in Agricultural Production (Pest Management) and graduate level courses on Modes of Action and Environmental Fate of Herbicides, and has mentored 27 MS and PhD students. Dr. Mueller has previously served on the Ecological Processes and Effects (EPEC) committee for EPA-SAB, served on editorial and review boards for scientific journals, and has shared his research perspectives numerous times as an invited speaker in Europe, Australia, South America and across North America. He has served his regional and national professional societies in a range of capacities. He is a fellow of his national technical society, and has been awarded numerous awards for service, teaching and research in those societies.

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Nuckols, John

Colorado State University

John R. Nuckols holds BS, MS and PhD degrees in General, Environmental Health, and Agricultural/Civil Engineering, respectively. He's an Emeritus Professor in Environmental Health Sciences (Colorado State University), and Principal of JRN-Environmental Health Sciences (North Bethesda, Maryland). He has 40 years of experience in research and application of environmental sciences in ecological and human health risk assessment, including 11 years private practice in Kentucky (1980-1991). There he conducted studies related to water and health impacts, including a landmark lands unsuitable for surface mining designation as well as numerous hydrologic assessments concerning implementation of the Clean Water Act and the Surface Mining and Reclamation Act. In 1992, Dr. Nuckols established the Environmental Health Advanced Systems Laboratory at CSU, with the mission to conduct research on the development and application of computer-based technology, including simulation modeling, geographic information systems, and remote sensing technology, to exposure assessment for environmental health risk assessment. Funding sources included Battelle Memorial Institute, the American Water Works Research Foundation, and the U.S. National Cancer Institute, Centers for Disease Control and Prevention, Environmental Protection Agency, NIH Fogarty International Center, Agency for Toxic Substances and Disease Registry, and National Institute of Occupational Safety and Health. Dr. Nuckols is particularly recognized for his advocacy of collaboration between engineering, earth, and health sciences. His laboratory was instrumental in development of the exposure assessment strategy for the US CDC National Birth Defects and Prevention Study. Through Intergovernmental Personnel Agreements he served as a lead scientist on exposure assessment for epidemiological risk studies in research units of the US National Cancer Institute (2002-2010) and the Fogarty International Center (2009-2011). Dr. Nuckols has served on numerous advisory committees concerning environment and health at the local, state, national, and international level. A recent notable achievement was his selection as finalist for the prestigious 2017 American Association for the Advancement of Science Reville Fellowship. His current professional focus is a capstone web-based program for teaching, research, and consultation of a more standardized assessment tool for environment and health risk analysis. He has no current funded research activities, but is actively seeking financial support for this endeavor. To this end he recently gave invited lectures on the subject at the 2016 meeting of the International Society for Environmental Epidemiology in Rome, and at the 2017 Gordon Research Conference on Byproducts of Water Disinfection.

Oguntimein, Gbelkeloluwa

Morgan State University

Dr. Gbelkeloluwa B. Oguntimein is an Associate Professor at Morgan State University. He received his B.S. and Ph.D. degrees in Chemical Engineering from Iowa State University in 1974 and 1979 respectively. He has over 37 years teaching and research experience having taught at in the department of chemical engineering, Iowa State University, Ames Iowa, department of food technology, University of Ibadan, Nigeria and conducted research at Institute Nationale Polytechnique de Lorraine in Nancy, France, at Gessellschaft Biotechnologie Forschung in Braunschweig, Germany and Industrial Biotechnology Center, University of Waterloo in Waterloo, Canada. He has received grants from the NASA Interdisciplinary Center for Earth and Space Science Application and Research (ICESSAR), EPA Center for Hazardous Substance in Urban Environment, NSF- Directorate of Undergraduate Education. He has participated in the National Aeronautics &

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Space Administration (NASA) Science & Technology Initiative (NSTI) Fellowship program at, NASA Ames Research Center (ARC), Moffett Field, California and the Department of energy Visiting Faculty Program at Oak Ridge National Laboratory (ORNL) Oak Ridge Tennessee. He was also a visiting professor at Environmental Protection Agency under the Intergovernmental Policy Act program at Chemical Emergency Preparedness and Prevention Office (CEPPO) & Technology Innovation Office (TIO). He currently teaches Environmental Engineering, Water and Wastewater treatment, Environmental Impact and Risk Assessment and Project Management and Sustainable energy development courses at the undergraduate and graduate levels at Morgan State University. His research areas are application of biological systems in the solution and prevention of environmental problems and development of sustainable energy.

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 advise 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

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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.

Osmond, Deanna

NC State University

Dr. Deanna Osmond is Professor and Extension Leader in the Department of Soil Science at North Carolina State University, Raleigh, NC. She received a BS in agronomy and anthropology from Kansas State University, a MS in soil science from NC State University, and a PhD in crop, soil, and atmospheric sciences from Cornell University. Since 1991, Dr. Osmond has worked at the interface of nutrient management, conservation practice adoption, and water quality, first with the Water Quality Group and then in the Soils Department, both at NC State University. She has mentored over 20 graduate students and produced over 65 refereed journal proceedings. Dr. Osmond's funding is diverse, ranging from the United States Department of Agriculture (USDA)-National Institute of Food and Agriculture, USDA-Natural Resources Conservation Service, Environmental Defense Fund, Koch Industries, Small Grain Association of North Carolina, and Soybean Growers Association of North Carolina. Dr. Osmond has received numerous federal, state, and professional awards, and is a Fellow of both the American Society of Agronomy and the Soil Science Society of America. She has served on review panels for the U.S. Department of Agriculture and has been invited to several national-level EPA water quality meetings. She currently serves as chair of multiple state-level agricultural committees that focus on the intersection of water quality and agriculture and was also appointed to serve on the nutrient criteria panel for the state of North Carolina. She has served as either chair or president of several professional organizations, including the Southern Extension and Research Activity (SERA)-17, American Society of Agronomy, and Soil Science Society of North Carolina.

Pande, Krishna

National Chiao Tung University

Dr. Pande is currently CEO of Microvoyage (a start-up company addressing the 5G wireless communications market). He is also a full professor teaching postgraduate engineering courses at National Chiao Tung University in Taiwan. He previously served as senior director at Rockwell Collins' Advanced Technology Center where he managed the Advanced Radio Systems Department involved with the development of next-gen radios for both military and commercial systems. Dr. Pande interfaced with defense R&D agencies (such as DARPA) to address the technology needs of DoD customers. Under his leadership, more than a \$100 million in DARPA programs were won and successfully executed. Prior to his tenure at Rockwell Collins, Dr. Pande was CEO of Synoptel Corporation, executive vice president and general manager of Microwave Signal, Inc., executive director at COMSAT Corporation, director at Sperry/Unisys, and manager at Bendix. Prior to his corporate tenure, Dr. Pande was assistant professor in the Electrical Engineering Dept. at Rutgers University. Under Dr. Pande's leadership, a number of pioneering technologies were implemented for wireless communications, avionics, satellite payload and cross-link, advanced radio systems, MMW seekers, beam formers, MMICs, solar power, soil pH assessment sensors, and III-V semiconductor devices. Throughout his career, Dr. Pande has advised top U.S. government officials,

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championed an increase in the national science budget and served on a number of committees. These include the ERC Technology Advisory Committee for the National Science Foundation, University of Cincinnati and University of Maryland engineering advisory boards, IEEE Nanotechnology Manufacturing Committee, and the SAE Committee on WDM LAN Cognitive Radio Working Group/IEEE SDR Forum. He also served as US co-chair of Space Track 2003, PIERS-2002 chair on mm-wave technology, chair of AIAA Iowa Section, AIAA Space Systems Committee, vice chair of the IEEE Washington/N. Virginia chapter. He also served on the Howard County Education Advisory Council for Mathematics, the US-South Africa Business Council, and the U.S.-Korea Science and Technology forum. Dr. Pande also advised numerous companies including Digital Broadband Networks, Princeton Electronics, Hexawave, and Phoenix Microwave. He was also an advisor to Bellcore, ITT, Telcordia, and Air Force Research Laboratories. Dr. Pande received a Ph.D. in solid-state physics from the Indian Institute of Technology. He has published over 80 research papers, and holds 8 patents and 22 other inventions. He is an IEEE fellow and senior member of the American Institute of Aeronautics and Astronautics. He has been recognized with the prestigious AIAA Aerospace Communications Award and interviewed by media outlets, such as Business Week Asia, for his multi-media technological insight. Dr. Pande has been inducted into the National Aviation and Space Exploration Wall of Honor. He is currently active in various committees, including AIAA TCCS. Dr. Pande played a critical role as a member of the “Partner in Sky” committee on animal tracking led by Smithsonian Institute of Biology. He is currently volunteering for MicroMentor, helping young entrepreneurs globally.

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.

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Phalen, Robert

University of California-Irvine

Robert F. Phalen, Ph.D. is a Professor of Medicine in the Center for Occupational and Environmental Health at the University of California, Irvine. He is the founding director, and current co-director of the Air Pollution Health Effects Laboratory. He is a member of the graduate program in Environmental Toxicology, now called Environmental Health Science, and he is on the faculty of the Occupational Medicine Residency Program. His research is in several areas: aerosol science, inhalation toxicology, air pollution health effects, modeling the deposition and clearance of inhaled substances, and radiation biology. At San Diego State University his undergraduate major was physics with a minor in mathematics, and his master's degree was in nuclear physics with an emphasis on inhaled nuclear reactor accident particles. At the University of Rochester (NY) School of Medicine and Dentistry, he obtained a Ph.D. in Radiation Biology and Biophysics, with an emphasis in Toxicology. His thesis was a study of inhaled nanosilver particles. His post-doctoral training was at the Lovelace Inhalation Toxicology Research Institute in Albuquerque, NM. He joined the Aerosol Physics group and worked on an NIEHS computer modeling grant on inhaled particles in four mammalian species, including humans. The University of California, Irvine, recruited Dr. Phalen to direct the Air Pollution Health Effects Laboratory, and to establish a research program. The research focused on the effects of air pollution mixtures on lung defenses. He has published over 250 journal papers, chapters, and proceedings papers on his research. Another research interest is in the ethics of laboratory, animal, and human research. He chaired the U.C. Irvine Institutional Review Board (IRB) for seven years, and was a member of the Institutional Animal Care and Use Committee for seven years. His ethics textbook, "Core Ethics for Health Professionals" (Springer International Publisher) was published in August 2017. His current research funding is from an endowment (the Stocking Family Trust). He is an elected fellow of three organizations: the Academy of Toxicological Sciences; the Southern California Academy of Sciences; and the American Association for the Advancement of Science. He is a full member of eight scientific societies, and is the chair of the Board of Directors of the California Society for Biomedical Research (CSBR). He has served on review and advisory committees for EPA, NIEHS, CDC/NIOSH, and the National Academy of Sciences (NAS), including the NAS Committee on Controlled Human Inhalation – Exposure Studies at EPA, and on EPA's Clean Air Scientific Advisory Committee – Particulate Material Subcommittee. He has authored and co-authored sixteen books and reports including "Methods in Inhalation Toxicology" (1997); "Introduction to Air Pollution Science" (2011); and "Core Ethics for Health Professionals" (2017). His recent awards include "Career Achievement" (Society of Toxicology – Inhalation Section); and "Public Education" (CSBR). He has chaired and co-chaired several international conferences on human effects of air pollutants; and on modeling inhaled aerosols.

Puls, Robert

Robert Puls Environmental Consulting

Dr. Robert Puls is owner and principal scientist of Robert Puls Environmental Consulting, LLC. His company has received funding from the National Ground Water Association, the Ground Water Protection Council, the Environmental Defense Fund, and the Wyoming Outdoor Council for projects related to water quality monitoring, aquifer drinking water exemptions, risk assessment and management, and protection of water resources during oil and gas exploration and production. Dr. Puls recently retired as Director of the Oklahoma Water Survey and Associate Professor in the

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College of Atmospheric and Geographic Sciences at the University of Oklahoma. As Director, his research interests included ground water protection from nonpoint sources, water resource protection related to oil and gas operations, wastewater reuse strategies, assessment of ecological impacts from climate change, and aquifer storage and recovery as a means to conserve water and augment drinking water supplies. He received funding in 2014-2015 from the National Science Foundation. He received his PhD in Soil and Water Science from the University of Arizona. Dr. Puls received his Masters in Forest Resources from the University of Washington and his BS in Soil Science and Natural Resources from the University of Wisconsin-Madison. Before coming to the University of Oklahoma, he worked for 25 years at the U.S Environmental Protection Agency (EPA) Office of Research and Development in the Ground Water and Ecosystems Restoration Division in Ada, Oklahoma. He has held positions with EPA as Senior Soil Scientist, Branch Chief, and Director of Research of the Division. His research focused on passive systems to restore groundwater, contaminated site characterization and risk assessment, ground-water sampling, and the transport and fate of contaminants in the subsurface. He has served on Advisory Boards and Committees with the US Geological Survey, EPA, US Department of Energy, National Research Council, the Nature Conservancy, Ground Water Protection Council, ASTM, and private industry. Dr. Puls currently serves on the Editorial Board of the Land Contamination and Reclamation Journal and the journal, Water. Dr. Puls has authored / co-authored more than 150 research articles on the above topics, and received a number of EPA interagency and industry awards for his research.

Richardson, David B.

University of North Carolina

Dr. David B. Richardson is Associate Professor of Epidemiology in the School of Public Health at the University of North Carolina at Chapel Hill. His research focuses on the health effects of occupational and environmental exposures, particularly with regards to ionizing radiation. Dr. Richardson has a strong background in occupational epidemiology, with specific training and expertise in occupational cancer studies, radiation epidemiology, and epidemiological methods. He has conducted research on strengthening epidemiological methods for cohort studies, and laid the groundwork for the proposed research through a history of research on workers employed at U.S. Department of Energy (DOE) facilities, including prior cohort and case-control studies of workers employed at DOE's Oak Ridge, Savannah River, and Hanford facilities, as well as participation in large international collaborative studies of nuclear workers. Dr. Richardson has conducted studies of cancer among nuclear workers at several U.S. Department of Energy facilities, as well as studied cancer among the Japanese survivors of the atomic bombings of Hiroshima and Nagasaki. He has served as a visiting scientist at the World Health Organization's International Agency for Research on Cancer in Lyon, France and at the Radiation Effects Research Foundation in Hiroshima, Japan. Since 2007, he has served as Director of the National Institute of Occupational Safety and Health-funded training program in occupational epidemiology at the University of North Carolina-Chapel Hill. In addition, he is a core faculty member at the Injury Prevention Research Center at the University of North Carolina, and a member of the Exposure and Biomarkers Research Core at the University's Center for Environmental Health and Susceptibility. He is an Associate Editor of the journals Occupational and Environmental Medicine, American Journal of Epidemiology and Environmental Health Perspectives, is a member of the President's Advisory Board on Radiation and Worker Health, and recently served on the Institute of Medicine's Committee on Review of the Department of Labor's Site Exposure Matrix Database. Dr. Richardson's current research includes studies of mortality among workers in the nuclear industry and development of innovative methods

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for occupational cancer studies. These research activities are supported by grants from the National Institute for Occupational Safety and Health, and the National Cancer Institute. Dr. Richardson received a Ph.D. and M.S.P.H., both in epidemiology, from the University of North Carolina.

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 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 Ornithological Society, Peter Wall Institute for Advanced Studies, Public Voices / Op-Ed Project, 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 118 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

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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.

Rolband, Michael

Wetland Studies and Solutions, Inc.

Michael (Mike) S. Rolband is the founder and president of Wetland Studies and Solutions, Inc. (WSSI), a 120+ person natural and cultural resources consulting firm headquartered in Gainesville, Virginia, which is now a subsidiary of The Davey Tree Expert Company. He has led the firm from its roots in 1991 as a one-person wetlands consulting firm into an integrated multi-discipline natural and cultural resource consulting firm focused on solving Clean Water Act permitting and regulatory requirements of the Chesapeake Bay Preservation Act. Mike was responsible for WSSI's development of the first wetlands bank in Virginia in 1994 (fourth in U.S.), the first mitigation bank to provide stream credits in Virginia (2001), the first urban stream bank in Virginia (2006 approval; 45,000 linear feet restored in Reston, Virginia to date), WSSI's office facility receiving the first LEED Gold approval in Virginia (2006), and a full-scale LID laboratory. In the area of wetlands and stream restoration, Mike created a research program, the Wetland Research Initiative, that has funded \$3.5 million to date on grants to several universities since 2007, and created a 501(c)(3) (Resource Protection Group, Inc.) to continue this program. Mike's interest in stormwater management and its interaction with natural waterbodies has led to legislation, the development of the "Energy Balance" Methodology (adopted in Virginia regulations), and a permeability testing protocol now contained in the June 11, 2015 Draft of VDOT's VTM-134 Bioretention Soil Media Test. Under his direction, WSSI has provided natural and cultural resources studies and permitting on over 7,500 projects and nearly 275,000 acres of land in the region. Beyond the operational requirements of managing the firm, Mike's current focus is on new stormwater regulations, the Chesapeake Bay TMDL process, local environmental ordinance and comprehensive plan changes, and compensatory mitigation project design. Mike has served on the Chesapeake Bay Local Assistance Board and numerous committees at the state and local government level dealing with the Chesapeake Bay Preservation Act, stormwater, and wetlands/stream regulations. Additionally, he has testified before the U.S. Congress, and lectured to numerous organizations on stormwater management, mitigation, wetlands and stream regulatory policy, and Chesapeake Bay Act Regulations on many occasions. Mike was also instrumental in developing Virginia's new wetlands laws in the 2000 legislative session, as well as over a dozen pieces of state legislation involving wetlands, streams and stormwater regulations. He attended Cornell University where he obtained a BS in Civil and Environmental Engineering, a Master of Engineering (Civil), and an MBA.

Rosen, Barry

Florida International University

Barry P. Rosen is currently Associate Dean for Basic Research and Graduate Programs at the Herbert Wertheim College of Medicine, Florida International University in Miami, Florida since 2009. 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 was on the faculty at the University of Maryland School of Medicine in Baltimore, Maryland for 15 years. For nearly four decades his laboratory has investigated the mechanisms of transport and

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detoxification of transition metals, heavy metals and metalloids in bacteria, yeast, protozoans, mammals and plants. He identified the pathways of arsenic uptake, efflux, biotransformation and regulation in organisms from *E. coli* to humans. He identified most of the known arsenic detoxification genes and characterized their gene products at the biochemical and structural level. He solved the crystal structure of many of those proteins. He identified and named the ArsR family of metalloregulatory proteins. He made the seminal discovery that aquaglyceroporin channels, from *E. coli* GlpF to human AQP9, are the transporters that nearly every cell uses to take up As(III). He is currently elucidating the enzymes and transporters of the arsenic biomethylation and organoarsenical redox cycles. He has published more than 320 papers, reviews and books and is the holder of a prestigious MERIT Award from NIGMS and an R01 from NIEHS. He is recipient of numerous awards, including Basil O'Connor Award from the March of Dimes, Maryland Distinguished Young Scientist Award, Josiah Macy, Jr. Faculty Scholar Award, Gershenson Distinguished Faculty Fellow Award (WSU), Outstanding Graduate Mentor Award (WSU) and Lawrence Weiner Medical Alumni Award (WSU) and is an elected fellow of both the American Association for the Advancement of Science (AAAS) and the American Society for Microbiology (ASM). He has been on many national and international panels at NIH, NSF, and American Heart Association, and on multiple editorial boards. He has served as both President of the Wayne State University Academy of Scholars and President of the Association of Medical and Graduate Departments of Biochemistry. He was a member of the EPA Scientific Advisory Board Arsenic Review Panel, 2005-2006. Most recently he served as an external Reviewer of the FDA proposed limit for inorganic arsenic in infant rice cereal.

Russell, Armistead (Ted)

Georgia Institute of Technology

Professor Armistead (Ted) Russell is the Howard T. Tellepsen Chair and Regents' Professor of Civil and Environmental Engineering at Georgia Tech, where his research is aimed at better understanding the dynamics of air pollutants at urban and regional scales and assessing their impacts on health and the environment to develop approaches to design strategies to effectively improve air quality. He earned his M.S. and Ph.D. degrees in Mechanical Engineering at the California Institute of Technology, conducting his research at Caltech's Environmental Quality Laboratory. His B.S. is from Washington State University. Dr. Russell was a member of EPA's Clean Air Science Advisory Committee (CASAC) and a member of the National Research Council's Board on Environmental Studies and Toxicology. He chaired the CASAC NO_x-SO_x, Secondary NAAQS review panel, the Ambient Air Monitoring Methods Subcommittee and the Council on Clean Air Compliance Analysis' Air Quality Modeling Subcommittee, and served on the Health Effects Institute's Report Review Committee. He was an Associate Editor of the journal Environmental Science and Technology and co-directed the Southeastern Center for Air Pollution and Epidemiology. He currently co-directs the NSF-funded Integrated Urban Infrastructure Solutions for Environmentally Sustainable, Healthy, and Livable Cities network.

Sager, Allana

Dexter ATC Field Services, Inc.

Mrs. Allana Sager is an Environmental Engineer for Dexter ATC Field Services, providing onsite support for the Water and Wastewater Treatment program at the Total Petrochemicals and Refining Facility in Port Arthur, TX. She received a Bachelor of Science in Biology and Biochemistry from Texas A&M University. She continued her studies and received a Master of Science in Civil Engineering with a specialty focus in Environmental Engineering, and a Business Certificate from

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the Mays School of Business at Texas A&M University. Allana was awarded a graduate research assistantship by the Texas Engineering Experiment Station at Texas A&M University where she conducted research in the Global Petroleum Research Institute regarding the stability of hydraulic fracturing waters and methods to monitor microbial activity in these waters. Her work was published and presented to the Society of Petroleum Engineer's Industry Board at the Unconventional Resource Technology Conference where she was commended for bringing a revolutionary topic forward for industry wide discussion. Post publication, her work was also featured in the Journal of Petroleum Technology as a feature story detailing the best available technology and practices identified by her team's research. Her technical background also includes biotechnology, biopolymers, wastewater treatment, stormwater management, water reuse, membrane technology, industrial water storage and containment. In addition, she has also developed an expertise in the implementation and maintenance of federal and state water and air quality standards covering the discharge of treated process water, facility stormwater, particulate matter, volatile organics, benzene waste operations, and national emissions standards for hazardous air pollutants. She is recognized as an effective communicator of science and engineering to both technical and non-technical audiences. Since Allana has joined industry, she has received the Engineer-In-Training (EIT) certification from the Texas Board of Professional Engineers, and is currently working towards her Professional Engineering (PE) License. She actively works to give back to her community by being an active member of Engineers without Borders, the American Society of Civil Engineers, the American Chemical Society, and the American Water Works Association. She is not currently a recipient of any research grants or federal funding, but she did receive funding from a private sector environmental consulting firm (GSI Environmental) during her research.

Scherer, Michelle

University of Iowa.

Dr. Michelle M. Scherer is the Donald E. Bently Professor of Civil and Environmental Engineering at the University of Iowa. She holds a B.S. in Systems Engineering from the University of Virginia (1989), an M.S. in Civil and Environmental Engineering from the University of Connecticut (1994), and a Ph.D. (1998) in Environmental Science and Engineering from the OGI School of Science and Engineering. Dr. Scherer is currently Chair of the Department of Civil & Environmental Engineering (www.engineering.uiowa.edu/cee/) and is an expert in environmental geochemistry and reactions of environmental pollutants at the mineral –water interface. Her research and teaching interests center around the redox chemistry of minerals in soils and water, biogeochemical cycles of nutrients and metals, hazardous waste treatment, and nanogeochemistry. Dr. Scherer is a past Associate Editor for the journal *Environmental Science & Technology* and was awarded the 2010 Malcolm Pirnie Frontier in Research Award by the Association of Environmental Engineering and Science Professors (AEESP) and the 2016 May Brodbeck Distinguished Achievement Award for Faculty at U. Iowa. She has published numerous articles in leading environmental engineering and science journals, as well as several book chapters. Dr. Scherer's current research and education initiatives are supported by competitive grants from the National Science Foundation, Department of Energy, and the Strategic Environmental Research and Development Program (SERDP) to provide funding to understand processes controlling heavy metal and chlorinated solvent cleanup and redox behavior of semiconductor minerals. Current work is focused on perchlorethylene, trichloroethylene, heavy metals (such as arsenic) and iron, manganese, and clay minerals. She has also recently begun working on lead and copper contamination in drinking water.

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Shea, Damian

Statera Environmental, Inc.

Dr. Damian Shea is a Professor of Environmental Chemistry and Toxicology at North Carolina State University and President and Founder of Statera Environmental, Inc., an environmental technology and consulting company. He received his Ph.D. in Environmental Chemistry from the University of Maryland in 1985 and was awarded a National Research Council Post-Doctoral Fellowship at the National Institute of Standards and Technology (1985-1987). In 1987, he was awarded an American Association for the Advancement of Science Environmental Science and Engineering Fellowship to work at the US Environmental Protection Agency. From 2001 to 2011 he served as Head of the Department of Environmental and Molecular Toxicology and Department of Biology and also was the Founding University Director of the U.S. Department of the Interior Southeast Climate Science Center and the Program Director for the Howard Hughes Medical Institute Undergraduate Science Education Program. Dr. Shea has been studying the sources, fate, and effects of chemicals in the environment for over 30 years. His research and teaching is highly interdisciplinary and applied to solving real-world environmental problems. By combining his knowledge and experience in chemistry, toxicology, risk assessment, and the social sciences his ultimate goal is to improve our ability to assess, communicate, and mitigate the risks of chemicals to human and ecological health. He is a member of the American Chemical Society, Society for Environmental Toxicology and Chemistry, and International Society of Exposure Science and previously a member of the Society of Toxicology, American Geophysical Union, among others. He also provides scientific leadership to a startup company focusing on environmental technologies. Dr. Shea receives research funding from National Institute of Environmental Health Sciences, US Department Agriculture, US Geologic Survey, and US Fish and Wildlife Service.

Shelby, Laurie

Alcoa Corporation

Laurie Muse Shelby obtained her Bachelors of Science in Chemistry from Radford University and her Master's in Public Health from the School of Biomedical Engineering at the Medical College of Virginia. She is a Board Certified Industrial Hygienist (CIH) and Board Certified Safety Professional (CSP). Laurie is the Vice President of Environmental, Health, and Safety at Alcoa Corporation. She previously worked at Radian Corporation and Dominion Energy. Laurie has served as the President for local industrial hygiene sections in the Central Virginia region and Potomac region. Laurie is currently an executive member of the ORCHSE, a global thought leadership group for Environmental, Health and Safety excellence. Laurie is leading a team of global experts on the revision of the American Society of Safety Engineers Z10 management system standard. Laurie is an expert in risk assessment and risk auditing. She has worked to develop global compliance strategies sulfur dioxide, ozone, PM2.5 and residual risk in her current role within the Aluminum industry. Laurie is married with two children.

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:

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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.

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

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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 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 Marylhurst 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, Anne

NERA Economic Consulting

Anne Smith is a Managing Director of NERA Economic Consulting and co-head of its environmental practice. She is trained in economics, decision sciences, and modeling. She has MA and PhD degrees in economics from Stanford University, and a PhD minor from Stanford Engineering School's Department of Engineering-Economic Systems. She received her BA summa cum laude in economics from Duke University. Prior to joining NERA, Dr. Smith headed the Climate & Sustainability Group at Charles River Associates; headed the Environmental Policy Practice of Decision Focus Incorporated (and served on its Board of Directors); was a decision analyst at SRI International; and served as an economist in the Office of Policy Planning and Evaluation of USEPA. Dr. Smith has conducted studies and published papers on benefit-cost analysis, epidemiological risk analysis, uncertainty analysis, energy-environmental modeling, and economic impact analysis. She has applied this expertise to issues including air quality, climate change, contaminated sites, food safety, and nuclear waste management. She has also conducted training courses in health risk assessment and risk management for staff of corporations and government agencies. Her consulting involves a wide array of clients, including research institutions, businesses, non-profit organizations, trade associations, multi-stakeholder commissions, and government agencies in the U.S. and abroad. This experience gives her insight into the diversity of perspectives that public policies must address. Dr. Smith has also gained sensitivity to diverse perspectives from prior service on expert committees, including five committees of the National Academies of Sciences, three committees convened by the United Nations Economic Commission for Europe and the UN's Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), and for a programmatic review of PM2.5 research by EPA's Board of Scientific Counselors. She is a member of many different professional societies, performs peer reviews for journal articles, and served on the Board of Directors of the Society for Benefit-Cost Analysis in 2013 and 2014.

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Smith, Eric P.

Virginia Polytechnic Institute and State University

Dr. Eric P. Smith is Chair of the Department of Statistics at Virginia Polytechnic Institute and State University. He holds a B.S. in Mathematics from the University of Georgia and an M.S. and Ph.D. from University of Washington in Biomathematics. Dr. Smith has been a member of the Virginia Tech faculty since 1982. His research focuses on the development and application of statistical methods to help understand and solve environmental and ecological problems. Dr. Smith was the Director of the Statistical Consulting Center 1995-2004. In that position he was responsible for providing statistical support to students, faculty and staff and provided training to statistics students on the art of consulting. Dr. Smith has worked on a variety of statistical and scientific problems from areas such as engineering, education and natural resources. He teaches courses on multivariate analysis and linear models (regression, analysis of variance). Dr. Smith is a former Associate Editor of *Environmetrics*, the *Journal of Agricultural, Biological and Environmental Statistics*, and the *Journal of the American Statistical Association*. He was a section editor for the Natural Resources section for the *Encyclopedia of Environmetrics* and associate editor for *Environmental Management*. He has supervised 14 Ph.D. students. Dr. Smith's research is currently funded by grants from the Office of Naval Research, the U.S. Department of Agriculture (Improvement and Marketing of the Food and Agricultural Education Information System), and the National Marine Fisheries (Model complexity and stock assessment quality: an investigation of the performance of models of different complexity and implications for model selection in fisheries).

Smith, Richard

University of North Carolina

Richard L. Smith is Mark L. Reed III Distinguished Professor of Statistics and Professor of Biostatistics in the University of North Carolina, Chapel Hill. He is also Director of the Statistical and Applied Mathematical Sciences Institute, a Mathematical Sciences Institute supported by the National Science Foundation. Dr. Smith holds a B.A. in Mathematics from Oxford University, and a Ph.D. in Operations Research from Cornell University. He previously held academic positions at Imperial College (London), the University of Surrey (Guildford, England) and Cambridge University. Dr. Smith's main research interest is environmental statistics and associated areas of methodological research such as spatial statistics, time series analysis and extreme value theory. He is particularly interested in statistical aspects of climate change research, and in air pollution including its health effects. Dr. Smith is a Fellow of the American Statistical Association and the Institute of Mathematical Statistics, an Elected Member of the International Statistical Institute, and has won the Guy Medal in Silver of the Royal Statistical Society, and the Distinguished Achievement Medal of the Section on Statistics and the Environment, American Statistical Association. In 2004 he was the J. Stuart Hunter Lecturer of The International Environmetrics Society. Dr. Smith is also a Chartered Statistician of the Royal Statistical Society. He served on the Research Committee of the Health Effects Institute from 2010-2015.

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

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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.

Steward, H. Leighton

CO2 Coalition

Mr. Steward earned an MS in Geology, from Southern Methodist University. He is an environmentalist and former energy industry executive. He has a background of extensive corporate leadership and a lifetime of environmental activities and recognition for the same. He can bring some balance to the many discussions facing the EPA today. Mr. Steward is a firm believer in the application of the scientific method which has seemed to be lacking in some of the previous administrations. He held leadership roles in several organizations that also rely on empirical science can help access this information quickly and pass it on to the Science Advisory Board and the Administrator. He is currently active on committees with M.D. Anderson Cancer Center, the CO2 Coalition and the ex-NASA Right Climate Stuff team. Was lead author of the New York Times best seller Sugar Busters that led the nutritional industry in 1992 in helping to control weight and Type II diabetes and sold over 4 million copies. Mr. Steward was a leader in the discovery that hydrocarbons can be detected from earth's surface with geophysical methods and that oil and gas can be produced commercially from extremely tight source shales. He has met one on one with six secretaries and or EPA Administrators as to how "no net loss" of wetlands could be accomplished and it work. Mr. Steward won EPA Region 6 Environmental Excellence Award. He currently receives no outside funding and funds a variety of research and believes "We owe our Administrator all the pertinent empirical evidence that underpins his decisions."

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

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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 and collaborates on 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 exposure equity, 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.

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 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.

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Theis, Thomas L.

University of Illinois at Chicago

Professor Theis is Director of the Institute for Environmental Science and Policy (IESP) at the University of Illinois at Chicago. He was most recently at Clarkson University, where he was the Bayard D. Clarkson Professor and Director of the Center for Environmental Management. His areas of expertise include life cycle assessment, industrial ecology, the mathematical modeling and systems analysis of environmental processes, environmental policy; pollution prevention, and hazardous waste management. He has published in excess of 130 peer-reviewed articles, and is the co-author (with Jonathan Tomkin) of the text Sustainability: A Comprehensive Foundation. He was co-chair (with James Galloway and Otto Doering) of the Integrated Nitrogen Committee of the USEPA SAB. Their final report: Reactive Nitrogen in the United States: An Analysis of Inputs, Flows, Consequences, and Management Options was released in 2011. Dr. Theis is a past member of the USEPA Congressionally Chartered Science Advisory Board, and is past editor of the Journal of Environmental Engineering. From 1980-1985 he was the co-director of the Industrial Waste Elimination Research Center (a collaboration of Illinois Institute of Technology and University of Notre Dame), one of the first Centers of Excellence established by the USEPA. In 1989 he was an invited participant on the United Nations' Scientific Committee on Problems in the Environment (SCOPE) Workshop on Groundwater Contamination, in 1998 he was invited to by the World Bank to assist in the development of the first environmental engineering program in Argentina, in January, 2009 he delivered the keynote address at the NitroEurope Conference in Gothenburg, Sweden, and in October 2009 he was a member of the US delegation to the US-Japan Workshop on Life Cycle Assessment and Infrastructure Materials in Sapporo, Japan. He is the founding Principal Investigator of the Environmental Manufacturing Management Program.

Thomas, Valerie

Georgia Institute of Technology

Dr. Valerie Thomas is the Anderson Interface Associate Professor in the School of Industrial and Systems Engineering at the Georgia Institute of Technology, with a joint appointment in the School of Public Policy. Dr. Thomas received a Ph.D. in theoretical physics from Cornell University, and a B. A. in physics from Swarthmore College. She was a post-doctoral Research Fellow at the Department of Engineering and Public Policy at Carnegie Mellon University, and a Research Scientist at Princeton University, at the Princeton Environmental Institute and at Princeton's Center for Energy and Environmental Studies. She has worked on a wide range of issues including nuclear arms control verification, international security, and environmental sustainability. She has spent a year as a Science Fellow in the U.S. Congress, as the American Physical Society Congressional Science Fellow. Her expertise is in quantitative approaches to environmental assessment, and the lifecycle environmental impacts of products and materials. Current research is in the area of industrial ecology, including biofuels and bioenergy, energy efficiency, and the use of information technology and markets to increase recycling and efficiency. She is a Fellow of the American Physical Society, and an elected Council Member of the International Society for Industrial Ecology.

Thompson, Timothy

Science and Engineering for the Environment, LLC

Mr. Timothy Thompson is a Senior Environmental Scientist with Science, Engineering and the Environment, LLC. In his current position his principal responsibilities are in the field of characterization, risk assessment, and management of contaminated sediments. He received his B.Sc.

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in Agricultural Sciences from the University of Arizona, his M.Sc. in Ocean Sciences from the University of British Columbia, and was a Monbusho Fellow, at the University of Nagasaki and Tokyo Fisheries University, Japan. In his 18 years of experience as a practicing professional in environmental science he has been program manager and principal scientist for several large contaminated sediment programs under CERCLA and RCRA. His current work in sediments also includes habitat evaluations and integration of field data with spatial modeling tools, spatial characterization and statistical analysis of bedded sediment data, bedded sediment characterization, water quality monitoring, sediment remediation and ecological risk assessment. Mr. Thompson is currently a member of the EPA's Science Advisory Boards Ecological Process and Effects Committee and sits by request with the Environmental Engineering Committee and with the EPA's Board of Scientific Counselors. He serves in a peer review capacity for two of the largest contaminated remediation projects in the U.S, and has several publications on risk assessment and contaminated site management.

Thorne, Peter S.

University of Iowa

Dr. Peter S. Thorne is Professor of Toxicology and Head of the Department of Occupational and Environmental Health at the University of Iowa, College of Public Health. He holds a secondary appointment as Professor of Civil and Environmental Engineering. Dr. Thorne is Associate Director and co-founder of the Interdisciplinary Graduate Program in Human Toxicology. He received a BS in chemical engineering, MS in biomedical engineering and PhD in toxicology from the University of Wisconsin-Madison and completed post-doctoral training in immunotoxicology at the University of Pittsburgh. Since 2001 he has served as Director of the NIH-funded Environmental Health Sciences Research Center. Dr. Thorne directs a major community-based research project and the Inhalation Toxicology Core for the Iowa Superfund Research Program. He has been continuously funded by NIH for over two decades and runs a productive research laboratory engaging his students in studies of environmental risk factors for asthma, health effects of inhaled air pollutants, inflammatory lung diseases, endotoxin-induced immunomodulation, nanotoxicology and novel methodology for exposure assessment to airborne toxicants. Dr. Thorne has authored 200 peer-reviewed papers and book chapters. He teaches graduate level courses on environmental health and human toxicology and has mentored 75 MS, PhD and Postdoctoral trainees. Dr. Thorne has served on a wide variety of editorial and review boards for scientific journals, government agencies, and academia and regularly chairs grant reviews for NIH. From 2003 to 2006, he served on the NIH National Advisory Environmental Health Sciences Council. He is the recipient of the Thomas Bedford Memorial Prize from the British Occupational Hygiene Society, the John Doull Award from the Society of Toxicology (Central States Chapter) and was the 2003 Whitehead Memorial Lecturer at the Children's Hospital of Pittsburgh.

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 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

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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. In addition, one of Dr. Thurston's students presently has a EPA STAR grant, which he oversees (without salary support). 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.

Turco, Ronald

Purdue University

As a faculty member in the College Agriculture for 30 years, Dr. Ronald F. Turco Jr. has developed a research and teaching (80R/20T) position based on the application of basic science to solve problems facing Indiana and the nation. Turco's earliest efforts at Purdue led him to realize the significance that a microbiologist could play by developing an applied research program to understand and deliver information on the biological components of environmental stewardship, ecosystem sustainability and farming operations. His research program now stresses water quality and soil health, emphasizing the importance of understanding the behavior of environmental microorganisms as well as understanding the impact of humans on the soil microbiome. Microbiology affects all aspects of our lives; most encounters are neutral, but an ingestion of contaminated water or food can have devastating effects on people and animals. Turco's early efforts were significant in that he realized the role a microbiologist could play by developing an applied research program to understand and deliver information about the microbiology of environmental processes. His program has stressed work on how microorganisms control critical soil processes related to N transformations, the buildup of soil carbon reserves, and the decomposition of plant and waste residues. His work has also stressed that certain microorganisms can produce disease in humans and animals, create water contamination or create the greenhouse gases CH₄ and N₂O that pose potential harmful effects. Over the last few years Turco has taken on a number of administrative responsibilities including serving as the founding Director of Purdue's Environmental Sciences and Engineering Institute (ESEI) now the Center for the Environment, service on the board of directors for the Purdue Climate Change Research Center (PCCRC), the Directorship of the Indiana Water Resources Research Center (IWRRC) and most recently he have served as the director of the Purdue Water Community, and now is the Director of the Global Sustainability Institute and an Assistant Dean in the College of Agriculture.

van der Vaart, Donald

NC State Government

Dr. van der Vaart has experience at all levels of Environmental Management within the State Government Department responsible for Environmental Protection. He has worked in a variety of scientific areas relevant to the environment including combustion and refining. His work has primarily been focused on Air Quality related challenges. In addition to his scientific work, Dr. van der Vaart has significant regulatory experience implementing the rules that derive from environmental science.

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Van Houtven, George

RTI International

Dr. George Van Houtven is Program Director for Ecosystem Services Research at RTI International and a senior environmental economist with over 20 years of experience managing and conducting applied policy research, primarily for the U.S. Environmental Protection Agency (EPA) and other federal agencies. He received a B.A. in Political Economy from Johns Hopkins University and a Ph.D. in Economics from the University of Maryland. Over the course of his career, Dr. Van Houtven's research has primarily focused on economic valuation of human health and ecological benefits and on markets for ecosystem services. Through grants, cooperative agreements, and task order funding from several EPA offices, he has specialized in the development and application of nonmarket valuation methods linking economic and environmental models to assess the benefits of a wide range of air, water, and hazardous waste pollution regulations. This research has included the development of innovative structural and meta-analytic benefit transfer methods, with a particular emphasis on valuing human health and water quality improvements. It has also involved the design, implementation, and analysis of several stated preference surveys valuing environmental benefits ranging from reduced mortality and reproductive risks to improved lake water quality, as well as the advancement of methods for combining revealed and stated preference data. He is also currently leading an EPA-funded effort to develop an ecosystem service classification system designed to support the quantification and valuation of environmental benefits. In recent years, Dr. Van Houtven's research has also increasingly focused on incentive-based mechanisms for environmental policy, in particular water quality trading, and the application of optimization methods to analyze the cost-benefit tradeoffs associated with alternative trading program designs. Over the last two years, his main sources of research funding have been EPA and the Environment Agency—Abu Dhabi.

van Wijngaarden, Edwin

University of Rochester

Dr. Edwin van Wijngaarden is Associate Professor of Public Health Sciences, Environmental Medicine, Pediatrics, Dentistry and Community Health at the University of Rochester School of Medicine and Dentistry, Rochester, NY. He is Chief of the Division of Epidemiology and Director of the Doctoral and Masters Programs in Epidemiology. Dr. van Wijngaarden received an MSc in Environmental Sciences from Wageningen University in The Netherlands, and a PhD in Epidemiology from University of North Carolina at Chapel Hill. He has extensive experience in managing and conducting epidemiologic studies and in academic leadership. He has authored about 100 peer-reviewed manuscripts primarily in the areas of environmental and occupational health. For the past 15 years, his research has focused on the potential effects of exposure to metals and pesticides on nervous system outcomes in children and older adults, including behavioral and cognitive development, mental disorders, and dementia and related conditions. Dr. van Wijngaarden is currently the PI of a longitudinal cohort study investigating the potential influence of exposure to methyl mercury from fish consumption on child development. He is also a key investigator in the University of Rochester's Clinical and Translational Sciences Institute and Environmental Health Sciences Center. He has trained over 70 graduate students in public health. Dr. van Wijngaarden is a fellow of the American College of Epidemiology (FACE) and a member of the Society for Epidemiologic Research. He has served in consulting and expert review roles at institutional, state and national levels, including study sections for federal research programs. He is Associate Editor of two peer-reviewed scientific journals. His research has been supported by the National Institutes of Health and the Centers for Disease Control and Prevention.

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VanBriesen, Jeanne M.

Carnegie Mellon University

Dr. Jeanne VanBriesen is the Duquesne Light Company Professor of Civil and Environmental Engineering at Carnegie Mellon University, and Director of the Carnegie Mellon Center for Water Quality in Urban Environmental Systems (WaterQUEST). She holds a B.S. in Education (Chemistry) from Northwestern University, and an M.S. and Ph.D. in Civil Engineering (Environmental) from Northwestern University. She is a registered professional engineer in Delaware. Her expertise is in water quality engineering. Her research foci include, detection of biological agents in drinking water and natural water systems, coupling watershed behavior and drinking water system operations and security, and energy-water systems interactions. Dr. VanBriesen's research has been funded through grants from the National Science Foundation, the Department of Defense Strategic Environmental Research and Development Program, the Colcom Foundation, the Heinz Endowments, the Packard Foundation, the Pennsylvania Infrastructure Technology Alliance, the Pennsylvania Water Resources Research Center, and the Natural Resources Defense Council. She has served on the boards of the Association for Environmental Engineering and Science Professors, the Ohio River Basin Consortia for Research and Education, and the Nine Mile Run Watershed Association. She currently serves on the board of the Consortium for the Advancement of Hydrologic Sciences (CUAHSI). Dr. VanBriesen has received numerous awards, including the 2015 Carnegie Science Center Environmental Award and the 2015 American Society of Civil Engineering Margaret S. Peterson Award. Dr. VanBriesen served on the National Research Council's Committee on Water Quality in Southwestern Pennsylvania in 2002-2004. She was a selected presenter at the National Academy of Engineering Indo-US Frontiers of Engineering Symposium on Infrastructure in 2008, and an invited speaker at the National Academy of Engineering Education Symposium in 2010. She was selected as a National Academy of Engineering Gilbreth Lecturer in 2011.

Vikesland, Peter

Virginia Tech

Dr. Peter Vikesland is a Professor in the Department of Civil and Environmental Engineering at Virginia Tech with research expertise in water treatment, environmental nanotechnology, antimicrobial resistance, and advanced environmental sensor platforms. He received his BA in Chemistry from Grinnell College, his PhD from the University of Iowa, and he was a postdoctoral fellow in Geography and Environmental Engineering at the Johns Hopkins University. He has served as the UPS Foundation Visiting Associate Professor of Civil and Environmental Engineering at Stanford University and as a Visiting Professor at ETH-Zurich. Vikesland is a NSF CAREER awardee and both he and his students have received numerous national awards in recognition of their scholarly and research accomplishments. Dr. Vikesland teaches courses on environmental nanotechnology, public health engineering, and environmental chemistry. Dr. Vikesland currently serves as the co-Director of the Virginia Tech Sustainable Nanotechnology Program (VTSuN) and its corresponding interdisciplinary graduate research program. His recent research funding comes from NSF, EPA, and the Bill and Melinda Gates Foundation. He is a Fellow of the Royal Society of Chemistry and is the immediate-Past President of the Association of Environmental Engineering and Science Professors (AEESP).

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Walsh, Daniel

New York City Mayor's Office/Columbia University

Dr. Daniel C. Walsh is a geochemist with over 30 years of experience in government regulation of environmental quality including direction of Superfund, Hazardous Materials, Brownfields, Solid Waste, RCRA, Pesticides, Petroleum Spills and Emergency Response programs for the New York State Department of Environmental Conservation (NYSDEC) and the City of New York. Throughout his career, Dr. Walsh has directed government regulation of environmental investigation and cleanup of over 10,000 properties, arguably as many as any other person in U.S. history. He served as the Chief of Operations for NYSDEC's Civilian Environmental Response to the World Trade Center disaster in 2001-2002 where he oversaw all state environmental operations and communications, and supervised state personnel performing full-time oversight of World Trade Center debris transport, processing, disposal and permitting operations. In 2008, he was appointed by Mayor Michael Bloomberg as founding Director of the New York City (NYC) Office of Environmental Remediation where he established the nation's only municipally-regulated land cleanup program, the NYC Voluntary Cleanup Program (VCP), in 2011. Specializing in high quality cleanups, the NYC VCP has become one of the most prolific cleanup programs in the country, with cleanup leading to the development of over 30 million square feet of new building space resulting in over \$10 billion in private investment in mostly vacant urban land. He has established numerous programs that achieve broad goals for new uses of blighted land in underserved neighborhoods. For instance, over 50% of the properties enrolled for cleanup and redevelopment in the NYC VCP are located in low-income communities and will result in over 4,500 new units of affordable housing for over 12,000 residents. Dr. Walsh is one of the country's leading advocates for municipal control of environmental regulation and the use of these environmental functions for the achievement of municipal goals. He has established over 30 environmental programs including the nation's first exchange for clean soil (the NYC Clean Soil Bank) and other recyclable building materials, the NYC Green Property Certification program, and local programs for revitalization of vacant, contaminated urban land. He is currently piloting programs to correct environmental contamination of urban community gardens. Since 1999, Dr. Walsh has been an Adjunct Senior Research Scientist at Columbia University Lamont Doherty Earth Observatory & The Earth Institute. He holds B.S. in Geological Sciences from Binghamton University, an M.S. in Geophysics from University of Massachusetts, and a Ph.D. in Geochemistry from Rensselaer Polytechnic Institute. He formerly served on EPA's Homeland Security Advisory Committee for the Science Advisory Board and for the EPA's Board of Scientific Counselor's Homeland Security Advisory Committee. Dr. Walsh does not currently have any research grants. He is the author of numerous technical papers and articles and his work has received national recognition including the American Bar Association's 2013 Environmental, Energy and Resources Stewardship Award, the 2014 National Brownfield Person of the Year and his municipal environmental programs were a finalist for Harvard's Excellence in Governance Award in 2015.

Weber, Elke

Princeton University

Dr. Elke Weber is the Gerhard R. Andlinger Professor in Energy and the Environment and Professor of Psychology and Public Affairs at Princeton University. She is an expert on descriptive models of decision-making under uncertainty and time delay in environmental and financial contexts. Prior to coming to Princeton she spent 17 years at Columbia University, where she founded and co-directed the Center for Decision Sciences, which generates and facilitates interdisciplinary decision research relevant to the needs of real world decision makers, and the Center for Research on Environmental

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Decisions, which investigates ways of facilitating human responses to climate change and climate variability and has published a widely-used Climate Change Communications Guide (cred.columbia.edu/Guide). She is the author of over 160 papers and multiple books and project reports. Her expertise in the decision sciences has been sought out by several advisory committees of the National Academy of Sciences on human dimensions in global change. She served on the American Psychological Association Task Force that issued a report on the Interface between Psychology and Global Climate Change, and was a lead author in Working Group III for the 5th Assessment Report of the U.N. Intergovernmental Panel on Climate Change (IPCC). She is past president of the Society for Neuroeconomics, the Society for Judgment and Decision Making, and the Society for Mathematical Psychology. She is a fellow of the American Academy of Arts and Sciences, the American Psychological Association, the Association for Psychological Science, the Society for Risk Analysis, and was elected to the German National Academy of Sciences. Dr. Weber received her B.A. degree in psychology (summa cum laude) from York University in Canada and her M.A. and Ph.D. degrees from Harvard in behavior and decision analysis. She has held academic positions at the University of Chicago, University of Illinois, and the Ohio State University and visiting appointments in Europe (London Business School, Copenhagen Business School, Fribourg University, Beisheim Graduate School of Corporate Management) and the USA (Princeton University and California Institute of Technology). She spent fellowship years at the Center for Advanced Studies in the Behavioral Sciences at Stanford, the Russell Sage Foundation, and the Wissenschaftskolleg in Berlin. The University of Basel awarded her an honorary doctorate for her work that differentiates the roles played by subjective perception of risk and risk attitude in risk taking. Dr. Weber's research and her research centers have been supported continuously since 1986 by the National Science Foundation, the National Institute of Health, and other agencies and foundations.

Weinstein, Laurie

University

Dr. Laurie Weinstein is Professor, Anthropology, at Western Connecticut State University where she chairs the Jane Goodall Center for Excellence in Environmental Studies. The Center, a partnership created by Jane Goodall in 1995, links the international Jane Goodall Institute with the university. Dr. Weinstein created a campus permaculture garden that links the region's food pantries with the university. Dr. Weinstein overhauled the administrative side of the JGC and made it self-sustaining by writing grants and turning it into a 501 3c charity. The Center's mission also includes a climate advocacy role. Dr. Weinstein directs the archaeology program at WCSU. She leads a summer field school and teaches Cultural Resource Management. She completed a Section 106 NPS course that also included training in NEPA and writing EIS. Dr. Weinstein has an active research agenda, publishing books, journal articles and edited volumes, and running a book series from the University of Arizona Press. These publications are related to indigenous peoples of the Americas; her own work has centered on New England and the Southwest. *Native Peoples of the Southwest: Negotiating Land, Water and Ethnicities* (Prager Press), focused on water wars in the region. Weinstein has also published edited books, journal articles and reviews related to women and the U.S. and Canadian militaries. Dr. Weinstein has been a leader (President of University Senate, Chair of the Department of Social Sciences) at Western Connecticut State University. She was a visiting professor at Western State Colorado University and Colorado College. Research funding for the archaeological field schools, and/or publications on Native America, provided by the American Philosophical Society, The Harcourt Foundation, and the Association of University Professors (AAUP). Funding for the

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JGC provided by Staples, Aquarion Water, Constellation Energy, the Danbury Women's Club, and private donations. The JGC won awards as environmental champions for all the corporations mentioned above.

Wells, E. Christian

University of South Florida

Dr. E. Christian Wells is Professor of Anthropology and Director of the Center for Brownfields Research and Redevelopment at the University of South Florida (USF), where he has served as the Founding Director of the Office of Sustainability (2009-2012) and as Deputy Director of the Patel School of Global Sustainability (2010-2012). He holds affiliate faculty appointments at USF in the Patel College of Global Sustainability, the Water Institute, the Institute for the Study of Latin America and the Caribbean, and the Florida Institute of Forensic Anthropology and Applied Science. He has served on numerous regional and national advisory committees on applied social and environmental science, including for the American Anthropological Association and the Environmental Protection Commission of Hillsborough County Florida. He currently serves as Advisor to the Florida Brownfields Association Board of Directors. Wells received his B.A. from Oberlin College and his M.A. and Ph.D. in Anthropology from Arizona State University. He is an applied environmental anthropologist whose research takes place at the nexus of environmental justice and environmental health, and addresses key issues related to: sustainable development, brownfields communities, landscape legacies, anthrosol formation, water/wastewater management, science-policy interactions, and quantitative modeling and simulation of social and environmental science data. Over the past 20 years, he has undertaken social science and geoscience research throughout Central America and the Caribbean with over \$4.5 million in funding from the National Science Foundation and other agencies. Currently, he serves as Co-Principal Investigator of a five-year, \$3.9 million NSF-funded research project that examines resource recovery technologies (from wastewater) and their impact on the relationship between tourism and coastal health. His research has been featured by various media outlets, including The New York Times, New Scientist, and Chemical & Engineering News, among others. He has written or edited seven books and journal issues as well as more than 100 articles, chapters, and reviews. He was recently awarded the Jerome Krivanek Distinguished Teacher Award (the highest teaching honor at USF) and the Black Bear Award by the Sierra Club of Tampa Bay "in recognition of outstanding dedication to sustainability and the environment."

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 received a B.S. in Mechanical Engineering from Texas A&M University, an M.S. and Ph.D. in Environmental Engineering from Stanford University, and a Ph.D. minor in Chemistry from Stanford University. Dr. Werth's research and teaching focus on the fate and transport of pollutants in the environment, the development of innovative 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. Dr. Werth has published 107 peer-reviewed journal articles. His research is currently supported by grants from both government agencies and private companies, with research

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support during the last three years from the U.S. Environmental Protection Agency (EPA), U.S. Department of Energy (DOE), the National Science Foundation (NSF), the National Aeronautics and Space Administration, the U.S. Geological Survey, Dow Chemical, and the Texas Hazardous Waste Research Center. Dr. Werth presently serves on the EPA's Science Advisory Board Environmental Engineering Committee and the EPA's Chartered Science Advisory Board. He formerly served on the boards of the Association of Environmental Engineering and Science Professors (AEESP) and the AEESP Foundation, as well as the User Executive Committee for DOE's Environmental Molecular Science Laboratory and the External Advisory Board for a DOE Energy Frontier Research Center. The quality of his work has been recognized by appointment as a Wiley Research Fellow at the DOE's Environmental Molecular Science Laboratory, appointment as Editor-and-Chief of Journal of Contaminant Hydrology, an Editors Choice Best Paper Award from Environmental Science and Technology (2nd in the category of Technology), most cited paper recognition from Journal of Contaminant Hydrology, a Humbolt Research Fellow Award, a National Science Foundation CAREER Award, and a BP Award for Innovation in Undergraduate Instruction.

White, Kimberly

American Chemistry Council

Dr. Kimberly Wise White is a Senior Director in the Chemical Products and Technology Division at the American Chemistry Council. In this position she works with multiple stakeholders to conduct scientific research that informs human health hazard assessments and implement approaches to improve the chemical assessment process. Dr. White received a BS and MS in Biology and a PhD in Environmental Toxicology from Texas Southern University. She is a member of the Society of Toxicology and serves on the Board of Directors for the Toxicology Forum. Dr. White has a diverse background having worked as a laboratory researcher focusing on neurotoxicity, an environmental sustainability and compliance manager and as a scientific advisor. For the past 10 years, she has been actively involved in supporting scientific research and chemical assessments that are firmly based on up-to-date scientific knowledge and are evaluated in accordance with the most relevant scientific approaches. Dr. White has also coauthored publications on weight of evidence frameworks, problem formulation in chemical assessment and understanding potency information associated with human exposures.

Young, Stanley

CGStat

Dr. S. Stanley Young worked at Eli Lilly, GlaxoSmithKline and the National Institute of Statistical Sciences on questions of applied statistics. His current mission is the evaluation of statistical claims particularly from observational studies. His research indicates that well over 50% of claims made fail to replicate when tested rigorously. His current interests are environmental epidemiology and bioinformatics. Dr. Young graduated from North Carolina State University, BS, MES and a PhD in Statistics and Genetics. He worked in the pharmaceutical industry on all phases of pre-clinical research. He has authored or co-authored over 60 papers including six "best paper" awards, and a highly cited book, Resampling-Based Multiple Testing. He has three issued patents. He is interested in all aspects of applied statistics. He conducts research in the area of data mining. Dr. Young is a Fellow of the American Statistical Association and the American Association for the Advancement of Science. He is an adjunct professor of statistics at North Carolina State University, the University of Waterloo, and the University of British Columbia where he has co-directed thesis work. He is also

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an adjunct professor of biostatistics in the Jiann-Ping Hsu College of Public Health at Georgia Southern University.

Zeise, Lauren

California Environmental Protection Agency

Dr. Lauren Zeise is Deputy Director for Scientific Affairs of the Office of Environmental Health Hazard Assessment – a department within the California Environmental Protection Agency (Cal EPA). She holds a B.S. from Loyola University, and an S.M and Ph.D. from Harvard University. In her role at Cal EPA, Dr. Zeise oversees the department’s scientific activities including risk assessments, development of health advisories and other advice and regulations that implement departmental mandates. To further California’s environmental justice mandate, the department is developing a cumulative impact assessment tools for characterizing the impact on communities of multiple sources of pollution and non-chemical stressors in the presence of community vulnerability. Dr. Zeise has conducted hundreds of health risk assessments for the State of California. She has served on numerous national and international science advisory committees and boards focusing on environmental public health and improving the way chemicals are tested or evaluated for health risk. Dr. Zeise has served on over 20 National Academy of Science (NAS) committees and coauthored a number of NAS reports, including “Science and Decisions: Advancing Risk Assessment” (2009), “Toxicity Testing in the 21st Century: A Vision and Strategy” (2007), “Sustainability and the US EPA” (2011), and “Understanding Risk: Informing Decisions in a Democratic Society” (1996). She is member, fellow, former editor and former councilor of the Society of Risk Analysis and was the 2008 recipient of the Society’s Outstanding Risk Practitioner Award. She is an honorary lifetime NAS National Associate. Dr. Zeise's research is funded by the State of California; she has received no external research grants from either government agencies, private companies, or foundations.

Zhu, Chen

Indiana University

Dr. Chen Zhu is a Professor of Geological Sciences and Public and Environmental Affairs at Indiana University and an adjunct professor at the University of Oslo, Norway. He received his Ph.D. degree from Johns Hopkins University and completed his postdoctoral fellowship at Woods Hole Oceanographic Institution. His research interests are groundwater geochemistry and geochemical modeling of water-rock interactions. Zhu’s recent work involves the kinetics of feldspar dissolution, geological carbon sequestration, and arsenic and antimony in the environment. Zhu was the 2006 recipient of the John Hem Award from the National Ground Water Association in recognition of his significant advances in modeling the chemical evolution of water and a Fulbright Scholar at the University of Oslo in 2009. He was elected a Fellow of the Geological Society of America in 2005. Zhu has co-authored with Greg Anderson the textbook “Environmental Applications of Geochemical Modeling”. Dr. Zhu has served on proposal review panels for the National Science Foundation, the U. S. Environmental Protection Agency, and the Department of Energy. He is currently an Associate Editor for *Geochimica et Cosmochimica Acta*, and is on the editorial board for *Journal of Contaminant Hydrology*. He was a member of the task force on geological carbon sequestration at the National Ground Water Association.

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Zwiernik, Matthew

Michigan State University

Dr. Zwiernik has a PhD in Environmental Toxicology/Veterinary Medicine as well as a BS in Biochemistry and has been the director of the Michigan State University Wildlife Toxicology Laboratory for over 19 years. In that time the MSU-WTL has conducted multiple long-term litigation quality field 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 driven multiple lines of evidence, hypothetic-deductive approach, including adverse outcome pathway assessment. The EPA and USFWS have noted Dr. Zwiernik's work as being on the leading edge of impact assessment science. Dr. Zwiernik serves as an expert advisor on environmental impact issues for the U.S. Fish and Wildlife Service and the U.S. and Canada Joint commission on the Environment A major research focus of Dr. Zwiernik and the MSU-WTL has been identifying the potential impact of bioaccumulative industrial contaminates and physical stressors to wildlife populations. The laboratory has successfully executed large scale, long-term field projects on the Kalamazoo and Tittabawassee Rivers and Velsicol, Pine River Superfund sites in Michigan as well as sites in California and Oregon. The primary goal of these projects was to provide decision makers with real time state of the art information resulting in implementation of sustainable remedial and conservation measures. Some of Dr. Zwiernik's ongoing projects include the assessment of the population dynamics and stressor impacts on, wildlife within the Velisicol Superfund site, St. Louis MI (EPA) and the impacts of human activity on endangered small mammal species endemic to the Colombia River basin (DOD). He is also presently working with the U.S. Navy Pacific Fleet, to assess the status, and effectiveness of conservation efforts, for of three endangered species resident to the Navy training facility on San Clemente Island CA.