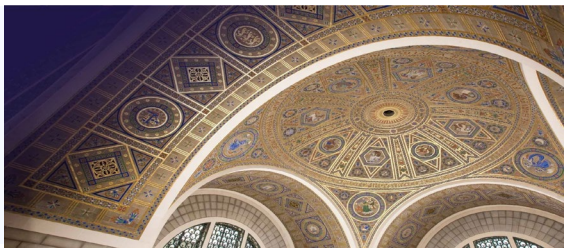
NATIONAL ACADEMIES Sciences Engineering Medicine

Board on Agriculture and Natural Resources

Exploring Linkages Between Soil Health and Human Health

Meeting 3 (Virtual) – May 16, 2023

Public Agenda



TUESDAY, MAY 16, 2023 (ET)

Purpose The session will focus on following item in the committee's statement of task:

- Information on the interactions of the soil microbiome with soil contaminants that pose risks to human health

Open session

3:00 **Welcome**

Diana H. Wall, Committee Chair & Session Moderator, Colorado State University

3:10 **Overview of the National Academies study process**

Kara Laney, Study Director, National Academies of Sciences, Engineering, and Medicine

3:20 **Invited presentations**

Jamie DeWitt, East Carolina University: Human health effects of PFAS exposure

3:45 *Linda Lee, Purdue University: Fate of biosolids borne-PFAS after land application*

4:10 *Jonathan O. (Josh) Sharp, Colorado School of Mines: Insights from trace organic attenuation toward forever chemicals*

4:35 **Speaker discussion with the committee**

5:00 **Open session concludes**

SPEAKER BIOS

JAMIE DEWITT, EAST CAROLINA UNIVERSITY

Jamie DeWitt is a professor in the Department of Pharmacology & Toxicology of the Brody School of Medicine at East Carolina University. She has PhD degrees in Environmental Science and Neural Science from Indiana University-Bloomington. She completed postdoctoral training in ecotoxicology at Indiana University-Bloomington and in immunotoxicology at the U.S. Environmental Protection Agency in partnership with the University of North Carolina at Chapel Hill. She is a diplomate of the American Board of Toxicology and her laboratory's research program focuses on functional effects of environmental chemicals on the immune system and its interactions with the nervous system during development and adulthood. A major emphasis of Dr. DeWitt's current research program is on effects of per- and polyfluoroalkyl substances (PFAS). She has published numerous primary research articles, commentaries, and review articles, two book chapters, and edited a book on PFAS toxicity and has served as an

external reviewer of PFAS documents for various agencies and entities. She also has served and does serve as a plaintiff's expert witness in cases involving PFAS.

LINDA LEE, PURDUE UNIVERSITY

Linda S. Lee is a distinguished professor in the Purdue University Department of Agronomy, program head for the Ecological Sciences & Engineering Interdisciplinary Graduate Program, and a professor in the Division of Environmental Ecological Engineering. Her research focuses on understanding the processes that govern environmental fate and remediation of contaminants in various media for use in contamination mitigation, decision tools, and management guidelines in industrial and agricultural settings. Dr. Lee has more than 15 years of experience conducting PFAS research across a range of PFAS subclasses with numerous PFAS-specific publications spanning PFAS solubility, sorption, biotransformation, ecotoxicity, remediation and occurrence in soils, various aqueous matrices, water, biosolids, and biota. She has served on multiple national and international advisory groups addressing water quality issues, fair land-applied biosolid policies, and chemical risk prediction and management. She joined the faculty at Purdue in 1993 after completing a BS (Chemistry), MS (Environmental Engineering) and PhD (Soil chemistry & Contaminant hydrology, Soil & Water Sciences Dept.) at the University of Florida.

JONATHAN O. (JOSH) SHARP, COLORADO SCHOOL OF MINES

Jonathan O. Sharp has always responded to the logical (though unconventional) acronym Josh. He is a professor in the Department of Civil and Environmental Engineering and outgoing director of the Hydrologic Science and Engineering Program at Colorado School of Mines. Dr. Sharp's research is focused on understanding how microbial respiration impacts the fate of pollutants such as trace organics, metals, and nutrients in the environment. His laboratory integrates tools from genomics, biogeochemistry, hydrology, and engineering toward a mechanistic understanding of contaminant fate in both natural and engineered systems with a goal of enhanced contaminant attenuation. A focus of this work has been on nature-based solutions such as constructed wetlands, riverbank filtration and aquifer recharge into sustainable water treatment infrastructure. Dr. Sharp also works toward academic capacity building in southern Peru through collaborative research that addresses soil and water pollution in the Arequipa region and currently serves as Associate Director of the joint Mines and National University of Saint Augustine (UNSA) Mining Sustainability Center. Dr. Sharp has received teaching and research accolades which include a National Science Foundation CAREER Award, the Colorado School of Mines Excellence in Research Award, and being named a Kavli Fellow of the National Academy of Science. He received an AB in geoscience from Princeton University, an MS and PhD in environmental engineering from the University of California at Berkeley and conducted postdoctoral studies in environmental microbiology at the Ecole Polytechnique Federal in Lausanne, Switzerland.