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THE CHEMISTRY OF URBAN WILDFIRES:
AN INFORMATION-GATHERING WORKSHOP

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Speaker and Panelist Bios

Birgitte Messerschmidt is director of applied research at the National Fire Protection Association (NFPA). She is responsible for NFPA's Research Strategy including global research outreach and manages research on fire problems and other safety issues (e.g. electrical deaths and injuries; carbon monoxide incidents) using statistical data, detailed incident information, and reviews of relevant literature/research. In the early part of her career, she focused on fire testing and how the performance of different products can impact fire development. She was involved in the development and implementation of the harmonized EU fire testing and classification system for construction products. Other areas of work include fire performance of facades, fire toxicity, fire fighter health and safety, fire resilience of the built environment, fires in the wildland-urban interface and fire data collection and analysis. She has been active in international standardization and has advocated for fire safety policies around the world. She received a master of science in civil engineering from the Technical University of Denmark.

Per Blomqvist is director of the Fire Research unit at RISE (Research Institutes of Sweden). His research focuses on reaction-to-fire properties of materials and product. He has been with RISE for over 30 years, and supported its mission of producing independent, state-of-the-art research that informs future-proof technologies, products, and services. Dr. Blomqvist has participated in different European research projects related to fire protection of rolling stock including the TRANSFEAU project on smoke toxicity and the Fire Resist project on lightweight materials for transport applications. He was the work package leader for testing and characterization in the Mat4Rail EU-project. Dr. Blomqvist received a PhD in fire technology from Lund University.

Richard Hull is a professor of chemistry and fire science at the University of Central Lancashire, United Kingdom. His research focuses on understanding the behavior of unwanted fires, particularly the effects of fire retardants and the toxicity of the smoke. He has published over 120 papers on the assessment of flammability, the influence of fire retardants on flammability, the toxicity of fire smoke, and the effects of fire

retardants on the smoke toxicity, and has produced two major books: Fire Toxicity (with Dr. Anna Stec) and Fire Retardancy: New Strategies and Mechanisms. He has twice been co-chair of the world's leading Fire Retardant Polymers FRPM07 and FRPM17 conference. Dr. Hull received a PhD in physical chemistry from the University of Salford.

Heather Stapleton is the Ronie-Richelle Garcia-Johnson Distinguished Professor in the Nicholas School of the Environment at Duke University. She is an environmental chemist and exposure scientist, and her research interests focus on identification of halogenated and organophosphate chemicals in consumer products and building materials and estimation of human exposure, particularly in vulnerable populations such as pregnant women and children. Her laboratory specializes in analysis of environmental and biological tissues for organic contaminants to support environmental health research. Her research projects seek to understand how chronic exposure to chemical mixtures impact human health, with an emphasis on elucidating effects on thyroid hormone dysregulation and associations with thyroid disease. She received an early career award from the NIEHS in 2008, called the Outstanding New Environmental Scientist (ONES) award which helped to propel her research career. In 2012 she testified in front of the US Senate Environment & Public Works committee on human exposure and toxicity of new-use flame retardant chemicals used in commerce, and in 2014 she helped to develop a resource for the general public to support free testing for flame retardant chemicals in consumer products. Dr. Stapleton received a PhD in environmental chemistry from the University of Maryland.

Allen Goldstein is the MacArthur Foundation Chair Professor and Associate Dean for Academic Affairs in the Rausser College of Natural Resources at the University of California, Berkeley. He is a professor in the Department of Civil and Environmental Engineering and in the Department of Environmental Science, Policy, and Management at the University of California, Berkeley, where he served as department chair from 2007–2010. He also served as co-chair of the International Global Atmospheric Chemistry Program (IGAC). His research program encompasses anthropogenic air pollution, biosphere–atmosphere exchange of radiatively and chemically active trace gases, and development and application of novel instrumentation to investigate the organic chemistry of Earth’s atmosphere. He engages in field measurement campaigns, controlled laboratory experiments, and modeling activities covering indoor, urban, rural, regional, intercontinental, and global scale studies of ozone, aerosols, and their gas phase precursors. Dr. Goldstein is an elected fellow of the American Geophysical Union, the American Association of Aerosol Research, and the American Association for the Advancement of Science. His recent honors include the American Chemical Society Award for Creative Advances in Environmental Science and Technology (2021); the American Geophysical Union Atmospheric Sciences Section Yoram J. Kaufman Unselfish Cooperation in Research Award (2019); the David Sinclair Award from the

American Association for Aerosol Research (2018); and the Alexander von Humboldt Research Award in Germany (2017). Dr. Goldstein received a PhD in chemistry from Harvard University.

Shelly Miller is a professor of mechanical engineering and faculty in the Environmental Engineering Program at the University of Colorado Boulder. Dr. Miller teaches about and investigates urban air quality and works diligently to understand the impact of air pollution on public health and the environment. She is also an expert on indoor environmental quality including airborne infectious disease transmission and control and air cleaning technologies. Dr. Miller is a member of the Academy of Fellows of the International Society for Indoor Air and Climate (ISIAQ) and is also an Associate Editor for Environmental Science and Technology. Dr. Miller has published over 80 peer reviewed articles on air quality, authored a chapter on Indoor Air Quality in the Environmental Engineering Handbook and publishes open access as often as possible. Dr. Miller received a PhD in civil and environmental engineering from the University of California, Berkeley.

Bruce Macler recently retired from the U.S. Environmental Protection Agency after three decades as the Pacific Southwest Region's drinking water toxicologist. During that time, he worked on several drinking water regulations and oversaw EPA-sponsored water research projects. After 9/11, he assumed the Region's water bioterrorism and emergency response lead. As part of the EPA responses to the California wildfires of 2017, 2018 and 2019, he was involved in the investigations into the contamination of drinking water distribution systems. He remains professionally active, primarily with the American Water Works Association. Current research interests include the safety of recycled and alternative water sources, microbial contamination of premise plumbing, and water treatment for small systems. Dr. Macler received a PhD in biochemistry from the University of California, Berkeley.

John Balmes is a Professor of Medicine Emeritus at the University of California, San Francisco (UCSF) and practices in the Divisions of Occupational and Environmental Medicine and Pulmonary and Critical Care Medicine at Zuckerberg San Francisco General Hospital. He is also Professor Emeritus of Environmental Health Sciences at the School of Public Health at the University of California, Berkeley. Dr. Balmes has been studying the health effects of exposures to occupational and environmental toxicants for over 40 years. Current research interests include the metabolic effects of childhood exposure to traffic-related air pollution, clean cooking and lighting interventions in low-income households in the U.S and East Africa, and the health effects of community and occupational exposures to wildfire smoke. Dr. Balmes received an MD from the Mount Sinai School of Medicine.

Samuel L. Manzello is project leader in the Fire Research Division at the National Institute of Standards and Technology (NIST). His research seeks to bring fundamental combustion knowledge to practical problems. In addition to microgravity combustion and droplet-surface interaction, he has led investigations on soot formation, the physics of fire-structure interaction, and most recently wildland-urban interface (WUI) fires. His research in droplet-surface interaction was featured in the journal Nature, and his firebrand research was featured in the journal Science. Dr. Manzello has received many awards, including NIST's highest honor for fundamental research, the Samuel Wesley Stratton Award. At the invitation of Springer Nature, he served as Editor in Chief on the first comprehensive encyclopedia on wildland fires and WUI fires. He is currently convener of TC92/WG14 and co-leader of the International Association for Fire Safety Science (IAFSS) permanent working group LOF&BE (Large Outdoor Fires and the Built Environment). Dr. Manzello obtained his PhD in Mechanical Engineering from the University of Illinois-Chicago.

Eric Guillaume is the general manager of Efectis France. He has been involved in the fire sciences for over two decades and involved in various missions, including laboratory development, teaching, standardization and regulation, fire toxicity, and modelling fire behavior of materials. He formerly led the fire behavior department of SNCF (French Railway), then joined LNE (The French National Laboratory for Testing and Metrology) as head of fire safety studies department, and later as Head of Research over all testing activities of LNE. In the field of fire safety, he is the author of more than 40 scientific publications, 15 book chapters, and more than 150 conference acts. He is technical advisor for fire safety for many French authorities and chairman of the standardization committees ISO TC92/SC3, dealing with "Fire Threat to People and the Environment" and ISO TC61/SC4/WG2, dealing with "Smoke Opacity and Corrosivity for Plastics." Dr. Guillaume received a PhD in thermal energy and combustion from the University of Poitiers.

Steven Brown leads the Tropospheric Chemistry program at the National Oceanic and Atmospheric Administration in their Chemical Sciences Laboratory. His major research theme at NOAA has been the chemistry and impacts of nitrogen oxides in the Earth's atmosphere. He conducts field measurements of tropospheric nitrogen oxides, particularly those that occur in the dark ("nighttime chemistry") and has led several large scale research campaigns on platforms ranging from ground sites to aircraft. His other main research interest has been the development of high sensitivity optical instrumentation for laboratory and field studies of atmospheric trace gases and aerosols. He came to NOAA in 1997 as an NRC postdoctoral fellow, was a Research

Scientist with the Cooperative Institute for Research in Environmental Sciences at the University of Colorado from 2000 - 2005, and has served as a federal Research Chemist since then. He has held an adjoint professorship in the Chemistry Department at the University of Colorado since 2014. Dr. Brown received a PhD in physical chemistry at the University of Wisconsin-Madison.

Christine Wiedinmyer is Associate Director for Science at the Cooperative Institute for Research in Environmental Sciences (CIRES) and a research professor in the department of Mechanical Engineering at the University of Colorado Boulder. Dr. Wiedinmyer was formerly a Scientist III at the National Center for Atmospheric Research. Her training is in the areas of chemical engineering and atmospheric chemistry, and her research focuses on quantifying emissions and identifying the impacts of pollutants in the atmosphere. Dr. Wiedinmyer developed a wildfire emissions model that is widely used for climate and air quality applications. She is a longtime leader of the Earth Science Women's Network (ESWN) and currently serves on the organization's Board of Directors. Dr. Wiedinmyer received a PhD in chemical engineering from the University of Texas at Austin.

Kathleen Navarro is a research industrial hygienist at the National Institute for Occupational Safety and Health (NIOSH). Her research focuses on examining wildland firefighter exposure to smoke, understanding acute health impacts, and evaluating biomarkers of exposure and effect in the wildland urban interface. Prior to joining NIOSH, Dr. Navarro worked for the US Forest Service conducting wildland firefighter health and smoke research. She spent the 2019 fire season as a crewmember on a Type 1 Interagency Hotshot Crew, an elite team of highly trained wildland firefighters. Her time as a researcher and wildland firefighter allowed her to obtain high-quality personal and area exposure data and understand risks in the complex fire work environment. Dr. Navarro received a PhD in environmental health sciences from the University of California, Berkeley.

Peter Lahm is the Air Resource Specialist for the USDA Forest Service, State and Private Forestry, Fire and Aviation Management, in Washington, D.C. He is the leader of the Interagency Wildland Fire Air Quality Response Program, which provides personnel, technical specialists called Air Resource Advisors, smoke modeling, and monitoring capabilities to develop forecasts for areas adversely affected by smoke. Starting in 2004, Lahm has led the Forest Service's national smoke management efforts developing technical approaches and policies related to smoke impacts from prescribed fire and wildfires. Since 2006, he has chaired the National Wildfire Coordinating Group's Smoke Committee.