December 20, 2021

Honorable Michael Regan
Administrator
US Environmental Protection Agency Mail Code 1101A
1200 Pennsylvania Ave. NW
Washington, DC 20460

Re: Urgency of Addressing PFAS Threats to Health and the Environment

Dear Administrator Regan:

On March 15, 2021, several of us wrote to you as active scientists and risk assessors to offer our thoughts on the serious risks of Per- and Polyfluoroalkyl Substances (PFAS). Considering recent developments, we are again sharing our scientific perspective on how EPA can most effectively address the critical public health challenges presented by these chemicals.

Known as "forever chemicals," PFAS take thousands of years, if ever, to break down in the environment. People are exposed to PFAS by eating food, ingesting drinking water, breathing air, and using consumer products, food packaging, and pesticides. PFAS are present in the bodies of nearly all people living in the U.S., Europe, and most of the world.

The PFAS that have been studied are known to cause serious toxic effects, including cancer, thyroid disease, developmental problems, hormone disruption, decreased fertility, and immune system impacts, among many others. Recent EPA assessments of high-concern PFAS like GenX, PFOA, and PFOS have confirmed the health hazards of PFAS at concentrations *lower* than human exposure levels and identified new adverse effects, such as compromised immune function that reduces the effectiveness of vaccines in children.

The PFAS Strategic Roadmap that you announced on October 18 is an important step forward in addressing PFAS pollution. However, we are concerned that the National PFAS Testing Strategy included in the Roadmap does not adequately address the critical need for additional testing to understand the impacts of long-term PFAS exposure on the health of communities because it will not test chemicals that have known exposures. Millions of people across the US are struggling with the legacy of PFAS contamination of drinking water, air, food, and in their own human blood due to decades of discharges from manufacturing, processing, use and disposal activities. While a few highly visible PFAS have been extensively studied, the health effects of many PFAS with widespread presence in the environment and people and likely past, current, and future exposure are poorly understood because they have incomplete health effects data or no data at all. This lack of data is subjecting communities to undefined risks and depriving medical professionals of the ability to treat PFAS-related health conditions.

While the government and academia are investing in PFAS research, the needs are great and cannot be met by government funding alone. Section 4 of the Toxic Substances Control Act (TSCA) gives EPA broad authority to require industry to fund health and environmental effects studies on chemicals they have manufactured and introduced into the environment. Using this authority for PFAS will not only make

available additional resources to support the cost of testing but will uphold the basic principle of holding industry accountable for the consequences of its pollution.

You can take an important step towards achieving this goal by granting a petition under TSCA filed on October 14, 2020 by six North Carolina community groups that would hold Chemours, a major PFAS producer, accountable for funding environmental and health studies on 54 PFAS that have been released into the Cape Fear River from its manufacturing facility in Fayetteville. As you have recognized, this PFAS pollution has "devastated" communities downstream from the plant. The river provides drinking water for hundreds of thousands of residents and PFAS discharged by Chemours have been contaminating this water for decades. Private drinking water wells of residents living near the Chemours facility in Fayetteville have also had their drinking water contaminated with PFAS. After years of exposure, residents continue to have high blood levels of several PFAS uniquely linked to the plant's operations. Community members and their doctors deserve to understand the health effects of this long-term exposure but there is currently little health or environmental effects information about most of the 54 PFAS. The strategically directed *in vivo* toxicity testing and human studies proposed in the petition will help provide the answers that communities need and will advance EPA's testing strategy by providing important human and in vivo data to validate the agency's predictions.

Under the EPA testing strategy for PFAS, industry would fund studies under TSCA section 4 on 24 PFAS "representative" of certain PFAS subcategories within the broad PFAS class. EPA's goal is to use health and environmental effects data on these chemicals to make judgments about the hazard profile of the subcategories without testing all individual members. This approach may conserve resources and provide useful information about differences in toxicity between PFAS with different chemical structures. However, as now designed, the testing strategy will have limited value in informing exposed communities about the health impacts of PFAS pollution because the 24 test substances were selected without regard to whether they are widespread in the environment and human blood and contribute significantly to exposure and risk. Thus, the strategy is unlikely to provide information on those PFAS with the greatest potential to harm exposed populations. Requiring Chemours to fund the testing as requested in the TSCA petition will provide a wealth of relevant data for these communities at no cost to US taxpayers, and will contribute important information to guide risk assessment and management decisions for all PFAS.

We are also concerned that the strategy is unduly reliant on *in vitro* tests, including New Approach Methods (NAMs) that have not been adequately validated, while failing to adequately emphasize the studies that will be most informative to communities, health researchers, and regulators -- like epidemiological research, long-term animal studies for cancer and other common health endpoints linked to PFAS, and studies on PFAS mixtures representative of real-world exposure.

We suggest that EPA should redirect its testing strategy to set priorities for research based on its benefits in helping communities, health researchers, and medical professionals understand the health impacts of long-term PFAS pollution. We expect that these data will also ultimately be most useful for regulatory decision-making since they will reflect real world exposure conditions. Granting the North Carolina petition, which is focused on distinct communities harmed by PFAS contamination from a specific facility, would be a highly beneficial application of this approach. To guide additional testing decisions, EPA should review available data on the prevalence of PFAS across the US in drinking water,

groundwater, air, food, and human blood, identify those substances with the greatest potential for exposure and risk, and determine data gaps that warrant testing.

Respectfully Submitted,

Linda S. Birnbaum, Ph.D., D.A.B.T., A.T.S.*
Scientist Emeritus and Former Director
National Institute of Environmental Health Sciences and National Toxicology Program
Scholar in Residence, Duke University

Ruthann Rudel*
Research Director, Silent Spring Institute

John Adgate*
Professor, Colorado School of Public Health, University of Colorado

Erin Baker
Associate Professor, North Carolina State University

Jacqueline Bangma*
Researcher, U.S. EPA

Phil Brown
University Distinguished Professor of Sociology and Health Sciences, Northeastern University

Jayla Burton
Program Manager, Breast Cancer Action

Courtney Carignan
Assistant Professor, Michigan State University

Celia Chen*
Research Professor, Dartmouth College

Richard Clapp*
Professor Emeritus, Boston University School of Public Health

Alissa Cordner*
Associate Professor, Whitman College

Kathryn Crawford*
Assistant Professor, Middlebury College

Jamie DeWitt*
Professor, East Carolina University

Alan Ducatman*
Professor Emeritus, West Virginia University School of Public Health

Sandy Eckel
Associate Professor, University of Southern California

Laura Fenster*
Research Scientist III, Retired CA Dept. of Public Health

Rebecca Fry*
Distinguished Professor, UNC-Chapel Hill

Mary Gant*
Policy Analyst (Retired), National Institute of Environmental Health Sciences

Chris Gennings, PhD
Professor of Biostatistics, Icahn School of Medicine at Mount Sinai

Gretta Goldenman*
Coordinator, Global PFAS Science Panel

Wendy Heiger-Bernays
Clinical Professor of Environmental Health, Boston University School of Public Health

Nicholas Herkert*
Research Project Manager, Duke University

Tara Illgner*
Graduate Student, University of Virginia

Carol Kwiatkowski*
Senior Science and Policy Associate, Green Science Policy Institute

Juleen Lam*
Assistant Professor, California State University, East Bay

Bruce Lanphear, MD, MPH
Professor, Simon Fraser University

Maricel V. Maffini
Independent Consultant

Carolyn Mattingly
Professor and Head, Department of Biological Sciences, North Carolina State University

Rob McConnell MD*
Professor of Population and Public Health Sciences, University of Southern California

Carla Ng*
Assistant Professor, University of Pittsburgh

Heather Patisaul
Professor, Center for Human Health and the Environment, North Carolina State University

Katie Pelch*
Assistant Professor, University of North Texas Health Science Center

Drake Phelps*
PhD Candidate, North Carolina State University

Antonio Planchart
Associate Professor, North Carolina State University

Vicki Quint
Firefighter Advocate, Quint LLC

Anna Reade
Staff Scientist, Natural Resources Defense Council

Kim Robien, PhD
Associate Professor, Milken Institute School of Public Health, George Washington University

Kathryn Rodgers
PhD Student, Boston University

Laurel Schaider,
Research Scientist, Silent Spring Institute*

Ted Schettler MD, MPH
Science Director, Science and Environmental Health Network

Kristin Shrader-Frechette*
O'Neill Endowed Professor Emeritus, University of Notre Dame, Dept. of Biological Sciences

Elizabeth Southerland*
Former Director of Science and Technology, U.S. EPA (Retired)

Kevin Teichman*
Deputy Assistant Administrator for Science, EPA Office of Research and Development (Retired)

Dania Valvi
Professor, Icahn School of Medicine at Mount Sinai

Frank Von Hippel
Professor of Environmental Health Sciences, University of Arizona

Chris Vulpe*
Professor, University of Florida, Gainesville

Ronald White, M.S.T.
Principal, RWhite Consulting

Martin Wolf
Director, Sustainability & Authenticity, Seventh Generation

**Institutional affiliation is for identification purposes only*