

August 11, 2023

Via E-mail and www.regulations.gov

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Re: Comments on Addressing PFAS in the Environment, Docket EPA-HQ-OLEM-2022-0922

Dear Administrator Regan and Ms. Strauss:

The Southern Environmental Law Center (“SELC”) offers the following comments on the United States Environmental Protection Agency’s (“EPA”) Advanced Notice of Proposed Rulemaking on Addressing PFAS in the Environment.¹ These comments are submitted on behalf of SELC and the following 88 organizations:

(Hudson) Riverkeeper, Inc.
ACA Tennessee
Alabama Rivers Alliance
Alliance for the Great Lakes
Altamaha Riverkeeper
American Rivers
Anacostia Riverkeeper
Anthropocene Alliance
Bayou City Waterkeeper
Black Warrior Riverkeeper
Blue Ridge Environmental Defense League
Blue Water Baltimore
Cahaba River Society
Cahaba Riverkeeper
Cape Fear River Watch
Catawba Riverkeeper
Center for Environmental Health
Charleston Waterkeeper

Children’s Environmental Health Network
Clean Water Action/Clean Water Fund
CleanAIRE NC
Coastal Conservation League
Congaree Riverkeeper
Conservation Voters of South Carolina
Coosa River Basin Initiative
Coosa Riverkeeper
Cumberland River Compact
Dan River Basin Association
Defend Our Health
Earth Ethics, Inc.
Earthjustice
Endangered Habitats League
Environmental Defense Fund
Environmental Law and Policy Center
Environmental Protection Network
For Love of Water (FLOW)

¹ Addressing PFAS in the Environment, 88 Fed. Reg. 22399 (proposed Apr. 13, 2023); *see also* Addressing PFAS in the Environment; Extension of Comment Period, 88 Fed. Reg. 37841 (June 9, 2023).

Freshwater Future
 Friends of the Reedy River
 GreenLatinos
 Harpeth Conservancy
 Haw River Assembly
 James River Association
 Kentucky Waterways Alliance
 Latino Farmers & Ranchers International,
 Inc.
 League of Conservation Voters
 Learning Disabilities Association of
 America
 Milwaukee Riverkeeper
 Missouri Confluence Waterkeeper
 MountainTrue
 Natural Resources Defense Council (NRDC)
 Nature Adventures, LLC
 Nature Forward
 North Carolina Coastal Federation
 North Carolina Conservation Network
 Ogeechee Riverkeeper
 Ohio River Foundation
 Pasa Sustainable Agriculture
 Passaic River Coalition
 Potomac Riverkeeper Network
 Protect Our Aquifer
 Resilient Lands Matter, Inc
 Rockbridge Area Conservation Council
 Savannah Riverkeeper

SC Idle No More
 Sierra Club
 South Carolina Coastal Conservation
 League
 South Carolina Indian Affairs Commission
 South Carolina Native Plant Society
 South Carolina Wildlife Federation
 St. Mary's River Watershed Association
 Tennessee Citizens for Wilderness Planning
 Tennessee Environmental Council
 Tennessee Riverkeeper
 Tennessee Scenic River Association
 The 6th Branch
 The Water Collaborative of Greater New
 Orleans
 Toxic Free NC
 Vermont Natural Resources Council
 Virginia Conservation Network
 Virginia League of Conservation Voters
 Waterkeeper Alliance
 Waterkeepers Chesapeake
 Waterspirit
 West Virginia Rivers Coalition
 Wild Virginia
 Winyah Rivers Alliance
 Winyah Rivers Alliance Black-Sampit
 Riverkeeper Group
 Winyah Rivers Alliance Lynches-Great Pee
 Dee-Little Pee Dee Riverkeeper Group

We strongly support EPA’s proposal to designate per- and polyfluoroalkyl substances (“PFAS”) as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”). We also support EPA’s separate proposal to list perfluorooctanoic acid (“PFOA”) and perfluorooctanesulfonic acid (“PFOS”) as hazardous substances,² and we urge the agency to move forward in also designating, as CERCLA hazardous substances hexafluoropropylene oxide (HFPO) dimer acid and its ammonium salt (“GenX chemicals”), perfluorobutanesulfonic acid (“PFBS”), perfluorohexanesulphonic acid (“PFHxS”), perfluorohexanoic acid (“PFHxA”), perfluorononanoic acid (“PFNA”), perfluorobutanoic acid (“PFBA”), perfluorodecanoic acid (“PFDA”), and their precursors, salts, structural isomers, and degradants.

The devastating health effects caused by PFAS are extensive and well-documented. The chemicals are widespread due to industrial pollution. Our communities have long suffered—and

² Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, 87 Fed. Reg. 54415 (proposed Sept. 6, 2022).

continue to suffer—from exposure to these industrial chemicals through the water we drink, the land we farm, and the rivers we swim in, as well as the fish, game, and crops we eat. When toxic PFAS releases are not timely reported and remediated, PFAS contamination spreads faster than it can be detected, leaving more communities exposed to these harmful chemicals and placed at greater risk.

Designating PFAS as CERCLA hazardous substances would help ensure that releases of these dangerous chemicals are investigated, timely reported, and fully remediated. It would help safeguard communities across the country against the risks of PFAS exposure; incentivize industrial sources to control their PFAS pollution before it enters our rivers, drinking water, and homes; and ensure that polluters—not people—pay for pollution.

EPA should comprehensively designate the class of PFAS chemicals as CERCLA hazardous substances without exemptions and should focus enforcement on polluters who have actively contributed to and profited from contaminating our environment and communities. As the agency moves forward with a class-based listing, we urge EPA to promptly finalize its proposal to list PFOA and PFOS as CERCLA hazardous substances and to conduct a rulemaking to add the seven PFAS referenced in this advanced notice of proposed rulemaking and their precursors to that list. Completing these rulemakings as we request will advance the “fundamental purpose[s] and objective[s] of CERCLA”: “the timely cleanup of [contaminated] sites”³ and the “impos[ition of] . . . cleanup costs on the responsible party.”⁴

I. Introduction.

PFAS are a group of man-made chemicals that have been manufactured and used broadly by industry since the 1940s.⁵ The chemicals are highly persistent and are very resistant to breaking down once released into the environment⁶ or once they enter our bodies.⁷ They pose a significant threat to human health at extremely low concentrations. The class of chemicals has been linked to developmental effects in fetuses and infants, kidney and testicular cancer, liver malfunction, hypothyroidism, high cholesterol, ulcerative colitis, obesity, decreased immune response to vaccines, reduced hormone levels, delayed puberty, decreased fertility, and lower birth weight and size.⁸ Given these harms, in June 2022, EPA established interim updated

³ *Fireman’s Fund Ins. Co. v. City of Lodi*, 302 F.3d 928, 947 (9th Cir. 2002).

⁴ *Stanton Rd. Assocs. v. Lohrey Enter.*, 984 F.2d 1015, 1020 (9th Cir. 1993) (explaining that one of the two main purposes of CERCLA is “imposition of all cleanup costs on the responsible party”).

⁵ Lifetime Drinking Water Health Advisories for Four Perfluoroalkyl Substances, 87 Fed. Reg. 36848, 36849 (June 21, 2022); *Our Current Understanding of the Human Health and Environmental Risks of PFAS*, U.S. ENV’T PROT. AGENCY, <https://perma.cc/V6PX-2PNK> (page saved Mar. 8, 2023).

⁶ Ian T. Cousins et al., *The High Persistence of PFAS is Sufficient for Their Management as a Chemical Class*, 12 ENV’T SCI.: PROCESSES & IMPACTS 2307 (2020), Attachment 1.

⁷ Carol F. Kwiatkowski et al., *Scientific Basis for Managing PFAS as a Chemical Class*, 7 ENV’T. SCI. TECH. LETTERS 534 (2020), Attachment 2.

⁸ Arlene Blum et al., *The Madrid Statement on Poly- and Perfluoroalkyl Substances (PFASs)*, 123 ENV’T. HEALTH PERSP. 5, A 107 (May 2015), Attachment 3; U.S. Env’t Prot. Agency, Technical Fact Sheet: Drinking Water Health Advisories for Four PFAS (PFOA, PFOS, GenX chemicals, and PFBS) (June 2022), Attachment 4 [hereinafter “EPA, PFAS Health Advisories Fact Sheet”]; Nathan J. Cohen, *Exposure to Perfluoroalkyl Substances and Women’s Fertility Outcomes in a Singaporean Population-Based Preconception Cohort*, 873 SCI. TOTAL ENV’T 162267 (May 15, 2023); See Lauren Brown, *Insight: PFAS, Covid-19, and Immune Response—Connecting the Dots*, BLOOMBERG LAW (July 13, 2020, 4:00 AM), Attachment 5.

lifetime health advisories for PFOA and PFOS in drinking water of 0.004 parts per trillion (“ppt”) and 0.02 ppt, respectively—the level below which non-cancer health impacts are not expected to occur.⁹ These health advisories demonstrate that no level of exposure to these chemicals is safe.

Despite the long-studied and well understood harms associated with PFAS, industrial facilities, federal facilities, and wastewater treatment plants have discharged these chemicals into our waters and spread them on our land for decades. EPA data indicates that approximately 150 PFAS manufacturing facilities are located across the country,¹⁰ and nearly 74,000 industrial facilities, including airports, metal finishing companies, resin manufacturers, electronic manufacturers, paper mills, and textile manufacturers (among many others) are known or suspected to be using and releasing the chemicals.¹¹ Nearly 300 federal facilities, including Air Force, Army, and Navy bases, are documented sources of PFAS pollution.¹² The chemicals have been detected in landfill leachate at concentrations over 8,000 ppt.¹³ Wastewater treatment plants across the country accept PFAS-laden waste from these landfills and industrial sources, release that waste into downstream water supplies, and spread sludge contaminated by the chemicals onto nearby land.¹⁴

As a result, our rivers, streams, groundwater, soils, and water supplies are laden with toxic PFAS chemicals, including the seven PFAS and their precursors referenced by EPA in this advanced notice for a proposed rulemaking.¹⁵ Indeed, EPA data confirms that these and other PFAS are present in waterways across the United States.¹⁶ One comprehensive water investigation published in 2022 found PFAS in as many as 83 percent of the rivers and streams tested across the country.¹⁷ Because these chemicals are in our rivers and streams, they are also in our drinking water. Across the country, EPA reports that, of the states that have sampled and

⁹ Lifetime Drinking Water Health Advisories for Four Perfluoroalkyl Substances, 87 Fed. Reg. at 36848–49.

¹⁰ *PFAS Chemical Manufacturer and Importer Data From TSCA CDR*, U.S. ENV’T PROT. AGENCY (2023), data available at https://awsedap.epa.gov/public/extensions/PFAS_Tools/PFAS_Tools.html (data last accessed on July 24, 2023, filtered to “Production” tool, and reflecting the total number of PFAS manufacturers and importers).

¹¹ *Industry Sectors*, U.S. ENV’T PROT. AGENCY (2023), data available at https://awsedap.epa.gov/public/extensions/PFAS_Tools/PFAS_Tools.html (data last accessed on July 24, 2023, filtered to the “Industry Sectors” tool, displaying industries in categories known or suspected to discharge PFAS)

¹² *Federal Sites with Known or Suspected PFAS Detections*, U.S. ENV’T PROT. AGENCY (2023), data available at https://awsedap.epa.gov/public/extensions/PFAS_Tools/PFAS_Tools.html (data last accessed on July 24, 2023, filtered to “Federal Sites” tool, and further filtered to “Sites with Known PFAS Presence in Selection”).

¹³ U.S. Env’t Prot. Agency, Preliminary Effluent Guidelines Program Plan 15, at 5-16 (Sept. 2021), Attachment 6.

¹⁴ See, e.g., Xindi C. Hu et al., *Detection of Poly- and Perfluoroalkyl Substances (PFASs) in U.S. Drinking Water Linked to Industrial Sites, Military Fire Training Areas, and Wastewater Treatment Plants*, ENV’T. SCI. & TECH. LETT., 346 (2016), Attachment 7; Derrick Salvatore et al., *Presumptive Contamination: A New Approach to PFAS Contamination Based on Likely Sources*, 9 ENV’T SCI. & TECH. LETTERS 983, 990 (2022), Attachment 8.

¹⁵ Addressing PFAS in the Environment, 88 Fed. Reg. at 22400.

¹⁶ See *PFAS Multimedia Environmental Sampling Data from the Water Quality Portal*, U.S. ENV’T PROT. AGENCY (2023), https://awsedap.epa.gov/public/extensions/PFAS_Tools/PFAS_Tools.html (data last accessed on July 24, 2023, filtered to the “Environmental Media” tool and further filtered to “Water Samples”, reflecting PFAS detections in ambient water samples); *Mapping the PFAS Contamination Crisis: New Data Show 2,858 Sites in 50 States and Two Territories*, ENV’T WORKING GROUP (June 2022), https://www.ewg.org/interactive-maps/pfas_contamination/.

¹⁷ Kelly H. Foster et al., *Invisible Unbreakable Unnatural: PFAS Contamination of U.S. Surface Waters* (Oct. 2022), at 17, Attachment 9.

reported data, more than 30 have detected PFAS in their drinking water supplies,¹⁸ affecting the drinking water for more than 200 million people.¹⁹ Recent models estimate that if all private well and public water supplies were sampled across the United States, 45 percent of those sources would show PFAS contamination.²⁰ Recognizing the threat PFAS pose to people through drinking water, in March 2023, EPA proposed national drinking water standards for six PFAS compounds.²¹ As drafted, EPA proposes to limit concentrations of PFOA and PFOS in drinking water systems to below 4 ppt.²² EPA also proposed to limit PFNA, PFBS, PFHxS, and GenX as a mixture, based on their combined health risks calculated using a formula called a Hazard Index.²³

Compounding people’s exposure to these toxic chemicals, PFAS are also in the fish and game that we catch and eat. PFAS have been detected in fish tissue across all 48 continental states,²⁴ and PFOS—a particularly harmful PFAS compound—is one of the most prominent PFAS found in freshwater fish.²⁵ Communities that rely heavily on subsistence fishing—primarily low-income, people of color, and Indigenous communities—have been found to have elevated PFAS levels in their blood.²⁶ Researchers conclude that “[w]idespread PFAS contamination of freshwater fish in surface waters in the U.S. is likely a significant source of exposure to PFOS and potentially other perfluorinated compounds for all persons who consume freshwater fish, but especially for high frequency freshwater fish consumers.”²⁷ As a result, multiple states have issued fish consumption advisories cautioning communities to limit which fish they eat from certain waterways.²⁸ PFAS have also been detected in game, which can also

¹⁸ See *UCMR PFAS Public Water Supply Monitoring Data*, U.S. ENV’T PROT. AGENCY (2023), available at https://awsedap.epa.gov/public/extensions/PFAS_Tools/PFAS_Tools.html (data last accessed on July 24, 2023, and filtered for facilities with detectable concentrations under the “Drinking Water (UCMR)” tool); *Supplemental Public Water Supply PFAS Monitoring Data*, U.S. ENV’T PROT. AGENCY (2023), available at https://awsedap.epa.gov/public/extensions/PFAS_Tools/PFAS_Tools.html (data last accessed on July 24, 2023, and filtered for facilities with detectable concentrations under the “Drinking Water (State)” tool).

¹⁹ *Study: More Than 200 Million Americans Could Have Toxic PFAS in Their Drinking Water*, ENV’T WORKING GROUP (Oct. 14, 2020), Attachment 10.

²⁰ Kelly L. Smalling et al., *Per- and polyfluoroalkyl substances (PFAS) in United States tapwater: Comparison of underserved private-well and public-supply exposures and associated health implications*, 178 ENV’T INT’L 1, 9 (2023), Attachment 11.

PFAS National Primary Drinking Water Regulation, 88 Fed. Reg. 18638 (proposed Mar. 29, 2023).

²² *Id.* at 18639.

²³ *Id.* at 18639–40.

²⁴ Nadia Barbo et al., *Locally Caught Freshwater Fish Across the United States Are Likely A Significant Source of Exposure to PFOS and Other Perfluorinated Compounds*, 220 ENV’T RES. 115165 3 (2023), Attachment 12.

²⁵ *Id.* at 4; see also Erin L. Pulster et al., *Assessing Per- and Polyfluoroalkyl Substances (PFAS) in Sediments and Fishes in a Large, Urbanized Estuary and the Potential Human Health Implications*, 9 FRONTIERS IN MARINE SCI. (Nov. 15, 2022), Attachment 13.

²⁶ Patricia A. Fair et al., *Perfluoroalkyl Substances (PFASs) in Edible Fish Species from Charleston Harbor and Tributaries, South Carolina, United States: Exposure and Risk Assessment*, 171 ENV’T. RES. 266, 273–75 (April 2019), Attachment 14; Chloe Johnson, *Industrial chemicals in Charleston Harbor taint fish – and those who eat them*, POST & COURIER (June 4, 2022), <https://perma.cc/Z5TM-MB83>.

²⁷ Barbo, *supra* note 24 at 9.

²⁸ See, e.g., N.C. Dep’t of Health & Human Servs., *NCDHHS Recommends Limiting Fish Consumption from the Middle and Lower Cape Fear River Due to Contamination With “Forever Chemicals”* (July 13, 2023), <https://www.ncdhhs.gov/news/press-releases/2023/07/13/ncdhhs-recommends-limiting-fish-consumption-middle-and-lower-cape-fear-river-due-contamination>; Wis. Dep’t Nat. Res., *New Fish Consumption Advisory for Green Bay and Associated Tributaries* (May 4, 2023), <https://dnr.wisconsin.gov/topic/PFAS/Advisories.html>; Mich. PFAS

have a disproportionate impact on communities that rely on subsistence hunting.²⁹ Given the broad scope of exposure, scientists estimate that 98 percent of United States population has detectable levels of PFAS in their blood.³⁰

To reduce human exposure to PFAS, we urge EPA to list PFAS as a class as CERCLA hazardous substances. While that effort is underway, we urge EPA to promptly finalize its proposed rulemakings to list PFOA, PFOS, and the seven PFAS proposed in this advanced notice of proposed rulemaking and their precursors, salts, and isomers as hazardous substances under CERCLA. Doing so will require sites to report their pollution, giving our communities notice of threats that have otherwise been silent. Additionally, listing PFAS as hazardous substances will place the burden on the polluter and ensure that they—not downstream communities—pay for the environmental damage.

II. PFAS and their precursors should be added *as a class* to the CERCLA list of hazardous substances.

Between 9,000 and 14,000 PFAS chemicals have been identified globally.³¹ Scientific literature has confirmed that all of the well-studied PFAS pose harm to exposed humans and animals.³² Because CERCLA authorizes EPA to designate as a hazardous substance any substance which “when released into the environment *may* present substantial danger to the public health or welfare or the environment,”³³ EPA need not wait for individual toxicity studies to be completed to regulate these chemicals on a compound-by-compound basis. EPA should regulate PFAS as a class now.

First, regulating PFAS as a class falls squarely within EPA’s authority and is in line with how the agency has handled other classes of toxic chemicals, including polychlorinated

Action Response Team, *Consumption Guidelines For Fish With Elevated PFOS Levels*, <https://www.michigan.gov/pfasresponse/fishandwildlife/fish> (last visited July 24, 2023); Mass. Dep’t of Pub. Health, *Department of Public Health Issues New Fish Consumption Advisories Based on PFAS in Fish at 13 State Parks* (Mar. 6, 2023), <https://www.mass.gov/news/department-of-public-health-issues-new-fish-consumption-advisories-based-on-pfas-in-fish-at-13-state-parks>; Me. Dep’t of Health & Human Servs., *Maine CDC Issues Additional Advisories on Eating Freshwater Fish Due to PFAS Contamination* (Apr. 27, 2023), <https://www.maine.gov/dhhs/news/maine-cdc-issues-additional-advisories-eating-freshwater-fish-due-pfas-contamination-thu-04272023-1200>.

²⁹ See, e.g., Mich. Dep’t of Health and Human Servs., *PFAS Levels in Michigan Deer From the Oscoda Area, Losco County* (Apr. 22, 2021), Attachment 15; Me. Dep’t of Inland Fisheries and Wildlife, *Maine – Fall 2021 Targeted Sampling and Advisory Summary Report* (Feb. 8, 2022), Attachment 16.

³⁰ Antonia M. Calafat et al., *Polyfluoroalkyl Chemicals in the U.S. Population: Data from the National Health and Nutrition Examination Survey (NHANES) 2003–2004 and Comparisons with NHANES 1999–2000*, 115 ENV’T HEALTH PERSPECTIVES 11 (2007), Attachment 17.

³¹ *Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)*, NAT’L INST. OF ENV’T HEALTH SCI., <https://www.niehs.nih.gov/health/topics/agents/pfc/index.cfm#:~:text=PFAS%20are%20used%20in%20hundreds,9%2C000%20PFAS%20have%20been%20identified> (last visited July 24, 2023); U.S. Env’t Prot. Agency, *PFAS Master List of PFAS Substances*, <https://comptox.epa.gov/dashboard/chemical-lists/pfasmaster> (last visited July 24, 2023); U.S. Env’t Pro. Agency, *How are PFAS Identified in the PFAS Analytic Tools*, <https://echo.epa.gov/trends/pfas-tools> (last visited July 24, 2023).

³² See, e.g., *infra* notes 48–96.

³³ 42 U.S.C. § 9602(a) (emphasis added)

biphenyls (“PCBs”), which have been designated as a class of hazardous substances under CERCLA since 1980.³⁴

Second, scientists have long recognized that regulating PFAS one chemical at a time “has not been effective at controlling widespread exposure to this large group of chemicals with known and potential hazards.”³⁵ Managing one chemical at a time incentivizes companies to develop and use alternatives that are just as harmful, but fall outside regulatory scrutiny—resulting in continued widespread contamination. We have witnessed this happen in North Carolina.

In 2006, EPA asked companies, including E.I. du Pont de Nemours and Company (“DuPont”), to voluntarily phase out their use of PFOA, and gave the companies nearly a decade to do so.³⁶ DuPont and Chemours Company FC, LLC (“Chemours”), then took advantage of the lack of specific regulation for PFOA and simply shifted to using a structurally similar PFAS: GenX. It was with GenX (and many other PFAS chemicals generated in the process of manufacturing GenX) that DuPont and Chemours silently contaminated the air, soil, and drinking water supply for 500,000 unsuspecting people in eastern North Carolina.³⁷ Only recently, after decades of GenX pollution, did we learn that, in even small doses, GenX can present the same serious health risks as other more well-studied PFAS, including harm to prenatal development, the immune system, liver, kidney and thyroid functions.³⁸ North Carolina’s recent history shows the importance of promptly addressing *all* PFAS released into our environment, not just those most studied.

Many recent studies have shown that although “replacement PFAS,” like GenX, “were marketed [...] as safer alternatives” by companies like DuPont and Chemours, the replacement chemicals “are not safer.”³⁹ Instead, a “growing body of evidence suggests that they are associated with similar adverse toxicological effects;” they “can be equally environmentally persistent and are even more mobile in the environment and more difficult to remove from drinking water”; and bioaccumulation can still occur in both humans and animals.⁴⁰ If regulators continue to scrutinize one, or a few, PFAS at a time, nothing will stop chemical manufacturers

³⁴ 40 C.F.R. § 302.4 (Table 302.4); *see also* ASTDR-CDC, Toxicological Profile for Polychlorinated Biphenyls (PCBs) (2000), available at <https://www.atsdr.cdc.gov/toxprofiles/tp17.pdf>.

³⁵ Kwiatkowski, *supra* note 7, at 534.

³⁶ Fact Sheet: 2010/2015 PFOA Stewardship Program, U.S. ENV’T PROT. AGENCY, <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/fact-sheet-20102015-pfoa-stewardship-program> (last visited July 24, 2023).

³⁷ *See, e.g.*, Jessica Cannon, Letter to the Editor, *Feedback on Election Districts Likely Not Heard*, STARNEWS ONLINE (Aug. 27, 2017), <https://www.starnewsonline.com/story/opinion/letters/2017/08/27/letters-aug-27-feedback-on-election-districts-likely-not-heard/19146328007/> (quoting citizen concerns and shock regarding the GenX crisis); *see also* Cape Fear Public Utility Authority, 2022 Annual Report (2022), available at <https://perma.cc/KY3P-59F2> [hereinafter “CFPUA, 2022 Annual Report”] (explaining the utility serves 200,000 people); *Frequently Asked Questions: Water Treatment Upgrades and Rates*, BRUNSWICK COUNTY N.C., <https://perma.cc/U6GQ-2KJN> (page saved Mar. 13, 2023) [hereinafter “Brunswick County, FAQs”] (explaining the utility serves over 300,000 people).

³⁸ U.S. Env’t Prot. Agency, Human Health Toxicity Values for Hexafluoropropylene Oxide (HFPO) Dimer Acid and Its Ammonium Salt (CASRN 13252-13-6 and CASRN 62037-80-3); Also Known as “GenX Chemicals” (Oct. 2021), Attachment 18; U.S. Env’t Prot. Agency, Drinking Water Health Advisory: Hexafluoropropylene Oxide (HFPO) Dimer Acid (CASRN 13252-13-6) and HFPO Dimer Acid Ammonium Salt (CASRN 62037-80-3), Also Known as “GenX Chemicals” (June 2022), Attachment 19 [hereinafter “GenX Final Health Advisory”].

³⁹ Kwiatkowski, *supra* note 7 at 534.

⁴⁰ *Id.*

from continuing to switch to equally harmful alternatives, as they have done before. Because CERCLA is intended to incentivize investigation and proactive pollution controls, it is imperative that all PFAS be listed as hazardous substances. Otherwise, companies will seek to evade CERCLA liability by simply producing, using, and releasing other toxic chemicals—further prolonging the discovery and cleanup of contamination and increasing harm to people.

Third, it is extremely time and resource intensive to conduct health studies and craft regulations on individual PFAS. Even with the wealth of health data on the harms of PFAS chemicals, rule development and promulgation can take years, if not decades, to complete. For example, scientists outside of DuPont have been studying the health effects of PFOA since at least the 1970s.⁴¹ But EPA did not set a health advisory for the chemical until 2009,⁴² which was later revised in 2016⁴³ and 2022.⁴⁴ Our communities cannot continue to wait decades for relief. Additionally, individual health studies and compound specific regulations likely underestimate exposure risk because humans are typically “exposed to a mixture of several PFAS compounds that may have synergistic effects.”⁴⁵ Research has suggested that toxicological effects of PFAS exposure may be “more related to total PFAS levels, rather than individual PFAS compounds,” noting that exposure to a mixture of PFAS can result in more harmful effects in humans.⁴⁶

Fourth, to be most effective, treatment technology must be calibrated or replaced more frequently depending on the PFAS chemicals present. For example, granular activated carbon effectively removes longer-chain PFAS without frequent upgrades to the system. Shorter chain PFAS, however, can break through the filters earlier, requiring filter replacement or reactivation.⁴⁷ This means that cleanup of a few specific PFAS chemicals will not necessarily guarantee effective remediation of the soil or water. Regulating and mandating cleanup of PFAS as a class, on the other hand, ensures that those tasked with remediating water or soil will do so comprehensively by installing and maintaining technology in a manner that removes the entire scope of the PFAS pollution.

EPA should designate the entire class of PFAS as hazardous substances under CERCLA. Doing so fits squarely within EPA’s authority under 42 U.S.C. § 9602(a) and will help ensure communities are protected from toxic chemical pollution.

⁴¹ See U.S. Env’t Prot. Agency, *Health Effects Support Document for Perfluorooctanoic Acid (PFOA)*, EPA Doc. No. 822-R-16-003 (May 2016), at 3-61, Attachment 20 (discussing a 1978 study).

⁴² U.S. Env’t Prot. Agency, *Provisional Health Advisories for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS)* (Jan 8. 2009), Attachment 21.

⁴³ U.S. Env’t Prot. Agency, *Fact Sheet: PFOA & PFOS Drinking Water Health Advisories* (Nov. 2016), Attachment 22.

⁴⁴ Lifetime Drinking Water Health Advisories for Four Perfluoroalkyl Substances, 87 Fed. Reg. at 36848-49.

⁴⁵ Jesse A. Goodrich et al., *Metabolic Signatures of Youth Exposure to Mixtures of Per- and Polyfluoroalkyl Substances*, 131 ENV’T HEALTH PERSPECTIVES 027005-1, 027005-8 (Feb. 22, 2023), Attachment 23.

⁴⁶ *Id.* at 027005-9.

⁴⁷ U.S. Env’t Prot. Agency, *Perfluoroalkyl and Polyfluoroalkyl Substances: Technologies for Reducing PFAS in Drinking Water (“PFAS”)* (2019), Attachment 24; Marcel Riegel et al., *Sorptive Removal of Short-Chain Perfluoroalkyl Substances (PFAS) During Drinking Water Treatment Using Activated Carbon and Anion Exchanger*, 35 ENV’T SCI. EUROPE (Feb. 15, 2023), Attachment 25.

III. As EPA pursues a rule regulating PFAS as a class, it should add several individual PFAS to the list of CERCLA hazardous substances.

- a. EPA should promptly finalize its plan to designate PFOA and PFOS as hazardous substances.

We strongly support EPA’s proposed designations of PFOA and PFOS as hazardous substances under CERCLA. PFOA and PFOS are two of the most pervasive members of the PFAS class, rendering CERCLA uniquely suited to address the harms imposed by these chemicals that, while largely phased out in ongoing use in the United States, remain a continuing threat to the environment due to their inability to break down over time. Historical PFOA and PFOS contamination is a present-day problem, and EPA should promptly finalize its proposed rulemaking to list PFOA and PFOS as CERCLA hazardous substances.

EPA has known of the risks posed by PFOA and PFOS (and their precursors) for decades—including multiple types of cancer, liver disease, autoimmune disorders, and other serious harms⁴⁸—yet the agency has failed to list these chemicals as “hazardous substances” under CERCLA. This failure has long impeded the treatment and remediation of PFAS by making it harder for impacted communities to identify releases and recover their cleanup costs from responsible parties. EPA should no longer delay listing PFOS and PFOA as CERCLA hazardous substances.

The risks from PFOA and PFOS are well established and broadly recognized by international organizations,⁴⁹ federal and state regulatory agencies,⁵⁰ and leading scientific experts.⁵¹ EPA recently conducted updated toxicity assessments for both chemicals, which found that they harm children’s immune systems and reduce vaccine effectiveness at extremely low exposure levels, in the parts-per-quadrillion range.⁵² EPA has in turn warned that “any detectable level of PFOA [and] PFOS” places children’s health at risk.⁵³ EPA has also determined “that

⁴⁸ See U.S. Env’t Prot. Agency, *Risk Management for Per- and Polyfluoroalkyl Substances (PFAS) under TSCA* (2023), <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/risk-management-and-polyfluoroalkyl-substances-pfas> (last visited July 24, 2023) (explaining that EPA has acknowledged the harms of PFOA and PFOS since at least the early 2000s).

⁴⁹ See United Nations Env’t Programme, UNEP/POPS/POPRC.2/17/Add.5, *Report of the Persistent Organic Pollutants Review Committee on the Work of Its Second Meeting* (Nov. 2006), at 25–26, Attachment 26 (Risk Profile on Perfluorooctane Sulfonate); United Nations Env’t Programme, UNEP/POPS/POPRC.12/11/Add.2, *Report of the Persistent Organic Pollutants Review Committee on the Work of Its Twelfth Meeting add.: Risk Profile on Pentadecafluorooctanoic Acid (PFOA, Perfluorooctanoic Acid), Its Salts and PFOA-related Compounds* (Oct. 2016), at 24–26, Attachment 27 [hereinafter “United Nations, Risk Profile Pentadecafluorooctanoic Acid”].

⁵⁰ Agency for Toxic Substances and Disease Registry, *Toxicological Profile for Perfluoroalkyls* (May 2021), at 7–21, Attachment 28 [hereinafter “ATSDR, Toxicological Profile for PFAS”]; Cal. Env’t Prot. Agency, First Public Review Draft, *Public Health Goals: Perfluorooctanoic Acid and Perfluorooctane Sulfonic Acid in Drinking Water* (July 2021), Attachment 29.

⁵¹ Nat’l Acad. of Scis., Eng’g, & Med., *Guidance on PFAS Exposure, Testing, and Clinical Follow-Up* (2022), at 7–8, <https://nap.nationalacademies.org/catalog/26156/guidance-on-pfas-exposure-testing-and-clinical-follow-up>.

⁵² U.S. Env’t Prot. Agency, EPA/822/R-22/003, *Interim Drinking Water Health Advisory: Perfluorooctanoic Acid (PFOA) CASRN 335-67-1* (June 2022), at 10, Attachment 30; U.S. Env’t Prot. Agency, EPA/822/R-22/004, *Interim Drinking Water Health Advisory: Perfluorooctane Sulfonic Acid (PFOS) CASRN 1763-23-1* (June 2022), at 11, Attachment 31.

⁵³ EPA, PFAS Health Advisories Fact Sheet, *supra* note 8, at 5.

PFOA and PFOS are likely to cause cancer (*e.g.*, kidney and liver cancer) and that there is no dose below which either chemical is considered safe.”⁵⁴ Because of these and other risks, EPA set a public health goal for both PFOA and PFOS at 0 ppt, and proposed an enforceable maximum contaminant level under the Safe Drinking Water Act for PFOS and PFOA at a level they can be reliably measured: 4 ppt.⁵⁵ Therefore, any release of PFOA and PFOS “may present substantial danger to the public health or welfare or the environment.”⁵⁶

As EPA correctly concluded in its proposed hazardous substance designations, PFOA and PFOS meet CERCLA’s listing standard.⁵⁷ We, therefore, urge EPA to finalize its proposed hazardous substance designations for PFOA and PFOS, with certain modifications.⁵⁸

b. EPA should designate additional PFAS as hazardous substances.

As EPA advances a rulemaking to designate the entire class of PFAS as hazardous substances, it should finalize its proposed rulemaking to designate other PFAS under CERCLA, including the chemicals listed in the advanced notice of proposed rulemaking: GenX chemicals, PFBS, PFHxS, PFHxA, PFNA, PFBA, and PFDA, as well as their precursors, salts, structural isomers, and degradants. Epidemiological studies show that many of the negative health outcomes associated with PFOA and PFOS also result from exposure to these and other PFAS. These compounds are just as pervasive and thus equally “present substantial danger to the public health or welfare or the environment.”⁵⁹ Because these chemicals meet CERCLA’s listing standard, EPA should finalize a rulemaking to list them as hazardous substances.

i. Additional PFAS are equally harmful to human health and the environment.

Along with updated interim drinking water health advisories for PFOA and PFOS released last June, EPA released final drinking water health advisories for GenX chemicals and PFBS, establishing that exposure to these chemicals at concentrations greater than 10 ppt and 2,000 ppt, respectively, presented serious health risks.⁶⁰ Strongly supported by science,⁶¹ EPA’s health advisories established that exposure to GenX and PFBS chemicals can lead to degraded liver and kidney functions, compromised immune system, development issues, and cancer.⁶² Literature published after the issuance of EPA’s health advisories continues to demonstrate that

⁵⁴ PFAS National Primary Drinking Water Regulation, 88 Fed. Reg. at 18639.

⁵⁵ U.S. Env’t Prot. Agency, Fact Sheet: EPA’s Proposal to Limit PFAS in Drinking Water (Mar. 2023), Attachment 32.

⁵⁶ 42 U.S.C. § 9602(a).

⁵⁷ Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, 87 Fed. Reg. at 54424–29.

⁵⁸ See Letter from Earthjustice et al., to Barry Breen, U.S. Env’t Prot. Agency, Addressing PFOA and PFOS in the Environment: Potential Future Regulation Pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act and the Resource Conservation and Recovery Act, Docket No. EPA-HQ-OLEM-2019-0341-0458 (Nov. 7, 2022), Attachment 33.

⁵⁹ 42 U.S.C. § 9602(a).

⁶⁰ Lifetime Drinking Water Health Advisories for Four Perfluoroalkyl Substances, 87 Fed. Reg. at 36848; EPA, PFAS Health Advisories Fact Sheet, *supra* note 8, at 4.

⁶¹ EPA, PFAS Health Advisories Fact Sheet, *supra* note 8, at 2.

⁶² *Id.* at 3.; GenX Final Health Advisory, *supra* note 38; U.S. Env’t Prot. Agency, Drinking Water Health Advisory: Perfluorobutane Sulfonic Acid (CASRN 375-73-5) and Related Compound Potassium Perfluorobutane Sulfonate (CASRN 29420-49-3) (June 2022), Attachment 34.

GenX and PFBS are incredibly toxic to humans. One study examined embryo development in zebrafish (a human model organism) and determined that exposure to GenX led to spinal deformations, increased heart rate, and “significant gene expression changes in visual and cardiovascular systems.”⁶³ The research further suggests that the cardiovascular toxicity associated with PFOA is also associated with exposure to GenX.⁶⁴ Other studies show that in addition to altering gene expression during fetal development,⁶⁵ GenX increases both maternal and fetal liver toxicity.⁶⁶ And literature published following EPA’s release of its PFBS health advisory demonstrates that PFBS is associated with decreased bone marrow cells, as well as decreased spleen and thymus function.⁶⁷ GenX and PFBS should be added to the list of hazardous substances.⁶⁸

Federal toxicological studies confirm that similar health consequences occur from exposure to many other PFAS compounds, including PFHxA, PFBA, PFDA, PFNA, and PFHxS. For instance, in April 2023, EPA issued a toxicological review of PFHxA, evaluating existing scientific literature and concluding that the chemical “likely causes” liver, developmental, and immune system complications and decreased red blood cell counts in humans exposed.⁶⁹ In December 2022, EPA issued a toxicological review of PFBA finding that “available evidence indicates that developmental, thyroid, and liver effects in humans are likely caused by PFBA exposure in utero or during adulthood.”⁷⁰ EPA’s IRIS program has also released a draft toxicological review of PFDA in which EPA found that “[o]verall, the available evidence indicates that PFDA exposure is likely to cause liver, immune, developmental, and male and female reproductive effects in humans, given sufficient exposure conditions.”⁷¹ Additional literature further supports that PFDA is associated with adverse liver impacts⁷² and thyroid impacts, particularly in pregnant women.⁷³

⁶³ Sylvia Gong et al., *Toxicity Assessment of Hexafluoropropylene Oxide-Dimer Acid on Morphology, Heart Physiology, and Gene Expression During Zebrafish (Danio rerio) Development*, 30 ENV’T SCI. AND POLLUTION RES. 32,320, 32,327–31 (Dec. 3, 2022), Attachment 35.

⁶⁴ *Id.* at 32,328.

⁶⁵ See Zuying Feng et al., *Physiological and Transcriptomic Effects of Hexafluoropropylene Oxide Dimer Acid in Caenorhabditis elegans During Development*, 244 ECOTOXICOLOGY AND ENV’T SAFETY 114,047 (Sept. 5, 2022), Attachment 36.

⁶⁶ Bevin E. Blake et al., *Transcriptional Pathways Linked to Fetal and Maternal Hepatic Dysfunction Caused by Gestational Exposure to Perfluorooctanoic Acid (PFOA) or Hexafluoropropylene Oxide-Dimer Acid (HFPO-DA or GenX) in CD-1 Mice*, 248 ECOTOXICOLOGY AND ENV’T SAFETY 114,314 (Nov. 24, 2022), Attachment 37.

⁶⁷ Veronika Ehrlich et al., *Consideration of Pathways for Immunotoxicity of Per- and Polyfluoroalkyl Substances (PFAS)*, ENV’T HEALTH 22:19 (2023), at 5, Attachment 38.

⁶⁸ See 42 U.S.C. § 9602(a).

⁶⁹ U.S. Env’t Prot. Agency, IRIS Toxicological Review of Perfluorohexanoic Acid [PFHxA, CASRN 307-24-4] and Related Salts (Apr. 2023), at xiv, 14, Attachment 39.

⁷⁰ U.S. Env’t Prot. Agency, IRIS Toxicological Review of Perfluorobutanoic Acid (PFBA, CASRN 375-22-4) and Related Salts at (Dec. 2022), at xii, 12, Attachment 40.

⁷¹ U.S. Env’t Prot. Agency, Draft IRIS Toxicological Review of Perfluorodecanoic Acid (PFDA) and Related Salts (Public Comment and External Review Draft) (Apr. 2023), Attachment 41.

⁷² Rachel P. Frawley et al., *Immunotoxic and Hepatotoxic Effects of Perfluoro-n-decanoic acid (PFDA) on Female Harlan Sprague-Dawley Rats and B6C3F1/N Mice When Administered by Oral Gavage for 28 Days*, 15 J. OF IMMUNOTOXICOLOGY 41 (2018), Attachment 42.

⁷³ Lei Zhang, *Contact to Perfluoroalkyl Substances and Thyroid Health Effects: A Meta-analysis Directing on Pregnancy*, 315 CHEMOSPHERE 137748 (2023).

EPA's IRIS program is currently developing a human health toxicity assessment for PFNA. EPA included PFNA in its proposed drinking water regulations, deriving a health-based water concentration on the Agency for Toxic Substances Disease Registry's ("ATSDR's") review of PFNA. ATSDR derived a minimum risk level for PFNA based on developmental effects observed in rodents, "including decreases in pup survival, developmental delays, and decreases in birth weight" and noted that effects were also observed on sperm motility, viability, and number.⁷⁴ Like PFHxA and PFBA, data suggest that PFNA can disrupt blood cell functions and alter immune system responses.⁷⁵ Exposure to PFNA can also disrupt thyroid functions.⁷⁶ At least one study conducted on zebrafish larva (used as a model for early human hearts) suggests that PFNA may cause more severe cardiac disorders than other PFAS, including PFBS.⁷⁷

EPA's IRIS program has also released a draft human health toxicity assessment for PFHxS concluding that exposure to PFHxS "is likely to cause thyroid and developmental immune effects in humans."⁷⁸ In recognition of the harm posed by PFHxS, EPA included PFHxS in its proposed drinking water regulations, deriving a health-based water concentration on ATSDR's review of PFHxS. ATSDR derived a minimum risk level for PFHxS based on thyroid effects observed in rodents. A meta-analysis of human data also found that exposure to PFHxS was associated with decreased levels of total thyroxine (T4),⁷⁹ a thyroid hormone that is important for many of the body's functions. Additionally, recent scientific literature demonstrates that PFHxS can travel through the umbilical cord during pregnancy⁸⁰ and breast milk following birth.⁸¹ Studies also suggest that PFHxS can disrupt the body's ability to break down or store lipids, and can cause oxidative stress and inflammation in embryonic development.⁸² Based on this and other information demonstrating they "may present substantial danger to the public health,"⁸³ PFHxA, PFHxS, PFBA, PFNA, and PFDA should be added to the list of hazardous substances.

EPA should also include (at the very least) other PFAS for which there are completed toxicity assessments or scientific literature supporting their toxicity. For example, ATSDR has

⁷⁴ ATSDR, Toxicological Profile for PFAS, *supra* note 50.

⁷⁵ Cheryl E. Rockwell et al., *Acute Immunotoxic Effects of Perfluorononanoic Acid (PFNA) in C57BL/6 Mice*, J. OF CLINICAL AND EXPERIMENTAL PHARMACOLOGY S4-002 7 (2013), Attachment 43.

⁷⁶ See Francesca Coperchini et al., *Thyroid Disrupting Effects of Old and New Generation PFAS*, *Frontiers in Endocrinology* (Jan. 2021), <https://perma.cc/VSK9-KBHR>; Natalie M. Crawford et al., *Effects of Perfluorinated Chemicals on Thyroid Function, Markers of Ovarian Reserve, and Natural Fertility*, 69 REPRODUCTIVE TOXICOLOGY 53–59 (2017); Ryan C. Lewis et al., *Serum Biomarkers of Exposure to Perfluoroalkyl Substance in Relation to Serum Testosterone and Measures of Thyroid Function Among Adults and Adolescents from NHANES 2011-2012*, 12 INT'L J. ENV'T RES. PUBLIC HEALTH 6098–6114 (2015).

⁷⁷ Hongjian Gong et al., *Perfluorononanoate and Perfluorobutane Sulfonate Induce Cardiotoxic Effects in Zebrafish*, 41 ENV'T TOXICOLOGY 2527, 2534 (2022), Attachment 44.

⁷⁸ U.S. Env't Prot. Agency, IRIS Toxicological Review of Perfluorohexanesulfonic Acid (PFHxS, CASRN 335-46-4) and Related Salts (July 2023), at xiv, Attachment 45 [hereinafter "EPA, Draft Toxicological Review of PFHxS"].

⁷⁹ Min Joo Kim et al., *Association Between Perfluoroalkyl Substances Exposure and Thyroid Function in Adults: A Meta-Analysis*, 13 PLoS One (2018).

⁸⁰ Jessica Trowbridge et al., *Extending Nontargeted Discovery of Environmental Chemical Exposures During Pregnancy and Their Association With Pregnancy Complications-A Cross-Sectional Study*, 131 Env't Health Perspectives 077003-1 (Jul. 2023), Attachment 46.

⁸¹ EPA, Draft Toxicological Review of PFHxS, *supra* note 78, at 3-19.

⁸² Mengment Xu et al., *Using Comprehensive Lipid Profiling to Study Effects of PFHxS During Different Stages of Early Zebrafish Development*, 808 SCI. OF TOTAL ENV'T 151739 (2022), Attachment 47.

⁸³ 42 U.S.C. § 9602(a).

previously reviewed the literature for perfluoroundecanoic acid (“PFUnDA”) and perfluorododecanoic acid (“PFDoDA”).⁸⁴ ATSDR noted that PFUnDA was found to decrease body weight, increase liver weight and hypertrophy and cause hematological alterations and decreased pup weight.⁸⁵ ATSDR concluded that exposure to PFDoDA can lead to decreased antibody responses, liver effects, possible blood disorders, and complications with pregnancy and fetal development.⁸⁶ Similarly, EPA has recently published oral reference dose human health toxicity values for perfluoropropanoic acid (“PFPrA”) and Lithium bis[(trifluoromethyl)sulfonyl]azanide (“HQ-115”). EPA noted that exposure to PFPrA induced liver injury in rats,⁸⁷ which is particularly concerning because in a recent study evaluating the presence of PFAS in drinking water, PFPrA was the mostly frequently detected compound.⁸⁸ Animal studies also indicated that increased exposure to HQ-115 was related to liver failure, reproductive impacts, and decreased survival of offspring.⁸⁹ As EPA concluded, these new reference doses can “be useful for certain decision contexts, such as providing a sense of the magnitude of potential human health risks, ranking potential hazards, or informing PFAS mixtures assessment.”⁹⁰

Even in the absence of toxicity assessments from authoritative bodies, other long chain PFAS such as perfluorotridecanoic acid (“PFTrDA”), perfluorotetradecanoic acid (“PFTeDA”), perfluorononanesulfonic acid (“PFNS”), perfluorodecanesulfonic acid (“PFDS”), and perfluorododecane sulfonic acid (“PFDoS”), have been demonstrated to be more persistent and bioaccumulative than PFAS with shorter chain lengths.⁹¹ EPA should also include PFPeA, which is frequently detected in the drinking water.⁹² PFPeA readily crosses the placenta⁹³ and has been

⁸⁴ Katherine Pelch et al., *The PFAS-Tox Database: A Systemic Evidence Map of Health Studies on 29 Per- and Polyfluoroalkyl Substances*, 167 ENV’T INT’L 107408 (2022), Attachment 48.

⁸⁵ ATSDR, Toxicological Profile for PFAS, *supra* note 50; Mika Takahashi et al., *Repeated Dose and Reproductive/Developmental Toxicity of Perfluoroundecanoic Acid in Rats*, 39 J. TOXICOLOGICAL SCI. 97–108 (2014), Attachment 49.

⁸⁶ ATSDR, Toxicological Profile for PFAS, *supra* note 50.

⁸⁷ U.S. Env’t Prot. Agency, ORD Human Health Toxicity Value for Perfluoropropanoic Acid (CASRN 422-64-0 | DTXSID8059970) (July 2023), at 16–17, Attachment 50.

⁸⁸ Katherine E. Pelch et al., *70 Analyte PFAS Test Method Highlight Need for Expanded Testing of PFAS in Drinking Water*, 876 SCI. OF TOTAL ENV’T 162978 (2023), Attachment 51.

⁸⁹ U.S. Env’t Prot. Agency, *ORD Human Health Toxicity Value for Lithium bis[(trifluoromethyl)sulfonyl]azanide (HQ-115) (CASRN 90076-65-6 | DTXSID8044468)* (July 2023), [ORD Human Health Toxicity Value for Lithium bis\[\(trifluoromethyl\)sulfonyl\]azanide \(HQ-115\) \(CASRN 90076-65-6 | DTXSID8044468\) | Science Inventory | US EPA](#), Attachment 52.

⁹⁰ ORD Human Health Toxicity Value for Perfluoropropanoic Acid, *supra* note 87, at 17.

⁹¹ See Anika L. Dzierlenga et al., *Toxicokinetics of Perfluorohexanoic Acid (PFHxA), Perfluorooctanoic Acid (PFOA) and Perfluorodecanoic Acid (PFDA) in Male and female HSD: Sprague Dawley SD Rates Following Intravenous or Gavage Administration*, 50 XENOBIOTICA 722–732 (Nov. 2019); Naomi Kudo, *Metabolism and Pharmacokinetics*, In: DeWitt, J. (eds) *Toxicological Effects of Perfluoroalkyl and Polyfluoroalkyl Substances, Molecular and Integrative Toxicology* (2015); Christopher Lau, *Perfluorinated Compounds: An Overview*, In: DeWitt, J. (eds) *Toxicological Effects of Perfluoroalkyl and Polyfluoroalkyl Substances, Molecular and Integrative Toxicology* (2015).

⁹² Pelch, *supra* note 88, at 4.

⁹³ Ke Gao et al., *Prenatal Exposure to Per- and Polyfluoroalkyl Substances (PFASs) and Association Between the Placental Transfer Efficiencies and Dissociation Constant of Serum Proteins – PFAS Complexes*, 52 ENV’T SCI & TECH. 6529–6538 (2019).

found at higher levels in pregnant women with gestational diabetes mellitus.⁹⁴ Like other PFAS, PFPeA is associated with altered thyroid hormone levels⁹⁵ and has been found to be associated with decreased sperm mobility.⁹⁶

Importantly, analytical methods are available to detect these and other PFAS of concern. Therefore, there should be no barriers to adding at least any of the 29 PFAS that are currently detectable in drinking water with US EPA Methods 537.1 or 533 or the 40 PFAS currently detectable in environmental matrices with US EPA Method 1633. Therefore, while EPA moves forward with a class-based listing of PFAS under CERCLA, the agency should add these additional identified PFAS to the hazardous substances list.

ii. Additional PFAS are equally pervasive, including across southeastern communities.

The scope of PFAS contamination across our country is extensive. Across the Southeast, we have seen that PFAS in the soil, groundwater, and surface water have contaminated and continue to contaminate drinking water and food supplies. The harm posed to our communities warrants EPA's listing of these compounds as hazardous substances.

One of the more prominent examples of the harm caused by PFAS released into our environment arises in southeastern North Carolina. For nearly forty years, Chemours (a PFAS manufacturer) knowingly contaminated the air, water, and soil in southeastern North Carolina, including the drinking water supply for Wilmington, North Carolina and surrounding counties.⁹⁷ Chemours dumped GenX- and other PFAS-laden wastewater directly into the Cape Fear River and allowed the company's wastewater to leak from its ditches, storage pits, and pipes.⁹⁸ Every time it rained, stormwater picked up PFAS from the facility's contaminated soil and equipment, and flushed the chemicals into the Cape Fear River,⁹⁹ tainting the drinking water for more than 500,000 North Carolinians.¹⁰⁰ Even today, both Wilmington and surrounding counties report

⁹⁴ Xin Liu et al., *Structure-Based Investigation on the Association Between Perfluoroalkyl Acids Exposure and Both Gestational Diabetes Mellitus and Glucose Homeostasis in Pregnant Women*, 127 ENV'T INT'L 85–93 (2019), Attachment 53.

⁹⁵ Surabhi Shah-Kulkarni et al., *Prenatal Exposure to Perfluorinated Compounds Affects Thyroid Hormone Levels in Newborn Girls*, 94 ENV'T INT'L 607–613 (2016).

⁹⁶ Xiaofei Song et al., *Biomonitoring PFAAs in Blood and Semen Samples: Investigation of a Potential Link Between PFAAs Exposure and Semen Mobility in China*, 113 ENV'T INT'L 50–54 (2018).

⁹⁷ *Notes from Chemours Meeting with Local, State Officials*, STARNEWS (June 15, 2017), <https://perma.cc/ZK7W-UHWV>; Mei Sun et al., *Legacy and Emerging Perfluoroalkyl Substances Are Important Drinking Water Contaminants in the Cape Fear River Watershed of North Carolina*, 3 ENV'T SCI. & TECH. LETTERS 415 (2016), Attachment 54; U.S. Env't Prot. Agency, *Laboratory PFAS Results for NC DEQ Cape Fear Watershed Sampling* (Aug. 21, 2017), <https://perma.cc/3X5G-HCYK>; Mark Strynar et al., *Identification of Novel Perfluoroalkyl Ether Carboxylic Acids (PFECAs) and Sulfonic Acids (PFESAs) in Natural Waters Using Accurate Mass Time-of-Flight Mass Spectrometry (TOFMS)*, 49 ENV'T SCI. & TECH. LETTERS 11622 (2015), Attachment 55.

⁹⁸ GeoSyntec Consultants, *Characterization of PFAS in Process and Non-Process Wastewater and Stormwater: Initial Characterization – Final Quarterly Report*, at Figure 3B (Dec. 18, 2020), <https://perma.cc/93NA-YUS3>.

⁹⁹ *Id.* at 18–19, Figure 3B.

¹⁰⁰ Steve DeVane, *GenX Not the Only Possible Toxin in Cape Fear River*, THE FAYETTEVILLE OBSERVER (July 15, 2017), <https://perma.cc/KPY7-RQZM>; See Vaughn Hagerty, *Toxin Taints CFPWA Drinking Water*, STAR NEWS ONLINE (June 7, 2017), Attachment 56; see also CFPWA, 2022 Annual Report, *supra* note 37 (explaining the utility serves 200,000 people); Brunswick County, FAQs, *supra* note 37 (explaining the utility serves over 300,000 people).

elevated levels of GenX, PFHxA, perfluoro-2-methoxyacetic acid (“PFMOAA”), PFPeA, and perfluoro-2-methoxypropanoic acid (“PMPA”), and other PFAS, in their water supplies.¹⁰¹ Chemours also released PFAS into the air from its Fayetteville facility, which contaminated groundwater and other environmental media downwind of the facility. According to the company’s data, Chemours’ groundwater pollution has spread more than 6,600 square miles, contaminating more than 7,000 private wells in *nine* separate counties.¹⁰² Indeed, some of the wells contain PFAS at total concentrations exceeding 8,400 ppt.¹⁰³ Chemours’ air pollution is ongoing,¹⁰⁴ and in fact, the facility is trying to expand,¹⁰⁵ presenting a continuing threat to individuals, families, and farmers in Southeastern North Carolina.

Chemours is not the only source of PFAS in the Southeast. Upstream of Chemours, a similar health risk has become known. There, the city of Burlington’s wastewater treatment plants, which received industrial waste, has discharged high levels of PFAS into the Haw River, the drinking water source for the town of Pittsboro, North Carolina, and other communities. Total PFAS concentrations in Pittsboro’s water supply have reached levels as high as 1,200 ppt—with documented PFOA concentrations exceeding 90 ppt (more than 22,000 times EPA’s updated health advisory) and PFOS concentrations exceeding 590 ppt (more than 29,000 times EPA’s updated health advisory).¹⁰⁶ As of 2022, Pittsboro’s drinking water supply continued to contain harmful concentrations of PFBA (22.5 ppt), PFHxA (47 ppt), PFBS (38.8 ppt), PFHxS (nearly 10 ppt), and PFPeA (54.7 ppt).¹⁰⁷

Wilmington and Pittsboro serve as national examples of the harm that can occur when toxic pollution remains in our environment, but countless other communities experience the burden of PFAS pollution. Industrial dischargers, wastewater treatment plants, and historically contaminated sites across the Southeast have long contaminated drinking water supplies—threatening hundreds of thousands of people. In fact, at least sixty-seven (67) public water systems in North Carolina contain PFAS at concentrations exceeding EPA’s proposed drinking water standards for PFOA, PFOS, and the Hazard Index.¹⁰⁸ Of those utilities, 47 contain PFOA

¹⁰¹ See, e.g., Brunswick County Public Utilities – NC, Analytical Report 1122-767 (Dec. 7, 2022), at 4, Attachment 57; *Latest PFAS Test Results*, CAPE FEAR PUBLIC UTILITY AUTH., <https://www.cfpu.org/779/Latest-PFAS-Test-Results> (last visited July 24, 2023); Pender County Utilities, 2022 Annual Drinking Water Quality Report: System ID 70-71-011 (2022), Attachment 58.

¹⁰² See, Chemours, Consent Order Progress Report For First Quarter 2023 (Apr. 2023), Attachment 59.

¹⁰³ See, Chemours, Four Counties Private Well Sampling Monthly Report – June 2023 (July 2023), at 7, Attachment 60.

¹⁰⁴ See *Air Quality Sampling*, N.C. DEP’T OF ENV’T QUALITY, <https://www.deq.nc.gov/news/key-issues/genx-investigation/air-quality-sampling> (last visited July 24, 2023).

¹⁰⁵ Chemours, Air Permit Application: Vinyl Ethers Expansion and Hydrolysis Line (Oct. 2022), available at <https://www.deq.nc.gov/air-quality/permits/public-communication/chemours-vinyl-ethers-expansion-permit-applicationfinalpublic-copypdf/download?attachment?attachment>.

¹⁰⁶ Greg Barnes, *PFAS Shows Up in Haw River, Pittsboro Water, But Gets Limited Local Attention*, N.C. HEALTH NEWS (July 30, 2019), Attachment 61.

¹⁰⁷ Town of Pittsboro, Analytical Report 0922-750 (Sept. 27, 2022), at 4, Attachment 62.

¹⁰⁸ See *Data & Tools*, N.C. PFAS TESTING NETWORK (2020), <https://ncpfastnetwork.com/data/> [hereinafter “NC PFAS Testing Network, PFAS Data”]; *GenX Surface Water Sampling Sites*, N.C. DEP’T OF ENV’T QUALITY (2023), <https://www.deq.nc.gov/news/key-issues/genx-investigation/genx-surface-water-sampling-sites> [hereinafter “DEQ, GenX Surface Water Sampling”]; *Well Testing in New Hanover County*, N.C. DEP’T OF ENV’T QUALITY (2021), Attachment 63 [hereinafter “DEQ, New Hanover Groundwater Samples”]; *DEQ PFAS Sampling of Public Water Systems*, N.C. DEP’T OF ENV’T QUALITY (2023), Attachment 64 [hereinafter “DEQ, PWS PFAS Data”].

at concentrations greater than 4 ppt; 60 contain PFOS at concentrations greater than 4 ppt; and 21 have documented concentrations of PFNA, PFBS, PFHxS, and GenX that, when measured together, exceed EPA’s Hazard Index.¹⁰⁹

As this data demonstrates, when PFAS are released, they are not released one compound at a time. Dozens, if not hundreds, of different PFAS are released together into the air, water, and soil.¹¹⁰ Therefore, communities are exposed to contamination from many PFAS at the same time, compounding the risks they face. In addition to Wilmington and Pittsboro, the city of Burlington’s water supply contains elevated levels of PFOA, PFOS, PFHxA, perfluoroheptanoic acid (“PFHpA”), and 6:2 fluorotelomer sulfonic acid (“6:2 FTS”).¹¹¹ The drinking water utilities for several North Carolina communities—High Point,¹¹² Cary,¹¹³ Apex,¹¹⁴ Sanford,¹¹⁵ Archdale,¹¹⁶ Jamestown,¹¹⁷ Greensboro,¹¹⁸ and Randleman,¹¹⁹ as well as Orange County¹²⁰—report concentrations of PFHxA, PFHxS, PFPeA, and PFBS, among other PFAS present in their finished water.¹²¹ Researchers have concluded that North Carolina suffers from some of the worst PFAS pollution in the entire country.¹²²

Still, other communities across southeastern states face the harms of PFAS contamination. In South Carolina, sampling has confirmed at least 26 communities with detectable levels of PFBS in their water supplies, 30 with detectable levels of PFBA, 37 with detectable levels of PFHxA, and seven with detectable levels of PFHxS.¹²³ GenX, PFHpA, and

¹⁰⁹ NC PFAS Testing Network, PFAS Data, *supra* note 108; DEQ, GenX Surface Water Sampling, *supra* note 108; DEQ, New Hanover Groundwater Samples, *supra* note 108; DEQ, PWS PFAS Data, *supra* note 108.

¹¹⁰ See N.C. Dep’t of Env’t Quality, Combined PFAS Well Samples Around Fayetteville Works Facility and Air Emission Estimates (2017), Attachment 65.

¹¹¹ Burlington Drinking Water Supply PFAS Sampling, Ed Thomas Water Treatment Plant, City of Burlington (2022), Attachment 66; Burlington Drinking Water Supply PFAS Sampling, JD Mackintosh Water Treatment Plant, City of Burlington (2022), Attachment 67.

¹¹² City of High Point, Annual Drinking Water Quality Report (2022), at 12, Attachment 68.

¹¹³ Town of Cary, Annual Water Quality Report (2023), at 14, Attachment 69.

¹¹⁴ Town of Apex, Water Quality Annual Report (2023), at 6, Attachment 70.

¹¹⁵ City of Sanford, 2022 Annual Water Quality Report (2022), at 6–7, Attachment 71.

¹¹⁶ Piedmont Triad Regional Water Authority, 2022 Annual Drinking Water Quality Report PWSID# NC3076010 (2022), at 7, Attachment 72 (Piedmont Triad Regional Water Authority supplies water to the cities of Archdale, Jamestown, Greensboro, High Point, and Randleman).

¹¹⁷ *Id.*

¹¹⁸ *Id.*

¹¹⁹ *Id.*

¹²⁰ Orange Water and Sewer Authority, Annual Water Quality Report Card 2022 (2023), at 15, Attachment 73.

¹²¹ See also Fayetteville Public Works Commission, 2022 Water Quality Report (2023), at 11, Attachment 74 (reporting elevated levels of total PFAS concentrations without compound specific details).

¹²² Hu, *supra* note 14, at 345–46 (listing the following states with PFAS detections in order of frequency: California, New Jersey, North Carolina, Alabama, Florida, Pennsylvania, Ohio, New York, Georgia, Minnesota, Arizona, Massachusetts, and Illinois); see also United States Environmental Protection Agency (“EPA”), UCMR3 Data Summary (Jan. 2017), <https://www.epa.gov/dwucmr/third-unregulated-contaminant-monitoring-rule> (last visited July 24, 2023) [hereinafter “UCMR3 PFAS Data”].

¹²³ S.C. Dep’t of Health & Env’t Control, Table 3, Other PFAS Data (excluding PFOA and PFOS) by EPA Method 533 from Surface Water-Sourced Community Drinking Water Systems (Aug. 2020), Attachment 75 [hereinafter “SCDHEC, Table 3 PFAS Data”]; S.C. Dep’t of Health & Env’t Control, Table 8B, Other PFAS Data (Excluding PFOA and PFOS) by USEPA Method 533 from SCDHEC Sampling of Surface Water Sourced Community Drinking Water Systems that Provided PFAS Data to SCDHEC (2020), Attachment 76 [hereinafter “SCDHEC, Table 8B PFAS Data”].

PFPeA have also been detected across South Carolina communities.¹²⁴ Alabama also suffers from similar contamination, with multiple communities showing levels of PFOA and PFOS exceedingly above EPA’s health advisories, as well as high levels of PFBS.¹²⁵ Indeed, at least 390 public water systems across Virginia, North Carolina, South Carolina, Georgia, Tennessee, and Alabama have reported PFAS in their systems. Half the utilities with detectable PFAS—195 utilities—have detections over EPA’s proposed drinking water standards for PFOA and PFOS or the Hazard Index. Of those 195 utilities, 130 contain PFOA at concentrations greater than 4 ppt; 160 contain PFOS at concentrations greater than 4 ppt; and 32 have documented concentrations of PFNA, PFBS, PFHxS, and GenX that, when measured together, exceed EPA’s Hazard Index.¹²⁶ Similar contamination has been discovered across the country,¹²⁷ with communities of color and low income communities more likely to bear the burden of this toxic pollution.¹²⁸ And these are just the communities we know about, where sampling and other investigations have been conducted.

¹²⁴ *Id.*

¹²⁵ Alabama Dep’t of Env’t Mgmt., All PFAS Surface Water Sampling Data (2022), Attachment 77 [hereinafter “ADEM, PFAS Sampling Data”].

¹²⁶ See Foster, *supra* note 17; ADEM, PFAS Sampling Data, *supra* note 125; SCDHEC, Table 3 PFAS Data, *supra* note 123; SCDHEC, Table 8B PFAS Data, *supra* note 123; *Current and Future Monitoring*, GA. ENV’T PROT. DIV. (2022), <https://gaepd.maps.arcgis.com/apps/MapSeries/index.html?appid=e8f2c6a51c1c41088002350f1eabe598>; N.C. Dep’t of Env’t Quality, Identification of Select Emerging Compounds in B. Everett Jordan Reservoir, Haw River Arm Watershed, and New Hope Creek Arm Watershed (2019), <https://perma.cc/7C8T-TPB4>; N.C. Dep’t of Env’t Quality, Study for the Ongoing Assessment of Water Quality in B. Everett Jordan Lake, Including Identification of Select Emerging Compounds: 2020 Results (2021), <https://perma.cc/3666-9UQU>; N.C. Dep’t of Env’t Quality, Identification of Select Emerging Compounds in Public Water Supply Reservoirs of the Neuse River Basin (2021), <https://perma.cc/W55D-RAAQ>; NC PFAS Testing Network, PFAS Data, *supra* note 108; DEQ, GenX Surface Water Sampling, *supra* note 108; DEQ, New Hanover Groundwater Samples, *supra* note 108; DEQ, PWS PFAS Data, *supra* note 108; UCMR3 PFAS Data, *supra* note 122; *Geonarrative: Nontidal Network Mapper*, U.S. GEOLOGICAL SURVEY, <https://www.usgs.gov/tools/geonarrative-nontidal-network-mapper> (last visited July 24, 2023); *Middle Chickahominy PFAS Study*, VA. DEP’T OF ENV’T QUALITY (Dec. 15, 2022), <https://storymaps.arcgis.com/stories/1d68144adf54432198e7d56229862d31>; Va. Dep’t of Health, Study of the Occurrence of Per- and Polyfluoroalkyl Substances (PFAS) in the Commonwealth’s Public Drinking Water (Dec. 1, 2021), <https://perma.cc/WS97-6HTR>; *Environmental Sampling of Per- and Polyfluoroalkyl Substances in the Middle Chickahominy River Watershed, Virginia, 2021-2022*, U.S. GEOLOGICAL SURVEY (Nov. 7, 2022), <https://www.usgs.gov/data/environmental-sampling-and-polyfluoroalkyl-substances-middle-chickahominy-river-watershed>; *Per- and Polyfluoroalkyl Substances (PFAS)*, VA. DEP’T OF ENV’T QUALITY, <https://www.deq.virginia.gov/get-involved/the-environment-you/per-and-polyfluoroalkyl-substances-pfas> (last visited July 24, 2022).

¹²⁷ *Supplemental Public Water Supply PFAS Monitoring Data*, U.S. ENV’T PROT. AGENCY, https://awsedap.epa.gov/public/extensions/PFAS_Tools/PFAS_Tools.html (last visited July 24, 2023) (filtered by “Drinking Water(State)” and then further filtered by “PWS with Samples in Selection”); *UCMR PFAS Public Water Supply Monitoring Data*, U.S. ENV’T PROT. AGENCY, https://awsedap.epa.gov/public/extensions/PFAS_Tools/PFAS_Tools.html (last visited July 24, 2023) (filtered by “Drinking Water (UCMR)” and further filtered by “Total Reportable Detections”).

¹²⁸ See Genna Reed, *PFAS Contamination Is an Equity Issue, and President Trump’s EPA Is Failing to Fix It*, Union of Concerned Scientists (Oct. 30, 2019), <https://perma.cc/9JVE-QSQ4>; Jahred M. Liddie et al., *Sociodemographic Factors Are Associated with the Abundance of PFAS Sources and Detection in U.S. Community Water Systems*, 57 ENV’T SCI. & TECH. 7902 (2023), Attachment 78; Susan Lee, *Dirty Water: Toxic ‘Forever’ PFAS Chemicals Are Prevalent in the Drinking Water of Environmental Justice Communities* (Aug. 2021), Attachment 79.

c. EPA should include precursors to all PFAS listed in this rulemaking.

As described, there are thousands of PFAS in commerce, some measurable by targeted analytical methods and many that are not. Although current targeted analytical methods are capable of quantitatively measuring a number of specific PFAS, they do not provide a complete picture of the thousands of PFAS compounds that are manufactured, used in commercial products, and released into the environment.¹²⁹ These unmeasured PFAS chemicals are considered “precursors,” *i.e.*, PFAS compounds and/or materials that degrade into measurable PFAS during use, after disposal, or after release into the natural environment.¹³⁰ This degradation occurs through oxidation¹³¹ that may occur in wastewater treatment processes, advanced oxidation processes such as performed in the total oxidation precursor (“TOP”) assay, or through natural processes like exposure to sunlight or microbes.¹³²

Through these natural and other oxidation processes, precursors degrade to generate measurable PFAS such as perfluorinated carboxylic acids (“PFCAs”) and perfluorinated sulfonic acids (“PFASs”), or more specifically into PFAS like PFHxA, PFPeA, PFHpA, PFNA, PFOA,¹³³ PFHxS, PFOS,¹³⁴ PFPrA,¹³⁵ and PFBA.¹³⁶ The question is not *if* precursors will degrade into measurable PFAS, but *when and where*. New research confirms that precursors in the soil will continue to slowly degrade to measurable PFAS that will contaminate ground water sources for centuries, highlighting the necessity to include all precursors as hazardous substances and ensure their remediation and removal from the environment.¹³⁷

Because most precursors cannot be detected by targeted sampling, concentrations of PFAS in the environment downstream of a discharge or distant from a release may contain much higher concentrations of PFAS than the measurable concentrations detected at the point of discharge/release. This means that the resulting contamination may be more harmful and widespread than known or expected. For example, studies have shown concentrations of measurable PFAS increase following wastewater treatment, presumably the result of the degradation of precursor compounds during the wastewater treatment process.¹³⁸ What’s more, concentrations of measurable PFAS in wastewater treatment plant *sludge* are often higher than the concentration in the wastewater treatment plant’s *effluent* suggesting that measurable PFAS loadings from wastewater treatment plants may continue to increase as precursors further degrade.¹³⁹

¹²⁹ Mohamed Ateia et al., *Total Oxidizable Precursor (TOP) Assay – Best Practices, Capabilities and Limitations for PFAS Site Investigation and Remediation*, 10 ENV’T. SCI. & TECH. LETTERS 292 (2023), Attachment 80.

¹³⁰ *Id.* at 292.

¹³¹ *Id.*

¹³² Erika F. Houtz & David L. Sedlak, *Oxidative Conversion as a Means of Detecting Precursors to Perfluoroalkyl Acids in Urban Runoff*, 46 ENV’T. SCI. & TECH. 9342 (2012), Attachment 81.

¹³³ *Id.* at 9344–46.

¹³⁴ Ulrika Eriksson et al., *Contribution of Precursor Compounds to the Release of Per- and Polyfluoroalkyl Substances (PFASs) from Waste Water Treatment Plants (WWTPs)*, J. OF ENV’T SCI. 61, 80 (2017), Attachment 82.

¹³⁵ Ateia, *supra* note 129, at 295.

¹³⁶ Houtz, *supra* note 132, at 9344.

¹³⁷ Bridger J. Ruyle et al., *Centurial Persistence of Forever Chemicals at Military Fire Training Sites*, 57 ENV’T SCI & TECH. 8096–106 (2023), Attachment 83.

¹³⁸ Eriksson, *supra* note 134, at 88.

¹³⁹ *Id.*

The measurable PFAS resulting from degraded precursors have been widely detected in humans, wildlife, municipal wastewater, and rivers and streams,¹⁴⁰ causing deleterious human health effects and harms to communities. Because precursors will eventually degrade to targeted PFAS, they should be regulated the same as targeted PFAS. Nations around the world agree.

The United Nations' Stockholm Convention on Persistent Organic Pollutants is a global treaty to protect human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically, are bioaccumulative, and have harmful impacts on human health or on the environment.¹⁴¹ The Stockholm Convention on Persistent Organic Pollutants has designated certain PFAS *including precursors* as “persistent organic pollutants” (or “POPs”)¹⁴² given their long-range transport and the fact that no one international government acting alone can protect its citizens or its environment from PFAS including precursors.¹⁴³ For example, the Stockholm Convention recognizes that precursors that degrade to PFOA, PFHxS, and PFOS, are of global concern.¹⁴⁴ Moreover, the Stockholm Convention's risk profiles for PFOA and PFHxS explicitly conclude that precursors that degrade to PFOA and PFHxS “lead to adverse human health and/or environmental effects such that global action is warranted.”¹⁴⁵ Precursors to long-chain PFAS, their salts and related compounds, have also been proposed for addition to the Stockholm Convention.¹⁴⁶

For the same reason that certain precursors are listed as POPs under the Stockholm Convention, they should be included as CERCLA hazardous substances.¹⁴⁷ To list certain targeted PFAS without listing their precursors would be counterintuitive to CERCLA's goals: the pollution in contaminated areas would be underestimated, the corporations that released the contamination would not be held responsible, and people and surrounding communities would be left to unfairly shoulder the resulting harm to human health and the environment. As EPA approaches regulating PFAS as a class, it should list the precursors to PFOA, PFOS, and the seven additional PFAS named in this advanced notice of rulemaking as hazardous substances.

¹⁴⁰ Houtz, *supra* note 132, at 9342.

¹⁴¹ United Nations, *Overview: Stockholm Convention on Persistent Organic Pollutants*, Attachment 84 (last visited July 24, 2023).

¹⁴² See United Nations, Stockholm Convention on Persistent Organic Pollutants, *All POPs Listed in the Stockholm Convention*, <https://perma.cc/G2RT-K6HR> [hereinafter “All Stockholm POPs”].

¹⁴³ See United Nations, Stockholm Convention on Persistent Organic Pollutants, *What are POPs?*, <https://perma.cc/KT3J-CSEB> (last visited July 24, 2023).

¹⁴⁴ All Stockholm POPs, *supra* note 142.

¹⁴⁵ United Nations, Risk Profile Pentadecafluorooctanoic Acid, *supra* note 49, at 5; United Nations, Stockholm Convention on Persistent Organic Pollutants, *Risk Profile on Perfluorohexane Sulfonic Acid (PFHxS), its Salts and PFHxS-related Compounds*5 (Sept. 2018), Attachment 85.

¹⁴⁶ United Nations, Candidate POPs: Long-Chain Perfluorocarboxylic Acids (PFCAs) Their Salts and Related Compounds (2022), Attachment 86.

¹⁴⁷ See Ruyle, *supra* note 137 (explaining the persistence, physicochemical properties, and overall presence of PFAS precursors in the environment).

- d. *Although EPA can designate PFAS as hazardous substances without analytical methods, the agency should use its authority to require the generation of analytical methods and reference standards.*

EPA notes that “[a]vailable standard analytical methods” for measuring PFAS “may not include all precursors,” complicating efforts to detect precursors in water, soil, sediment, and air.¹⁴⁸ In light of that gap, EPA seeks comment on (1) “whether and how EPA should consider the availability of analytical methods when determining whether to designate precursors as CERCLA hazardous substances” and (2) whether there is “information regarding how precursors could be measured in environmental samples.”¹⁴⁹

As an initial matter, analytical methods, including TOP assay, already exist and can reliably detect the vast majority of PFAS and their precursors.¹⁵⁰ Other methods, including Total Organic Fluorine (“TOF”) are available and can be used as a screening tool to identify whether a waste stream contains PFAS.¹⁵¹ That said, in response to the first question, EPA does not need analytical methods to designate PFAS precursors as hazardous substances under CERCLA. While analytical methods are relevant to determining *whether* a particular substance has been released to the environment, the standard for hazardous substance designation assumes the release of the substance and asks only whether, “when released,” the substance “may present substantial danger to the public health or welfare or the environment.”¹⁵² As described above, that standard is readily satisfied based on existing studies of PFAS toxicity and persistence.

In response to EPA’s second question, while EPA should not delay any hazardous substance designations, it should separately develop, or use its existing statutory authority to require PFAS manufacturers and processors to develop, analytical methods that can detect additional PFAS and PFAS precursors. Once PFAS have been designated as hazardous substances, additional analytical methods will benefit remedial investigations under CERCLA and inform EPA’s decisions about how to remediate PFAS-contaminated sites.

The Toxic Substance Control Act (“TSCA”) authorizes EPA to require chemical manufacturers, importers, or processors “to develop information with respect to the health and environmental effects or which there is an insufficiency of information . . .”¹⁵³ EPA previously used its TSCA authority to require chemical manufacturers to develop analytical methods that could detect chlorinated and brominated dibenzo-pdioxins and dibenzofurans in their products.¹⁵⁴ In explaining the need for those methods, EPA explained that dioxins “may present a health risk at very low levels, down to 0.1 part per billion,” or 100 ppt.¹⁵⁵ PFAS (including

¹⁴⁸ Addressing PFAS in the Environment, 88 Fed. Reg. at 22403.

¹⁴⁹ *Id.*

¹⁵⁰ Ateia, *supra* note 129.

¹⁵¹ See U.S. Env’t Prot. Agency, *PFAS Analytical Methods Development and Sampling Research*, <https://www.epa.gov/water-research/pfas-analytical-methods-development-and-sampling-research> (last visited Aug. 8, 2023).

¹⁵² 42 U.S.C. § 9602(a).

¹⁵³ 15 U.S.C. § 2603(a)(1).

¹⁵⁴ 40 CFR §§ 766.12-766.18; Polyhalogenated Dibenzodioxins/Dibenzofurans; Testing and Reporting Requirements, 52 Fed. Reg. 21412 (June 5, 1987).

¹⁵⁵ 52 Fed. Reg. 21413.

PFAS formed from precursors) also present health risks at low exposure levels, often several orders of magnitude below 100 ppt. As it did for dioxins, EPA should develop, or require the companies that manufacture PFAS, including precursors, to develop, additional methods that can be used to detect those chemicals in the environment.

Finally, EPA notes that “development of additional methods may be limited by the availability of chemicals standards,” or compounds of high purity and known concentration that can be used to calibrate laboratory equipment and assure that the samples to be analyzed are equivalent to the compound of interest.¹⁵⁶ Chemical standards, also known as analytical standards, are used to develop analytic methods and to ensure that those methods can be reliably applied by laboratories. In its PFAS Roadmap, EPA writes that it “will review reports of PFAS of concern and seek to procure certified reference standards that are essential for accurate and selective quantitation ...”¹⁵⁷ Fortunately, the same TSCA provisions that authorize EPA to require the development of analytical methods also permit EPA to require the production of analytical standards. In the dioxin testing rule referenced above, EPA provided that “[t]o conduct the sample analyses, any requisite analytical standards which are not available will have to be manufactured” and submitted to EPA.¹⁵⁸ To the extent that EPA lacks analytical standards for any PFAS, including precursors, (or lacks the resources to develop them), it should require the chemical manufacturer to provide one for evaluation by EPA.

The prevalence of PFAS in drinking water sources, finished water, and surface water demonstrates the need to remove these chemicals from our environment and supports their class-based listing as hazardous substances under CERCLA. Their designation as hazardous substances will spur better, more comprehensive investigations, shining light on other communities faced with existing PFAS pollution. It will also prompt quicker cleanups. EPA should initiate a rulemaking to list PFAS as a class and, in the meantime, finalize its rulemaking to list PFOS and PFOA and proceed with its proposal to list GenX chemicals, PFBS, PFHxS, PFHxA, PFNA, PFBA, PFDA, and their precursors as hazardous substances under CERCLA.

IV. Adding PFAS as hazardous substances promotes CERCLA’s “polluter pays” principle.

In many cases, the costs associated with environmental contamination are unfairly borne by state and federal governments, public and private drinking water utilities, and communities. EPA must instead hold the polluters financially responsible for these costs—including the costs for remediation on and off site, effective treatment systems where drinking water supplies are polluted with PFAS, human health studies, environmental sampling, and ongoing monitoring.

¹⁵⁶ Addressing PFAS in the Environment, 88 Fed. Reg. at 22403.

¹⁵⁷ U.S. Env’t Prot. Agency, PFAS Strategic Roadmap: EPA’s Commitments to Action 2021-2024 (Oct. 2021), at 15, <https://perma.cc/C6WF-ERA9> [hereinafter “PFAS Strategic Roadmap”].

¹⁵⁸ Polyhalogenated Dibenzo-Dioxins/Dibenzofurans; Testing and Reporting Requirements, 52 Fed. Reg. at 21431.

Listing PFAS as CERCLA hazardous substances would help to ensure that these costs are borne by those responsible, consistent with CERCLA’s “polluter pays” principle.

a. The costs associated with PFAS pollution should be borne by polluters, not people.

It is extraordinarily difficult and expensive to remove PFAS from the environment once it has been released. It is equally difficult and expensive to remove PFAS from drinking water. Unless the parties responsible for the PFAS pollution bear this burden, the entire burden is borne by surrounding communities and local drinking water utilities and their customers. Designating PFAS as hazardous substances would avoid this unfair result and would achieve one of CERCLA’s main purposes: “impos[ing] . . . cleanup costs on the responsible party.”¹⁵⁹

The need for polluters to pay for their own PFAS pollution is clear across the Southeast. For example, the Cape Fear Public Utility Authority, which services 200,000 customers in North Carolina, discovered in the summer of 2017 that PFAS from Chemours’ Fayetteville Works Facility was in its finished water. One of the PFAS, GenX, reached levels of up to 1,100 ppt in the treated drinking water.¹⁶⁰ In September 2017, Chemours agreed to stop pumping its PFAS-contaminated wastewater directly into the Cape Fear River.¹⁶¹ However, PFAS levels in the river and in the utility’s finished drinking water have persisted from contamination in the soil and groundwater at the facility,¹⁶² in sediment in the Cape Fear River and its tributaries,¹⁶³ and possibly even in bacteria that coat the inside of pipes which pump treated drinking water.¹⁶⁴

The Cape Fear Public Utility Authority, the water supplier for the city of Wilmington and surrounding New Hanover County, has spent \$43 million to add granular activated carbon filters to remove PFAS from Chemours at its water treatment plant,¹⁶⁵ and anticipates an additional \$5 million annually for maintenance.¹⁶⁶ Similarly, other drinking water utilities have unfairly had to incur significant costs to remove PFAS from their water supplies.

Brunswick County, North Carolina, spent \$170 million to install a low-pressure reverse osmosis system to remove PFAS at its treatment plant.¹⁶⁷ The utility estimates it will cost an additional \$3 million per year to maintain.¹⁶⁸ Pittsboro, North Carolina, a town with an annual

¹⁵⁹ *Stanton Rd. Assocs.*, 984 F.2d at 1020 (explaining that one of the two main purposes of CERCLA is “imposition of all cleanup costs on the responsible party”).

¹⁶⁰ Cape Fear Public Utilities Authority, *GenX Surface Water Sampling Results* (2017), at 3, Attachment 87.

¹⁶¹ Consent Order, *North Carolina v. The Chemours Company FC, LLC*, 17 CVS 580 (Bladen County Super. Ct., Feb. 25, 2019), at ¶ 10, Attachment 88 [hereinafter “Chemours Consent Order”].

¹⁶² See generally Geosyntec Consultants, *Cape Fear River PFAS Loading Reduction Plan* (Nov. 2019), <https://perma.cc/DR45-JXDJ>.

¹⁶³ Report to the Environmental Review Commission from the University of North Carolina at Wilmington Regarding the Implementation of Section 20(a)(2) of House Bill 56 (S.L. 2017-209), <https://perma.cc/MP2J-APY5>.

¹⁶⁴ Cheryl Hogue, *What’s GenX Still Doing in the Water Downstream of a Chemours Plant*, CHEMICAL & ENG’G NEWS (Feb. 12, 2018), <https://perma.cc/NS7Z-TDCR>.

¹⁶⁵ *CFPUA’s Legal Action Against Chemours and Dupont*, CAPE FEAR PUB. UTIL. AUTH., <https://www.cfpua.org/785/Legal-action-against-Chemours-and-DuPont>.

¹⁶⁶ *Sweeney Treatment Enhancements Project*, CAPE FEAR PUB. UTIL. AUTH. (document pulled June 5, 2023), Attachment 89.

¹⁶⁷ Amy Willis, *Recent Testing Shows Brunswick County Water Contains PFAS not Monitored by EPA*, PORT CITY DAILY (Apr. 14, 2023), Attachment 90.

¹⁶⁸ *Brunswick County Moves Swiftly to Treat PFAS Compounds*, CDM SMITH (July 24, 2023), Attachment 91.

budget of less than \$10 million,¹⁶⁹ paid \$3.5 million to install PFAS carbon filters, and will pay up to \$750,000 per year to maintain them.¹⁷⁰ Communities in other states are facing similar financial burdens. The city of Rome, Georgia, for example, is currently in the process of commissioning and installing a nearly \$100 million reverse-osmosis treatment system.¹⁷¹ Columbia, South Carolina, has analyzed its treatment options and determined that installing PFAS filters for its public water supply could cost \$200 million, plus \$20 million annually.¹⁷² This would double Columbia’s current water treatment costs.¹⁷³

The unfair cost of treating PFAS at a community’s drinking water utility is often passed on to ratepayers. From the examples discussed above, the Cape Fear Public Utility Authority projects that its customers, who have already been harmed by Chemours’ pollution for decades, will face a 14 percent increase in their water bills because of the actions the utility must now take to combat PFAS.¹⁷⁴ Brunswick County absorbed some of the cost of its treatment system, but water customers still saw a large increase in their water bills to finance the treatment project.¹⁷⁵ The Pittsboro County Commission has proposed a 15 percent rate hike to pay for Pittsboro’s PFAS treatment technology.¹⁷⁶ And water rates in Rome, Georgia will increase 9 percent for each of the next four years to pay for Rome’s treatment system.¹⁷⁷ What is currently happening—forcing communities to shoulder the costs of toxic pollution—is not fair, feasible, effective, or consistent with CERCLA’s goal of imposing “all cleanup costs on the responsible party.”¹⁷⁸

Communities that have been injured by the pollution from large chemical companies should not be the ones to bear the heavy financial burden of cleaning up their polluted drinking water. EPA should place the burden where it belongs—on the polluter.

¹⁶⁹ *Adopted Budget, Fiscal Year 2022-2023*, TOWN OF PITTSBORO (2022) at 4, <https://perma.cc/2LQB-8F57>.

¹⁷⁰ Lisa Sorg, *Pittsboro Sues 20 Companies, Including 3M, Chemours, DuPont over PFAS Contamination in Town Drinking Water*, NC NEWSLINE (Jan. 27, 2023), <https://perma.cc/K754-US4E>; Adam Wagner, *Pittsboro sues forever chemical, firefighting foam manufacturers over water pollution*, THE NEWS & OBSERVER (Jan. 29, 2023).

¹⁷¹ Drew Kann, *Rome is Grappling with Toxic ‘Forever Chemicals’ Fouling Waterways*, THE ATLANTA J. CONST. (Oct. 14, 2022), Attachment 92; John Bailey, *Water Facility to Remove Toxic Chemicals From Rome’s Water Supply to be Located on Riverside Parkway*, Rome News Tribune (May 5, 2023), Attachment 93.

¹⁷² Skylar Laird, *Columbia Water Customers Could Pay up to \$200 Million to Meet New EPA Chemical Rules*, THE COLUMBIA POST & COURIER (Mar. 25, 2023), Attachment 94.

¹⁷³ *Id.*

¹⁷⁴ U.S. Env’t Prot. Agency, Combined Presentations from EPA PFAS Community Engagement in Fayetteville, NC, at slide 78 (Aug. 14, 2018), Attachment 95.

¹⁷⁵ Brunswick County, Frequently Asked Questions About the Brunswick County FY22 Approved Water Rates, Wholesale Water Rates, and Northwest Water Treatment Plant Upgrades (Jan. 11, 2022), <https://perma.cc/J4R9-NL4C>.

¹⁷⁶ Taylor Heeden, *Pittsboro Commissioners Hold Second Public Hearing for 2022-23 Budget*, CHAPELBORO (May 14, 2022), <https://perma.cc/K5V2-V9MY>.

¹⁷⁷ Kann, *supra* note 171.

¹⁷⁸ *Stanton Rd. Assocs.*, 984 F.2d at 1020.

- b. *Placing the burden of PFAS contamination where it belongs, on the polluters, does not violate the prohibition against EPA's consideration of cost when designating CERCLA hazardous substances.*

In its notice, EPA requests information about the “potential direct and indirect costs and benefits” associated with designating the additional PFAS and precursors as hazardous substances.¹⁷⁹ EPA cannot consider the costs when evaluating whether to designate a substance as hazardous under CERCLA. Nevertheless, adding PFAS as hazardous under the statute would place the financial burden on the party responsible for the pollution, supporting one of CERCLA’s primary goals.¹⁸⁰

As the agency has recognized in prior rulemakings,¹⁸¹ EPA cannot consider the costs when evaluating whether to designate PFAS as hazardous substances. CERCLA contains an unambiguous listing criterion: whether the release of a substance into the environment “may present substantial danger to the public health or welfare or the environment.”¹⁸² This listing standard focuses exclusively on the harm posed to public health and the environment and does not allow for the consideration of cost. EPA properly acknowledged this in its rulemaking to list PFOA and PFOS last September, noting that the agency “interpret[s] the language of CERCLA section 102(a) as precluding the Agency from taking cost into account in designating hazardous substances.”¹⁸³ The agency explained this had to be the case because “as a matter of common sense and straightforward reading, determining whether something is ‘hazardous’ does not naturally lend itself to considerations of cost. A substance is or is not hazardous based on scientific and technical considerations.”¹⁸⁴

To be sure, other sections of CERCLA allow for the consideration of costs. When responding to the release of hazardous substances, for example, EPA shall take into consideration how much it will cost to evaluate the release of the substance¹⁸⁵ as well as examine whether remedial actions would be “cost-effective over the period of potential exposure.”¹⁸⁶ But that language does not similarly appear in section 102(a). Courts have long held that “when ‘Congress includes particular language in one section of a statute but omits it in another’...[courts] ‘presume[]’ that Congress intended a difference in meaning.”¹⁸⁷ Here, where there is explicit direction to consider cost in some of CERCLA’s provisions, but an absence of that direction in the provision regarding designation, it must be assumed that Congress did not intend for EPA to consider costs when designating hazardous substances.

Designating PFAS as hazardous substances will place the financial responsibility of removing PFAS from the environment, including our soil, water, groundwater, and drinking

¹⁷⁹ Addressing PFAS in the Environment, 88 Fed. Reg. at 22402.

¹⁸⁰ *Stanton Rd. Assocs.*, 984 F.2d at 1020.

¹⁸¹ Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, 87 Fed. Reg. at 54421.

¹⁸² 42 U.S.C. § 9602(a).

¹⁸³ Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, 87 Fed. Reg. at 54421.

¹⁸⁴ *Id.*

¹⁸⁵ 42 U.S.C. § 9605(a)(2).

¹⁸⁶ *Id.* § 9605(a)(7).

¹⁸⁷ *Loughrin v. United States*, 573 U.S. 351, 358 (2014) (quoting *Russello v. United States*, 464 U.S. 16, 23 (1983)).

water supplies, where it belongs—on the polluter. EPA should therefore move forward in listing PFAS as a class as CERCLA hazardous substances and, in the meantime, finalize its proposal to list PFOA and PFOS as hazardous substances and contemporaneously add the seven PFAS listed in this advanced notice of proposed rulemaking along with their precursors.

V. Listing PFAS as a hazardous substance will help stop the pollution at the source.

As discussed above, site remediation and drinking water treatment for PFAS are extremely costly and difficult, and conventional techniques are often ineffective.¹⁸⁸ Preventing PFAS from entering the environment in the first place is the best way to eliminate these costs, protect human health and the environment, and avoid placing the responsibility of PFAS contamination on public water supplies and their customers. Not only will listing additional PFAS place the burden of pollution on responsible parties and promote the cleanup of contaminated sites and waterways, but it also will help stop PFAS pollution at the source. To be effective, however, CERCLA’s hazardous substances designation of PFAS must apply to all sources and must not contain exemptions, including for wastewater treatment plants.

a. Listing PFAS as CERCLA hazardous substances will force industrial sources to install treatments to prevent the toxic chemicals from being released.

The vast majority of PFAS in our rivers, streams, creeks, and drinking water comes from industries that create and use chemicals as a part of their manufacturing processes. In North Carolina’s Cape Fear River basin alone, there are more than 30 industrial and municipal facilities (which receive industrial waste), as well as other sites that are releasing PFAS on a regular basis, including Chemours’ facility in Fayetteville, North Carolina.¹⁸⁹ We know that other industrial PFAS discharges are rampant throughout North Carolina, the Southeast, and the country.

For instance, the chemical maker Solvay Specialty Polymers USA, LLC, released PFAS into the soil, sediment, groundwater, and surface water near the company’s PFAS manufacturing facility in Delaware.¹⁹⁰ Solvay’s New Jersey PFAS manufacturing facility caused PFAS pollution that reached “the highest reported concentration in surface water in the world at that time.”¹⁹¹ The company 3M similarly discharged PFAS from its manufacture of Scotchgard into the drinking water sources relied on by Minnesotans.¹⁹² In Alabama, 3M contaminated the drinking water supply for about 100,000 people with PFAS manufactured at its Decatur plant.¹⁹³ Michigan is similarly facing widespread PFAS contamination from facilities operated by 3M,

¹⁸⁸ Interstate Technology Regulatory Council, Remediation Technologies and Methods for Per- and Polyfluoroalkyl Substances (PFAS) (2020), Attachment 96.

¹⁸⁹ N.C. Dep’t of Env’t Quality, Cape Fear Industrial PFAS & 1,4-dioxane Sampling (2020), Attachment 97; N.C. Dep’t of Env’t Quality, Cape Fear Municipal PFAS & 1,4-dioxane Sampling (2020), Attachment 98.

¹⁹⁰ Julia Rentsch, *Delaware Settles with Solvay Specialty Polymers Over PFAS Contamination Claims in Prices Corner*, SALISBURY DAILY TIMES (Feb. 17, 2021), <https://perma.cc/9WQ3-DZ8A>.

¹⁹¹ Jacob Adelman, *N.J. Sues Chemical Maker Solvay for Evading Responsibility for Toxic Pollution from West Deptford Plant*, PHILADELPHIA INQUIRER (Nov. 10, 2020), <https://perma.cc/UA2E-2XAV>.

¹⁹² John Gardella, *PFAS Water Utility Lawsuit Shows an Increasing Trend*, NAT’L L. REV. (Feb. 17, 2021), <https://perma.cc/J9YF-5QKP>.

¹⁹³ *3M Pays \$35 Million to North Alabama Water Authority In Drinking Water Contamination Settlement*, WHNT NEWS19 (Apr. 28, 2019), <https://perma.cc/3NWK-65L3>.

DuPont, Chemours, Arkema Inc., Daikin Industries, Solvay, and other companies.¹⁹⁴ Indeed, early analyses indicated that nearly 30,000 industrial facilities could be discharging PFAS into the country's air and water, including:

- More than 4,700 electroplating and polishing facilities;
- More than 3,000 petroleum stations and terminals;
- More than 2,300 chemical manufacturers;
- More than 2,200 metal product manufacturers;
- More than 2,100 commercial printing facilities;
- More than 1,800 plastics and resin manufacturing sites;
- More than 1,500 paint and coating manufacturers;
- More than 1,200 semiconductor manufacturers; and
- More than 1,000 electric component manufacturers.¹⁹⁵

EPA now estimates that this number could be even higher, reaching up to 74,000 industrial facilities using or discharging PFAS.¹⁹⁶

Ongoing, uncontrolled, and undisclosed PFAS discharges are already unlawful. The Clean Water Act prohibits the discharge of any pollutant, including PFAS, without a NPDES permit.¹⁹⁷ Yet, as we have seen over and over again, industrial sources ignore this requirement by continuing to discharge PFAS into our waterways rather than incurring costs to stop their discharges in the first place. Indeed, Chemours is only addressing its PFAS discharges into the Cape Fear River because it was forced to by a court-issued consent order.¹⁹⁸ Waiting for industries to stop their PFAS discharges only once discovered guarantees that families and communities will continue to be exposed to toxic PFAS pollution for years to come. Listing PFAS as hazardous substances increases the chances that industrial sources will be held accountable for their pollution and, in turn, incentivizes them to stop it.

Effective treatment technologies for PFAS are available to stop PFAS at the industrial source. Granular activated carbon is a cost-effective and efficient technology that can reduce PFAS concentrations to virtually nondetectable levels. A granular activated carbon treatment system at the Chemours' facility, for example, has reduced PFAS concentrations as high as 345,000 ppt from a creek contaminated by groundwater beneath the facility to nearly

¹⁹⁴ Press Release, Mich. Dep't of Env't, Great Lakes, and Energy, Mich. PFAS Action Response Team, *Michigan Files Lawsuit Against 3M, DuPont and Others for PFAS Contamination* (Jan. 14, 2020), <https://perma.cc/5PB7-FU5B>.

¹⁹⁵ The Environmental Working Group ("EWG"), *Twelvefold Increase in Suspected Industrial Dischargers of 'Forever Chemicals'* (July 14, 2021), <https://perma.cc/5BUH-CE68>.

¹⁹⁶ *PFAS Chemical Manufacturer and Importer Data From TSCA CDR*, U.S. ENV'T PROT. AGENCY (2023), data available at https://awsedap.epa.gov/public/extensions/PFAS_Tools/PFAS_Tools.html (data last accessed on July 24, 2023, filtered to "Production" tool, and reflecting the total number of PFAS manufacturers and importers); *Industry Sectors*, U.S. ENV'T PROT. AGENCY (2023), data available at https://awsedap.epa.gov/public/extensions/PFAS_Tools/PFAS_Tools.html (data last accessed on July 24, 2023, filtered to the "Industry Sectors" tool, displaying industries in categories known or suspected to discharge PFAS).

¹⁹⁷ 33 U.S.C. § 1311(a).

¹⁹⁸ Chemours Consent Order, *supra* note 161; Addendum to Consent Order Paragraph 12, *North Carolina v. The Chemours Company FC, LLC*, 17 CVS 580 (Bladen County Super. Ct., Oct. 12, 2020), Attachment 99.

nondetectable concentrations.¹⁹⁹ Separately, a reverse osmosis treatment unit, coupled with granulated activated carbon and ion exchange, was also shown in pilot testing to reduce individual PFAS concentrations as high as 10,510,000 ppt and 5,886,000 ppt to at most 35 ppt, and mostly nondetectable levels.²⁰⁰ These and other technologies can be applied by industries to keep PFAS from entering rivers and drinking water sources across the country. It is far more cost effective to require an industrial source to treat or stop its PFAS discharges than it is to clean up the contamination or remove it from our drinking water once it has been released.

b. Listing PFAS as CERCLA hazardous substances will force wastewater treatment plants to meet their obligations under the Clean Water Act pretreatment program to stop pollution at the source.

If industrial sources fail to stop their PFAS discharges at the source, the PFAS pollution can flow into wastewater treatment plants hired to manage and treat that industrial waste. Even though many wastewater treatment plants fail to address the PFAS pollution entering their systems, they have the authority, obligation, and ability to significantly reduce, even stop, that pollution under the Clean Water Act's pretreatment program.²⁰¹ By properly using their pretreatment authority, discussed more fully below, wastewater treatment plants would be able to sample and identify the industrial sources of PFAS and appropriately place both the physical and financial burden of controlling toxic PFAS pollution on the industry profiting from the use of the harmful chemicals. Additionally, it would remove PFAS from the wastewater treatment plant's effluent discharge and biosolids, thereby significantly reducing the threat of CERCLA liability for the wastewater treatment plant.

VI. CERCLA liability must apply to all sources of PFAS, including wastewater treatment plants.

We are aware that EPA is receiving significant pressure to craft exemptions from CERCLA liability for municipal wastewater treatment plants.²⁰² Such exemptions are unnecessary and would have far-reaching and damaging impacts on our communities. Given the breadth of PFAS pollution from wastewater treatment plants and the wastewater treatment plants' ability to control or eliminate that pollution before it is introduced into their sewer

¹⁹⁹ See Parsons, Engineering Report – Old Outfall 002 GAC Pilot Study Results (Sept. 2019), Attachment 100; see also Chemours Outfall 003, NPDES No. NC0089915 Discharge Monitoring Reports (2020–2022), <https://perma.cc/8YND-XT5M>.

²⁰⁰ Chemours Co., Attachment J.2 to NPDES Permit No. NC0003573, Reverse Osmosis Engineering Report and Data Analysis, 4–6 (Nov. 2020), Attachment 101.

²⁰¹ See 40 C.F.R. § 403.8.

²⁰² See, e.g., Letter from Adam Krantz, Nat'l Ass'n of Clean Water Agencies, to Michael Regan, U.S. Env't Prot. Agency (Nov. 7, 2022); Letter from Paul Calamita, Counsel for N.C. Water Quality Ass'n, to EPA Docket Center (Nov. 7, 2022).

system, EPA should move forward with this rulemaking without any exemption for wastewater treatment plants.

- a. *Wastewater treatment plants are not “passive receivers” of PFAS pollution, and they should be subject to CERCLA liability.*

Across our country, some of the largest sources of PFAS pollution are municipal wastewater treatment plants.²⁰³ Although these wastewater treatment plants do not create the chemicals themselves, the facilities actively contribute to harmful PFAS pollution by allowing their clients, industrial facilities, to discharge PFAS into the plants’ collection systems and by failing to control these discharges through the Clean Water Act’s pretreatment program. Because wastewater treatment plants opt to receive industrial waste as part of the plants’ businesses and fail to protect communities from the associated pollution, they are not “passive receivers” of the pollution; instead, they are responsible for the PFAS contamination and should be held to the same standards as any industry under CERCLA. If given an exemption, wastewater treatment plants would have less incentive to control the toxic pollution they profit from, and PFAS released into and through wastewater treatment plants would continue to harm our communities—counter to the purpose of CERCLA and other environmental laws.

- i. Wastewater treatment plants must be held accountable for the PFAS they accept from their industrial users and then discharge into water supplies.

Because wastewater treatment plants do not consistently control PFAS discharges into their sewer systems and do not treat their effluent to remove PFAS, the toxic chemicals flow freely through the plant into our waters, threatening our drinking water supplies. Wastewater treatment plants that fail to require their industrial sources to control their PFAS discharges using their pretreatment authority should be held to the same standards under CERCLA as industries.

We have seen first-hand the harm that can occur when a wastewater treatment plant fails to control its industrial clients’ pollution. As discussed, the drinking water supply from the city of Pittsboro, North Carolina, has been contaminated with PFAS flowing from the city of Burlington’s wastewater treatment plant’s effluent.²⁰⁴ The city’s East Burlington wastewater treatment plant’s effluent contained significant PFAS pollution from Burlington’s industrial clients: Shawmut LLC (a technical fabric company), Elevate Textiles (a textile company), and Unichem Specialty Chemicals (a textile and tire manufacturing company).²⁰⁵ Burlington’s effluent has contained total PFAS concentrations from these industries as high as 33,000 ppt.²⁰⁶ Predictably, that pollution was detected in the drinking water in Pittsboro’s homes, schools, restaurants, churches, and businesses.²⁰⁷ As a result, Pittsboro—a town of fewer than 6,000

²⁰³ *PFAS Discharge Monitoring Report Data From CWA NPDES*, U.S. ENV’T PROT. AGENCY, https://awsedap.epa.gov/public/extensions/PFAS_Tools/PFAS_Tools.html (last visited July 24, 2023) (filtered for the “Discharge Monitoring” tab and further filtering by facilities with detected PFAS discharges).

²⁰⁴ *See supra* notes 106–107.

²⁰⁵ Isaac Groves, *Burlington’s Water Now Has More Toxic PFAS ‘Forever Chemicals’ Than EPA Recommends*, THE BURLINGTON TIMES NEWS (July 31, 2022), Attachment 102.

²⁰⁶ City of Burlington, East Burlington WWTP Effluent (June 2022), Attachment 103.

²⁰⁷ *See* Notice of Intent to Sue the City of Burlington for Violation of the Clean Water Act and the Resource Conservation and Recovery Act, S. Env’t L. Ctr. (Nov. 7, 2019), at 18, Attachment 104 [hereinafter “Burlington WWTP NOI”].

people—had to shoulder the cost of the pollution and was forced to install a \$3.5 million granular activated carbon treatment system at its drinking water treatment plant.²⁰⁸

And while Pittsboro’s drinking water treatment system is now in operation, its installation follows years of toxic exposure that led to the small town having some of the highest blood concentrations of PFAS in the country.²⁰⁹ In fact, experts at North Carolina State University determined that Pittsboro residents had levels of PFAS in their blood that were comparable to, or even higher than, those living downstream of Chemours (a manufacturer and direct discharger of PFAS).²¹⁰ Faced with the prospect of a citizen suit by Haw River Assembly under the Clean Water Act, the city of Burlington is now taking steps through its pretreatment program to control its clients’ PFAS pollution. If it had done so earlier, the citizens of Pittsboro could have been spared the harms from industrial PFAS pollution.

This story, too, has played out across the Southeast. In Virginia, for example, the Montgomery County Public Service Authority’s wastewater treatment plant receives industrial wastewater laden with PFAS from ProChem, a company that provides a chemical washing process for industrial equipment.²¹¹ Last year, ProChem was caught releasing GenX into the wastewater treatment plant’s collection system at concentrations nearing 1.3 million ppt.²¹² As a result, the wastewater treatment plant’s discharge contained GenX at concentrations as high as 23,900 ppt²¹³—more than 2,000 times what EPA considers safe.²¹⁴ That discharge is located approximately five miles upstream of the drinking water intake for the Spring Hallow reservoir, the water source for thousands of people in Roanoke, Virginia, and surrounding communities.²¹⁵ Many other communities across the country likely face similar threats but are being left in the dark by wastewater treatment plants’ failure to meet their obligations under the Clean Water Act’s pretreatment program or disclose PFAS in their discharges.²¹⁶ If wastewater treatment plants are held accountable under CERCLA, they will be more likely to meet their pretreatment obligations.

- ii. Wastewater treatment plants must be held accountable for the PFAS that they accept from industrial users in their sludge that contaminates surface water, groundwater, and agricultural cropland.

In addition to direct surface water discharges, PFAS not removed by traditional treatment technology end up in the municipalities’ biosolids, also referred to as “sludge.”²¹⁷ Biosolids or

²⁰⁸ See Wagner, *supra* note 170.

²⁰⁹ Lisa Sorg, *PFAS found in blood samples of more than 1,000 people in Cape Fear River Basin*, N.C. NEWSLINE (Oct. 20, 2022), Attachment 105.

²¹⁰ *Id.*

²¹¹ Laurence Hammack, *Source of ‘Forever Chemical’ in the Roanoke River Traced to Elliston Plant*, THE ROANOKE TIMES (Nov. 10, 2022), Attachment 106.

²¹² *Id.*

²¹³ *Id.*

²¹⁴ 87 Fed. Reg. 36848.

²¹⁵ Hammack, *supra* note 211.

²¹⁶ See, e.g., *How is TDEC Responding to PFAS*, Tenn. Dep’t of Env’t and Conservation, <https://perma.cc/W9L8-AWHB> (explaining that the state is just now beginning to study the presence of PFAS in public water supplies).

²¹⁷ See Johnathon Sheets, *Addressing the Impacts of PFAS in Biosolids*, WASTEWATER DIGEST (Sept. 10, 2021), <https://perma.cc/7TJK-4UDT>; PFAS Strategic Roadmap, *supra* note 157 at 16.

sludge, are the byproduct of the wastewater treatment process, which generally separates liquid from solid waste,²¹⁸ and can contain extremely high concentrations of the toxic chemicals released by industries into a city's sewer system. It is estimated that nearly half of the sludge produced in the United States is disposed of by being spread on fields and farmland.²¹⁹ Across the country, more than five percent of all crop fields use sludge from wastewater treatment plants as fertilizer on as many as 20 million cropland acres.²²⁰ Once PFAS-contaminated sludge is land-applied, the chemicals can, among other things, (1) run into surface waters and groundwater that serve as drinking water supplies, and (2) end up in the crops grown on agricultural property.²²¹

One prominent example of how sludge can impact drinking water arises from rural northwest Georgia. There, the city of Trion operates a municipal wastewater treatment plant that accepts industrial waste from a textile manufacturer.²²² For years, the textile producer released PFAS into the Trion collection system in its wastewater—and the treatment system's effluent was recently documented at concentrations as high as 1,549 ppt.²²³ Trion's wastewater treatment plant did not have the technology to remove the toxic chemicals from the wastewater.²²⁴ As a result, PFAS ended up in the utility's discharge and sludge, which was spread throughout the Chattooga River watershed before land disposal ceased in 2021.²²⁵ Sampling data from Trion's sludge reported PFOA and PFOS at concentrations as high as 4,300 ppt and 250,000 ppt, respectively.²²⁶ Later sampling confirmed total PFAS in the sludge at concentrations as high as 1,641,470 ppt.²²⁷ A portion of these sludge fields are located upstream of Racoon Creek, where the city of Summerville, Georgia's drinking water intake had previously been located.²²⁸ Sampling of Summerville's finished drinking water has measured PFOA and PFOS in combined

²¹⁸ U.S. Env't Prot. Agency, Introduction to the National Pretreatment Program (June 2011), at 1-2, Attachment 107.

²¹⁹ Tom Perkins, 'Forever Chemicals' May Have Polluted 20m Acres of US Cropland, Study Says, THE GUARDIAN (May 8, 2022), Attachment 108; see also *Basic Information About Biosolids*, U.S. ENV'T PROT. AGENCY, <https://perma.cc/E7EQ-ASD8> (last visited July 24, 2023).

²²⁰ Jared Hayes, EWG: 'Forever Chemicals' May Taint Nearly 20 Million Cropland Acres, ENV'T WORKING GROUP (Apr. 14, 2022), Attachment 109.

²²¹ See Andrew B. Lindstrom et al., *Application of WWTP Biosolids and Resulting Perfluorinated Compound Contamination of Surface and Well Water in Decatur, Alabama, USA*, 45 ENV'T SCI. & TECH. 8015 (2011); Jennifer G. Sepulvado et al., *Occurrence and Fate of Perfluorochemicals in Soil Following the Land Application of Municipal Biosolids*, 45 ENV'T. SCI. & TECH. (2011); Janine Kowalczyk et al., *Transfer of Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS) From Contaminated Feed Into Milk and Meat of Sheep: Pilot Study*, 63 ARCHIVES ENV'T CONTAMINATION & TOXICOLOGY 288 (2012); Holly Lee et al., *Fate of Polyfluoroalkyl Phosphate Diesters and Their Metabolites in Biosolids-Applied Soil: Biodegradation and Plant Uptake in Greenhouse and Field Experiments*, 48 ENV'T. SCI. & TECH. 340 (2014).

²²² See Ga. Env't Prot. Div., NPDES Permit No. GA0025607 Trion WPCP (2019), at Attachment 110; Ga. Env't Prot. Div., Consent Order EPD-WP-8894 (Apr. 13, 2020), at 1, Attachment 111 [hereinafter "Trion Consent Order"] (stating that approximately 90 percent of the wastewater treatment plant's flow comes from the textile mill and that the mill's wastewater contains PFAS).

²²³ See Enthalpy Analytical, LLC – Ultratrace, Town of Trion WWTP: Analytical Report 0820-703 (Aug. 24, 2020), at 6, Attachment 112.

²²⁴ See Town of Trion WPCP, NPDES Form 2A Application, at 6, Attachment 113 (describing the city's treatment process).

²²⁵ Trion Consent Order, *supra* note 222, at 2.

²²⁶ *Id.* at 4 (reported in ng/kg).

²²⁷ Enthalpy Analytical, LLC – Ultratrace, Town of Trion: Analytical Report 1020-725 (Oct. 29, 2020), at 7, Attachment 114 (reported in ng/g).

²²⁸ See Trion Consent Order, *supra* note 222 at 4–5.

concentrations exceeding 90 ppt.²²⁹ Raccoon Creek flows into the Chattooga River and later crosses state borders to flow into the water supplies for the cities of Centre and Gadsden, Alabama.²³⁰ The wastewater treatment plant and its industrial user were sued by a nonprofit environmental organization, and the litigation was resolved through a settlement requiring the industrial facility to cease use of PFAS in its industrial production operations by the end of 2023.²³¹

PFAS pollution from a wastewater treatment plant has also occurred in Dalton, Georgia. There, 90 percent of the wastewater treated by the city's wastewater treatment plant, Dalton Utilities, is primarily made up of industrial wastewater from various carpet manufacturers.²³² For decades, Dalton Utilities treated wastewater by operation of a large spray field near the Conasauga River, upstream of the Oostanaula River (the drinking water supply for the city of Rome, Georgia).²³³ Sampling collected in surface waters downstream of Dalton's land-application sites has shown PFAS concentrations at levels above 30,000 ppt.²³⁴

Land-applied PFAS-contaminated sludge also leaches into the farmland on which it is applied, contaminating food products across the country. For example, small farms in Maine have discovered that their crops contain high levels of PFAS as a result of PFAS-tainted sludge being applied as fertilizers.²³⁵ Dairy farmers in Maine and New Mexico have had to dump thousands of gallons of milk (and some have had to close their operations) due to PFAS contamination from land-application of sludge on the fields their cows grazed upon.²³⁶ In Michigan, at least one cattle farm has been ordered to stop selling its beef because elevated levels of PFOS were detected in the cuts of meat²³⁷ from cattle that had consumed feedstock tainted by PFAS-contaminated sludge.²³⁸ As a result of the damage PFAS-contaminated sludge has had on the state's agricultural industry, Maine has banned the use of applying sludge on farmland.²³⁹

²²⁹ *Id.* at 4.

²³⁰ See Nathan Barlet, LSASD Project ID: 19-0253, Final Report: Phase 2: Priorization of PFAS Contributions to Weiss Lake (Sept. 10, 2019), at 17, 26 (figure 9), Attachment 115.

²³¹ Dennis Pillion, *Georgia Textile Mill Pledges to Stop Discharging PFAS Chemicals into Weiss Lake*, AL.COM (May 13, 2023), <https://perma.cc/XM3H-53MK>; Jill Nolin, *Georgia Antebellum Textile Mill to Stop Sending 'Forever Chemicals' to Chattooga River*, TIMES FREE PRESS (May 15, 2023), <https://perma.cc/VLZ5-5LH4>.

²³² *Johnson et al., v. 3M*, 563 F. Supp. 3d 1253, 1273 (N.D. Ga. 2021), *aff'd sub nom. Johnson v. 3M Co.*, 55 F.4th 1304 (11th Cir. 2022).

²³³ *Id.* at 1273–74.

²³⁴ See Kann, *supra* note 171.

²³⁵ Tom Perkins, *'I Don't Know How We'll Survive': The Farmers Facing Ruin in America's 'Forever Chemicals' Crisis*, THE GUARDIAN (Mar. 22, 2022), Attachment 116.

²³⁶ Susan Cosier, *America's Dairyland May Have a PFAS Problem*, NAT. RES. DEF. COUNCIL (Oct. 11, 2019), Attachment 117; Kris Maher, *Maine Farmers Dump Milk, Lose Crops as Forever Chemicals Taint Soil*, WALL ST. J. (July 4, 2020), <https://perma.cc/3EJ4-V8M9>; Kevin Miller, *'Complete Crisis' as PFAS Discovery Upends Life and Livelihood of Young Maine Farming Family*, MAINE PUBLIC (Feb. 7, 2022), Attachment 118.

²³⁷ *Consumption Advisory: Grostic Cattle Company of Livingston County Beef Sold Directly to Consumers May Contain PFOS*, MICH. AGRIC. & RURAL DEVELOP. (Jan. 28, 2022), Attachment 119; Garret Ellison, *Advisory Warns of PFAS in Beef From Michigan Cattle Farm*, MLIVE (Jan. 28, 2022), Attachment 120.

²³⁸ Ellison, *supra* note 237.

²³⁹ Tom Perkins, *Maine Bans Use of Sewage Sludge on Farms to Reduce Risk of PFAS Poisoning*, THE GUARDIAN (May 12, 2022), Attachment 121.

Because of the contamination that can occur following land application of PFAS-laden sludge, it is vitally important that actions are taken to reduce the amount of PFAS being introduced into wastewater systems in the first place. Holding wastewater treatment plants accountable under CERCLA and prohibiting the land application of PFAS-laden sludge would incentivize wastewater treatment plants to control their industrial users' pollution through the Clean Water Act's pretreatment program (an obligation that many are not undertaking today, as discussed in detail below). Incentivizing the use of the pretreatment program would place the burden of removing PFAS on the industry profiting from the chemicals and would remove the toxic chemicals *before* they are discharged into sewer systems and contaminate the sludge.

b. CERCLA exemptions for wastewater treatment plants are not appropriate or necessary because wastewater treatment plants have ready tools to protect themselves from CERCLA liability.

As mentioned, wastewater treatment plants have the authority (and the obligation) to use their pretreatment authority under the Clean Water Act to stop their industrial clients from sending PFAS through their systems into surrounding waterways and onto farmland. By effectively exercising this authority, wastewater treatment plants can guard against CERCLA liability. They can also shield themselves from CERCLA liability by disclosing any PFAS discharges in their Clean Water Act permit applications and complying with their permits.

CERCLA excludes cost recovery and any damages under CERCLA resulting from a “federally permitted release,” defined to include “discharges in compliance with a permit” issued through the National Pollutant Discharge Elimination System (“NPDES”) program under the Clean Water Act.²⁴⁰ CERCLA specifies that so long as the discharges are (1) “in compliance with a permit,” (2) “resul[t] from circumstances identified and reviewed and made part of the public record with respect to a permit...and subject to a condition of such permit,” and (3) are “continuous or anticipated intermittent discharges from a point source, identified in a permit or permit application...which are caused by events occurring within the scope of relevant operating or treatment systems,” then cost recovery under CERCLA does not apply to those releases.²⁴¹ A wastewater treatment plant is “in compliance with a permit” issued under the Clean Water Act if the permit contains a limit for the substance and the facility complies with that limit.²⁴² Instead of creating exemptions for wastewater treatment plants, EPA should hold the utilities to their obligations under the Clean Water Act permitting process and pretreatment program, which, when implemented properly, can effectively control pollution introduced into wastewater treatment plants thereby reducing CERCLA concerns.²⁴³

²⁴⁰ 42 U.S.C. § 9607(j); 42 U.S.C. § 9601(10)(A).

²⁴¹ 42 U.S.C. § 9061(10) (defining “federally permitted release to include discharges in compliance with a permit, discharges resulting from circumstances reviewed during the permit application process, and the continuous or anticipated discharge identified as part of the permit application process); 40 C.F.R. § 117.12 (explaining that federally permitted releases under the Clean Water Act do not trigger reporting requirements).

²⁴² 40 C.F.R. § 117.12(b).

²⁴³ See *General Pretreatment Regulations for Existing and New Sources*, 52 Fed. Reg. 1586, 1590 (Jan. 14, 1987) (codified at 40 C.F.R. § 403) (“Requiring industrial users to pretreat their wastes so as not to cause [wastewater treatment plant] noncompliance assures the public that dischargers cannot contravene the statutory objectives of eliminating or at least minimizing discharges of toxic and other pollutants simply by discharging indirectly through [wastewater treatment plants] rather than directly to receiving waters.”).

- i. Wastewater treatment plants can shield themselves from CERCLA liability by disclosing their PFAS pollution and complying with Clean Water Act permits that address PFAS.

The Clean Water Act permitting scheme provides a liability shield for releases of hazardous substances that can be recovered under CERCLA if the permittee adequately discloses its pollution, the state permitting agency reasonably contemplates the impact of the pollution on the receiving environment and addresses that impact in the permit, and the permittee complies with the terms of the permit.²⁴⁴

Under the Clean Water Act, a permittee adequately discloses its pollution when it provides enough information for a permitting agency to “be[] able to judge whether the discharge of a particular pollutant constitutes a significant threat to the environment.”²⁴⁵ To meet this burden, an applicant must include all relevant information, including the concentration, volume, and frequency of the discharge in its permit application.²⁴⁶ To be eligible for exemptions from CERCLA liability and reporting requirements, the disclosure should also include the amount of the substance, the origin or source of the substance, and the treatment the facility intends to apply to the substances.²⁴⁷ As recently as December 2022, EPA confirmed that disclosure requirements under the Clean Water Act apply to PFAS stating that “no permit may be issued to the owner or operator of a facility unless the owner or operator submits a complete permit application” providing all information “that the permitting authority may reasonably require to assess the discharges of the facility” including information on PFAS.²⁴⁸

Wastewater treatment plants can meet their disclosure requirements by instructing their industrial clients to identify their pollutants in an industrial waste survey²⁴⁹ as well as provide information on the industries’ internal waste streams.²⁵⁰ The wastewater treatment plant should, in turn, disclose this information to the state permitting agency during the public application process. Of course, utilities need not wait for their permits to expire to disclose PFAS discharges;

²⁴⁴ 40 C.F.R. § 117.12; Consolidated Permit Application Forms for EPA Programs, 45 Fed. Reg. 33,526–31 (May 19, 1980) (“[D]ischargers have a duty to be aware of any significant pollutant levels in their discharge. [...] Most important, [the disclosure requirements] provide the information which the permit writers need to determine what pollutants are likely to be discharged in significant amounts and to set appropriate permit limits. [...] [P]ermit writers need to know what pollutants are present in an effluent to determine appropriate permit limits in the absence of applicable effluent guidelines.”).

²⁴⁵ *Piney Run Pres. Ass’n v. County Comm’rs of Carroll County, MD*, 268 F.3d. 255, 268 (4th Cir. 2001) (“Because the permitting scheme is dependent on the permitting authority being able to judge whether the discharge of a particular pollutant constitutes a significant threat to the environment, discharges not within the reasonable contemplation of the permitting authority during the permit application process, whether spills or otherwise, do not come within the protection of the permit shield.”).

²⁴⁶ See *In re Ketchikan Pulp Co.*, 7 E.A.D. 605 (U.S. Env’t Prot. Agency) (1998) (“In explaining the provisions of 40 C.F.R. § 122.53(d)(7)(iii), which required dischargers to submit quantitative data relating to certain conventional and nonconventional pollutants that dischargers know or have reason to believe are present in their effluent, the [EPA] stated: ‘permit writers need to know what pollutants are present in an effluent to determine appropriate limits in the absence of effluent guidelines.’”).

²⁴⁷ 40 C.F.R. § 117.12(c)

²⁴⁸ Memorandum from Radhika Fox, U.S. Env’t Prot. Agency, Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program and Monitoring Programs (Dec. 5, 2022), at 2, Attachment 122.

²⁴⁹ 40 C.F.R. § 403.8(f)(2)(ii); Introduction to the National Pretreatment Program, *supra* note 218 at 4-3.

²⁵⁰ 40 C.F.R. § 403.8(f)(2)(ii).

they can file amended permit applications as soon as they learn they are discharging pollutants not previously disclosed to the permitting agency.

Once PFAS pollution is properly disclosed, state permitting agencies must evaluate and impose permit limits and conditions in the wastewater treatment plant's NPDES permit that can ensure water quality laws are protected.²⁵¹ NPDES permits with limits for PFAS can and have been issued. For example, North Carolina's Department of Environmental Quality issued a NPDES permit to Chemours with effluent limits for three PFAS compounds known to be in the company's discharge.²⁵² Utilities concerned about CERCLA liability should provide the information state permitting agencies need to comprehensively review and control PFAS discharges, and possibly request permit limits to aid in the state agencies decision making.²⁵³

Finally, as stated, wastewater treatment plants can comply with their permit limits and conditions by controlling pollution from their industrial clients under the Clean Water Act's pretreatment program. The program gives wastewater treatment plants broad authority to "deny or condition" pollution permits for industries, control industrial pollution "through Permit, order or similar means," and "require" "the installation of technology."²⁵⁴ Wastewater treatment plants can also implement local limits to control industrial pollution sent to utility in the first place.²⁵⁵

The Clean Water Act's permitting requirements (as well as any associated protections they provide) are well established and rest on a foundation of comprehensive disclosure, as the applicant is in the best position to know what is in their discharge.²⁵⁶ The issue facing communities today is that wastewater treatment plants are simply refusing to disclose their pollution.²⁵⁷ Because CERCLA already has mechanisms to ensure that facilities complying with other federal laws and permits are sufficiently shielded from most CERCLA requirements, EPA should not give a broad exemption to a group of facilities simply choosing to not follow other permitting laws.

- ii. Wastewater treatment plants can help shield themselves from CERCLA liability by exercising their authority under the Clean Water Act's pretreatment program to eliminate ongoing PFAS pollution.

A CERCLA exemption for wastewater treatment plants is also unnecessary because wastewater treatment plants can use the Clean Water Act pretreatment program to significantly

²⁵¹ 40 C.F.R. § 122.44(d).

²⁵² N.C. Dep't of Env't Quality, Final NPDES Permit NC0090042 (Sept. 15, 2022), at 3, Attachment 123; N.C. Dep't of Env't Quality, Final Fact Sheet NPDES Permit NC0090042 (Sept. 14, 2022), at 13–14, Attachment 124.

²⁵³ 40 C.F.R. § 117.12(b).

²⁵⁴ 40 C.F.R. § 403.8(f)(1).

²⁵⁵ *Id.* § 403.5.

²⁵⁶ *S. Appalachian Mountain Stewards v. A & G Coal Corp.*, 758 F.3d 560, 566 (4th Cir. 2014) ("The statute and regulations purposefully place the burden of disclosure on the permit applicant.").

²⁵⁷ Notably, this refusal to disclose and then continuation to discharge violates the Clean Water Act. *S. Appalachian Mountain Stewards*, 758 F.3d at 564; *In Re Ketchikan Pulp Co.*, 7 E.A.D. 605 (EPA) (1998) (explaining that the discharge of pollutants is only "permissible when the pollutants have been disclosed to permit authorities during the permitting process"); *Piney Run*, 268 F.3d at 268 ("[A] permit holder is in compliance with the CWA even if it discharges pollutants that are not listed in its permit, *as long as it only* discharges pollutants that have been adequately disclosed to the permitting authority." (emphasis added)).

reduce the PFAS that flows into and out of their plants. Several examples demonstrate that, when required, wastewater treatment plants can practically eliminate PFAS pollution by requiring their industrial clients to control their pollution before releasing it.

In 2018, for example, the Michigan Department of Environment, Great Lakes, and Energy launched a pretreatment initiative “to reduce and/or eliminate PFOA and PFOS from industrial sources that may pass through [wastewater treatment plants] and enter lakes and streams.”²⁵⁸ The initiative followed the discovery that wastewater treatment plants were significant sources of the PFAS pollution present across the state. Under the initiative, wastewater treatment plants were required to collect data from their industrial users and, once sources were identified, implement source control mechanisms to reduce pollution.²⁵⁹

A subset of wastewater treatment plants that had significant PFAS pollution underwent source reduction efforts, including requiring their industrial user(s) to install granular activated carbon (an effective PFAS treatment technology) and eliminating leaking sources of PFAS pollution.²⁶⁰ These efforts worked. For the plants that imposed source control mechanisms, PFOS concentrations were reduced *by over 90 percent*.²⁶¹ For most of the plants, reductions ranged between 96 and 99 percent.²⁶² Concentrations in sludge, like the plants’ effluent, were reduced once source control was imposed.²⁶³

In North Carolina, the pretreatment program has proven effective at reducing concentrations of other toxic chemicals released into sewer systems. There, the city of Greensboro operates a wastewater treatment plant that receives industrial wastewater contaminated with 1,4-dioxane,²⁶⁴ a cancer causing chemical.²⁶⁵ 1,4-Dioxane, like PFAS, is used or otherwise generated as a byproduct in a variety of manufacturing processes, does not break down in the environment, and cannot be removed with conventional treatment technology.²⁶⁶

In November 2021, following years of advocacy, a lawsuit, and an eventual settlement agreement, Greensboro was required to investigate its industrial users and control the sources of the toxic pollution.²⁶⁷ The process paralleled the pretreatment initiative in Michigan: Greensboro was directed to collect wastewater samples from each of its industrial users, and if the source had concentrations of 1,4-dioxane above a certain benchmark, the city required the industry to prepare a source reduction plan.²⁶⁸ Within months, Greensboro identified nine significant

²⁵⁸ Dorin Bogdan, Evaluation of PFAS in Influent, Effluent, and Residuals of Wastewater Treatment Plants (WWTPs) in Michigan, Mich. EGLE (Apr. 2021), at 5, Attachment 125.

²⁵⁹ *Id.* at 5–6.

²⁶⁰ *Id.* at 14 (table 9).

²⁶¹ *Id.*

²⁶² *Id.*

²⁶³ *Id.* at 13.

²⁶⁴ See N.C. Env’t Mgmt. Comm’n, Amended Special Order By Consent EMC SOC WQ S19-010 (Nov. 2021), at 2, Attachment 126.

²⁶⁵ U.S. Env’t Prot. Agency, Technical Fact Sheet – 1,4-Dioxane (Nov. 2017), <https://perma.cc/BF4H-5SBW>.

²⁶⁶ *Id.*

²⁶⁷ Settlement Agreement, *Haw River Assembly v. N.C. Env’t Mgmt. Comm’n et al.*, 21 HER 01770 (Nov. 22, 2021), at PDF pg. 3–4, Attachment 127.

²⁶⁸ *Id.* at PDF pg. 3, 15.

industrial users releasing 1,4-dioxane at extremely high levels.²⁶⁹ Two more sources were identified the following year.²⁷⁰ Once sources were identified, the city was able to assign allocations to its industrial sources to control the amount of 1,4-dioxane each could release into the sewer system.²⁷¹ Greensboro also requires its industries to regularly collect their own composite samples so that if exceedances occur, the city can identify the industrial user responsible.²⁷² Since this process was implemented, concentrations of 1,4-dioxane have decreased.²⁷³ Greensboro's performance under the settlement agreement demonstrates that wastewater treatment plants have the tools to hold sources of toxic pollution accountable thereby relieving the need for any special treatment under our nation's bedrock environmental laws.

It's clear that the pretreatment program has the tools necessary to avoid significant pollution from wastewater treatment plants. Inconsistent application of the pretreatment program, however, results in a race to the bottom where industries leave one utility that demands PFAS controls for a neighboring utility that might not have strict restrictions. We've heard this concern from wastewater treatment plants in the Southeast, worried that if they exercise their pretreatment authority, their industries will simply send their waste somewhere else. As a result, cities with lenient utilities will increasingly become hot spots for PFAS contamination. Maintaining CERCLA liability for wastewater treatment plants incentivizes *all* utilities to use their pretreatment program—leveling the playing field. In contrast, exemptions will only incentivize utilities to ignore the PFAS flowing into their systems and effectively penalize those who are willing to follow the pretreatment requirements.

In addition to existing requirements under other environmental laws, EPA also has enforcement discretion when assigning liability under CERCLA. EPA has utilized its enforcement discretion for decades and is able to properly prioritize enforcement actions against the largest, highest contributing polluters. If wastewater treatment plants undertake their obligations under the Clean Water Act, they can minimize (if not eliminate) the PFAS levels discharged through their effluent and significantly reduce the likelihood they will be subject to CERCLA enforcement. EPA's enforcement discretion likewise enables it to protect wastewater treatment plants from possible third-party lawsuits through settlements, minimizing utilities' concerns that even if EPA exercises its discretion, it could still face liability from others. EPA should not consider exemptions for wastewater treatment plants.

²⁶⁹ City of Greensboro, Amended Special Order By Consent EMC SOC WQ S19-010 Year One Report: May 1, 2021 – April 30, 2022 6 (June 13, 2022) [hereinafter “Greensboro 1,4-dioxane Year 1 Report”], Attachment 128.

²⁷⁰ City of Greensboro and NCDEQ Winston-Salem Regional Office, Special Order by Consent (SOC) Year Two: 6th Quarterly Meeting (Sept. 14, 2022), Attachment 129.

²⁷¹ Greensboro 1,4-dioxane Year 1 Report, *supra* note 269 at 6.

²⁷² This process works. In October 2022, Greensboro's effluent contained a slightly higher amount of 1,4-dioxane than average. See Jenny Graznak, N.C. Dep't of Env't Quality, Semi-Annual Progress Report on 1,4 dioxane In the Cape Fear River Basin (Jan. 11, 2023), slide 17, Attachment 130 The city checked the trunkline surveillance sampling and, once the proper trunkline was identified, ordered the industrial users on that line to submit weekly composite samples for the days around when the city's effluent had the high concentration. *Id.* Within a matter of weeks, Greensboro had identified the industrial user responsible and was able to pursue enforcement actions against it. *Id.* at 18.

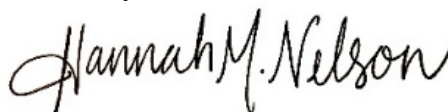
²⁷³ See City of Greensboro and NCDEQ Winston-Salem Regional Office, Special Order By Consent (SOC) Year Two: 8th Quarterly Meeting (Feb. 15, 2023), Attachment 131 (showing average discharges dropping from nearly 20 ppb to 4 ppb).

VII. Conclusion.

Industrial sources and wastewater treatment plants have, for decades, released PFAS into our air, water, soil, and groundwater. For too long, the burden of this pollution has fallen unfairly on surrounding and downstream communities. To place the burden properly on the responsible parties, we urge EPA to promptly regulate PFAS as a class of hazardous substances under CERCLA. As the agency moves forward with a class-based approach to regulation, we encourage EPA to finalize its rulemakings to list PFOA, PFOS, the seven PFAS proposed in this notice, including precursors, as hazardous substances. Designating PFAS under CERCLA will help ensure our communities are notified of toxic pollution and that polluters are held responsible for their pollution.

Thank you for considering these comments. Please contact us using the information below if you have any questions regarding this letter.

Sincerely,



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