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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. Schutz:

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 ** organizations:

We strongly support EPA's proposal to designate per- and polyfluoroalkyl substances, further defined as fluorinated substances that contain at least one fully fluorinated methyl or methylene carbon atom including known precursors thereto ("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 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 PFAS precursors, as CERCLA hazardous substances.

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 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 and crops we eat. When toxic PFAS releases are not timely reported and remediated, PFAS contamination spreads faster than it can

[1] EPA, *Addressing PFAS in the Environment*, 88 Fed. Reg. 22399 (Apr. 13, 2023).
[2] EPA, *Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances*, 87 Fed. Reg. 54415 (Sept. 6, 2022).

be detected, leaving more communities exposed to these harmful chemicals and placed at greater risk.

Designating PFAS as CERCLA hazardous substances would 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 list PFAS as CERCLA hazardous substances without exemptions for polluters who have actively contributed to and profited from poisoning our environment and communities. As the agency moves forward with a class-based listing of PFAS as hazardous substances, we urge EPA to promptly finalize its proposal to list PFOA and PFOS and conduct a rulemaking to add the seven PFAS listed in this advanced notice of proposed rulemaking and their precursors to that list. Completing these rulemaking processes 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 do not break down once released into the environment[6] or enter our bodies.[7] They pose a significant threat to human health at extremely low concentrations. The class of chemicals has been shown to cause developmental effects to 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 lifetime health

[3] *Fireman's Fund Ins. Co. v. City of Lodi*, 302 F.3d 928, 947 (9th Cir. 2002).
[4] *Stanton Rd. Assocs. v. Lohrey Enterprises*, 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. 36,848, 36,849 (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 (last visited 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 (2020), Attachment **.
[7] Carol F. Kwiatkowski, et al., *Scientific Basis for Managing PFAS as a Chemical Class*, ENV'T. SCI. TECH. LETTERS 2020, 7(8), 534, Attachment **.
[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 **; 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 ** [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 **.

advisories for PFOA and PFOS in drinking water of 0.004 parts per trillion ("ppt") and 0.02 ppt, respectively.[9] These health advisories demonstrate that no level of these chemicals are safe.

Despite the long-studied and well understood harms associated with PFAS, industrial facilities and wastewater 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, 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.[10] Nearly 300 federal facilities, including air force, army, and navy bases, are documented sources of PFAS pollution.[11] The chemicals have been detected in landfill leachate at concentrations over 8,000 part per trillion ("ppt").[12] Wastewater plants across the country accept PFAS-laden waste from these landfills and industrial sources and release that waste into downstream water supplies and spread sludge contaminated by the chemicals onto nearby land.[13]

As a result, our rivers, streams, groundwater, soils, and water supplies are laden with toxic PFAS chemicals, including the seven PFAS and their precursors listed by EPA in this advanced notice for a proposed rulemaking.[14] Indeed, EPA data confirms that these and other PFAS are present in waterways across the United States.[15] One comprehensive water investigation published in 2022 found PFAS in as many as 83 percent of the rivers and streams tested across the country.[16] These chemicals are not only in our rivers, they are also in our drinking water. Across the country, EPA reports that more than 30 states have detected PFAS in

[9] 87 Fed. Reg. at 36,848–49.
[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 June 3, 2023, filtered to "Production" tool, and reflecting 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 June 3, 2023, filtered to the "Industry Sectors" tool, displaying industries in categories known or suspected to discharge PFAS)
[11] *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 (last visited May 29, 2023, filtered to "Federal Sites" tool, and further filtered to sites with documented PFAS contamination).
[12] U.S. Env't Prot. Agency, Preliminary Effluent Guidelines Program Plan 15 5-16 (Sept. 2021), Attachment **.
[13] *See, e.g.*, Xindi C. Hu, et al., *Detection of Poly- and Perflouoroalkyl 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 **; 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 **.
[14] 88 Fed. Reg. at 22,400.
[15] *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 Mar. 8, 2023, filtered to the "Environmental Media" tool, 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/.
[16] Kelly H. Foster, et al., Invisible Unbreakable Unnatural: PFAS Contamination of U.S. Surface Waters 17 (Oct. 2022), Attachment **.

their drinking water supplies,[17] affecting the drinking water for more than 200 million people.[18] Recognizing the threat PFAS poses to drinking water, in March 2023, EPA proposed national drinking water standards for six PFAS compounds.[19] As drafted, EPA proposes to limit concentrations of PFOA and PFOS in drinking water systems to below 4 ppt.[20] EPA also proposed to limit PFNA, PFBS, PFHxS, and GenX as a mixture, utilizing a formula called a Hazard Index.[21]

Compounding people's exposure to these toxic chemicals, PFAS are also in the fish we catch and eat. PFAS have been detected in fish tissue across all 48 continental states,[22] and PFOS—a particularly harmful PFAS compound—is one of the most prominent PFAS found in freshwater fish.[23] 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.[24] 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."[25] Indeed, scientists estimate that 98 percent of United States population has detectable levels of PFAS in their blood.[26]

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, as hazardous substances under CERCLA.

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[17] *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 June 4, 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 June 4, 2023, and filtered for facilities with detectable concentrations under the "Drinking Water (State)" tool).

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

[19] EPA, *PFAS National Primary Drinking Water Regulation*, 88 Fed. Reg. 18,638 (Mar. 29, 2023).

[20] *Id.* at 18,639.

[21] *Id.* at 18,639–40.

[22] 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 **.

[23] *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 FRONT. MAR. SCI. (Nov. 15, 2022), Attachment **.

[24] Patricia A. Fair, et al., *Perfluoralkyl 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 **; Chloe Johnson, *Industrial chemicals in Charleston Harbor taint fish – and those who eat them*, POST & COURIER (June 4, 2022), https://perma.cc/Z5TM-MB83.

[25] Barbo, *supra* note 22 at 9.

[26] 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 **.

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

Between 9,000 and 12,000 PFAS chemicals have been identified globally.[27] Scientific literature has confirmed that all of the PFAS studied pose harm to exposed humans and animals. 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,"[28] EPA need not wait for individual toxicity studies to be completed to regulate this class of 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 biphenyls ("PCBs"), which have been designated as a class of hazardous substances under CERCLA since 1980.[29]

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."[30] 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've 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.[31] DuPont, the parent company of 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 that DuPont and Chemours silently contaminated the air, soil, and drinking water supply for 500,000 of unsuspecting people in eastern North Carolina.[32] Only recently, after decades of GenX pollution, have we learned that, in even small doses, GenX can present the same serious health risks as other more well-known PFAS, including harm to prenatal development, the immune system, liver, kidney and thyroid

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[27] *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 May 17, 2023); EPA, *PFAS Master List of PFAS Substances*, https://comptox.epa.gov/dashboard/chemical-lists/pfasmaster (last visited May 17, 2023).

[28] 42 U.S.C. § 9602(a) (emphasis added)

[29] 40 C.F.R. § 302.4 (Table 302.4); *see also* ASTDR-CDC, Tox Profile Regulations and Advisories for PCBs (2000), *available at* https://www.atsdr.cdc.gov/toxprofiles/tp17.pdf.

[30] Kwiatkowski, *supra* note 7 at 534.

[31] 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 June 4, 2023).

[32] *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).

functions.[33] North Carolina's all too 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."[34] 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.[35] If regulators continue to scrutinize one, or a few, PFAS at a time, nothing will stop chemical manufacturers 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 using and releasing other toxic chemicals—further prolonging 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.[36] But EPA did not set a health advisory for the chemical until 2009,[37] which was later revised in 2016[38] and 2022.[39] Our communities cannot continue to wait decades for relief.

Finally, recent literature has found that to be 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 breakthrough the filters earlier, requiring filter replacement or reactivation.[40] This means that clean-up of a few specific PFAS chemicals will not necessarily guarantee effective remediation of the soil or water. Regulating and mandating clean-up of PFAS as a class, on the other hand, ensures that those tasked with remediating water

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[33] 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 **; 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 ** [hereinafter "GenX Final Health Advisory"].

[34] Kwiatkowski, *supra* note 7 at 534.

[35] *Id.*

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

[37] EPA, *Provisional Health Advisories for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS)* (Jan 8. 2009), Attachment **.

[38] U.S. Env't Prot. Agency, *Fact Sheet: PFOA & PFOS Drinking Water Health Advisories* (Nov. 2016), Attachment **.

[39] 87 Fed. Reg. at 36,848–49.

[40] U.S. Env't Prot. Agency, Perfluoroalkyl and Polyfluoroalkyl Substances: Technologies for Reducing PFAS in Drinking Water ("PFAS") (2019), Attachment **; Marcel Riegel, et al., *Sorptive Removal of Short-Chain Perfuoroalkyl Substances (PFAS) During Drinking Water Treatment Using Activated Carbon and Anion Exchanger*, 35 Env't Sci. Europe (Feb. 15, 2023), Attachment **.

or soil will do so comprehensively by installing and maintaining technology in a manner that removes the entire scope of the 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.

III. As EPA pursues a rule regulating PFAS as a class, it should promptly add other 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 chemicals that, while phased out in ongoing use in the United States, remains a continuing threat to the environment due to its inability to break down over time, rendering historical contamination a present-day problem. EPA should promptly finalize its proposed rulemaking to list PFOA and PFOS as CERLCA 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 harms[41]—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 to recover their clean-up costs from responsible parties. EPA should no longer delay in listing PFOS and PFOA as CERCLA hazardous substances.

The risks from PFOA and PFOS are well established and broadly recognized by international organizations,[42] federal and state regulatory agencies,[43] and leading scientific experts.[44] EPA recently conducted updated toxicity assessments for both of those chemicals,

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[41] *See* EPA, *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 June 3, 2023) (explaining that EPA has acknowledged the harms of PFOA and PFOS since at least the early 2000s).

[42] *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* 25–26 (Nov. 2006), Attachment ** (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 24–26 (Oct. 2016), Attachment ** [hereinafter "United Nations, Risk Profile Pentadecafluorooctanoic Acid"].

[43] Agency for Toxic Substances and Disease Registry, *Toxicological Profile for Perfluoroalkyls* 7–21 (May 2021), Attachment ** [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 **.

[44] Nat'l Acads. of Scis., Eng'g, & Med., *Guidance on PFAS Exposure, Testing, and Clinical Follow-Up* 7–8 (2022), https://nap.nationalacademies.org/catalog/26156/guidance-on-pfas-exposure-testing-and-clinical-follow-up.

which found that they harm children's immune systems and reduce vaccine effectiveness at extremely low exposure levels, in the parts-per-quadrillion range.[45] EPA has in turn warned that "any detectable level of PFOA [and] PFOS" places children's health at risk.[46] EPA has also determined "that 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."[47] Because 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 PFOS at a level they can be reliably measured: 4 ppt.[48] Therefore, any release of PFOA and PFOS "may present substantial danger to the public health or welfare or the environment."[49]

As EPA correctly concluded in its proposed hazardous substance designations, PFOA and PFOS meets CERCLA's listing standard.[50] We therefore urge EPA to finalize its proposed hazardous substance designations for PFOA and PFOS, with certain modifications.[51]

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 advances notice of proposed rulemaking: GenX chemicals, PFBS, PFHxS, PFHxA, PFNA, PFBA, and PFDA, as well as their precursors. Epidemiological studies show that many of the negative health outcomes associated with PFOA and PFOS also result from exposure from 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."[52] 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.[53] Strongly supported by science,[54] EPA's health advisories established that exposure to GenX and PFBS chemicals can lead to degraded

[45] EPA, EPA/822/R-22/003, *Interim Drinking Water Health Advisory: Perfluorooctanoic Acid (PFOA) CASRN 335-67-1*, at 10 (June 2022), Attachment **; EPA, EPA/822/R-22/004, *Interim Drinking Water Health Advisory: Perfluorooctane Sulfonic Acid (PFOS) CASRN 1763-23-1*, at 11 (June 2022), Attachment **.
[46] EPA, PFAS Health Advisories Fact Sheet, *supra* note 8 at 5.
[47] 88 Fed. Reg. 18,638, 18,639.
[48] EPA, Fact Sheet: EPA's Proposal to Limit PFAS in Drinking Water (March 2023), Attachment **.
[49] 42 U.S.C. § 9602(a).
[50] 87 Fed. Reg. 54,415, 54,424–29.
[51] *See* Letter from Earthjustice, et al, to Barry Breen, U.S. E.P.A., 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 **.
[52] 42 U.S.C. § 9602(a).
[53] 87 Fed. Reg. 36,848; EPA, PFAS Health Advisories Fact Sheet, *supra* note 8 at 5.
[54] EPA, PFAS Health Advisories Fact Sheet, *supra* note 8 at 2.

liver and kidney functions, compromised immune system, development issues, and cancer.[55] Literature published after EPA's health advisories continues to confirm that GenX and PFBS are incredibly toxic to humans. One study studied 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."[56] The research further confirms that the cardiovascular toxicity associated with PFOA is also associated with exposure to GenX.[57] Additional studies show that in addition to altering gene expression during fetal development,[58] GenX increases both maternal and fetal liver toxicity.[59] And literature published following EPA's release of its PFBS health advisory confirms that PFBS is associated with decreased bone marrow cells, as well as decreased spleen and thymus function.[60] *GenX and PFBS should be added to the list of hazardous substances.* [61]

Federal toxicological studies confirm that similar health consequences occur from exposure to many other PFAS compounds, including PFHxA, PFHxS, PFBA, PFNA, and PFDA. 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 as decreased red blood cell counts in humans exposed.[62] 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."[63]

Like PFHxA and PFBA, scientists have long understood that PFNA can disrupt blood cell functions and alter immune system responses.[64] Recent studies have confirmed that PFNA can have adverse effects on skeletal and reproductive systems, as well as cause tumors, liver damage, and kidney damage.[65] Exposure to PFNA can also disrupt thyroid functions.[66] At least

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[55] *Id.* at 3.; GenX Final Health Advisory, *supra* note 33; 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 **.

[56] 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 (Dec. 3, 2022), at 32,327–31, Attachment **.

[57] *Id.* at 32,328.

[58] *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 **.

[59] 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 **.

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

[61] *See* 42 U.S.C. § 9602(a).

[62] U.S. Env't Prot. Agency, IRIS Toxicological Review of Perfluorohexanoic Acid [PFHxA, CASRN 307-24-4] and Related Salts 14 (April 2023), Attachment **.

[63] U.S. Env't Prot. Agency, IRIS Toxicological Review of Perfluorobutanoic Acid (PFBA, CASRN 375-22-4) and Related Salts at 12 (Dec. 2022), Attachment **.

[64] 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 **.

[65] Hongjian Gong, et al., *Perfluorononanoate and Perfluorobutane Sulfonate Induce Cardiotoxic Effects in Zebrafish*, 41 ENV'T TOXICOLOGY 2527, 2533 (2022), Attachment **.

[66] *Id.*

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 more studied PFAS, including PFBS.[67] Finally, while EPA is still studying the effects of PFHxS and PFDA,[68] recent scientific literature confirms that PFHxS can disrupt the body's ability to break down or store lipids and can cause oxidative stress and inflammation in embryonic development,[69] and PFDA is associated with adverse liver impacts[70] and thyroid impacts, particularly in pregnant women.[71] Based on this and other information demonstrating they "may present substantial danger to the public health,"[72] *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 one, scientists have concluded that exposure to perfluorododecanoic acid ("PFDoDA") can lead to decreased antibody responses, liver effects, possible blood disorders, and complications with pregnancy and fetal development.[73] Peer-reviewed literature has also found that perfluoropropionic acid ("PFPrA") is the most frequently detected PFAS in water samples across the United States,[74] one of the most frequently detected in blood samples,[75] and while human health studies have not been completed, have been shown to cause ecotoxicological effects in animals.[76] Therefore, while EPA moves forward with a class-based listing of PFAS under CERCLA, the agency should add these additional 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,

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[67] *Id.* at 2534.
[68] *See generally* U.S. Env't Prot. Agency, Systemic Review Protocol for the PFBA, PFHxA, PFHxS, PFNA, and PFDA (anionic and acid forms) IRIS Assessments (updated, Jan. 2021), Attachment **.
[69] Mengment Xu, et al., *Using Comprehensive Lipid Profiling to Study Effects of PFHxS During Different Stages of Early Zebrafish Development*, 808 Sci. of Total Envt 151739 (2022), Attachment **.
[70] Rachel P. Frawley, et al., *Immunotoxic and Hepatotoxic Effects of Perfluoro-n-decanoic acid (PFDA) on Female Harlan Sprague-Dawley Rates and B6C3F1/N Mice When Administered by Oral Gavage for 28 Days*, 15 J. of Immunotoxicology 41 (2018), Attachment **.
[71] Lei Zhang, *Contact to Perfluoroalkyl Substances and Thyroid Health Effects: A Meta-analysis Directing on Pregnancy*, 315 CHEMOSPHERE 137748 (2023).
[72] 42 U.S.C. § 9602(a).
[73] ATSDR, Toxicological Profile for PFAS, *supra* note 43.
[74] *See* Katherine E. Pelch, et al., *70 Analyte PFAS Test Method Highlight Need for Expanded Testing of PFAS in Drinking Water*, SCI. OF THE TOTAL ENV'T 162978 (Apr. 12, 2023), Attachment **.
[75] Yangjie Li, et al., *Perfluorinated Alkyl Substances in Serum of the Southern Chinese General Population and Potential Impact on Thyroid Hormones*, SCIENTIFIC REPORTS (Feb. 27, 2017), Attachment **.
[76] Yujuan Wang, et al., *Toxicity Assessment of Perfluorinated Carboxylic Acids (PFCAs) Towards the Rotifer Brachionus Calyciflorus*, 491 SCI. OF THE TOTAL ENV'T 266 (Sept. 2014).

including the drinking water supply for Wilmington, North Carolina and surrounding counties.[77] Chemours dumped GenX- and other-PFAS-laden wastewater directly into the Cape Fear River and allowed the company's wastewater to leak from the its ditches, storage pits, and pipes.[78] 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,[79] tainting the drinking water for more than 500,000 North Carolinians.[80] Even today, both Wilmington and surrounding counties report elevated levels of GenX, ,PFHxA, perfluoro-2-methoxyacetic acid ("PFMOAA"), perfluoropentanoic acid ("PFPeA"), and perfluoro-2-methoxypropanoic acid ("PMPA"), and other PFAS, in their water supplies.[81]

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 discharge high levels of PFAS into the Haw River, the drinking water source for the town of Pittsboro, North Carolina, and other communities. As a result of Burlington's discharges of "treated" wastewater, 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 what EPA considers safe) and PFOS concentrations exceeding 590 ppt (more than 29,000 times what EPA considers safe).[82] Today, Pittsboro's drinking water supply also contains harmful concentrations of PFBA (22.5 ppt), PFHxA (47 ppt), PFBS (38 ppt), PFHxS (nearly 10 ppt), and PFPeA (54 ppt).[83]

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

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[77] *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 ENVIRON. SCI. & TECH. LETTERS 415 (2016), Attachment **; EPA, *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 ENVIRON. SCI. & TECH. LETTERS 11622 (2015), Attachment **.

[78] 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.

[79] *Id.* at 18–19, Figure 3B.

[80] 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 CFPUA Drinking Water*, STAR NEWS ONLINE (June 7, 2017), Attachment 22; *see also* Cape Fear Public Utility Authority, 2022 Annual Report (2022), *available at* https://perma.cc/KY3P-59F2 (explaining the utility serves 200,000 people); *Frequently Asked Questions: Water Treatment Upgrades and Rates*, BRUNSWICK COUNTY N.C., https://perma.cc/U6GQ-2KJN (last visited Mar. 13, 2023) (explaining the utility serves over 300,000 people).

[81] *See, e.g.*, Brunswick County Public Utilities – NC, Analytical Report 1122-767 (Dec. 7, 2022)), at 4, Attachment **; *Latest PFAS Test Results*, CAPE FEAR PUBLIC UTILITY AUTH., https://www.cfpua.org/779/Latest-PFAS-Test-Results (last visited June 5, 2023); Pender County Utilities, 2022 Annual Drinking Water Quality Report: System ID 70-71-011 (2022), Attachment **.

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

[83] Town of Pittsboro, Analytical Report 0922-750 (Sept. 27, 2022), at 4, Attachment **.

water standards for PFOA, PFOS, and the combination standard.[84] Of those utilities, 47 contain PFOA 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.[85]

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.[86] 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 PFHxA, perfluoroheptanoic acid ("PFHpA"), and 6:2 fluorotelomer sulfonic acid ("6:2 FTS").[87] The drinking water utilities for several North Carolina communities—High Point,[88] Cary,[89] Apex,[90] Sanford,[91] Fayetteville,[92] Archdale,[93] Jamestown,[94] Greensboro,[95] and Randleman,[96] as well as Orange County[97]—report elevated concentrations of PFHxA, PFHxS, PFPeA, and PFBS, among other PFAS present in their finished water. Researchers have concluded that North Carolina suffers from some of the worst PFAS pollution in the entire the country.[98]

Still, other communities across the Southeast 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,

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[84] *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 ** [hereinafter "DEQ, New Hanover Groundwater Samples"]; *DEQ PFAS Sampling of Public Water Systems*, N.C. DEP'T OF ENV'T QUALITY (2023), Attachment ** [hereinafter "DEQ, PWS PFAS Data"].

[85] NC PFAS Testing Network, PFAS Data, *supra* note 84; DEQ, GenX Surface Water Sampling, *supra* note 84; DEQ, New Hanover Groundwater Samples, *supra* note 84; DEQ, PWS PFAS Data, *supra* note 84.

[86] *See* N.C. Dep't of Env't Quality, Combined PFAS Well Samples Around Fayetteville Works Facility And Air Emission Estimates (2017), Attachment **.

[87] Burlington Drinking Water Supply PFAS Sampling, Ed Thomas Water Treatment Plant, City of Burlington (2022), Attachment **; Burlington Drinking Water Supply PFAS Sampling, JD Mackintosh Water Treatment Plant, City of Burlington (2022), Attachment **.

[88] City of High Point, Annual Drinking Water Quality Report (2022), at 12, Attachment **.

[89] Town of Cary, Annual Water Quality Report (2023), at 14, Attachment **.

[90] Apex North Carolina, Water Quality Annual Report (2023), at 6, Attachment **.

[91] City of Sanford, 2022 Annual Water Quality Report (2022), at 6–7, Attachment **.

[92] Fayetteville Public Works Commission, 2022 Water Quality Report (2023), at 11 Attachment **

[93] Piedmont Triad Regional Water Authority, 2022 Annual Drinking Water Quality Report PWSID# NC3076010 (2022), Attachment ** (Piedmont Triad Regional Water Authority supplies water to the cities of Archdale, Jamestown, Greensboro, High Point, and Randleman).

[94] *Id.*

[95] *Id.*

[96] *Id.*

[97] Orange Water and Sewer Authority, Annual Water Quality Report Card 2021 (2022), at 14, Attachment **.

[98] Hu, *supra* note 13 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 June 5, 2023) [hereinafter "UCMR3 PFAS Data"].

and seven with detectable levels of PFHxS.[99] GenX, PFHpA, and PFPeA have also been detected across South Carolina communities.[100] Alabama also suffers from similar contamination, with multiple communities showing levels of PFOA, PFOS, and PFBS far above EPA's health advisories.[101] Indeed, at least 390 public water systems across the Southeast 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.[102] Similar contamination has been discovered across the country,[103] with communities of color and low income communities being more likely to bear the burden of this toxic pollution.[104] And these

[99] S.C. Dep't of Env't Quality, Table 3. Other PFAS Data (excluding PFOA and PFOS) by EPA Method 533 from Surface Water-Sourced Community Drinking Water Systems (Aug. 2020), Attachment ** [hereinafter "SCDHEC, Table 3 PFAS Data"]; S.C. Dep't of Env't Quality, 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 ** [hereinafter "SCDEC, Table 8B PFAS Data"].

[100] *Id.*

[101] Alabama Dep't of Env't Mgmt., All PFAS Surface Water Sampling Data (2022), Attachment ** [hereinafter "ADEM, PFAS Sampling Data"].

[102] *See* Foster, *supra* note 16; ADEM, PFAS Sampling Data, *supra* note 101; SCDHEC, Table 3 PFAS Data, *supra* note 99; SCDHEC, Table 8B PFAS Data, *supra* note 99; *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), PERMALINK, https://files.nc.gov/ncdeq/Water%20Resources/files/ec/Identification-of-Select-Emerging-Compounds-in-B.-Everett-Jordan-Reservoir-Haw-River-Arm-Watershed-and-New-Hope-Creek-Arm-Watershed-FINAL.pdf; 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), PERMALINK https://www.deq.nc.gov/water-quality/environmental-sciences/isu/2020-jordan-lake-report/download?attachment; N.C. Dep't of Env't Quality, Identification of Select Emerging Compounds in Public Water Supply Reservoirs of the Neuse River Basin (2021), PERMALINK https://www.deq.nc.gov/water-quality/environmental-sciences/isu/identification-select-emerging-compounds-public-water-supply-reservoirs-neuse-basinjuly2021/download?attachment; NC PFAS Testing Network, PFAS Data, *supra* note 84; DEQ, GenX Surface Water Sampling, *supra* note 84; DEQ, New Hanover Groundwater Samples, *supra* note 84; DEQ, PWS PFAS Data, *supra* note 84; UCMR3 PFAS Data, *supra* note 98; *Geonarrative: Nontidal Network Mapper*, U.S. GEOLOGICAL SURVEY, https://www.usgs.gov/tools/geonarrative-nontidal-network-mapper (last visited June 6, 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), PERMALINK https://rga.lis.virginia.gov/Published/2021/RD877/PDF; *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 June 6, 2022).

[103] *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 June 4, 2023); *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 June 4, 2023),

[104] *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), PERMALINK https://blog.ucsusa.org/genna-reed/pfas-contamination-is-an-equity-issue-president-trumps-epa-is-failing-to-fix-it/.

are just the communities we know about, where sampling and other investigations have been conducted.

c. EPA should include PFAS precursors in this rulemaking.

As mentioned above, 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.[105] These unmeasured PFAS chemicals are considered PFAS "precursors," *i.e*., compounds and/or materials that degrade into measurable PFAS during use, after disposal, or after release into the natural environment.[106] This degradation occurs through oxidation[107] that may occur in wastewater treatment processes, advanced oxidation processes such as total oxidation precursor ("TOP") assay, or through natural processes like exposure to sunlight or microbes.[108]

Through these natural and other oxidation processes, PFAS precursors degrade to generate measurable PFAS such as perfluorinated carboxylic acids ("PFCAs") and perfluorinated sulfonic acids ("PFSAs"), or more specifically into PFAS like PFHxA, PFPeA, PFHpA, PFNA, PFOA,[109] PFHxS, PFOS,[110] PFPrA,[111] and PFBA.[112] The question is not *if* precursors will degrade into measurable PFAS, but *when and where*.

Because PFAS 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 concentrations detected at the point of discharge/release. This means that the resulting contamination may be more widespread than known or expected. For example, studies have shown PFAS concentrations increase following wastewater treatment, presumably the result of degradation of precursor compounds during the wastewater treatment process.[113] What's more, PFAS concentrations in wastewater treatment plant *sludge* is often higher than the concentration in the wastewater treatment plant's *effluent* suggesting that PFAS loadings from wastewater treatment plants may continue to increase as PFAS precursors further degrade.[114]

[105] 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. LETT. 2023, 292 (2023), Attachment **.
[106] *Id.* at 292.
[107] *Id.*
[108] 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. 2012, 9342 (2012), Attachment **.
[109] *Id.* at 9344.
[110] 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 **.
[111] Ateia, *supra* note 105 at 295.
[112] Houtz, *supra* note 108 at 9344.
[113] Eriksson, *supra* note 110 at 88.
[114] *Id.*

As demonstrated, the PFAS resulting from degraded precursors have been widely detected in humans, wildlife, municipal wastewater, and rivers and streams,[115] causing deleterious human health effects and harms to communities. Because precursors are targeted PFAS that have yet to oxidize, 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.[116] The Stockholm Convention on Persistent Organic Pollutants has designated PFAS *and their precursors* as "persistent organic pollutants" (or "POPs")[117] given their long-range transport and the fact that no one international government acting alone can protect its citizens or its environment from PFAS and their precursors.[118] For example, the Stockholm Convention recognizes that PFHxS and PFOS, and their salts and chemicals that degrade to PFOA, PFHxS and PFOS (i.e., precursors), are of global concern.[119] 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."[120] In addition, precursors to long-chain PFCAs, their salts and related compounds, have also been proposed for addition to the Stockholm Convention.[121]

For the same reason that certain PFAS precursors are listed as POPs under the Stockholm Convention, y should be included as CERCLA hazardous substances. PFAS precursors are PFAS that, once oxidized, yield the same health risks as targeted PFAS.[122] To list certain targeted PFAS without listing their precursors would be counterintuitive to CERCLA's goals: the pollution at 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. EPA should list all PFAS precursors to the list of hazardous substances as it approaches regulating PFAS as a class. In the interim, EPA should list the precursors to PFOA, PFOS, and the seven additional PFAS as hazardous substances.

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[115] Houtz, *supra* note 108 at 9342.
[116] United Nations, *Overview: Stockholm Convention on Persistent Organic Pollutants*, Attachment ** (last visited June 5, 2023).
[117] United Nations, Stockholm Convention on Persistent Organic Pollutants, *All POPs Listed in the Stockholm Convention*, PERMALINK, http://chm.pops.int/TheConvention/ThePOPs/AllPOPs/tabid/2509/Default.aspx [hereinafter "All Stockholm POPs"].
[118] United Nations, Stockholm Convention on Persistent Organic Pollutants, *What are POPs?*, PERMALINK, https://chm.pops.int/TheConvention/ThePOPs/tabid/673/Default.aspx (last visited June 5, 2023).
[119] All Stockholm POPs, *supra* note 117.
[120] United Nations, Risk Profile Pentadecafluorooctanoic Acid, *supra* note 42 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 **.
[121] United Nations, Stockholm Convention on Persistent Organic Pollutants, *Chemicals Proposed for Listing Under the Convention*, PERMALINK, http://chm.pops.int/TheConvention/ThePOPs/ChemicalsProposedforListing/tabid/2510/Default.aspx.
[122] Bridger J. Ruyle, et al., *Centurial Persistence of Forever Chemicals at Military Fire Training Sites*, 57 ENV'T SCI. AND TECH. 8096 (2023), Attachment **.

d. Although EPA Can Designate PFAS and its precursors 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.[123] 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."[124]

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."[125] As described above, that standard is readily satisfied based on existing studies of PFAS toxicity and persistence. All of the PFAS that EPA has proposed for hazardous substance designations or identified in its ANPRM present substantial dangers to public health and the environment, often at levels below those that can be detected using any analytical method.

In response to EPA's second question, while EPA should not delay any hazardous substance designations, it should separately 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 …"[126] Here, EPA acknowledges that there is insufficient information available to detect all PFAS and PFAS precursors in the environment, and the ability to reliably detect those chemicals is plainly relevant to the assessment of their health and environmental effects. 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.[127] 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.[128] PFAS (including PFAS formed from

[123] 88 Fed. Reg. 22,399, 22,403.
[124] *Id.*
[125] 42 U.S.C. § 9602(a).
[126] 15 U.S.C. § 2603(a).
[127] 40 CFR §§ 766.12-766.18; 52 Fed. Reg. 21412 (June 5, 1987).
[128] 52 Fed. Reg. 21,413.

precursors) also present health risks at low exposure levels, often several orders of magnitude below 100 ppt. As it did for dioxins, EPA should require the companies that manufacture PFAS and PFAS precursors to develop the 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.[129] Chemical standards, also known as analytical standards, are used to develop analytic methods and to ensure that those methods can be reliability 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 …"[130] 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.[131] To the extent that EPA lacks analytical standards for any PFAS or PFAS precursors, it should require the chemical manufacturer to provide one.

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 initiative rulemaking to list PFAS as a class and, in the meantime, finalize its rulemaking to list PFOS and POFA 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 members of the public. 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. 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.

[129] 88 Fed. Reg. 22,403.
[130] U.S. Env't Prot. Agency, PFAS Strategic Roadmap: EPA's Commitments to Action 2021-2024 (Oct. 2021), PERMALINK, https://www.epa.gov/system/files/documents/2021-10/pfas-roadmap_final-508.pdf [hereinafter "PFAS Strategic Roadmap"].
[131] 52 Fed. Reg. 21,431.

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: "impose[ing] . . . cleanup costs on the responsible party."[132]

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.[133] In September 2017, Chemours agreed to stop pumping its PFAS contaminated wastewater directly into the Cape Fear River.[134] 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,[135] sediment in the Cape Fear River and its tributaries,[136] and possibly even bacteria that coat the inside of pipes which pump treated drinking water.[137]

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 FFAS from Chemours at its water treatment plant,[138] and anticipates an additional $5 million annually for maintenance.[139] Other drinking water utilities have similarly 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.[140] The utility estimates it will cost an addition $3 million per year to maintain.[141] Pittsboro, North Carolina, a town with an annual budget of less than $10 million,[142] paid $3.5 million to install PFAS carbon filters, and will pay

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[132] *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").
[133] Cape Fear Public Utilities Authority, GenX Surface Water Sampling Results (2017), Attachment **.
[134] Consent Order, *North Carolina v. The Chemours Company FC, LLC*, 17 CVS 580 (Bladen County Super. Ct., Feb. 25, 2019), at ¶ 10, Attachment ** [hereinafter "Chemours Consent Order"].
[135] Exhibit 22 of NC DEQ Amended Complaint, "Focused Feasibility Study Report – PFAS Remediation."
[136] "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)," included as Attachment 14.
[137] Cheryl Hogue, *What's GenX Still Doing in the Water Downstream of a Chemours Plant*, CHEMICAL & ENGINEERING NEWS (Feb. 12, 2018), PERMALINK, https://cen.acs.org/articles/96/i7/whats-genx-still-doing-in-the-water-downstream-of-a-chemours-plant.html.
[138] *CFPUA's Legal Action Against Chemours and Dupont*, CAPE FEAR PUB. UTIL. AUTH., PERMALINK, https://www.cfpua.org/785/Legal-action-against-Chemours-and-DuPont.
[139] *Sweeney Treatment Enhancements Project*, CAPE FEAR PUB. UTIL. AUTH. (last visited June 5, 2023), Attachment **.
[140] Amy Willis, *Recent Testing Shows Brunswick County Water Contains PFAS not Monitored by EPA*, PORT CITY DAILY (Apr. 14, 2023), Attachment **.
[141] *Brunswick County Moves Swiftly to Target PFAS Compounds*, CDM SMITH (last visited June 5, 2023), Attachment **.
[142] *Adopted Budget, Fiscal Year 2022-2023*, TOWN OF PITTSBORO (2022) at 4, PERMALINK, https://pittsboronc.gov/DocumentCenter/View/2192/Adopted-Budget---FY-2022-2023.

up to $750,000 per year to maintain them.[143] 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 $100 million reverse-osmosis treatment system.[144] 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.[145] This would double the Columbia's current water treatment costs.[146]

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.[147] Brunswick County water customers saw a 68 percent increase in their water bills to finance the treatment project.[148] The Pittsboro County Commission has proposed a 15 percent rate hike to pay for Pittsboro's PFAS treatment technology.[149] And water rates in Rome, Georgia will increase 9 percent for each of the next four years to pay for Rome's treatment system.[150] 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."[151]

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 own drinking water. EPA should place the burden where it belongs—on the polluter.

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[143] Lisa Sorg, *Pittsboro Sues 20 Companies, Including 3M, Chemours, DuPont over PFAS Contamination in Town Drinking Water*, NC NEWSLINE (Jan. 27, 2023), PERMALINK, https://ncnewsline.com/briefs/pittsboro-sues-20-companies-including-3m-chemours-dupont-over-pfas-contamination-in-town-drinking-water/#sthash.5dh6eioK.dpbs; Adam Wagner, *Pittsboro sues forever chemical, firefighting foam manufacturers over water pollution*, THE NEWS & OBSERVER (Jan. 29, 2023), Attachment **.

[144] Drew Kann, *Rome is Grappling with Toxic 'Forever Chemicals' Fouling Waterways*, THE ATLANTA J. CONST. (Oct. 14, 2022), Attachment **; 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 **.

[145] Skylar Laird, *Columbia Water Customers Could Pay up to $200 Million to Meet New EPA Chemical Rules*, THE COLUMBIA POST AND COURIER (Mar. 25, 2023), Attachment **

[146] *Id.*

[147] U.S. Env't Prot. Agency, Combined Presentations from EPA PFAS Community Engagement in Fayetteville, NC, slide 78 (Aug. 14, 2018), Attachment **.

[148] Amy Willis, *H2GO Says PFAS-Free Aquifer Plant will be Up and Running by Next Year*, PORT CITY DAILY (Nov. 18, 2022), PERMALINK https://portcitydaily.com/local-news/2022/11/18/h2go-says-pfas-free-aquifer-plant-will-be-up-and-running-by-next-year/.

[149] Taylor Heeden, *Pittsboro Commissioners Hold Second Public Hearing for 2022-23 Budget*, CHAPELBORO (May 14, 2022), PERMALINK, https://chapelboro.com/town-square/pittsboro-commissioners-hold-second-public-hearing-for-2022-23-budget.

[150] Kann, *supra* note 144.

[151] *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.[152] 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.[153]

As the agency has recognized in prior rulemakings,[154] 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."[155] 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."[156] The agency explained this had to be the case because "as a matter of commonsense 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."[157]

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 substance as well as examine whether remedial actions would be "cost-effective over the period of potential exposure."[158] 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."[159] Here, where there is explicit direction to consider cost appears 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 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

[152] 88 Fed. Red. 22,402.
[153] *Stanton Rd. Assocs.*, 984 F.2d at 1020.
[154] 87 Fed. Reg. 54,421.
[155] 42 U.S.C. § 9602(a).
[156] 87 Fed. Reg. 54,421.
[157] *Id.*
[158] 42 U.S.C. § 9605(a)(2), (a)(7).
[159] *Loughrin v. United States*, 573 U.S. 351, 358 (2014) (quoting *Russello v. United States*, 464 U.S. 16, 23 (1983)).

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.

Site remediation and drinking water treatment for PFAS are extremely costly and difficult, and conventional techniques are often ineffective.[160] 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 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, it also will help to 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 treatment 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 the chemicals as a part of their manufacturing processes. In North Carolina's Cape Fear River basin alone, there are more than 30 industrial facilities and other sites that are releasing PFAS on a regular basis, including Chemours' facility in Fayetteville, North Carolina.[161] 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. [162] 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."[163] The company 3M similarly discharged PFAS from its manufacture of Scotchgard into the drinking water sources relied on by Minnesotans. [164] In Alabama, 3M contaminated the drinking water supply for about 100,000 people with PFAS manufactured at its Decatur plant. [165] Michigan is similarly facing widespread PFAS contamination from facilities operated by 3M, DuPont, Chemours, Arkema Inc., Daikin Industries, Solvay, and other companies.[166] Indeed,

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[160] Interstate Technology Regulatory Council, Remediation Technologies and Methods for Per- and Polyfluoroalkyl Substances (PFAS) (2020), Attachment **.

[161] N.C. Dep't of Envt Quality, Cape Fear Industrial PFAS & 1,4-dioxane Sampling (2020), Attachment **; N.C. Dep't of Env't Quality, Cape Fear Municipal PFAS & 1,4-dioxane Sampling (2020), Attachment **.

[162] Julia Rentsch, D*elaware Settles with Solvay Specialty Polymers Over PFAS Contamination Claims in Prices Corner*, SALISBURY DAILY TIMES (Feb. 17, 2021), https://perma.cc/9WQ3-DZ8A.

[163] 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.

[164] John Gardella, *PFAS Water Utility Lawsuit Shows an Increasing Trend*, NATIONAL LAW REVIEW (Feb. 17, 2021), https://perma.cc/J9YF-5QKP.

[165] *3M Pays $35 Million to North Alabama Water Authority In Drinking Water Contamination Settlement*, WHNT NEWS 19 (Apr. 28, 2019), https://perma.cc/3NWK-65L3.

[166] Press Release, Mich. Dep't of Env't, Great Lakes, and Energy, Mich. PFAS Action Response Team, *Michigan*

according to a recent analysis, 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.[167]

EPA estimates that this number could be even higher, reaching as numerous as 74,000.[168]

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.[169] Yet as we have seen over and again, industrial sources ignore this requirement by continuing to pour 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.[170] 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 nondetectable concentrations.[171] Separately, a reverse osmosis treatment unit, coupled with

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Files Lawsuit Against 3M, DuPont and Others for PFAS Contamination (Jan. 14, 2020), https://perma.cc/5PB7-FU5B.

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

[168] *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 June 3, 2023, filtered to "Production" tool, and reflecting 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 June 3, 2023, filtered to the "Industry Sectors" tool, displaying industries in categories known or suspected to discharge PFAS).

[169] 33 U.S.C. § 1311(a).

[170] Chemours Consent Order, *supra* note 134; 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 **.

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

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.[172] 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 CERLCA 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.[173] By properly using their pretreatment authority, discussed more fully below, wastewater treatment plants would appropriately place both the physical and financial burden of controlling toxic pollution on the industry profiting from the use of harmful chemicals. Additionally, it would remove PFAS from the wastewater treatment plant's effluent discharge and biosolids, thereby removing the threat of CERCLA liability for the wastewater 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.[174] 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 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.[175] Although these wastewater 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

[172] Chemours Co., *Attachment J.2 to NPDES Permit No. NC0003573, Reverse Osmosis Engineering Report and Data Analysis*, 4–8 (Nov. 2020), Attachment **.
[173] *See* 40 C.F.R. § 403.8.
[174] *See, e.g.*, Letter from Adam Krantz, Nat'l Ass'n of Clean Water Agencies, to Michael Regan, EPA (Nov. 7, 2022); Letter from Paul Calamita, Counsel for N.C. Water Quality Ass'n, to EPA Docket Center (Nov. 7, 2022).
[175] *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 June 5, 2023, filtered for the "Discharge Monitoring" tab and further filtering by facilities with detected PFAS discharges).

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 responsible under CERCLA. If given an exemption, PFAS released into and through wastewater 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 discharge into water supplies.

Because wastewater treatment plants do not consistently control PFAS discharges into their sewersheds 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 should be held accountable under CERCLA.

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, is contaminated with PFAS flowing from the city of Burlington's wastewater treatment plant's effluent.[176] The city's East Burlington wastewater treatment plant's effluent contains 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).[177] Burlington's effluent has contained total PFAS concentrations from these industries as high as 33,000 ppt.[178] Predictably, Burlington's pollution traveled into Pittsboro's homes, schools, restaurants, churches, and businesses.[179] As a result of this longstanding pollution, Pittsboro—a town of less than 6,000 people—had to shoulder the cost of the pollution and was forced to install a granular activated carbon treatment system at its water treatment plant. The design and installation of that system alone cost around $3.5 million, and the maintenance required each year could cost the town hundreds of thousands more.[180]

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.[181] 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).[182] Faced with the prospect of a citizen suit by Haw River Assembly

[176] *See supra* notes 82–83.
[177] Isaac Groves, *Burlington's Water Now Has More Toxic PFAS 'Forever Chemicals' Than EPA Recommends*, THE BURLINGTON TIMES NEWS (July 31, 2022), Attachment **.
[178] City of Burlington, East Burlington WWTP Effluent (June 2022), Attachment **.
[179] *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 ** [hereinafter "Burlington WWTP NOI"].
[180] *See* Wagner, *supra* note 143.
[181] 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 **.
[182] *Id.*

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 plant receives industrial wastewater laden with PFAS from ProChem, a company that provides a chemical washing process for industrial equipment.[183] Last year, ProChem was caught releasing GenX into the wastewater plant's collection system at concentrations nearing 1.3 million ppt.[184] As a result, the wastewater plant's discharge contained GenX at concentrations as high as 23,900 ppt[185]—more than 2,000 times what EPA considers safe.[186] That discharge is located approximately just five miles upstream of the drinking water intake for the Spring Hallow reservoir, the water source for thousands in Roanoke, Virginia, and surrounding communities.[187] Many other communities across the country likely face similar threats but are similarly being left in the dark by the failure of wastewater treatment plants to meet their obligations under the Clean Water Act's pretreatment program or disclose PFAS in their discharges.[188]

ii. Wastewater treatment plants must be held accountable for the PFAS 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, sometimes referred to as "sludge."[189] Biosolids or sludge, are the byproduct of the wastewater treatment process which generally separates liquid from solid waste,[190] 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.[191] Indeed, across the country, more than five percent of all crop fields use sludge from wastewater plants as fertilizer on as many as 20 million cropland acres.[192] Once PFAS-contaminated sludge is land-applied, the chemicals can, among other things, (1) run into surface waters and

[183] Laurence Hammack, *Source of 'Forever Chemical' in the Roanoke River Traced to Elliston Plant*, THE ROANOKE TIMES (Nov. 10, 2022), Attachment **.
[184] *Id.*
[185] *Id.*
[186] 87 Fed. Reg. 36848.
[187] Hammack, *supra* note 183.
[188] *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).
[189] *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 130 at 16.
[190] U.S. Env't Prot. Agency, Introduction to the National Pretreatment Program 1-2 (June 2011), Attachment **.
[191] Tom Perkins, *'Forever Chemicals' May Have Polluted 20m Acres of US Cropland, Study Says*, THE GUARDIAN (May 8, 2022), Attachment **; *see also Basic Information About Biosolids*, U.S. ENV'T PROT. AGENCY, https://perma.cc/E7EQ-ASD8 (last visited June 5, 2023).
[192] Jared Hayes, *EWG: 'Forever Chemicals' May Taint Nearly 20 Million Cropland Acres*, ENV'T WORKING GROUP (Apr. 14, 2022), Attachment **.

groundwater that serve as drinking water supplies, and (2) end up in the crops grown on agricultural property.[193]

One prominent example of how sludge can impact drinking water arises from rural northwest Georgia. There, the city of Trion operates a municipal wastewater plant that accepts industrial waste from a textile manufacturer.[194] For years, the textile producer released PFAS into the Trion collection system in its wastewater—recently reported at concentrations as high as 1,549 ppt.[195] Trion's wastewater plant did not have the technology to remove the toxic chemicals from the wastewater.[196] 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.[197] Sampling data from Trion's sludge reported PFOA and PFOS at concentrations as high as 4,300 ppt and 250,000 ppt, respectively.[198] Later sampling confirmed total PFAS at concentrations as high as 1,641,470 ppt.[199] A portion of these sludge fields are located upstream of where the city of Summerville, Georgia's drinking water intake had previously been located.[200] Sampling of Summerville's finished drinking water has reported PFOA and PFOS in combined concentrations exceeding 90 ppt.[201] These waters flow downstream, crossing state borders, and supply drinking water for the cities of Centre and Gadsden, Alabama.[202] The wastewater plant and its industrial user were sued by a grassroots 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.[203]

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[193] *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).

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

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

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

[197] Trion Consent Order, *supra* note 194.

[198] *Id.* at 4 (reported in ng/kg).

[199] Enthalpy Analytical, LLC – Utratrace, Town of Trion: Analytical Report 1020-725 (Oct. 29, 2020), at 7, Attachment ** (reported in ng/g).

[200] *See* Trion Consent Order, *supra* note 194 at 4–5.

[201] *Id.* at 4.

[202] *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 **.

[203] Dennis Pillion, *Georgia Textile Mill Pledges to Stop Discharging PFAS Chemicals into Weiss Lake*, AL.COM (May 13, 2023), PERMALINK, https://www.al.com/news/2023/05/georgia-textile-mill-pledges-to-stop-discharging-pfas-chemicals-into-weiss-lake.html; Jill Nolin, *Georgia Antebellum Textile Mill to Stop Sending 'Forever Chemicals' to Chattooga River*, Times Free Press (May 15, 2023), PERMALINK, https://www.timesfreepress.com/news/2023/may/15/georgia-antebellum-textile-mill-to-stop-sending/.

PFAS pollution from a wastewater treatment plant has occurred in Dalton, Georgia. There, nearly 90 percent of the wastewater treated by the city's wastewater plant, Dalton Utilities, is made up of industrial wastewater from various carpet manufacturers.[204] For decades, Dalton Utilities treated wastewater by operation of a large sprayfield near the Conasauga River, upstream of the Oostanaula River (the drinking water supply for the city of Rome, Georgia).[205] Sampling collected in surface waters downstream of Dalton's land-application sites has shown PFAS concentrations at levels above 30,000 ppt.[206]

In North Carolina, the city of Burlington sprays millions of gallons of sludge on fields in Alamance, Caswell, Chatham, and Orange Counties each year.[207] Because the wastewater treatment plant has not prevented PFAS from entering its system, its sludge has contained the chemicals at concentrations as high as 11,953 ppt.[208] Sampling downstream of Burlington's land application sites demonstrates that PFAS from the land application of sludge flows into the creeks, streams, and reservoirs nearby, contaminating drinking water supply.[209]

Land-applied PFAS-contaminated sludge also leaches into the farmland upon which it is applied, poisoning 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 for decades.[210] 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.[211] 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 meat[212] from cattle that had been contaminated from consuming feedstock tainted by PFAS-contaminated sludge.[213] As a result of the damaging impact PFAS-contaminated sludge has had on the state's agricultural industry, Maine has banned the use of applying PFAS-contaminated sludge on farmland.[214]

[204] *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).
[205] *Id.* at 1274.
[206] *See* Kann, *supra* note 144.
[207] *See* City of Burlington, 2018 Annual Report Permit No. WQ0000520 (Feb. 4, 2019), at 1, PERMALINK.
[208] Detlef Knappe, Presentation, Perfluorinated Compounds in Treated Wastewater and Biosolids from Burlington (2013), Attachment **.
[209] Burlington WWTP NOI, *supra* note 179.
[210] 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 **.
[211] Susan Cosier, *America's Dairyland May Have a PFAS Problem*, NAT. RES. DEF. COUNCIL (Oct. 11, 2019), Attachment **; Kris Maher, *Maine Farmers Dump Milk, Lose Crops as Forever Chemicals Taint Soil*, WALL STREET JOURNAL (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 **.
[212] *Consumption Advisory: Grostic Cattle Company of Livingston County Beef Sold Directly to Consumers May Contain PFOS*, MICH. AGRICULTURE & RURAL DEVELOP. (Jan. 28, 2022), Attachment **; Garret Ellison, *Advisory Warns of PFAS in Beef From Michigan Cattle Farm*, MLIVE (Jan. 28, 2022), Attachment **.
[213] Ellison, *supra* note 212.
[214] Tom Perkins, *Maine Bans Use of Sewage Sludge on Farms to Reduce Risk of PFAS Poisoning*, THE GUARDIAN (May 12, 2022), Attachment **.

b. CERCLA exemptions for wastewater 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 treatment 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 from recovery any damages 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.[215] EPA regulations specify that so long as the discharges are (1) "in compliance with a permit," (2) "resul[t] from circumstances identified, reviewed and made a part of the public record with respect to a permit," and (3) are "continuous or anticipated intermittent discharges…identified in a permit or permit application," then CERCLA liability does not apply to those releases.[216] Instead of creating exemptions for wastewater treatment plants, EPA should hold the utilities to their obligations under Clean Water Act permitting process and pretreatment program, which, when implemented properly, can effectively control pollution introduced into wastewater plants thereby relieving CERCLA concerns.[217]

i. <u>Wastewater plants can shield themselves from CERLCA liability by complying with the Clean Water Act's disclosure and permitting process.</u>

The Clean Water Act permitting scheme provides a liability shield for any release if the permittee adequately discloses its pollution, the state permitting agency reasonably contemplates the impact of the pollution on the receiving environment, and the permittee complies with the terms of the permit.[218]

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

[215] 42 U.S.C. § 9607(j); 42 U.S.C. § 9601(10)(A).
[216] 40 C.F.R. § 117.12.
[217] *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 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 plants] rather than directly to receiving waters.").
[218] 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.").

constitutes a significant threat to the environment."[219] To meet this burden, an applicant must include all relevant information, including the concentration, volume, and frequency of the discharge.[220] To be exempt from CERCLA liability, 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.[221] 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.[222]

Wastewater treatment plants can meet their disclosure requirements by instructing their industrial clients to identify their pollutants in an industrial waste survey[223] as well as provide information on the industries' internal waste streams.[224] 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; 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 plant's NPDES permit that ensure state water quality laws are protected.[225] 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 technology-based effluent limits for three PFAS compounds known to be in the company's discharge.[226] Utilities concerned about CERCLA liability should provide the information state permitting agencies need to comprehensively review and control PFAS discharges.

Finally, as stated, wastewater plants can comply with these limits and conditions by controlling pollution from their industrial clients under the Clean Water Act's pretreatment program. The program gives wastewater plants broad authority to "deny or condition" pollution permits for industries, control industrial pollution "through Permit, order or similar means," and

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[219] *Piney Run Preservation 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.").

[220] *See In re Ketchikan Pulp Co.*, 7 E.A.D. 605 (EPA) (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.'").

[221] 40 C.F.R. § 117.12(c)

[222] 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 **.

[223] 40 C.F.R. § 403.8(f)(2)(ii); Introduction to the National Pretreatment Program, *supra* note 190 at 4-3.

[224] 40 C.F.R. § 403.8(f)(2)(ii).

[225] 40 C.F.R. § 117.12(b).

[226] N.C. Dept' of Env't Quality, Final NPDES Permit NC0090042 (Sept. 15, 2022), at 3, Attachment **; N.C. Dep't of Env't Quality, Final Fact Sheet NPDES Permit NC0090042 (Sept. 14, 2022), at 13–14, Attachment **.

"require" "the installation of technology."[227] Wastewater plants can also implement local limits to control industrial pollution sent to utility in the first place.[228]

The Clean Water Act's permitting requirements (as well as any associated protections it provides) are well established and rest on foundation of comprehensive disclosure, as the applicant is in the best position to know what is in their discharge.[229] The issue facing communities today is that wastewater plants are simply refusing to disclose their pollution.[230] Because CERCLA already has mechanisms to ensure that facilities complying with other federal laws and permits are not required to pay for site remediation, EPA should not give a broad exemption to a group of facilities simply choosing to not follow other permitting laws.

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

A CERLCA exemption for wastewater treatment plants is also unnecessary because wastewater treatment plants can use the Clean Water Act pretreatment program to significantly 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 WWTPs and enter lakes and streams."[231] 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 the pollution.[232]

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.[233] These efforts worked. For the plants that imposed source control mechanisms, PFOS concentrations were reduced *by over 90 percent*.[234] For most of the plants, reductions

[227] 40 C.F.R. § 403.8(f)(1).
[228] *Id.* § 403.5.
[229] *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.").
[230] 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)).
[231] Dorin Bogdan, Evaluation of PFAS in Influent, Effluent, and Residuals of Wastewater Treatment Plants (WWTPs) in Michigan, Mich. EGLE (Apr. 2021), at 5, Attachment **.
[232] *Id.* at 5–6.
[233] *Id.* at 14 (table 9).
[234] *Id.*

ranged between 96 and 99 percent.[235] Concentrations in sludge, like the plants' effluent, were reduced once source control was imposed.[236]

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 plant that receives industrial wastewater contaminated with 1,4-dioxane,[237] a cancer causing chemical.[238] 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.[239]

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.[240] 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.[241] Within months, Greensboro identified nine significant industrial users releasing 1,4-dioxane at extremely high levels.[242] Two more sources were identified the following year.[243] 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.[244] 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.[245] Since this process was implemented, concentrations of 1,4-dioxane have decreased.[246] Greensboro's performance under the settlement agreement demonstrates that wastewater 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.

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[235] *Id.*
[236] *Id.* at 13.
[237] *See* N.C. Env't Mgmt. Comm'n, Amended Special Order By Consent EMC SOC WQ S19-010 (Nov. 2021), at 2, Attachment **.
[238] U.S. Env't Prot. Agency, Technical Fact Sheet – 1,4-Dioxane (Nov. 2017), https://perma.cc/BF4H-5SBW.
[239] *Id.*
[240] Settlement Agreement, *Haw River Assembly v. N.C. Environmental Management Commission, et al.*, 21 HER 01770 (Nov. 22, 2021), Attachment **.
[241] *Id.* at PDF 3, 15.
[242] 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 **.
[243] City of Greensboro and NCDEQ Winston-Salem Regional Office, Special Order by Consent (SOC) Year Two: 6th Quarterly Meeting (Sept. 14, 2022), Attachment **.
[244] Greensboro 1,4-dioxane Year 1 Report, *supra* note 242 at 6.
[245] 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 **. 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.
[246] *See* City of Greensboro and NCDEQ Winston-Salem Regional Office, Special Order By Consent (SOC) Year Two: 8th Quarterly Meeting (Feb. 15, 2023), Attachment ** (showing average discharges dropping from nearly 20 ppb to 4 ppb).

In addition to existing requirements under other environmental laws, EPA also has enforcement discretion when assigning liability under CERCLA. EPA can prioritize enforcement actions against the largest, highest contributing polluters. If wastewater 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 should not consider exemptions for wastewater treatment plants.

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 on the communities impacted. 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, and PFAS precursors as hazardous substances.

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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