Georgia Law Review

Volume 58 | Number 2 Article 7

1-31-2024

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Amanda F. Watson
University of Georgia School of Law, amanda.watson@uga.edu

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Cover Page Footnote

J.D. Candidate, 2024, University of Georgia School of Law; B.A., 2017, Vassar College. The author thanks Professor Adam Orford for his guidance throughout the writing of this Note.

REMEDIATION FOR PFAS CONTAMINATION: THE ROLE OF CERCLA ENFORCEMENT IN ENVIRONMENTAL JUSTICE

Amanda F. Watson[*]

PFAS are a family of manufactured chemicals that are highly persistent in the environment. Most people in the U.S. have been exposed to PFAS, but different groups of people may have higher exposure due to their environments. In recent years, peer-reviewed scientific studies have shown that PFAS are linked to numerous adverse human health effects. As a result, the U.S. Environmental Protection Agency (EPA) has taken a variety of actions to address PFAS, including proposing to designate PFOS and PFOA, two chemicals in the PFAS family, as hazardous substances under CERCLA, or Superfund. CERCLA is the primary legal mechanism in the U.S. for ensuring that hazardous chemicals are removed from the environment, and this designation would be a first step in protecting communities from ongoing exposure to legacy PFAs contamination.

In the U.S., communities of color and low-income communities disproportionately bear the burden of pollution from private industry and the government, and PFAS are no exception. Environmental justice demands equal treatment in enforcement of environmental laws, which means that communities with disproportionately high pollution burdens should be prioritized for cleanups under CERCLA. At the same time that legacy PFAS contamination is being taken seriously at the federal level, the Biden Administration has committed to prioritizing action on environmental justice. This Note explores whether the hazardous substance designation, in combination with policies and guidance from the White House and EPA, will be sufficient to ensure prompt and complete PFAS remediation.

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[*] J.D. Candidate, 2024, University of Georgia School of Law; B.A., 2017, Vassar College. The author thanks Professor Adam Orford for his guidance throughout the writing of this Note.

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I. INTRODUCTION

Tobyn and Seth McNaughton, residents of Belmont, Michigan, were thrilled when they found out that they were pregnant with their first child, Jack.[1] Tobyn religiously drank eight glasses of water per day and ate a healthy diet throughout the pregnancy in hopes that everything would go smoothly.[2] About sixteen months after Jack was born, however, local studies began to emerge suggesting that the county well water used for drinking was contaminated with high levels of chemicals known as polyfluoroalkyl and perfluoroalkyl substances, or "PFAS."[3] Tobyn and Seth tested Jack's blood for chemical exposure immediately and learned that the level of PFAS in Jack's blood was 484,000 parts-per-trillion—then considered the highest known level of PFAS found in any child in the United States.[4] In a lawsuit settled in 2020, the McNaughtons alleged that the PFAS levels in Jack's blood contained close to the lethal dose of PFAS chemicals administered to Rhesus monkeys in laboratory studies, subjecting Jack to lifelong health complications including immunity problems.[5] Today, the state of Michigan's drinking water standards set limits of sixteen parts-per-trillion for perfluorooctane sulfonic acid (PFOS) and eight parts-per-trillion for perfluorooctanoic acid (PFOA), two of the most

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[1] THE FOREVER CHEMICALS (Great Lakes Now 2020), https://www.greatlakesnow.org/foreverchemicals/ [https://perma.cc/KR7X-BEZH].

[2] *Id.*

[3] *Id.*

[4] *Id.*; *see also The Federal Role in the Toxic PFAS Chemical Crisis, Before the S. Subcomm. on Fed. Spending, Oversight and Emergency Mgmt. of the S. Comm. on Homeland Sec. and Gov't Affairs,* 115th Cong. 1 (2018) (Statement of Sen. Gary Peters) ("[T]his beautiful young boy[] has what may be the highest documented PFAS levels known for children . . . . He is just 2 years old.").

[5] David Siegel, *Closely Watched Lawsuit Over 'PFAS' Groundwater Contamination Heads to Trial,* COURTROOM VIEW NETWORK (Feb. 21, 2020, 2:24 PM), https://blog.cvn.com/closely-watched-lawsuit-over-pfas-groundwater-contamination-heads-to-trial-cvn-to-webcast-live [https://perma.cc/DU9M-EGAZ].

widely researched chemicals in the PFAS family.[6] Jack's blood contained 30,000 times these levels.[7]

The primary source of PFAS contamination in the McNaughton's drinking water was a dump site located half a mile from their home where Wolverine Worldwide, a shoe manufacturing company, disposed of its sludge waste.[8] In 1958, Wolverine began selling a new type of water-resistant shoes known as "Hush Puppies" using Scotchgard, a product patented by 3M, a multinational chemical manufacturer.[9] Scotchgard's water-resistant capabilities are derived from PFAS compounds, a class of chemicals whose heat-resistant and non-stick qualities allow for the manufacture of "miracle" products like Teflon and Gore-Tex that are found in many household items.[10] From the Wolverine headquarters in Rockford, sludge waste containing PFAS was transported to the Belmont dump, where PFAS seeped into the soil and nearby groundwater, eventually contaminating the local drinking water.[11] This toxic dumping began in the 1950s and continued for decades until the Wolverine factory closed.[12] After the demolition of the factory in 2010, remnants of PFAS-laden materials remained on site, leading

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[6] *Maximum Contaminant Levels (MCLs)*, MICH. PFAS ACTION RESPONSE TEAM (Aug. 2020), https://www.michigan.gov/pfasresponse/drinking-water/mcl [https://perma.cc/EC35-T3VY]; *see also Drinking Water Health Advisories for PFAS Fact Sheet for Communities*, EPA (June 15, 2022), https://www.epa.gov/system/files/documents/2022-06/drinking-water-ha-pfas-factsheet-communities.pdf (recommending even lower PFOA and PFOS exposure levels than the state of Michigan).

[7] *See supra* note 4 and accompanying text.

[8] THE FOREVER CHEMICALS, *supra* note 1.

[9] Garret Ellison, *Timeline: The Wolverine World Wide, 3M Scotchgard Contamination*, MLIVE (June 22, 2019, 5:36 PM), https://www.mlive.com/news/2019/06/timeline-the-wolverine-world-wide-3m-scotchgard-contamination.html [https://perma.cc/E379-RG88].

[10] *See* Tom Perkins, *Nearly 75% of Water-Resistant Products Contain Toxic PFAS, Study Finds*, THE GUARDIAN (Jan. 26, 2022, 11:00 AM), https://www.theguardian.com/environment/2022/jan/26/water-resistant-products-toxic-pfas-study [https://perma.cc/E7FS-8VX4] (describing a recent analysis on consumer products determining that "PFAS were detected in 34 of 47 products that were labelled water- or stain-resistant, or a similar variation like 'waterproof' or 'water repellant'").

[11] THE FOREVER CHEMICALS, *supra* note 1.

[12] Ellison, supra note 9; *see also* Steve Friess, *Another Huge Drinking Water Fail Surfaces in Michigan,* NAT RES. DEF. COUNCIL (Aug. 24, 2018), https://www.nrdc.org/stories/another-huge-drinking-water-fail-surfaces-michigan [https://perma.cc/4UA4-LG8R].

to persistent contamination of the surrounding soils and waterways in the years that followed.[13]

While PFAS are a relatively new concern for regulators and the public at large, industrial pollution is not. Particularly, Black communities have called attention to this issue for decades.[14] Yet government agencies ignore or directly exacerbate the problem, leaving residents to suffer the consequences of ongoing and legacy contamination without recourse.[15] As Dr. Robert Bullard, widely considered the father of environmental justice,[16] reflects: "During its 30-year history, the U.S. EPA has not always recognized that many of our government and industry practices (whether intended or unintended) have adverse impact on poor people and people of color."[17] Indeed, since the 1980s, clear evidence has shown that Black Americans are disproportionately exposed to industrial contaminants, and that race is the paramount factor in the location of abandoned toxic waste sites.[18] Decades later, studies still report

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[13] *Id.; see also* Garret Ellison, *Years After Flags, Wolverine Worldwide Plant Caught in PFAS Probe*, MLIVE (Mar. 30, 2022, 10:00 AM), https://www.mlive.com/public-interest/2022/03/years-after-flags-wolverine-worldwide-plant-caught-in-pfas-probe.html [https://perma.cc/683K-VQS3] (describing the efforts to decontaminate Wolverine's sites over a decade after the factory closure).

[14] *See* Robert D. Bullard & Beverly Hendrix Wright, *The Politics of Pollution: Implications for the Black Community*, 47 PHYLON 71, 75, 77 (1986) (detailing numerous instances where concerned Black community members raised concerns about environmental hazards near their homes and in their water supplies since the early 1980s).

[15] *See* ROBERT D. BULLARD, DUMPING IN DIXIE: RACE, CLASS, AND ENVIRONMENTAL QUALITY 30 (3d ed., 2000) ("[P]olluted black communities have received little national media coverage or remedial action from governmental agencies charged with cleanup of health-threatening pollution problems. The time is long overdue for placing the toxics and minority health concerns . . . on the agenda of federal and state environmental protection and regulatory agencies.").

[16] *See, e.g.*, *Dr. Robert Bullard, Father of Environmental Justice*, CLEAN AIR COUNCIL (Feb 15, 2023), https://cleanair.org/dr-robert-bullard-father-of-environmental-justice/#:~:text=Robert%20Bullard%2C%20the%20father%20of%20the%20environmental%20justice%20movement [https://perma.cc/8NG9-X6BC] (referring to Bullard as the "father of environmental justice").

[17] Robert D. Bullard, *Environmental Justice in the 21st Century: Race Still Matters*, 49 PHYLON 151, 156 (2001).

[18] UNITED CHURCH OF CHRIST COMM'N FOR RACIAL JUST., TOXIC WASTES AND RACE IN THE UNITED STATES xiii–xiv (1987), https://www.nrc.gov/docs/ML1310/ML13109A339.pdf [https://perma.cc/R8MA-Y8XH]; *see also* MICHAEL R. GREENBERG & RICHARD F. ANDERSON, HAZARDOUS WASTE SITES: THE CREDIBILITY GAP 158 (1984) (highlighting a study that found that marginalized communities "disproportionately bear[] the burden" of living near toxic dump sites).

that the U.S. government responds more slowly to environmental hazards in low-income communities and communities of color.[19] In the PFAS context, empirical evidence shows that majority-Black communities are more likely to bear the burdens of PFAS pollution than majority-white communities, likely as a result of the racially disproportionate siting of manufacturing plants, military bases, and landfills that lead to other forms of persistent pollution.[20] Because of these disparities, children in Black and low-income communities are at particular risk for a variety of chronic health conditions due to high levels of prenatal and ongoing PFAS exposures.[21]

PFAS contamination presents an undeniable environmental justice concern. A primary focus of the environmental justice movement is preventing harms from occurring in Black and low-income communities, which includes efforts to eradicate discrimination in land-use and industrial planning policies.[22] Another priority is the elimination of existing environmental hazards in communities where damage has already been done.[23]

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[19] *See, e.g.,* ROBERT D. BULLARD ET AL., TOXIC WASTES AND RACE AT TWENTY 1987–2007, at 52–63, 155 (2007), https://www.nrdc.org/sites/default/files/toxic-wastes-and-race-at-twenty-1987-2007.pdf [https://perma.cc/BFU5-JHYM] (analyzing data to conclude that the government's response time to environmental hazards is longer in low-income communities and communities of color).

[20] *See* ANITA DESIKAN ET AL., CTR. FOR SCI. & DEMOCRACY AT THE UNION OF CONCERNED SCIENTISTS, ABANDONED SCIENCE, BROKEN PROMISES (2019) (finding that people of color and low-income people are more likely to live within five miles of a site with PFAS contamination); Jahred M. Liddie et al., *Sociodemographic Factors Are Associated with the Abundance of PFAS Sources and Detection in U.S. Community Water Systems*, 57 ENV'T SCI. & TECH. 7902, 7909 (2023), (finding that people who live in communities with higher proportions of Black and Hispanic residents are more likely to be exposed to harmful levels of PFAS in their water supplies than those in other communities).

[21] Jesse A. Goodrich et al., *Metabolic Signatures of Youth Exposure to Mixtures of Per- and Polyfluoroalkyl Substances: A Multi-Cohort Study*, 131 ENV'T HEALTH PERSPS. 027005-1, 027005-8 (2023) (finding that exposure to PFAS disrupted lipid and amino acid metabolism and altered thyroid hormone function in children); Avinash Kar et al., *Dirty Water: Toxic "Forever" PFAS Chemicals are Prevalent in the Drinking Water of Environmental Justice Communities*, NAT. RES. DEF. COUNCIL (Aug. 18, 2021), https://www.nrdc.org/resources/dirty-water-toxic-forever-pfas-chemicals-are-prevalent-drinking-water-environmental [https://perma.cc/UN55-K3QX] (determining that PFAS pollution in California is more intense in communities already overburdened by multiple sources of pollution, with the most disadvantaged communities facing the highest levels of PFAS in the state).

[22] *See* Bullard, *supra* note 17, at 153–54 (describing a framework for environmental justice emphasizing threat-reduction).

[23] *See* NAT'L. ENV'T JUST. ADVISORY COUNCIL, SUPERFUND REMEDIATION AND REDEVELOPMENT FOR ENVIRONMENTAL JUSTICE COMMUNITIES 10 (2021),

The infamous Flint water crisis was a textbook demonstration of the failure of federal, state, and local governments to protect Black and low-income communities.

In 2013, the city of Flint, Michigan decided to change its primary drinking water source in response to severe and ongoing municipal budgetary constraints.[24] After the new water project was completed, city officials failed to apply corrosion inhibitors to the drinking water as they were legally required to,[25] causing lead from old pipes to leach into the water supply.[26] Importantly, Flint was a 57% African American community where nearly 41.6% of residents lived below the federal poverty line.[27] Approximately 140,000 individuals were exposed to high levels of lead, despite the fact that community members had complained for months about the taste and smell of their water.[28]

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https://www.epa.gov/sites/default/files/2021-06/documents/superfund_remediation_and_redevelopment_for_environmental_justice_communities_may_2021_report.pdf (discussing the role of the National Environmental Justice Advisory Council and its prioritization of "cleaning up sites and improving the quality of life in environmental justice and other communities impacted by contaminated hazardous waste sites").

[24] Merrit Kennedy, *Lead-Laced Water in Flint: A Step-By-Step Look at the Makings of a Crisis*, NPR (Apr. 20, 2016, 6:39 PM), https://www.npr.org/sections/thetwo-way/2016/04/20/465545378/lead-laced-water-in-flint-a-step-by-step-look-at-the-makings-of-a-crisis [https://perma.cc/PJ8A-2ASU].

[25] *See* EPA OFF. OF THE INSPECTOR GEN., REP. NO. 18-P-0221, MANAGEMENT WEAKNESSES DELAYED RESPONSE TO FLINT WATER CRISIS: AT A GLANCE (2018), https://www.epa.gov/sites/default/files/2018-07/documents/_epaoig_20180719-18-p-0221.pdf [] ("Under the MDEQ's supervision, the Flint water system did not adhere to two Lead and Copper Rule requirements: (1) develop and maintain an inventory of lead service lines needed for sampling, and (2) maintain corrosion control treatment after the water source switch in April 2014.")

[26] *See* David A. Dana & Deborah Tuerkheimer, *After Flint: Environmental Justice as Equal Protection*, 111 NW. U. L. REV. 93, 93 (2017) (characterizing the Flint water crisis as "less a story of weak laws than a tragedy of underenforcement"); *see also Class Action Suit Filed by Residents over Flint Water Crisis*, CHI. TRIB. (Mar. 7, 2016, 2:28 PM), https://www.chicagotribune.com/news/breaking/ct-flint-water-crisis-class-action-lawsuit-20160307-story.html ("[T]he corrosive water leached lead from the city's old pipes because certain treatments weren't added to the water.").

[27] MATTHEW M. DAVIS ET AL., FLINT WATER ADVISORY TASK FORCE: FINAL REPORT 15 (2016), https://www.michigan.gov/-/media/Project/Websites/formergovernors/Folder6/FWATF_FINAL_REPORT_21March2016.pdf?rev=284b9e42c7c840019109eb73aaeedb68.

[28] Perri Zeitz Ruckart et al., *The Flint Water Crisis: A Coordinated Public Health Emergency Response and Recovery Initiative,* 25 J. PUB. HEALTH MGMT. & PRAC. S84, S87

Flint is a stark illustration of how environmental injustice persists in the United States. Even with protective laws in place, such as the requirement to treat corrosive water, enforcement efforts in environmental justice communities[29] are consistently inadequate, often leading to disastrous outcomes for predominantly Black communities.[30] In addressing PFAS contamination, the federal government must comprehensively enforce cleanups in environmental justice communities and prioritize the health and safety of affected residents. Toxic tort litigation alone cannot systematically and comprehensively deliver justice and remediation to communities with disproportionate exposure to PFAS, and the federal government must make institutional change at every level

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(2019); *see also* Ahmad Bajjey, *Flint Residents Avoiding the Tap, Drinking Bottled Water Instead*, NBC NEWS (June 2, 2014, 6:43 PM), https://nbc25news.com/news/local/flint-residents-avoiding-the-tap-drinking-bottled-water-instead?id=1052391#.U-T3xIBdWKs [https://perma.cc/4YSY-SYD2] (noting that the smell and taste were worrying enough that Flint residents were "avoiding using [the water] for everything from drinking, to cooking, to even bathing").

[29] The term "environmental justice communities" in this Note refers to predominantly Black, Hispanic, Indigenous, or low-income communities in the U.S. that are at a disproportionate risk of environmental and health harms as a result of unequal treatment in policy development and enforcement. *See* KEN KIMMELL, ALAINA BOYLE, YUTONG SI & MARISA SOTOLONGO, A USER'S GUIDE TO ENVIRONMENTAL JUSTICE: THEORY, POLICY, & PRACTICE 4 (2021), https://www.researchgate.net/publication/352666779_A_User's_Guide_to_Environmental_Justice_Theory_Policy_Practice (discussing how EPA and states define or identify environmental justice communities).

[30] *See Five Questions for Robert Bullard on the Flint Water Crisis and Justice*, YALE ENV'T 360 (Feb. 3, 2016), https://e360.yale.edu/digest/five_questions_for_robert_bullard_on_the_flint_michigan_water_crisis [https://perma.cc/N5UV-YWLQ] ("Too often a dismissive culture exists within state and federal environmental agencies that results in slow response or no response to environmental and health threats to low-income and people-of-color communities . . . ."). For a discussion of environmental justice concerns after Flint, see generally Jonathon Lubrano, *Water, Lead, and Environmental Justice: Easing the Flint Water Crisis with a Public Water Contamination Liability Fund*, 42 WM. & MARY ENV'T. L. & POL'Y REV. 331 (2017) (arguing that a Water Contamination Liability Fund could spread the cost of correcting water contamination across many neighborhoods of different backgrounds); Marianna Engelman Lado, *Toward Civil Rights Enforcement in the Environmental Justice Context: Step One: Acknowledging the Problem*, 29 FORDHAM ENV'T. L. REV. 1 (2017) (maintaining that the U.S. Environmental Protection Agency must improve transparency and affirmatively enforce civil rights compliance); David A. Dana & Deborah Tuerkheimer, *supra* note 26, at 95 (conceptualizing "equal protection as a guarantee of protection against the underenforcement of protective [environmental] laws").

to prioritize environmental justice.[31] Under the leadership of the Biden Administration and EPA Administrator Michael Regan, the federal government is starting to acknowledge its duty to protect communities with elevated health threats.[32]

As noted above, addressing widespread environmental injustice requires mobilization across government agencies and offices. This Note's principal objective is to determine, from an environmental justice perspective, the efficacy of a single proposed reform: the designation of PFOS and PFOA as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). In consideration of the proposed rule, this Note will more broadly address whether CERCLA enforcement mechanisms can be used to address the widespread PFAS contamination in environmental justice communities across the United States. Part II explores the history of PFAS contamination and the regulatory landscape as it exists today. Part III introduces the basic structure of CERCLA, and Part IV details the Biden Administration's and EPA's action on environmental justice in the context of CERCLA and PFAS remediation. Part V argues that if environmental justice communities are prioritized for cleanups and compliance enforcement, regulator-PRP efficiency mechanisms, increased oversight, and robust community engagement can make a real difference in alleviating the toxic PFAS burden borne disproportionately by environmental justice communities. However, none of these strategies will matter if the problem of under-enforcement continues to disproportionately plague communities of color, and data will need to demonstrate that environmental justice communities are prioritized for site selection as soon as PFOS and PFOA are designated as hazardous substances.

II. THE EVOLUTION OF PFAS CONTAMINATION AND REGULATION—THE 1940S TO TODAY

PFAS are a class of chemicals now proven to be associated with a variety of adverse human health consequences including high cholesterol, increased liver enzymes, decreased vaccination response, thyroid disorders, pregnancy-induced hypertension, and

[31] *See infra* section IV.A.

[32] *See infra* section IV.A.

testicular and kidney cancer.[33] Pathways of human exposure include consumption of contaminated foods and drinking water, or direct contact with consumer products.[34] PFAS are often referred to as "forever chemicals" because their chemical composition prevents them from breaking down in the environment and as a result, PFAS can remain in human bodies for years after initial exposure occurs.[35] PFOA and PFOS are just two of thousands of chemicals in the PFAS family and are among the most widely researched PFAS chemicals.[36] This Part will discuss the origins of PFAS contamination by corporate entities,[37] early attempts to limit contamination, and efforts to hold corporate polluters accountable through toxic tort litigation against the original chemical manufacturers.

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[33] EPA, EPA 822-R-16-003, HEALTH EFFECTS SUPPORT DOCUMENT FOR PERFLUOROOCTANOIC ACID (PFOA) ES-1 (2016).

[34] BARTELL ET AL., MICH. PFAS SCI. ADVISORY PANEL, SCIENTIFIC EVIDENCE AND RECOMMENDATIONS FOR MANAGING PFAS CONTAMINATION IN MICHIGAN 23 (Dec. 7, 2018), https://www.michigan.gov/documents/pfasresponse/Science_Advisory_Board_Report_641294_7.pdf [https://perma.cc/95AG-RPWA].

[35] Lisa Friedman, *E.P.A. to Designate PFAS, or 'Forever Chemicals,' as Hazardous*, N.Y. TIMES (Aug. 26, 2022), https://www.nytimes.com/2022/08/26/climate/epa-pfas-forever-chemicals-hazardous.html [https://perma.cc/35KZ-BQBZ].

[36] *Our Current Understanding of the Human Health and Environmental Risks of PFAS*, EPA (June 7, 2023), https://www.epa.gov/pfas/our-current-understanding-human-health-and-environmental-risks-pfas [perma.cc/HP2T-CLPV].

[37] This Note is focused specifically on corporate contamination and remediation. However, U.S. military sites are serious sources of PFAS contamination due to their use of aqueous film-forming foams (AFFFs) in firefighting. Bridger J. Ruyle et al., *Centurial Persistence of Forever Chemicals at Military Fire Training Sites*, 57 ENV'T. SCI. & TECH. 8096, 8096 (2023). AFFFs contain two of the most toxic known PFAS variants, PFOS and PFOA, and studies show that the foams enter waterways and soils to contaminate communities beyond the military bases where they are used. *See, e.g.*, GENNA REED ET AL., CTR. FOR SCI. & DEMOCRACY, A TOXIC THREAT: GOVERNMENT MUST ACT NOW ON PFAS CONTAMINATION AT MILITARY BASES 4–5 (2018) (identifying military sites around the United States where PFAS levels are likely to be associated with adverse health effects). For further information on contamination emanating from the U.S. Department of Defense and discussion of possible solutions, see generally Michael Heard Snow, Note, *Too Little Too Late: Congress's Attempt to Regulate Forever Chemicals Through Military Appropriations*, 45 WM. & MARY ENV'T. L & POL'Y REV. 277 (2020) (analyzing how the 2020 National Defense Authorization Act changed the PFAS regulatory regime).

A. THE ORIGINS OF PFAS CONTAMINATION

PFOA was first developed by the chemical manufacturer 3M in the 1940s.[38] Shortly thereafter, 3M began selling PFOA to Dupont, a chemical company who started to manufacture its own PFOA-containing products including Teflon, a popular heat-resistant and non-stick chemical coating applied to cookware and sold widely across the United States since the 1960s.[39] Until the mid-2000s, PFOA products like Teflon earned DuPont $1 billion in gross annual revenues.[40] Similarly, the PFAS-containing Scotchgard component of Hush Puppies that led to the PFAS contamination zone around Belmont, Michigan, generated tremendous success for Wolverine Worldwide. By 1963, it was reported that one in ten adults in the United States owned a pair of Hush Puppies.[41]

For decades, PFAS were revolutionary in the evolution and creation of many consumer products, from microwave popcorn bags and pizza boxes to fire-fighting foams and raincoats.[42] Especially revered in the context of non-stick cookware, PFAS exhibited a seemingly magical resistance to heat, water, oil, and corrosion, offering new possibilities in consumer markets for stain-resistant carpets, water-resistant outdoor gear, and grease-resistant fast-food packaging.[43] Accordingly, today PFAS are found in hundreds of products U.S. consumers use on a daily basis.[44] While many brands

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[38] *See* Nathaniel Rich, *The Lawyer Who Became DuPont's Worst Nightmare*, N.Y. TIMES MAG. (Jan. 6, 2016), https://www.nytimes.com/2016/01/10/magazine/the-lawyer-who-became-duponts-worst-nightmare.html [perma.cc/HP2T-CLPV] ("The story began in 1951, when DuPont started purchasing PFOA from 3M for use in the manufacturing of Teflon. 3M invented PFOA just four years earlier.").

[39] *Id*.

[40] *Id.*

[41] *Suede Shoes and Hush Puppies: The All American Hero*, FOOT TALK (June 30, 2023), http://foottalk.blogspot.com/2008/03/hush-puppies-all-american-hero.html [perma.cc/Q8V5-ZUN6].

[42] *See* Thomas Smith & Peter Meyers, *Fighting Forever Chemicals*, PFAS PROJECT LAB (Mar. 6, 2020) https://pfasproject.com/2020/03/06/fighting-forever-chemicals/ [perma.cc/EZ3U-4CT8] (describing PFAS as "cheap and effective," becoming the "go-to chemistry for the packaging of many products").

[43] *See id*. (highlighting use of PFAS in packaging of microwave popcorn, fast-food wrappers and pizza boxes).

[44] *See* Kevin Loria, *Dangerous PFAS Chemicals Are in Your Food Packaging*, CONSUMER REPS. (Mar. 24, 2022) https://www.consumerreports.org/pfas-food-packaging/dangerous-pfas-chemicals-are-in-your-food-packaging-a3786252074/ [perma.cc/C4QP-PVK9] (identifying

have voluntarily eliminated or limited PFAS in their products as a result of public outcry,[45] these chemicals still persist in the tissues and bodily fluids of humans and have bioaccumulated into food crops, livestock, and other wildlife.[46] The question of remediation and how to protect already exposed communities remains largely unsolved.[47] According to a study conducted by the National Institutes of Health, PFAS are found in the blood of approximately 98% of Americans.[48]

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eight restaurants with at least one type of food packaging that will exceed the level of intentionally-added PFAS allowed in California as a result of recently-passed legislation, including Sweetgreen, Chick-fil-A, Cava, and Burger King); *see also* Perkins, *supra* note 10 (summarizing study findings that detected PFAS in numerous water-resistant outdoor products, such as jackets made by Patagonia and Alpine Design, or those produced in partnership with Gore-Tex).

[45] *See* Laura Reiley, *Major Restaurant Chains Commit To Eliminating 'Forever Chemicals*,*'* WASH. POST (Mar. 24, 2022, 3:03 PM), https://www.washingtonpost.com/business/2022/03/24/fast-food-pfas-forever-chemicals/ [perma.cc/BNG8-NPBE] (describing how brands such as Burger King, Popeyes, and Chick-fil-A have committed to eliminating PFAS from their packaging going forward); *see also* Megan Hill, *Outdoor Gear That'll Keep you Snug and Dry, Sans "Forever Chemicals*,*"* SIERRA MAG. (Oct. 24, 2021), https://www.sierraclub.org/sierra/outdoor-gear-ll-keep-you-snug-and-dry-sans-forever-chemicals [perma.cc/J3SX-LLCQ] (identifying outdoor gear brands have recently become PFAS-free, or are close to reaching their goal).

[46] *See* BARTELL ET AL., *supra* note 34, at 23 ("Some PFAS are taken up and may bioaccumulate into food crops, livestock, wildlife, and the tissues and bodily fluids of humans through consumption . . . ."); *see also Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)*, NAT'L INST. OF ENV'T HEALTH SCIS. (Aug. 17, 2023), www.niehs.nih.gov/health/topics/agents/pfc/index.cfm ("Over time, people may take in more of the [PFAS] chemicals than they excrete, a process that leads to bioaccumulation in bodies.").

[47] In light of evidence that DuPont and 3M knew about the health risks of their products and actively suppressed this information from the public, representatives in Congress are considering possible avenues forward, including the role industrial polluters should play in cleaning up contaminated sites. *See The Devil They Knew: PFAS Contamination and the Need for Corporate Accountability: Hearing Before the Subcomm. on Env't of the H. Comm. on Oversight & Reform*, 116th Cong. 2–3, 6 (2019), https://www.congress.gov/event/116th-congress/house-event/109847 (discussing DuPont's suppression of information regarding PFAS and possible remedies).

[48] *See* 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 1990–2000*, 115 ENV'T HEALTH PERSPS. 1596, 1600 (2007) ("We detected PFOS, PFOA, PFHxS, and PFNA in > 98% of the samples.").

B. TOXIC TORT LITIGATION

Common law tort litigation in the late 1990s and early 2000s uncovered studies conducted by chemical manufacturers from prior decades revealing the toxicity of PFAS chemicals and their harm to human health.[49] In particular, documents produced in discovery exposed that DuPont concealed internal research spanning over four decades that documented the negative health consequences associated with PFOA and the high levels of PFOA it detected in local drinking water.[50] In 2017, after years of litigation, DuPont settled more than 3,000 personal injury claims deriving from PFOA contamination in West Virginia.[51] These suits and similar class-actions have yielded compensation for select individuals suffering from cancer or other diseases as a result of chronic exposure to PFAS, but the relief accorded is often slow and comes at a tremendous cost to the victims.[52] Given that PFAS contamination is widespread across the United States and disproportionately affects under-resourced communities, it is clear that the system of tort litigation alone is thoroughly inadequate at both holding corporate

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[49] For example, Robert Billot was a lawyer who famously sued DuPont in 1999 on behalf of a West Virginia cattle farmer whose cattle were deformed and dying due to the presence of PFOA in their drinking water. Billot's story is well-documented, and he continues to advocate for corporate accountability and government action on PFAS and other chemical contamination. Ron Carucci, *Leadership Lessons From Rob Bilott's 20 Year Battle For Justice Against DuPont*, FORBES (July 12, 2021), https://www.forbes.com/sites/roncarucci/2021/07/12/leadership-lessons-from-rob-bilotts-20-year-battle-for-justice-against-dupont/?sh=336317636055 [perma.cc/N67F-XXKT]; *see also* DARK WATERS (Focus Features 2019) (highlighting the story of Robert Bilott as portrayed by Mark Ruffalo).

[50] *See* Rich, *supra* note 38 (describing private internal correspondence, medical and health reports, and confidential studies that Bilott acquired during discovery); *see also* REED ET AL., *supra* note 37, at 3 ("[D]ocuments revealed that DuPont had concealed internal research from as far back as 1961 linking PFOA to negative health effects . . . .").

[51] REED ET AL., *supra* note 37, at 3.

[52] *See* Rich, *supra* note 38 (quoting Robert Bilott on DuPont's decision to appeal a $1.6 million award to kidney-cancer survivor Carla Bartlett: "I think about the clients who have been waiting for [relief], many of whom are sick or have died while waiting. It's infuriating."); *see also* Garret Ellison, *3M, Wolverine Settle Pollution Lawsuit With Michigan Family*, MLIVE.COM (Feb. 21, 2020, 4:43 PM), https://www.mlive.com/news/ann-arbor/2020/02/3m-wolverine-settle-pollution-lawsuit-with-michigan-family.html [perma.cc/K5VS-MRKX] (quoting the McNaughton's attorney after reaching an out-of-court settlement with Wolverine and 3M: "It was a significant effort on Seth and Tobyn's part to carry forward as lead plaintiffs over the last two years . . . all the residents appreciate their effort in that regard.").

entities accountable and providing large-scale remediation efforts in environmental justice communities.[53]

C. FEDERAL ACTION ON PFAS

Since the turn of the century, the EPA's relationship with corporate entities responsible for PFAS contamination has varied significantly between administrations and as a result of increased site testing, data, and toxicity research related to PFAS. In 2000, the "EPA worked with the 3M Company to support the company's voluntary phase-out and elimination of PFOS productions and use" under the Toxic Substances Control Act (TSCA).[54] Five years later, the EPA accused DuPont of concealing its knowledge of PFOA's toxicity and presence in the environment in violation of TSCA.[55] DuPont settled with the EPA for $16.5 million and was not required to admit liability.[56] In 2006, the EPA announced a PFOA Stewardship Program asking companies in the PFAS industry to commit to reducing and eventually eliminating PFOA from their products and emissions.[57] According to the 2019 PFAS Action Plan, eight major chemical manufacturers and processors agreed to phase out the use of PFOA and PFOA-related chemicals in their products and emissions from their facilities, and all companies met their goals by 2015.[58]

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[53] *See* Rich, *supra* note 38 (explaining that a $16.5 million settlement represented less than 2 percent of the profits earned by DuPont on PFOA in a single year and elucidating a strategy for chemical companies to avoid compensating victims of chronic PFAS contamination: "DuPont can fight each suit individually, a tactic that tobacco companies have used to fight personal-injury lawsuits. At the rate of four trials a year, DuPont would continue to fight PFOA cases until the year 2890.").

[54] EPA, EPA 823R18004, EPA'S PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) ACTION PLAN 13 (2019), https://www.epa.gov/sites/default/files/2019-02/documents/pfas_action_plan_021319_508compliant_1.pdf [perma.cc/D8WV-HKCA].

[55] Rich, *supra* note 38.

[56] *Id.*

[57] *See Fact Sheet: 2010/2015 PFOA Stewardship Program*, EPA (Apr. 5, 2023), https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/fact-sheet-20102015-pfoa-stewardship-program [perma.cc/YU88-SZ6Y] ("EPA invited eight major leading companies in the per- and polyfluoroalkyl substances (PFASs) industry to join in a global stewardship program with two goals: [t]o commit to achieve, no later than 2010, a 95 percent reduction . . . [and] [t]o commit to working toward the elimination of these chemicals from emissions and products by 2015.").

[58] *Id.*

The first federal regulation of PFAS began under the Safe Drinking Water Act (SDWA) in 2009.[59] The EPA identified specific PFAS chemicals for evaluation and monitored PFAS in U.S. water systems between 2013 and 2015.[60] It determined that sixty-three water systems serving approximately 5.5 million people had PFAS levels exceeding seventy parts per trillion (ppt).[61] In 2016, the agency added PFOS and PFOA to its list of contaminants and issued a non-binding SDWA lifetime health advisory of seventy ppt for PFOS and PFOA.[62]

As a result of the voluntary stewardship programs pursued by EPA in the early 2000s, the vast majority of PFOS and PFOA production has ceased in the U.S., and legacy contamination of PFOA and PFOS is the major concern of regulators today.[63] In 2019, the EPA released a PFAS Action Plan to address legacy contamination, which included commitments such as identifying and mitigating PFAS exposures around the country, increasing research and technical assistance to solve PFAS-related health problems, and communicating information related to PFAS to the public.[64] In January 2021, the Government Accountability Office reported the EPA's progress in implementing its PFAS Action Plan.[65] It found that the EPA had only completed three out of six actions outlined in the plan.[66]

In October 2021, EPA published a PFAS Strategic Roadmap outlining more detailed federal actions to be completed between

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[59] Brennan et al., *Trends in the Regulation of Per- and Polyfluoroalkyl Substances (PFAS): A Scoping Review*, 18 INT'L J. ENV'T RSCH. & PUB. HEALTH 1, 9 (2021).

[60] *Id.* ("Between 2013 and 2015, the EPA monitored levels of PFOS, PFOA, and PFNA in drinking water supplies as part of their unregulated contaminant monitoring.").

[61] MARY H. TIEMANN & ELENA S. HUMPHRIES, CONG. RSCH. SERV., IF11219, REGULATING DRINKING WATER CONTAMINANTS: EPA PFAS ACTIONS 2 (2020), https://crsreports.congress.gov/product/pdf/IF/IF11219.

[62] Brennan et al., *supra* note 59, at 9.

[63] *See id.* ("The bloodstream levels of PFOS and PFOA decreased after 3M and DuPont voluntarily phased out their production in the early 2000s; however, both substances remain detectable in the bloodstreams of many Americans.").

[64] *See* EPA, supra note 54, at 3–7 (outlining short-term and long-term action plans the EPA is implementing to address PFAS legacy contamination).

[65] U.S. GOV'T ACCOUNTABILITY OFF., GAO-21-37, MAN-MADE CHEMICALS AND POTENTIAL HEALTH RISKS: EPA HAS COMPLETED SOME REGULATORY-RELATED ACTIONS FOR PFAS (2021), https://www.gao.gov/products/gao-21-37 [perma.cc/HJ4B-TMFA].

[66] *Id.* at 17.

2021 and 2024.[67] EPA Administrator Regan affirmed that environmental justice was a central motivation in the formation of the Roadmap.[68] Specifically, the Roadmap promised that EPA would "accelerate the deployment of treatment, remediation, destruction, disposal, and mitigation technologies for PFAS, and ensure that disposal and destruction activities do not create new pollution problems in communities with environmental justice concerns."[69] The Roadmap further stated EPA's intent to propose to designate PFOS and PFOA as CERCLA hazardous substances and announced its plan to issue advance notice of proposed rulemaking on other PFAS, including GenX and PFBS, under CERCLA.[70] With regard to enforcement, the Roadmap confirmed that "EPA is initiating actions under . . . CERCLA . . . to identify past and ongoing releases of PFAS into the environment" and "requir[ing] parties responsible for PFAS contamination to . . . address contaminated drinking waters, soils, and other contaminated media."[71]

The EPA also amended the SDWA health advisory in June 2022 to replace the 2016 advisory.[72] The updated advisory includes two other PFAS, known as PFBS and GenX chemicals, which were introduced on the market as replacements for PFOS and PFOA in new products.[73] Given the preliminary data, the new drinking water advisories are .0004 ppt for PFOA, .02 ppt for PFOS, 10 ppt for GenX, and 2,000 ppt for PFBS.[74]

In November 2021, the Infrastructure Investment and Jobs Act of 2021, also known as the Bipartisan Infrastructure Law, allocated

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[67] EPA, PFAS STRATEGIC ROADMAP: EPA'S COMMITMENTS TO ACTION 2021–2024 (2022), https://www.epa.gov/pfas/pfas-strategic-roadmap-epas-commitments-action-2021-2024 [perma.cc/E8A5-J7XA].

[68] *See id.* at 1 ("EPA's PFAS strategic roadmap is our plan to deliver tangible public health benefits to all people who are impacted by these chemicals—regardless of their zip code or the color of their skin.").

[69] *Id.* at 9.

[70] *Id.* at 13, 17.

[71] *Id.* at 20.

[72] *See Drinking Water Health Advisories for PFOA and PFOS*, EPA (Mar. 29, 2023), https://www.epa.gov/sdwa/drinking-water-health-advisories-pfoa-and-pfos [perma.cc/L992-K7SR] (announcing updated advisory levels "based on new science and consider[ing] lifetime exposure").

[73] *Id.*

[74] Lifetime Drinking Water Health Advisories for Four Perfluoroalkyl Substances, 87 Fed. Reg. 36848 (proposed June 21, 2022).

$5 billion in grant funding to address emerging contaminants, including PFAS, with an emphasis on small and disadvantaged communities.[75] The fiscal year (FY) 2022–2026 EPA Strategic Plan further details the agency's goal of increasing the percentage of inspections in communities likely facing environmental justice concerns.[76] Specifically, the Office of Enforcement and Compliance Assurance is aiming to increase inspections from the current level of 30% in environmental justice communities to 50% in fiscal year 2023 and 55% in fiscal years 2025 and 2026.[77]

Following the EPA's statement of intent in the roadmap, the agency began promulgating a rule to add PFOA and PFOS to the list of hazardous substances under CERCLA in September 2022.[78]

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[75] *See Fact Sheet: Biden-Harris Administration Combatting PFAS Pollution to Safeguard Clean Drinking Water for All Americans*, WHITE HOUSE (June 15, 2022), https://www.whitehouse.gov/briefing-room/statements-releases/2022/06/15/fact-sheet-biden-harris-administration-combatting-pfas-pollution-to-safeguard-clean-drinking-water-for-all-americans/ [perma.cc/5HGZ-RB3M] ("The Bipartisan Infrastructure Law provides a historic $5 billion in a new Emerging Contaminants in Small or Disadvantaged Communities Grant Program for states to reduce . . . contaminants in drinking water in underserved communities."); *see also Emerging Contaminants (EC) in Small or Disadvantaged Communities Grant (SDC)*, EPA (May 1, 2023), https://www.epa.gov/dwcapacity/emerging-contaminants-ec-small-or-disadvantaged-communities-grant-sdc [perma.cc/ZHC3-2LZ2] (defining small and disadvantaged communities for purposes of grant funding and describing eligibility for the new program and its interaction with the Safe Drinking Water Act).

[76] *See* EPA, FY 2022-2026 EPA STRATEGIC PLAN 39 (2022), https://www.epa.gov/system/files/documents/2022-03/fy-2022-2026-epa-strategic-plan.pdf (detailing new goals to "prioritize inspections in communities facing substantial burdens from environmental noncompliance").

[77] *See Environmental Justice in Enforcement and Compliance Assurance*, EPA (Aug. 28, 2023), https://www.epa.gov/enforcement/environmental-justice-enforcement-and-compliance-assurance#:~:text=OECA%20will%20work%20to%20increase,most%20serious%20threats%20to%20communities [perma.cc/4QKF-YA2E] (specifying goals to increase the percentage of inspections in areas of environmental justice concern).

[78] Designation of Perfluorooctanoic Acid (PFOA) and Perflurooactanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, 87 Fed. Reg. 54415 (Sept. 6, 2022) [hereinafter PFOA & PFOS Designation]. Also note that under the proposed rule, PFOS and PFOA will be designated as "hazardous substances" rather than "pollutants or contaminants." *Id.* This means that the EPA does not have to prove that PFAS constitute an "imminent and substantial danger" before they investigate and clean up a site, and that polluters can be held liable for response actions, while no such provision exists for pollutants or contaminants. *See* 42 U.S.C. § 9604(a)(1) (differentiating "any hazardous substance" from "any pollutant or contaminant which may present an imminent and substantial danger to the public health or welfare").

Unlike common law tort litigation, CERCLA does not require injured parties to prove a corporation's negligence or recklessness in imposing public health harms through toxic contamination. Once a chemical is listed as a hazardous substance, cleanup liability is strict, joint, several, and retroactive—meaning that, in theory, any previous owner of a contaminated site can be held liable for fronting the costs of cleanups.[79] The most severe shortcoming of the proposed rule, however, is that PFAS are being listed one chemical at a time.[80] PFOA and PFOS are the most widely studied PFAS chemicals to date, and their risks of adverse health effects are now well-documented.[81] However, the PFAS chemical family comprises over two thousand chemicals, many of which harbor unknown risks and could be equally harmful as those currently deemed hazardous based on presently available research.[82] While this Note agrees with the cited literature arguing that designating PFAS chemicals on an individual basis is an imperfect solution to PFAS regulation in the long term,[83] CERCLA remains a uniquely aggressive federal liability statute, and as such, designation of even just two PFAS chemicals under CERCLA has the potential to unlock large-scale remediation efforts in environmental justice communities.

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[79] *See Superfund Liability*, EPA (May 23, 2023), https://www.epa.gov/enforcement/superfund-liability [perma.cc/4P8V-Z793] (noting that liability under the CERCLA is imposed "on parties responsible for, in whole or in part, the presence of hazardous substances at a site"); *see also infra* section III.A.

[80] *Id.*

[81] *See supra* note 36 and accompanying text.

[82] *See* Mark P. Nevitt & Robert V. Percival, *Can Environmental Law Solve the "Forever Chemicals" Problem?*, 57 WAKE FOREST L. REV. 239, 281 (2022) ("Given how long it takes the EPA to complete risk evaluations and the information asymmetry between regulators and industry, it would be fruitless for the EPA to continue to employ a chemical-by-chemical approach . . . to assess the risks of the thousands of PFAS variants."); *see also* Noel M. Johnson, *Me-FAS, You-FAS, We All Eat PFAS: What To Do About the Forever Chemical*, 21 PITT. J. TECH. L. & POL'Y 134, 138 ("There is very little research on the combined effect of exposure to multiple PFAS, and less than 1% of all PFAS have been tested for their toxic effects."). For more discussion on regulating PFAS as a chemical class, *see* Carol F. Kwiatkowski et al., *Scientific Basis for Managing PFAS as a Chemical Class*, 7 ENV'T SCI. TECH. LETTERS 532, 532 (2020) (presenting "a scientific basis for managing as one chemical class the thousands of chemicals known as PFAS").

[83] *See, e.g.*, Nevitt & Percival, *supra* note 82, at 281 (discussing the downfalls of designating PFAS chemicals individually, as opposed to a class-wide designation).

III. CERCLA: THE CLEANUP AND CORPORATE ACCOUNTABILITY MECHANISM

A. OVERVIEW

CERCLA, commonly known as Superfund,[84] is the federal statute that governs cleanup and remediation of sites contaminated with hazardous substances.[85] CERCLA was intended "to promote the 'timely cleanup of hazardous waste sites' and to ensure that the costs of such cleanup efforts were borne by those responsible for the contamination."[86] In seeking to accomplish this purpose, CERCLA gives the EPA broad authority to remediate contaminated sites and to seek compensation from potentially responsible parties (PRPs), or to compel PRPs to clean up the affected areas.[87] PRPs are defined to cover a wide range of actors.[88] They may include current owners or operators of facilities, past owners or operators of facilities, those that "arranged for disposal or treatment" of hazardous substances, and parties that transported hazardous substances for disposal or treatment.[89]

Listing PFOS and PFOA as hazardous substances is a critical step for PFAS remediation because it allows the EPA to identify PRPs at sites contaminated with PFOS and/or PFOA and either initiate site cleanups and recover costs later or compel PRPs to conduct cleanups themselves. Under CERCLA, PRPs are liable for cleanup costs incurred by federal, state, and tribal governments for all remedial action consistent with the National Contingency Plan (NCP).[90] The NCP is the federal roadmap for coordinating and

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[84] *Superfund: CERCLA Overview,* EPA (Oct. 30, 2023), https://www.epa.gov/superfund/superfund-cercla-overview [perma.cc/A9SR-LPZR].

[85] Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601–9675.

[86] *See* Burlington N. & Santa Fe Ry. v. United States, 556 U.S. 599, 602 (2009) (quoting Consolidated Edison Co. of N.Y. v. UGI Util., Inc., 423 F.3d 90, 94 (2d Cir. 2005)); *see also* United States v. Monsanto Co., 858 F.2d 160, 174 (4th Cir. 1988) ("CERCLA operates remedially to spread the costs of responding to improper waste disposal among all parties that played a role in creating the hazardous conditions.").

[87] *See* 42 U.S.C. § 9604(a)(1) (describing EPA-lead cleanups); *id.* § 9606(a) (authorizing the EPA to compel PRP-led cleanups through relief in federal courts); *id.* § 9607(a) (providing that the EPA can recover response costs from PRPs).

[88] *See id.* § 9607(a)(1)–(4) (specifying covered persons).

[89] *Id.*

[90] *Id.* § 9607(a)(4)(A)–(B).

initiating "appropriate removal action" at sites contaminated by hazardous substances.[91] In determining what constitutes "appropriate removal action," the EPA considers human and animal population exposure, contamination of drinking water supplies or sensitive ecosystems, hazardous substances in soils, and "other situations or factors that may pose threats to public health or welfare of the United States or the environment."[92] PRPs are also required to pay for health studies and harm to natural resources, including the assessments undertaken in formulating damages for each.[93]

As prefaced earlier, liability for performing cleanups under CERCLA is strict, joint, several, and retroactive.[94] Therefore, a PRP is liable even if they exercised due care and engaged in otherwise lawful activity, contaminated the site before CERCLA was passed, or was only one of several polluters responsible for the contamination.[95] Under joint and several liability, one PRP can be liable for all the response costs incurred for a given site regardless of their respective contribution to the contamination.[96] Joint and several liability ensures that when one PRP is insolvent or undiscoverable, the costs of remediation will be borne by known and financially solvent PRPs.[97] While joint and several liability is the

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[91] 40 C.F.R. § 300.415 (2023); *see also National Oil and Hazardous Substance Pollution Contingency Plan (NCP) Overview*, EPA (Aug. 10, 2023), https://www.epa.gov/emergency-response/national-oil-and-hazardous-substances-pollution-contingency-plan-ncp-overview [perma.cc/Z7VG-3YNE] (offering an overview of the National Contingency Plan's key provisions).

[92] 40 C.F.R. § 300.415(b)(2)(i), (ii), (iv), (viii) (2023).

[93] 42 U.S.C. § 9607(a)(4)(C)–(D).

[94] While the CERCLA statute makes no reference to "strict," "joint and several," or "retroactive" liability, courts have uniformly found that strict, joint and several, and retroactive liability applies. *See, e.g.,* New York v. Shore Realty Corp. 759 F.2d 1032, 1042 (2d Cir. 1985) (citing legislative history to conclude that CERCLA intended strict liability); United States v. Chem-Dyne Corp., 572 F. Supp. 802, 808 (S.D. Ohio 1983) (deriving joint and several liability scheme from common law principles); United States v. Ne. Pharm. & Chem. Co., 810 F.2d 726, 732–33 (8th Cir. 1986) ("Congress intended CERCLA to have retroactive effect").

[95] *Superfund Liability, supra* note 79.

[96] *Id.*

[97] *See* Mark A. Stach, *Only "Innocent" Parties Need Apply: The Death of Private Party Cost Recovery Actions Under Superfund?*, 20 WM. & MARY ENV'T L. & POL'Y REV. 33, 45 (1995) ("Some . . . unknown parties may never be located or may be financially unable to participate in paying for cleanup. The share of liability that would have otherwise been absorbed by these parties . . . may rest with the party who is jointly and severally liable for the cleanup.").

statutory default, there are exceptions if a PRP can provide a reasonable basis for apportioning the harm, which includes demonstrating that its releases of hazardous substances would not have justified incurring the response costs at issue.[98]

B. CLEANUP RESPONSES

Once PRPs are identified for a given site, the EPA or Department of Justice (DOJ) will compel a PRP-led cleanup or conduct a cleanup themselves, seeking indemnification from PRPs after the cleanup is complete.[99] Cleanup responses, regardless of who is leading the cleanup, take one of two basic forms: a removal action or a remedial action.[100] Removal actions are often short-term efforts to "abate, prevent, minimize, stabilize, mitigate, or eliminate the release or threat of release" of hazardous substances.[101] Remedial actions, on the other hand, tend to be longer-term undertakings to clean up a site in a manner consistent with the NCP.[102] These typically occur at sites requiring a costly, comprehensive response or involving multiple waste streams or sources of contamination.[103] Since cleanup responses for PFAS contamination will likely be expensive and highly complex,[104] involving legacy contamination in soils,

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[98] *See* Burlington N. & Santa Fe Ry. v. United States, 556 U.S. 599, 617 (2009) (holding that apportionment was appropriate because the party seeking to apportion liability was responsible for no more than 10% of the total contamination on the site at issue).

[99] *See Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Federal Facilities*, EPA, https://www.epa.gov/enforcement/comprehensive-environmental-response-compensation-and-liability-act-cercla-and-federal [perma.cc/6CD3-ZCCW] (explaining the ways in which the government may enforce a CERCLA response).

[100] *See id.* (listing the basic CERCLA cleanup responses).

[101] 40 C.F.R. § 300.415(b)(1) (2023); *see also* 42 U.S.C. § 9601(23) (clarifying further that the term "removal" includes "such actions as may be necessary to monitor, assess, and evaluate [the hazardous substance], the disposal of removed material, or the taking of such other actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment . . . .").

[102] *See* 42 U.S.C. § 9601(24) (listing examples of remedial actions from the storage and confinement of hazardous substances via dikes, ditches, or clay cover to the permanent relocation of residents and businesses).

[103] *See* Memorandum from Steven Luftig, Dir. of Emergency & Remedial Response, EPA, & Barry Breen, Dir. of Off. of Site Remediation Enf't, EPA to Regions I–X Program & Legal Dirs., EPA (Feb. 14, 2000), https://semspub.epa.gov/work/HQ/174826.pdf [perma.cc/6883-BHQH] (describing situations where remedial authority would properly be exercised).

[104] *See* Chuck Chaitovitz, *New Analysis Shows Massive Private Cleanups Costs for PFAS Chemistries at Superfund Sites*, U.S. CHAMBER OF COM. (June 13, 2022),

sludges, surface water, and groundwater, there is a high chance that remedial actions, potentially supplemented by removal actions for time-sensitive problems, will be deployed at most PFAS-contaminated sites.

If the EPA decides that remedial action is required, it must investigate the hazardous substance(s) present at the site and determine what threats are posed to the community and environment to establish the extent of cleanup necessary.[105] All remedial actions (RA) require a preliminary engineering phase known as remedial design (RD), and together the phases of engineering and implementation are referred to as RD/RA.[106] During RD, technologies and design strategies are formulated and reviewed for adequacy with respect to environmental and public health requirements,[107] and the EPA lays out the technical details for the action course chosen.[108] The RA phase follows with on-site construction and execution of the plans developed in the RD.[109] The RD/RA process is time and resource-intensive, and as a result, EPA has issued continuing guidance on expediting its activities so that cleanup can occur as early as possible.[110] By statute, site remediation must "attain a degree of cleanup . . . at a minimum which assures protection of human health and the environment" and meet all "applicable" or "relevant and appropriate"

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https://www.uschamber.com/environment/new-analysis-shows-massive-private-cleanup-costs-for-pfas-chemistries-at-superfund-sites [perma.cc/55PZ-UNW5] (conservatively estimating annual costs for private PFAS cleanups to be between $700 and $800 million).

[105] *See* 40 C.F.R. § 300.430(d)(4) (2023) ("[T]he lead agency shall conduct a site-specific baseline risk assessment to characterize the current and potential threats to human health and the environment that may be posed by contaminants migrating to ground water or surface water, releasing to air, leaching through soil, remaining in the soil, and bioaccumulating in the food chain.").

[106] *Superfund: Remedial Design / Remedial Action*, EPA (June 2, 2023), https://www.epa.gov/superfund/superfund-remedial-design-remedial-action#:~:text=Remedial%20design%20(RD)%20is%20the,phase%20of%20Superfund%20site%20cleanup [perma.cc/797U-86D2].

[107] *See id.* ("Remedial design (RD) is the phase in Superfund site cleanup where the technical specifications for cleanup remedies and technologies are designed.").

[108] *See id.* (explaining the steps to be taken during the remedial design).

[109] *Id.*

[110] *See, e.g.*, OFF. OF EMERGENCY AND REMEDIAL RESPONSE, EPA, EPA/540/G-90/006, GUIDANCE ON EXPEDITING REMEDIAL DESIGN AND REMEDIAL ACTION 1 (1990) (exemplifying early agency recognition of RD/RA as a potential area to improve efficiency).

requirements established by other state or federal environmental laws.[111]

C. CONSENT DECREES AND UNILATERAL ADMINISTRATIVE ORDERS

To compel PRP-led cleanups, the EPA uses consent decrees and unilateral administrative orders (UAOs).[112] Consent decrees are settlements reached between the PRP and EPA or DOJ that delineate the RD/RA response by PRPs at a contaminated site.[113] Consent decrees are appealing to PRPs because they enable PRPs to negotiate the extent of cleanup and their financial contribution,[114] and most importantly, the terms of the consent decree typically provide that the federal government cannot bring further judicial action against the settling party, except if undiscovered contamination later becomes known.[115] Conversely, UAOs encourage prompt action by unilaterally ordering PRPs to cleanup a given site and requiring cleanup response actions to begin even when the PRPs and EPA are unable to settle.[116] While UAOs are

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[111] 42 U.S.C. §§ 9621(d)(1), (2)(A).

[112] *See id.* §9606(a) ("[T]he district court of the United States in the district in which the threat occurs shall have jurisdiction to grant such relief as the public interest and the equities of the case may require. The President may also, after notice to the affected State, take other action under this section including, but not limited to, issuing such orders as may be necessary to protect public health and welfare and the environment."); *see also Negotiating Superfund Settlements*, EPA (June 8, 2023), https://www.epa.gov/enforcement/negotiating-superfund-settlements [perma.cc/XCY4-MNVW] ("Consent decrees are the only settlement type that EPA can use for the final cleanup phase (remedial action) at a Superfund site"); *Superfund Unilateral Orders*, EPA (May 23, 2023), https://www.epa.gov/enforcement/superfund-unilateral-orders [perma.cc/3Z5D-KWAB] ("A unilateral administrative order (UAO) is an enforcement instrument that EPA can use to require parties to take response action.").

[113] *See* 42 U.S.C. § 9622(d)(1)(A) ("Whenever the President enters into an agreement under this section with any potentially responsible party with respect to remedial action under section 9606 of this title . . . the agreement shall be entered in the appropriate United States district court as a consent decree.").

[114] *See Incentive for Negotiating Superfund Settlements*, EPA (Oct. 27, 2023), https://www.epa.gov/enforcement/incentives-negotiating-superfund-settlements (describing benefits of settlements for PRPs).

[115] 42 U.S.C. § 9622(d)(1)(A)*; see id.* § 9622(f)(6)(A) (providing an exception to a covenant not to sue in the event that future contamination results from "conditions which are unknown at the time the President certifies . . .that remedial action has been completed at the facility concerned").

[116] *See* Memorandum from Don R. Clay, Assistant Adm'r to Off. of Solid Waste & Emergency Response, EPA & James M. Strock, Assistant Adm'r of Off. of Enf't & Compliance

considered a less favorable alternative to consent decrees due to their inflexibility[117] and potential for increased cost to the EPA,[118] UAOs are widely recognized for their capacity to expedite prolonged negotiation and cleanup processes, and constitute an important mechanism for conserving agency resources and ensuring response actions are taken in timely manner.[119]

Following the broadly-defined categories of PRPs under CERCLA, EPA has committed to placing "responsibility for limiting exposures and addressing hazards of PFAS on manufacturers, distributors, importers, industrial and other significant users, dischargers, and treatment and disposal facilities."[120] Given the wide use of PFAS across industries, entities such as aviation operations, paper mills, photolithography facilities, and electronic device manufacturers could be liable.[121] The EPA maintains that it will be unwavering in ensuring polluter accountability and that such commitment will be reflected in its exercise of enforcement discretion.[122]

Monitoring, EPA to Reg'l Adm'rs, Regions I–X, EPA (Mar. 7, 1990) (explaining the usefulness of UAOs to "provide an incentive for PRPs to settle, . . . control settlement negotiation deadlines, and . . . force commencement of work at the site when settlement cannot be reached").

[117] *See* 42 U.S.C. § 9613(h) (providing that a UAO is not subject to judicial review after a PRP has complied with the order's terms).

[118] *See* Memorandum from Barry Breen, Acting Dir., Off. of Site Remediation Enf't, to the Off. of Site Remediation and Restoration et al., EPA (June 17, 1999) ("As a general rule, EPA prefers to achieve these response actions under the . . . Consent Decree rather than through a UAO because settlements reduce the possibility of litigation and the attendant transaction costs.").

[119] *See* Memorandum from Don R. Clay, *supra* note 116, at 3 ("Because many PRPs promptly comply with unilateral orders, they also help conserve the limited funds available for government-financed cleanup.")

[120] EPA, *supra* note 67 at 9.

[121] *See* INTERSTATE TECH. REGUL. COUNCIL, HISTORY AND USE OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) FOUND IN THE ENVIRONMENT 1, 3 (2022) (identifying sources of PFAS production).

[122] *See* Press Release, EPA, EPA Proposes Designating Certain PFAS Chemicals as Hazardous Substances Under Superfund to Protect People's Health (Aug. 26, 2022), https://www.epa.gov/newsreleases/epa-proposes-designating-certain-pfas-chemicals-hazardous-substances-under-superfund [perma.cc/2RDH-HX5R] ("EPA is focused on holding responsible those who have manufactured and released significant amounts of PFOA and PFOS into the environment. EPA will use enforcement discretion and other approaches to ensure fairness for minor parties who may have been inadvertently impacted by the contamination.")

IV. ENVIRONMENTAL JUSTICE AND CERCLA ENFORCEMENT IN THE PFAS CONTEXT

This Part will provide a brief overview of federal action on environmental justice and discuss recent guidance published by the White House and EPA to advance environmental justice using CERCLA enforcement. Using this framework, this Part will analyze the potential effectiveness of these policy tools in ensuring equitable PFAS remediation.

A. FEDERAL ACTION ON ENVIRONMENTAL JUSTICE

The link between toxic contamination and cleanup, race, and income has been documented since before the turn of the twenty-first century.[123] In 1992, the *National Law Journal* analyzed every residential toxic waste site listed under CERCLA and reported that the government "takes longer to address hazards in minority communities, and it accepts solutions less stringent than those recommended by the scientific community."[124] However, the report also noted while all other pollution law violations resulted in lower penalties for pollution in minority areas, in CERCLA enforcement cases, penalties in minority areas came out higher than those in white areas by about 9%.[125] Together, such findings reveal that even when fines are imposed on uncooperative polluters, expedient and complete cleanup actions may still be lacking. Therefore, enforcement mechanisms must ensure that remediation is promptly commenced and carefully monitored in environmental justice communities.

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[123] *See* Robert J. Brulle & David N. Pellow, *Environmental Justice: Human Health and Environmental Inequalities*, 27 ANN. REV. PUB. HEALTH 103, 106 (2006) (citing Phil Brown, *Race, Class and Environmental Health: A Review and Systemization of the Literature*, 69 ENV'T RSCH. 15, 15–30 (1995)) (determining that race and socioeconomic status were significant indicators for the presence of hazardous substance contamination and corresponding remedial action).

[124] Marianne Lavelle & Marcia Coyle, *Unequal Protection: The Racial Divide in Environmental Law, A Special Investigation*, 15 NAT'L L.J. 1, 1 (1992).

[125] *See id.* at 4 ("Only in Superfund enforcement cases . . . did fines in minority areas come out higher than in white areas, by 9 percent. Minority communities saw lower average penalties in federal enforcement of the Clean Water Act, by 28 percent, the Clean Air Act, by 8 percent, and the Safe Drinking Water Act, by 15 percent.")

On February 11, 1994, President Bill Clinton issued Executive Order 12898, entitled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations."[126] The EPA has defined "environmental justice" as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies."[127] Executive Order 12898 marked the first significant federal environmental justice commitment, despite the environmental justice movement having been underway since legal scholars and activists brought suits alleging discrimination by federal and state governments in the siting of hazardous waste facilities in the early 1980s.[128] The movement reignited after the Flint water crisis exposed how the underenforcement of protective laws can lead to "chronic toxic exposure of an entire population," most particularly Black and low-income communities.[129]

As Flint revealed, enforcement of environmental laws is a critical component of environmental justice, as laws without proper enforcement inadequately protect vulnerable communities. In regard to CERCLA enforcement, the EPA has wide discretion over which sites are prioritized for cleanup action and how that action takes place.[130] It is responsible for implementing timelines for site-

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[126] Exec. Order No. 12,898, 3 C.F.R. § 859 (1995), *reprinted as amended in* 42 U.S.C. § 4321.

[127] *Learn About Environmental Justice*, EPA (Sept. 6, 2022), https://www.epa.gov/environmentaljustice/learn-about-environmental-justice?utm_campaign=Misc&utm_medium=AgencyMassMailers&utm_source=Administrator&utm_content=210406 [perma.cc/N888-6WZN].

[128] *See* Dana & Tuerkheimer, *supra* note 26, at 95 ("In the 1980s, legal scholars and activists called for what they coined 'environmental justice'; a number of private suits alleged that federal and state governments were imposing disproportionate risks upon communities based on race or national origin."); *Environmental Justice Timeline*, EPA (June 27, 2023), https://www.epa.gov/environmentaljustice/environmental-justice-timeline [perma.cc/8JEW-BMBS] (presenting the "EPA's involvement in the Environmental Justice Movement and the major events leading up to it").

[129] Dana & Tuerkheimer, *supra* note 26, at 94 (quoting FLINT WATER ADVISORY TASK FORCE, FINAL REPORT 1 (Mar. 21, 2016), https://www.michigan.gov/-/media/Project/Websites/formergovernors/Folder6/FWATF_FINAL_REPORT_21March2016.pdf?rev=284b9e42c7c840019109eb73aaeedb68 [https://perma.cc/4REX-3HSV]).

[130] *See Superfund Cleanup Process,* EPA (June 5, 2023), https://www.epa.gov/superfund/superfund-cleanup-process [perma.cc/S8FL-8PUD] ("EPA determines if the site poses a threat to people and the environment and whether hazards need to be addressed immediately . . . .").

specific actions and ensuring completeness of the remediation from a health and environmental standpoint.[131] Unlike other environmental laws where the agency may seek alternatives to enforcement, CERCLA's "enforcement first" strategy ensures that "PRPs conduct or pay for cleanups, preserving taxpayer dollars for sites without viable PRPs."[132] Therefore, the EPA is uniquely incentivized to bring enforcement actions for cleanup under CERCLA where PRPs can be identified. Since there is already a backlog of sites requiring cleanup that are not receiving remediation due to lack of funding,[133] strategic enforcement and identification of PRPs following environmental justice guidance will be essential to ensuring that PFAS-contaminated communities receive the thorough remediation CERCLA authorizes by law.

In recognition of enforcement as a tool for change, the White House and EPA have focused on the nexus between CERCLA enforcement and environmental justice in issuing both policy and technical guidance. In January 2021, President Biden issued Executive Order 13985, titled "Advancing Racial Equity and Support for Underserved Communities Through the Federal Government"[134] and Executive Order 14008 "Tackling the Climate Crisis at Home and Abroad."[135] Executive Order 14008 recognized that "[t]o secure an equitable economic future, the United States must ensure that environmental and economic justice are key considerations in how we govern."[136] In furtherance of this statement, President Biden ordered the EPA to "strengthen enforcement of environmental violations with disproportionate

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[131] *See id.* (stating that activities during the "Post Construction Completion" phase "help ensure that cleanup work at a site continues to protect human health and the environment").

[132] ENV'T PROT. NETWORK, RESETTING THE COURSE OF EPA 21 (2020), https://www.environmentalprotectionnetwork.org/wp-content/uploads/2020/08/Resetting-the-Course-of-EPA-Report.pdf [perma.cc/W8R7-DFM5].

[133] *See* Katherine N. Probst, *Superfund at 40: Unfulfilled Expectations*, *in* LOOKING BACK TO MOVE FORWARD: RESOLVING HEALTH AND ENVIRONMENTAL CRISES 187, 238 (2020) ("[L]ack of adequate funding undermines the fundamental goal of Superfund to ensure the timely and effective cleanup of releases of hazardous substances into the environment."); *see also Superfund Sites with New Construction Projects Awaiting Funding*, EPA (Oct. 30, 2023), www.epa.gov/superfund/superfund-sites-new-construction-projects-awaiting-funding [perma.cc/PDF4-J575] (detailing the backlog of unfunded Superfund cleanups since 2005).

[134] Exec. Order No. 13,985, 86 Fed. Reg. 7009 (Jan. 20, 2021).

[135] Exec. Order No. 14,008, 86 Fed. Reg. 7619 (Jan. 27, 2021).

[136] *Id.* at 7629.

impact on underserved communities."[137] Executive Order 14008 was an encouraging signal of President Biden's intent to incorporate environmental justice into the policies and practices of all federal agencies.[138] It also created the White House Environmental Justice Advisory Council (WHEJAC) for the purpose of "ensuring that historically marginalized and polluted, overburdened communities have greater input on federal policies and decisions."[139]

EPA Administrator Michael Regan responded to President Biden's directives with a memorandum to all EPA employees.[140] Regan noted that one of his top priorities as Administrator would be to further environmental justice initiatives to remedy "disproportionately high pollution levels and the resulting adverse health and environmental impacts" in communities whose residents are mainly people of color, indigenous, or low-income.[141] To implement this commitment, Regan instructed all EPA employees to "[s]trengthen enforcement of violations of cornerstone environmental statutes" in underserved communities and to "[t]ake immediate and affirmative steps to improve early and more frequent engagement with pollution-burdened and underserved communities affected by agency rulemakings, permitting and enforcement decisions, and policies."[142]

B. CAN CERCLA ENFORCEMENT GUIDANCE DELIVER ON ENVIRONMENTAL JUSTICE IN PFAS CLEANUP?

President Biden's and Administrator Regan's orders were clear: every office under the EPA must use their rulemaking and enforcement powers to prioritize communities with environmental

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[137] *Id.* at 7631.

[138] Executive Order 14008 is also responsible for creating the Justice40 Initiative, a commitment to ensuring that 40% of federal investments flow to disadvantaged communities. *Id*. at 7631–32; *see also Justice40: A Whole-of-Government Initiative*, WHITE HOUSE, https://www.whitehouse.gov/environmentaljustice/justice40/ [perma.cc/AH34-WUHU] ("[T]he Justice40 Initiative[] . . . seeks to address the intersectionality of underinvestment, environmental injustice, and the climate crisis.).

[139] *White House Announces Environmental Justice Advisory Council Members*, WHITE HOUSE (Mar. 29, 2021), https://www.whitehouse.gov/ceq/news-updates/2021/03/29/white-house-announces-environmental-justice-advisory-council-members/ [perma.cc/APT3-9S4B].

[140] Memorandum from Michael S. Regan, Adm'r, EPA, to EPA employees (Apr. 7, 2021).

[141] *Id.*

[142] *Id.*

justice concerns.[143] In the CERCLA enforcement context, this means that the Office of Enforcement and Compliance Assurance (OECA), the EPA organization responsible for enforcing CERCLA and other foundational environmental statutes,[144] should promulgate rules, issue guidance, and make enforcement decisions that reflect the agency-wide commitment to equitable enforcement outcomes, using the scientific and policy recommendations from committees focused on environmental justice.

In May 2021, the National Environmental Justice Advisory Council (NEJAC), a public advisory committee responsible for providing environmental justice advice to the EPA,[145] published a report titled "Superfund Remediation and Redevelopment for Environmental Justice Communities."[146] Its opening recommendation was to identify and list contaminated sites impacting environmental justice communities, a straightforward yet critical first step for a comprehensive, enforcement-centered approach to remediation for overburdened and underserved communities.[147] Further, the report proposed in detail how regulators and PRPs may better serve affected communities after a site has been listed under CERCLA.[148] NEJAC recommended early and routine "end state visioning with the impacted community," community engagement training and mentoring for EPA staff, more accessible community resources, and a host of other changes to be implemented on the ground during the enforcement process.[149] In sum, NEJAC emphasized that regulators and PRPs must learn and incorporate community needs and goals into their remediation

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[143] *See supra* notes 134–142 and accompanying text.

[144] *About the Office of Environmental Rights and Compliance Assurance*, EPA (Aug. 23, 2023), https://www.epa.gov/aboutepa/about-office-environmental-justice-and-external-civil-rights [perma.cc/9UVP-WN7M].

[145] *National Environmental Justice Advisory Council*, EPA (July 18, 2022), https://www.epa.gov/environmentaljustice/national-environmental-justice-advisory-council [perma.cc/SBE8-HF7A].

[146] NAT'L. ENV'T JUST. ADVISORY COUNCIL, *supra* note 23.

[147] *Id.* at 20.

[148] *Id.* at 27 (recommending program-level guidance for relevant stages of the remedial process, "both before and after EPA makes a remedy selection decision").

[149] *See id.* at 11–13 (outlining recommendations to make Superfund more effective for underserved communities).

planning and implementation.[150] Without these efforts, CERCLA enforcement in environmental justice communities would fall short.

In July 2021, OECA issued a memorandum (hereinafter "EJ Cleanup Enforcement Memorandum") to the Office of Site Remediation Enforcement Managers and Regional Superfund Counsels and Division Directors expressly identifying how enforcement of CERCLA would promote the environmental justice goals directed by the President and EPA Administrator, as well as recommendations from NEJAC.[151] Firstly, the EJ Cleanup Enforcement Memorandum declared that the Office's remediation and enforcement programs will "protect overburdened communities by requiring responsible parties to take early and expedited cleanup actions, developing more robust enforcement instruments, ensuring the oversight of those enforcement instruments, and building trust and capacity through community engagement."[152] As guidance, OECA's memorandum is non-binding,[153] but regional administrators, the public, and regulated agencies will use this document and others to determine how the Office's enforcement discretion will be exercised, producing real-world consequences.[154] The following Section will discuss the effectiveness of OECA's guidance for ensuring that environmental justice communities are prioritized for PFAS remediation and cleanup enforcement.

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[150] *Id.* at 19 (characterizing incorporation of community input as "crucial" to the program").

[151] *See* Memorandum from Lawrence E. Starfield, Acting Assistant Dir., EPA, to the Off. of Site Remediation Enforcement Managers et al., EPA (July 1, 2021) [hereinafter EJ Cleanup Enforcement Memorandum] (setting out steps to advance the environmental justice goals of cornerstone environmental statutes).

[152] *Id.* at 1.

[153] *See* EPA Guidance; Administrative Procedures for Issuance and Public Petitions, 85 Fed. Reg. 66230, 66234 (Oct. 19, 2020) (to be codified at 40 C.F.R. pt. 2) https://www.federalregister.gov/documents/2020/10/19/2020-20519/epa-guidance-administrative-procedures-for-issuance-and-public-petitions#citation-8-p66232 [perma.cc/MT5U-MHLG] (explaining the non-binding nature of guidance documents); William Funk, *Agency Guidance Documents and NRDC v. EPA*, AM. BAR ASS'N (May 1, 2012), https://www.americanbar.org/groups/environment_energy_resources/publications/trends/2011_12/may_june/agency_guidance_documents_nrdc_epa/ (providing case law addressing the authority and reviewability of guidance documents).

[154] *See* Nicholas R. Parrillo, *Federal Agency Guidance and the Power to Bind: An Empirical Study of Agencies and Industries*, 36 YALE J. ON REG. 165, 231–44 (2019) (discussing the consequences of agency control over whether guidance is operative for a given party).

C. FOUR ENFORCEMENT POLICIES AND THEIR EFFECTIVENESS IN ENVIRONMENTAL JUSTICE CLEANUP ACTION FOR PFAS

The enforcement strategies put forth by OECA constitute an encouraging starting point for articulating and implementing an environmental justice cleanup framework for PFAS remediation. Firstly, OECA indicated that it intends to identify and prioritize cleanups in environmental justice communities.[155] While this is a critical first step, the Office's enforcement guidance was not clear about how such identification will take place.[156] While OECA's other strategies—expedited remediation, strict compliance oversight, and improving means of community engagement—are extremely important, without concrete measures in place to combat the trend of under-enforcement and willful ignorance of environmental hazards in underserved communities, there is no reason for full confidence that PFAS contamination in underserved communities will be adequately remediated. This Note will discuss the strengths and weaknesses of the policies articulated in OECA's EJ Cleanup Enforcement Memorandum and conclude that if environmental justice communities are prioritized in site identification, the OCEA's framework will allow the federal government to strategically and effectively use enforcement tactics to pursue environmental justice ends.

1. Prioritizing Cleanups in Environmental Justice Communities. The EJ Cleanup Enforcement Memorandum makes multiple references to identifying sites and prioritizing action in overburdened communities.[157] As background, it notes that OECA "uses mapping and screening tools, including EJSCREEN, in combination with local knowledge to help identify overburdened communities that may be disproportionately impacted by adverse

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[155] *See* EJ Cleanup Enforcement Memorandum, *supra* note 151, at 1 (outlining the EPA's plan to identify overburdened communities).

[156] *See generally id.* (stating how OECA should advance environmental justice goals).

[157] Action items in the EJ Cleanup Enforcement Memorandum include: "Prioritize early action and/or enforcement efforts on Superfund site operable units that most impact overburdened communities[,] . . . expedite cleanups where overburdened communities are impacted[, and] . . . [c]onduct compliance reviews at sites in communities with EJ concerns to ensure that remedial requirements . . . are being implemented consistent with the enforcement instrument's schedule, work, and quality expectations." EJ Cleanup Enforcement Memorandum, *supra* note 151, at 2–3.

health and environmental effects."[158] However, the enforcement guidance is not clear as to how EJScreen, an environmental justice screening tool which identifies factors such as race, unemployment, and proximity to hazardous waste facilities,[159] interacts with statutory and regulatory directives, such as the Hazard Ranking System used by EPA, to identify hazardous waste sites that pose a threat to human health or the environment.[160]

At this point, the Office of Land and Emergency Management, which oversees the CERCLA program, has released an action plan containing various proposals to ensure adequate consideration of environmental justice concerns in the hazardous waste site identification process, but the timeline of implementation and the precise role of OECA are not yet clear.[161] To ensure that overburdened communities are prioritized for PFAS cleanups, OECA needs to have a measurable protocol for incorporating environmental justice factors into its inspection and identification processes, and the Office's commitment to prioritizing environmental justice communities must be supported by data showing how overburdened communities are identified, assessed,

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[158] *Id.*

[159] *See EJScreen: Environmental Justice Screening and Mapping Tool*, EPA (June 26, 2023), https://www.epa.gov/ejscreen [perma.cc/3X95-NQNA] (noting that EJScreen "combines environmental and demographic indicators in maps and reports"); *see also* Conrad Bolston et al., *EPA and CEQ's New Environmental Justice Screening Tools: Five things You Should Know*, VINSON & ELKINS LLP (Mar. 9, 2022), https://www.velaw.com/insights/epa-and-ceqs-new-environmental-justice-screening-tools-five-things-you-should-know/ [perma.cc/L36E-XLB2] (describing the goals of EJScreen, including the utilization of demographic information to compare conditions in minority populations to surrounding areas).

[160] *See Hazard Ranking System (HRS)*, EPA (Dec. 13, 2022), https://www.epa.gov/superfund/hazard-ranking-system-hrs [perma.cc/5K8J-KEWB] ("The Hazard Ranking System (HRS) is the principal mechanism that the EPA uses to place uncontrolled waste sites on the National Priorities List (NPL).").

[161] EPA, EJ ACTION PLAN: BUILDING UP ENVIRONMENTAL JUSTICE IN EPA'S LAND PROTECTION AND CLEANUP PROGRAMS 21, (2022) https://www.epa.gov/system/files/documents/2022-09/OLEM-EJ-Action-Plan_9.2022_FINAL-508.pdf [perma.cc/96AT-CJJA] ("OSRTI is updating and will issue a policy memorandum that helps Regions incorporate community input and EJ considerations when investigating, prioritizing, selecting, and documenting remedial and non-time-critical removal actions."). Further, OECA indicated its intent to increase the number of facility inspections in overburdened communities, but there has not been a follow-up on this item since the Office announced it would conduct an analysis before setting new inspection goals. EJ Cleanup Enforcement Memorandum, *supra* note 151, at 1–2.

and given precedence relative to communities without environmental justice concerns.

2. Bifurcating RD/RA. In addition to asserting OECA's policy of prioritizing environmental justice communities in site identification and subsequent enforcement efforts, the EJ Cleanup Enforcement Memorandum directed enforcement managers and regional Superfund directors to require early and prompt cleanup actions in overburdened communities, specifically noting that enforcement authorities should "elevate the focus on completing negotiations within one year, and bifurcate RD and RA where needed to achieve this goal."[162] This recommendation grew from previous EPA guidance recommending that "[EPA] Regions consider using separate settlement tracks for remedial design and remedial action where negotiations for a single consent decree addressing both remedial design/remedial action (RD/RA) are likely to be protracted."[163] This means that at PFAS-contaminated sites in communities with environmental justice concerns, PRPs could be required to perform remedial designs pursuant to a CERCLA settlement agreement while negotiations about remedial action are still ongoing, leading to earlier action than might otherwise be expected.

As a reminder, RD is the engineering stage where PRPs and EPA identify specific steps that will be undertaken during remedial action.[164] This guidance suggests, for example, that if Wolverine Worldwide or DuPont were PRPs negotiating a settlement agreement for contamination at a site, and negotiations were taking a long time due to disagreements about the scope of the response action required or who would pay for implementation of the remedial design, Wolverine or DuPont could be ordered to complete all phases of the remedial design work notwithstanding a final decision about who covers which costs. Given that PFAS-contaminated sites requiring remedial action are likely to involve multiple PRPs, since contamination has been occurring relatively unchecked since the 1930s, and site ownership often changes over

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[162] EJ Cleanup Enforcement Memorandum, *supra* note 151, at 2.

[163] Memorandum from Cynthia L. Mackey, Dir. of Off. of Site Remediation Enf't, EPA, to the Superfund Nat'l Program Managers, Regions 1-10 & Reg'l Counsels, EPA (June 21, 2018).

[164] *See generally* OFF. OF EMERGENCY & REMEDIAL RESPONSE, EPA, 540/R-95/059, REMEDIAL DESIGN/REMEDIAL ACTION HANDBOOK (1995) (providing an in-depth overview of remedial design and remedial action in project management plans).

time, the remedial action negotiations could very well be protracted, as the EPA and various PRPs consider how costs for the cleanup should ultimately be allocated.[165]

The recommendation to bifurcate RD and RA was largely derived from a 2017 Superfund Task Force Report advising that CERCLA settlements may be expedited by having PRPs settle distinct agreements for the engineering phase (RD) and the implementation phase (RA).[166] This course was suggested due to the agency's growing awareness that negotiating RD and RA together tends to protract the entire cleanup process, due to the additional PRP expense required for the RA phase and the fact that consent decrees for RD/RA must be entered in court, creating a significant delay after signatures are obtained.[167] By separating the phases and issuing an order to PRPs to perform the RD only, RD work can commence earlier and help PRPs gather critical information regarding the scope and cost of subsequent remedial action.[168]

The theme of thorough and efficient cleanups has been consistent in EPA policy guidance across administrations. Additional EPA guidance published in 2019 further recommended that negotiations for RA should take place while RD is being performed, specifying that there should be no delay between the completion of RD and the initiation of RA.[169] Pursuant to the EJ Cleanup Enforcement Memorandum and similar guidance, EPA issued a model RD/RA Consent Decree incorporating various mechanisms referenced in the memorandum to expedite negotiations for CERCLA cleanup settlements, and this guidance is available for use by PRPs who may soon be facing liability for PFOS and PFOA contamination.[170]

3. Using UAOs to Compel PRP Action. Third, to accelerate remediation in overburdened communities, the EJ Cleanup

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[165] *See* Brennan et al., *supra* note 59, at 1–4 (describing the problems caused by PFAS since the 1930s and analyzing the regulatory actions taken to address them).

[166] Memorandum from Cynthia L. Mackey, *supra* note 163, at 1.

[167] *See id.* at 2 ("Upon departing from the path of negotiating the remedial design and remedial action together in one consent decree, Regions should first attempt to enter into an administrative settlement agreement with the PRPs for the remedial design work.").

[168] *See id.* at 3 ("Entering into a [RD] administrative settlement agreement with PRPs can therefore help to get the [RD] work started sooner.").

[169] Memorandum from Cynthia L. Mackey, Dir. of the Off. of Site Remediation Enf't, EPA to Reg'l Counsels et al., EPA 1.

[170] EPA, MODEL REMEDIAL DESIGN/REMEDIAL ACTION CONSENT DECREE (2023), https://cfpub.epa.gov/compliance/models/view.cfm?model_ID=81.

Enforcement Memorandum encouraged regional enforcement authorities to enlist assistance from the Office of Regional Counsel when PRPs attempt to extend deadlines and use UAOs to compel PRPs to undergo remediation if negotiations are stalling compliance action in overburdened communities.[171] UAOs are the unilateral enforcement tools that EPA may use to compel PRP action when a settlement appears impossible,[172] and they cannot be challenged in court until the PRP complies with its terms.[173] The 2019 EPA guidance on streamlining CERCLA cleanups encourages EPA's use of UAO authority to expedite cleanup when negotiations are unsuccessful.[174] The guidance clearly states that "PRPs should know during negotiations that EPA is willing and ready to issue a UAO if a settlement cannot be achieved in a reasonable time."[175]

As with the decision to bifurcate RD/RA, OECA's memorandum asserts that site-specific environmental justice factors should be considered in agency decisions to expedite remediation through use of UAOs. The EJ Cleanup Enforcement Memorandum explicitly refers to UAOs as tools for "[p]rioritiz[ing] early action and/or enforcements efforts at Superfund operable units that most impact overburdened communities," directing enforcement authorities to "[l]ook for opportunities to issues orders for interim relief to address acute threats in conjunction with negotiating more comprehensive cleanup settlements."[176] The fact that the memorandum's recommendations rely on guidance issued in 2019 suggests that using UAOs to accelerate cleanup actions in environmental justice communities is a tool that may endure despite changes in administrations, given that multiple EPA administrators have emphasized the need to achieve more prompt and effective remediation through zealous enforcement.[177]

With regard to PRPs liable for PFAS contamination, following the designation of PFOA and PFOS as hazardous substances, regional enforcement authorities may issue UAOs when they

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[171] EJ Cleanup Enforcement Memorandum, *supra* note 151, at 2.

[172] *See supra* note 118 and accompanying text.

[173] *See* Justin R. Pidot & Dale Ratliff, *The Common Law of Liable Party CERCLA Claims*, 70 STAN. L. REV. 191, 207 (2018).

[174] Memorandum from Cynthia L. Mackey, *supra* note 169, at 3.

[175] *Id.*

[176] EJ Cleanup Enforcement Memorandum, *supra* note 151, at 2.

[177] *Id.* at 2 n.5.

determine that "there may be an imminent and substantial endangerment to the public health or welfare or the environment" as a result of an actual or threatened PFOA or PFAS release.[178] Based on this guidance, enforcement officials should be willing to use UAOs when response actions are delayed at PFAS-contaminated sites in overburdened communities, meaning that environmental justice communities should expect more prompt response actions and resource allocations from PRPs.

Liberal use of UAOs to compel early action by PRPs should also benefit environmental justice communities because UAOs do not allow for PRP gymnastics (which tend to leave communities behind during settlement negotiations). EPA consent decrees protect settling PRPs from any claims by communities for contribution regarding matters already addressed in the settlement, with the exception of conditions unknown at the time.[179] To combat the silencing of community concerns, EPA can invoke "UAO provisions that obligate PRPs to assist EPA with its community involvement efforts."[180] This allows for increased community engagement and ensures that communities have a greater opportunity to direct the futures of remediated sites.

4. Community Involvement and Monitoring. Lastly, the EJ Cleanup Enforcement Memorandum recognizes that PRPs should publish a schedule of obligations to allow for community monitoring and increased community oversight of enforcement instruments.[181] This guidance is consistent with other federal environmental justice

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[178] 42 U.S.C. § 9606(a).

[179] *See id.* § 9613(f)(2) ("A person who has resolved its liability to the United States or a State in an administrative or judicially approved settlement shall not be liable for claims for contribution regarding matters addressed in the settlement."). In some instances, this system allows for polluters not participating in the settlement to intervene at the last minute to avoid getting stuck with a large share of the cleanup costs, while communities comprising victims of toxic pollution are rarely permitted to participate. For a discussion of avenues for community intervention in CERCLA litigation, See generally Maya Waldron, *A Proposal to Balance Polluter and Community Intervention in CERCLA Litigation*, 38 ECOLOGY L.Q. 401 (2011).

[180] EPA, COMMUNITY ENGAGEMENT INITIATIVE 13 (2014), https://www.epa.gov/sites/default/files/2014-10/documents/cei-compilation-final-2014.pdf; *see also* EPA, *supra* note 161, at 22 (encouraging regional Superfund agencies to "provide specific information about communities and sites that enables stakeholders and EPA site teams to explore site reuse opportunities that promote equitable redevelopment and community-wide revitalization").

[181] EJ Cleanup Enforcement Memorandum, *supra* note 151, at 3.

commitments on PFAS involving increased research and data collection to determine where PFAS releases have occurred and their proximity to environmental justice communities, as well as investigations into the cumulative effects of PFAS contamination on such communities.[182] In response to President Biden's Executive Order, the White House Environmental Justice Advisory Council (WHEJAC) submitted a report on Justice40 and additional environmental justice programs.[183] While the report was focused on the entirety of Justice40, covering clean transit, affordable housing, and a wide range of other programs and initiatives, it recommended that "drinking water surveillance for PFAS[]" be included in EJScreen[184] and that EPA should designate staff in satellite offices to assist with local oversight and ensure accountability with cleanups.[185]

Per recommendations from NEJAC, the PFAS Roadmap also expressed EPA's intent to engage with individual communities to better understand the impact of PFAS contamination on the lived experiences of people across each EPA region.[186] According to Radhika Fox, Assistant Administrator for Water and Co-Chair of the EPA Council on PFAS, representatives from the EPA will be "meeting with those communities that are on the frontlines of PFAS contamination to really get their feedback on the roadmap" and "what other actions they want us to be doing."[187] Once PFAS cleanups commence, EPA has committed to training regulators on environmental justice, making resources, health data, and environmental law more accessible to communities, and creating new ways for PRPs, regulators, and communities to plan for the

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[182] *See* EPA, *supra* note 67, at 12, 18–19 (describing future efforts to monitor PFAS in drinking water systems to analyze potential environmental justice impacts and explaining EPA's aim to "characterize how exposure to PFAS may contribute to cumulative impacts on communities, particularly communities with environmental justice concerns").

[183] WHITE HOUSE ENV'T JUST. ADVISORY COUNCIL, FINAL RECOMMENDATIONS: JUSTICE40 CLIMATE AND ECONOMIC JUSTICE SCREENING TOOL & EXECUTIVE ORDER 12898 REVISIONS (2021).

[184] *Id.* at 68.

[185] *Id*. at 45.

[186] EPA, *supra* note 67, at 20.

[187] *Evaluating the Federal Response to the Persistence and Impacts of PFAS Chemicals on Our Environment: Hearing Before the S. Comm. on Env't and Public Works*, 117th Cong. 36 (2022) (statement of Radhika Fox, Assistant Adm'r, Off. of Water, EPA).

future of PFAS contaminated sites in addition to conducting cleanups.[188]

While increased research, communication, and efforts to determine actual community needs are critical components of environmental justice in the PFAS contamination context, information-gathering is only one piece of the puzzle.[189] Enforcement and response action must reflect the awareness regulators already have of disproportionate PFAs burdens in low-income communities and communities of color and adapt to emerging public health and toxicity data to ensure that cleanups happen promptly and in a manner that corresponds with scientific findings on the extent of remediation required.

To facilitate community engagement with regulators at listed CERCLA contaminated sites, EPA and DOJ issued a model Statement of Work (SOW) for Remedial Action/Remedial Design consent decrees.[190] The model SOW recommends that PRPs publish schedules to public forums in a timely manner so that communities can oversee progress.[191] The model also contained a requirement for a Community Impacts Mitigation Plan to limit potential adverse consequences to the communities from cleanup action, including noises and odors.[192] The model RD/RA SOW is intended to be used by the EPA and DOJ in proscribing technical procedures to be used during remedial action and keeping communities looped in at every stage of the cleanup process.[193]

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[188] *See* NAT'L. ENV'T JUST. ADVISORY COUNCIL, *supra* note 23, at 10 (detailing the NEJAC's report to help integrate environmental justice into the cleanup and redevelopment of Superfund and other contaminated sites).

[189] *See* WHITE HOUSE ENV'T JUST. ADVISORY COUNCIL, *supra* note 183, at 38 (urging EPA to "[c]onduct civil rights compliance reviews under Title VI of the Civil Rights Act" and "prioritize states where there are decades of civil rights complaints by Black and other communities of color against permitted pollution in their communities").

[190] *2021 CERCLA RD/RA CD and SOW Model Documents*, EPA (Aug. 31, 2021), https://www.epa.gov/enforcement/2021-cercla-rdra-cd-and-sow-model-documents [perma.cc/3W9K-LE3G].

[191] EPA, MODEL REMEDIAL DESIGN/REMEDIAL ACTION STATEMENT OF WORK § 2.2(d) (2023).

[192] *Id.* § 8.7(f).

[193] *Id.*

V. CONCLUSION

As the proposed rule for designating PFOA and PFOS as hazardous substances demonstrates, the PFAS problem is not going away.[194] In recognition of the disproportionate burden borne by low-income communities and communities of color, unprecedented federal action is underway. This Note argues that the guidance and policies promulgated by the EPA under the Biden Administration to improve and accelerate clean-up of hazardous sites in environmental justice communities are likely to lead to tangible positive changes in the federal response to PFAS contamination if overburdened communities are prioritized in the identification and remediation of contaminated sites. The convergence in timing of the most comprehensive environmental justice action agenda pursued at the federal level and the EPA's consistent recognition of race and income disparities in PFAS contamination has given the Biden Administration and environmental enforcement agencies, specifically EPA and OECA, a clear path forward to prioritize PFAS remediation in environmental justice communities by exercising CERCLA enforcement discretion. Both the public and policymakers must pay close attention to ensure that EPA and OECA implement the enforcement strategies enumerated in agency guidance once or as soon as PFOA and PFOS are designated as hazardous substances.

Under EPA direction, OECA committed to prioritizing environmental justice communities in selecting sites for cleanup, expediting negotiations with PRPs to ensure prompt settlements and response actions in overburdened communities, and improving communication between regulators and affected residents where cleanup actions are taking place.[195] EPA acted on its promises early by conducting due diligence at the grassroots level to gain feedback on its PFAS Roadmap and traveling to communities to learn about

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[194] *See* Designation of Perfluorooctanoic Acid (PFOA) and Perflurooactanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, *supra* note 78, at 54417 ("[H]uman exposure to PFOA and PFOS are anticipated to continue for the foreseeable future due to its environmental persistence, formation from precursor compounds, continued production by international manufacturers and possible domestic production, and as a result of the large legacy production in the United States.").

[195] *See supra* section IV.C.

how PFAS contamination affects people's lives and livelihoods.[196] These efforts were consistent with NEJAC and WHEJAC guidance on building trust and seeking community input on remediation efforts.

From an enforcement perspective, EPA recently negotiated settlements requiring PRPs to conduct remediation pursuant to specific community concerns.[197] Performance of other enforcement commitments, specifically the agency's willingness to use UAOs and bifurcate RD/RA to accelerate cleanup action and its success in facilitating collaborative future planning efforts between communities and PRPs, remains to be seen when PFOS and PFOA are designated as hazardous substances and CERCLA enforcement begins.

The framework, delineated in guidance memoranda and described in this Note, could serve as an example of how the U.S. government can use an existing mechanism of environmental law to combat environmental injustices of the past and present. The enforcement methods, if diligently followed by regulators, should result in tangible positive impacts in PFAS-contaminated environmental justice communities. On the other hand, failure by the U.S. government to deliver on its environmental justice promises in the PFAS remediation context will demonstrate the equitable and remedial limits of our nation's reactive approach to chemicals regulation with unprecedented clarity.

If federal environmental enforcement agencies uniformly follow environmental justice protocols to clean up PFAS-contaminated sites, there should be data to support the cleanup progress taking place in environmental justice communities and the results should

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[196] *See supra* section IV.C.

[197] *See Companies to Pay for Cleanup of Groundwater at Montrose Superfund Site Following Settlement with EPA, Justice Department, California Department of Toxic Substances Control*, EPA (Oct. 5, 2021), https://www.epa.gov/newsreleases/companies-pay-cleanup-groundwater-montrose-superfund-site-following-settlement-epa [perma.cc/6UPK-GNFH] (describing three settlement agreements that were recently approved by the U.S. District Court for the Central District of California); *see also* News Release, EPA, Court Approves EPA and Dico Inc. and Titan Tire Company Settlement in Des Moines: EPA to Demolish Contaminated Buildings, City Prepares for Redevelopment of 43 Acres, (Feb. 8, 2021), https://www.epa.gov/newsreleases/court-approves-epa-and-dico-inc-and-titan-tire-company-settlement-des-moines-epa [perma.cc/WBW9-M2W5] (announcing court approval of the EPA settlement agreement for payment of the Agency's past cleanup costs and future cleanup work in Des Moines, Iowa).

speak for themselves. As this Note explains, such protocols include using expedited RD/RA and UAOs to compel PRP action in overburdened communities and deploying a comprehensive approach for increased community engagement in addressing PFAS contamination. These methods must result in federal remediation efforts in environmental justice communities on an unprecedented scale. If these strategies fall short, it will be clear that agency enforcement guidance is insufficient to ensure that communities who have disproportionately borne the burden of toxic exposure from corporate manufacturing and distribution of hazardous chemicals are cleaned up and compensated, and far more will need to be done at the federal level.