

Miscalculated Estimates: The Imminent Financial Burden of EPA's 2024 PFAS Maximum Contaminant Levels

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Per- and polyfluoroalkyl substances (PFAS) are a vast array of synthetic chemicals used in numerous consumer products since their discovery in 1947. Each of the more than 15,000 PFAS chemicals have one thing in common—carbon-fluorine bonds. These bonds are the strongest bonds in organic chemistry and provide these molecules with unique physical and chemical properties, including oil, water, stain, and soil repellency, chemical and temperature resistance, friction reduction, and surfactant properties. As a result, PFAS have been used in thousands of products, from medical devices and electronics to firefighting foam and personal care products. Unfortunately, that same carbon-fluorine bond that provides beneficial properties is also the reason PFAS are referred to as 'forever chemicals.' This strong molecular bond prevents PFAS from breaking down efficiently in the human body and the environment, leading to bioaccumulation of PFAS in humans and animals. While the health impacts of PFAS remain under rigorous study, it is believed that exposure to these chemicals at certain levels may be associated with several adverse health effects, including certain cancers, thyroid disease, high cholesterol, ulcerative colitis and pregnancy-induced hypertension. These alleged adverse health effects will soon be accompanied by financial consequences if new Environmental Protection Agency (EPA) regulations on PFAS in drinking water are ultimately enforced.

To combat rising health concerns, on April 26, 2024, EPA promulgated the first-ever national legally enforceable Maximum Contaminant Levels (MCLs) for six PFAS (EPA, 2024). EPA established MCLs for perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS), at 4 parts per trillion (ppt), the lowest level that current technology can reliably detect. The Rule also set a MCL of 10 ppt for perfluorononanoic acid (PFNA), hexafluoropropylene oxide dimer acid (HFPO-DA) (commonly known as GenX chemicals), and perfluorohexane sulfonic acid (PFHxS). In addition, based on EPA's assertion that certain PFAS are often found together in various combinations, the Rule regulates the mixture of PFNA, HFPO-DA, PFHxS and perfluorobutane sulfonic acid (PFBS) using a Hazard Index of 1 to determine if the combined levels of these PFAS pose a potential risk to human health. Public water systems are allotted 3 years (by 2027) to complete initial monitoring for PFAS and have 5 years (by 2029) to comply with the drinking water standards if monitoring reveals PFAS concentrations exceed the MCLs.

EPA estimated an aggregate total of \$1.548 billion in annual compliance costs for the estimated 4,100 to 6,700 affected water systems. The \$1.548 billion annual compliance cost estimate includes system monitoring, treatment, and disposal among other ongoing costs associated with maintenance and compliance. The estimate also supposedly included "installing and maintaining of new technology," suggesting EPA annualized and added upfront capital costs of installment to ongoing compliance costs (EPA, 2024). Many industry trade groups have expressed concern that EPA has severely underestimated the costs required for investment in new technology and maintenance, as well as the number of public water systems impacted by the rule. EPA's glaring miscalculations are starkly revealed when compared to reliable third-party cost estimates and current PFAS regulations at the state level.

The American Water Works Association (AWWA) commissioned Black & Veatch, a firm that specializes in infrastructure development, to perform an independent analysis into the projected costs associated with regulatory compliance. Black & Veatch produced a cost model that accounted for unique parameters in varying water systems such as facility site constraints, desired level of treatment, and other factors impacting treatment options. Based on the model, Black & Veatch estimated the costs of nationwide compliance with EPA's PFOA and PFOS MCLs could range from \$2.5 to \$3.2 billion annually. They also estimated that national capital costs could exceed \$30.714 billion (Black & Veatch, 2023). It is important to note that this capital estimate covered only groundwater and community water systems (water systems serving more than 25 people year-round). Only about 50,000 public water systems, or approximately 34% of U.S. water systems are community water systems (Berman, 2024). As such, the costs for all water systems are likely to be much higher. The AWWA estimated the new Rule would require more than 5,000 water systems to develop new water sources or install advanced treatment capabilities, while another 2,500 systems in states that already regulate PFAS would need enhanced treatment solutions to meet EPA's stringent MCLs. Because its cost estimates for compliance with just 2 of the 6 new PFAS MCLs significantly exceed EPA's estimated total benefits, the AWWA concluded that MCLs of 10 ppt for PFOA and PFOS would better balance the costs and benefits of the regulations. EPA, however, was unmoved and rejected this suggestion, maintaining its 4 ppt threshold. More recently, the AWWA revised its cost estimates, projecting up to \$40 billion in capital investments to go along with up to \$3.8 billion annually to comply with the MCLs (Magill, 2024). The increases may be attributed to more communities identifying PFAS contamination, heavy demand for consultants and remediation technology, supply chain issues, or various other factors within the model and economy.

It also seems that EPA has underestimated the number of communities that will be financially impacted by the Rule. In the State of Massachusetts, one of 11 states that currently regulates PFAS in drinking water, nearly 70% of public water systems contain PFAS,

and 40% of systems have PFAS levels that exceed its 20 ppt PFAS threshold (Young, 2024). This casts further doubt on EPA's estimate that only 2.8 to 4.5 percent of the roughly 148,000 systems nationwide need remedial action to meet the national level of 4 ppt. Moreover, Milliman, Inc., a global consulting and actuarial firm, published its own staggering estimates of the financial implications associated with MCL compliance that dwarf EPA's cost estimates. The estimates were conceived using a comprehensive model of variables including geospatial, regulatory, and industry data to produce individualized estimates for water districts. The model accounted for more than 140,000 water districts in the United States, each with a unique estimate based upon acquired data. Milliman's model allowed for a more holistic estimate of national water system remediation costs compared to EPA's narrow estimate. The model produced extensive estimates of total aggregate remediation costs ranging from \$140 billion to \$170 billion (Drew B. Groth, 2024). While the estimate isn't necessarily precise due to fluctuations in the environment, economy, and technology, this holistic model strongly indicates that EPA has vastly underestimated the true costs and scope of the Rule. The estimates from the AWWA and Milliman are even more unnerving when compared to available funding for PFAS remediation.

The Bipartisan Infrastructure Law allocates \$9 billion to communities with PFAS and other contaminants in drinking water. Of this, \$4 billion goes to the Drinking Water State Revolving Fund (DWSRF), providing low interest loans designed to enhance water safety, while the remaining \$5 billion is provided through EPA's Emerging Contaminants in Small or Disadvantaged Communities Grant Program – meaning much of this funding will be unavailable to many water systems. With government funding likely inadequate to meet compliance requirements, communities are forced to seek other sources of funding to meet the impending costs of compliance, including testing, monitoring, and installing treatment technology.

One alternative source water providers will undoubtedly have to tap into for the necessary funds is PFAS litigation. Much of that litigation has been focused on multi-district litigation (MDL) in South Carolina against manufacturers of aqueous film-forming foam (AFFF). That litigation resulted in defendant manufacturers 3M, Dupont, Tyco, and BASF agreeing to settle the claims of a class of public water suppliers for an amount likely exceeding \$14 billion (Drew B. Groth, 2024). That amount, even when combined with available federal funds, is woefully inadequate if the Black & Veatch or Milliman estimates are accurate. As a result, litigation brought by water suppliers against other potentially responsible parties has already begun and is expected to grow as water suppliers begin facing compliance costs.

In addition, water providers are expected to pass on some of these increased costs to consumers in the form of increased prices for water. The AWWA predicts that consumers will face increased water costs ranging from nearly \$100 per household to over \$11,000 per household, which is contingent on treatment strategy and service population factors (Black & Veatch, 2023). The overwhelming costs associated with compliance drove AWWA, along with the Association of Metropolitan Water Agencies (AMWA), the American Chemistry Council (ACC), and National Association of Manufacturers (NAM) to file petitions in June 2024 challenging the Rule. In the consolidated case before the D.C. Circuit Court of Appeals, the trade groups argue that the court should vacate the Rule because it violates the Safe Drinking Water Act (SDWA) and "is neither feasible nor cost-effective . . . and creates significant risks for water system compliance and water affordability."¹ Similarly, plaintiffs argue that "rational"² PFAS regulation "requires a measured and evidence-based approach that the Rule lacks."³

Plaintiffs first argue that EPA committed errors in the rulemaking process. According to the SDWA, before EPA can regulate a substance in the Unregulated Contaminant Monitoring Rule (UCMR) database, which compiles data on contaminants that may require regulation, the agency must issue a final "Determination to Regulate."⁴ The agency can regulate a substance only if it is determined to have adverse health effects, is present or highly likely to be present in public water systems, and in a scenario where regulation will mitigate the determined health effects. These conclusions shall be based on recent, reliable, and adequate public health data, including the UCMR database. Additionally, the final determination must be preceded by a "Preliminary Determination"⁵ with opportunity for discourse among the public and scientific community. The EPA can only then establish a MCL 'goal' (0 ppt in this case), or the level at which health effects pertaining to the contaminant are virtually eliminated, before promulgating a regulation that is "as close to the [Goal] as is feasible."⁶ Plaintiffs contend that EPA violated the SDWA by disregarding the six-step process required for rulemaking— instead opting for a four-step process in which it published the Determination to Regulate "concurrently"⁷ with the proposed regulation. This "concurrent"⁸ publication, according to plaintiffs, was not only a "procedural error"⁹ based on EPA's faulty interpretation

¹ Brief of Petitioner at 2, *American Water Works Association v. United States Environmental Protection Agency*, No. 24-1188 (D.C. Cir. Oct. 7, 2024) [hereinafter *American Water Works Association Brief*].

² Brief of Petitioner at 1, *National Association of Manufacturers v. United States Environmental Protection Agency*, Nos. 24-1188, 24-1191, & 24-1192 (D.C. Cir. Oct. 7, 2024) [hereinafter *National Association of Manufacturers Brief*].

³ *Id.*

⁴ *Id.* § 300g-1(b)(4)(B)

⁵ *Id.* § 300g-1(b)(4)(B)

⁶ *Id.* § 300g-1(b)(4)(B).

⁷ *American Water Works Association Brief*, *supra* note 1 at 22.

⁸ *Id.* at 29, n. 6.

⁹ *National Association of Manufacturers Brief*, *supra* note 2 at 35.

of when to “publish the Determination to Regulate,”¹⁰ but also ignores Congressional intent and “decades of prior policy.”¹¹ Additionally, it is alleged that EPA violated its obligation under 42 U.S.C. § 300g-1(e) by failing to adequately consult with the Scientific Advisory Board (SAB) on its use of a hazard index.

Plaintiffs also argue that the hazard index is another EPA first that violates the SDWA. Rather than setting a separate MCL for each regulated PFAS chemical, the Rule regulates the mixture of four PFAS—PFNA, HFPO-DA, PFHxS and PFBS—through the use of a hazard index. Plaintiffs argue that EPA’s unprecedented attempt to use a hazard index to regulate “undifferentiated mixtures of substances”¹² exceeds EPA’s authority and “is not permitted by the statute’s text.”¹³ Moreover, plaintiffs argue that the hazard index is not supported by substantial evidence, as “EPA did not demonstrate a substantial likelihood of co-occurrence among the Index Substances, nor did it prove that combinations of Index Substances below the Levels adversely affect human health.”¹⁴

The SDWA also demands EPA fulfill two additional requirements before finalizing any regulation:(1) that each proposed MCL is justified by its benefits relative to its costs; and (2) that the regulated level is financially feasible and realistic under current technological and scientific mechanisms. EPA may only promulgate MCLs following an in-depth analysis on estimated costs versus benefits derived from theoretical compliance estimates. The agency must conclude that anticipated benefits ‘justify’ the coinciding costs, and this determination must be founded in “sound and objective scientific practices.”¹⁵ The parties assert that the EPA severely underestimated compliance costs and the number of water systems impacted, while overestimating the benefits of the Rule.

As EPA did with the hazard index, plaintiffs aver that EPA wrongfully combined cost-benefit analyses for individual MCL into a group determination. The NAM plaintiffs explained that this “allow[ed] the net positive effect of some to offset the net negative effects of others.”¹⁶ Additionally, plaintiffs argue that EPA ignored additional costs, including \$82 million in annual treatment costs for three contaminants. Plaintiffs are concerned that this failure to realistically consider costs will negatively impact lower-income Americans. The AWWA and AMWA plaintiffs believe the Rule “creates significant risks for water system compliance and water affordability.”¹⁷ EPA also failed to adequately consider the Rule’s feasibility, including the lack of laboratory capacity to measure compliance and insufficient water system staff and facilities that make compliance prohibitively expensive.

High concentrations of certain PFAS in drinking water may pose adverse health risks that justify regulatory action by EPA. Industry groups argue, however, EPA’s final Rule is financially irresponsible, practically infeasible, and is not based on sound science and procedure. Concerns over insufficient cost-benefit analyses by EPA have festered since the Rule was first proposed in 2023, spurring independent cost analyses from Black & Veatch and Milliman. The disparity in estimated costs from EPA and these independent analyses reinforce concern over the legitimacy of EPA estimates and, as a result, the feasibility of the new Rule. Despite evidence-based suggestions from AWWA to increase the MCL for PFOA and PFOS from 4 to 10 ppt, EPA promulgated their proposed regulations as the final Rule. If the Milliman and Black & Veatch estimates are accurate, national costs will far eclipse available funding. As a result, the plaintiffs maintain that the current Rule must be vacated, as gaping holes in government funding will lead to increased water costs for consumers. While public water suppliers will undoubtedly bring further litigation against potentially responsible parties to recover the increased costs of compliance, the significant funding gap coupled with the time-consuming litigation process will inevitably burden individual households with increased water costs. To avoid this impending financial burden, it is anticipated that the court will vacate the Rule and require an updated version that accurately and comprehensively assesses costs versus benefits in accordance with the SDWA.

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¹⁰ *American Water Works Association Brief*, supra note 1 at 22.

¹¹ *Id.* at 25.

¹² *National Association of Manufacturers Brief*, supra note 2 at 2.

¹³ *Id.*

¹⁴ *Id.* at 11.

¹⁵ *Id.* § 300g-1(b)(3)(A)

¹⁶ *Id.* at 16.

¹⁷ *American Water Works Association Brief*, supra note 1 at 2.

References

- American Water Works Association, et al. v. United States Environmental Protection Agency, No. 24-1188 (United States Court of Appeals for the District of Columbia Circuit December 23, 2024).
- American Water Works Association, et al. v. United States Environmental Protection Agency, et al., No. 24-1188 (Consolidated with Nos. 24-1191, 24-1192) (United States Court of Appeals for the District of Columbia Circuit October 7, 2024).
- Association of Western Metropolitan Water Agencies. (2024, June 10). *AMWA, AWWA file legal challenge to PFAS standards*. Retrieved from Association of Western Metropolitan Water Agencies: <https://www.amwa.net/article/amwa-awwa-file-legal-challenge-pfas-standards>
- Berman, J. M. (2024, May 2). *Council on Foreign Relations - Renewing America*. Retrieved from How U.S. Water Infrastructure Works: <https://www.cfr.org/backgrounder/how-us-water-infrastructure-works#:~:text=There%20are%20more%20than%20148%2C000,structures%20that%20operate%20year%2Dround.>
- Black & Veatch. (2023). *WITAF 56 TECHNICAL MEMORANDUM - PFAS National Cost Model Report*. National Water Works Association. Retrieved from <https://www.awwa.org/Portals/0/AWWA/Government/AWWA-Comments-on-Proposed-NPDWR-for-PFAS-excl-Appendix-E.pdf>
- Collins Dictionaries. (2023). *Collins English Dictionary Complete and Unabridged Edition [14th Edition]*. Glasgow: HarperCollins.
- Drew B. Groth, T. J. (2024). Milliman PFAS liability estimate, pt. 1: Water district remediation. *Milliman*.
- EPA. (2024). *Fact Sheet: Benefits and Costs of Reducing PFAS in Drinking Water*. Environmental Protection Agency.
- EPA. (2024, April 26). PFAS National Primary Drinking Water Regulation. *Federal Register*, 89.
- EPA, O. (2024). *Economic Analysis for the Final Per- and Polyfluoroalkyl Substances National Primary Drinking Water Regulation*. District of Columbia: EPA.
- Magill, B. (2024, April 11). *Utilities Brace for Costs of Compliance With New PFAS Water Rule*. Retrieved from Bloomberg Law: <https://news.bloomberglaw.com/environment-and-energy/utilities-brace-for-costs-of-compliance-with-new-pfas-water-rule>
- Rodriguez, J.-C. (2024, October 8). *Industry, Utilities Take Aim at EPA's Drinking Water PFAS Rule*. Retrieved from Law360: https://www.law360.com/environmental/articles/1887910?nl_pk=3842b017-3ea1-44be-bf87-cf2cf6ffd0c8&utm_source=newsletter&utm_medium=email&utm_campaign=environmental&utm_content=2024-10-09&read_main=1&nlsidx=0&nlaidx=1
- Young, S. (2024, May 1). *(P)FASten your seatbelts*. Retrieved from Harvard Law Today: <https://hls.harvard.edu/today/the-impact-of-the-epas-first-ever-federal-pfas-rule-limiting-toxic-forever-chemicals-in-drinking-water/>

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