Are Current Water Treatment Technologies Enough to Accomplish the EPA's New PFAS Regulations?

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So called "forever chemicals" have been a hot topic in the news recently. These chemicals are used in many every day consumer goods, like water or grease proof coatings, and are scientifically known as per- and polyfluoroalkyl substances, or PFAS for short.[1] These chemicals are so widely used it would be virtually impossible to avoid them.[2] Unfortunately, they are nearly indestructible and highly toxic at low concentrations.[3] PFAS have been found in drinking water, air, soil and even in the blood of wild animals.[4] PFAS are so prevalent that they are estimated to be found in at least 45% of the nation's drinking water.[5] In response to the growing concerns about exposure to PFAS, in March of 2023 the EPA proposed the first regulations setting maximum allowable standards for PFAS in drinking water.[6] While the EPA means well in establishing maximum standards for some of the PFAS, water treatment technology is not yet advanced enough for most water treatment facilities to meet these standards. Further technological advancement needs to be made for both the testing and detection of and treatment of PFAS before the vast majority of Americans can expect their drinking water to be within maximum allowable levels of PFAS contamination.

Conventional water treatment technologies are not capable of removing PFAS.[7] This means more advanced water treatment technologies are required to remove PFAS. However, there is an issue with this. Current treatment technologies that remove PFAS from drinking water are experimental, with even the EPA admitting that they do not yet fully understand how to remove PFAS from drinking water.[8] While there are some experimental treatments in the works, they are all still being studied and are all very expensive.[9] Some of these experimental treatments include using activated carbon and high pressure membranes.[10] Worse yet, the EPA has only developed testing methods for 29 out of the thousands of PFAS found in drinking water.[11] While there are some technologies that have shown promise in removing some PFAS, these technologies have yet to be tested at scale in a water treatment facility.[12] Implementing these new

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[1] Courtney Lindwall, *"Forever Chemicals" Called PFAS Show Up in Your Food, Clothes, and Home*, NRDC (Apr. 12, 2023) https://www.nrdc.org/stories/forever-chemicals-called-pfas-show-your-food-clothes-and-home.
[2] *Id.*
[3] *Id.*
[4] *PFAS Explained*, U.S. Env't. Prot. Agency (Oct. 25, 2023), https://www.epa.gov/pfas/pfas-explained.
[5] *Tap Water Study Detects PFAS 'forever chemicals' Across the US*, U.S. Geological Survey (July 15, 2023), https://www.usgs.gov/news/national-news-release/tap-water-study-detects-pfas-forever-chemicals-across-us.
[6] *Per- and Polyfluoroalkyl Substances (PFAS) Proposed PFAS National Primary Drinking Water Regulation*, U.S. Env't. Prot. Agency, https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas.
[7] Thomas Speth, *PFAS Treatment in Drinking Water and Wastewater – State of the Science*, U.S. Env't. Prot. Agency (Sept. 16, 2020), https://www.epa.gov/sites/default/files/2020-09/documents/r1-pfas_webinar_day_1_session_3_speth.pdf.
[8] *Supra* note 4.
[9] Speth, *supra* note 7.
[10] *Id.*
[11] *EPA PFAS Drinking Water Laboratory Methods*, U.S. Env't. Prot. Agency (May 30, 2023), https://www.epa.gov/pfas/epa-pfas-drinking-water-laboratory-methods.
[12] Speth, *supra* note 7.

technologies would also be incredibly expensive, so much so that it would be prohibitively expensive for most municipal drinking water plants.[13]

An overwhelming number of municipal water plants in the United States are cash strapped and struggling to provide clean drinking water just based on current standards.[14] Cities with aging infrastructure are struggling to maintain their existing systems, yet alone can upgrade their systems with expensive and still experimental water treatment systems.[15] Some EPA estimates conclude that the cost to remove PFAS for 1,000 household could be as much as $500,000 per year.[16] If these cost estimates are true, as much as $100,000,000 could be spent on the removal of PFAS from drinking water in order to address the estimated 200 million Americans affected.[17] While this issue is being alleviated to some degree by the funds in the recent infrastructure bill, many water treatment facilities are still struggling and will continue to struggle as the money allocated still does not address the full need.[18] These struggling systems will not be able to make the upgrades necessary to remove PFAS and be compliant with the EPA's proposed regulations until either much more federal funding is granted, or the PFAS removal technologies advance greatly and become much cheaper to install and operate.

While there have been other proposed PFAS regulations, such as limiting how much can be disposed of in the environment, since PFAS do not naturally break down, the PFAS already in the environment do eventually need to be removed.[19] With the current PFAS testing and removal technologies, this would be a prohibitively expensive task. Very few municipal water treatment facilities can bear the burden of complying with the EPA's proposed maximum allowable standards for PFAS. More research into the development of PFAS removal technologies is required. This is because municipalities should not be expected to install still experimental and unproven treatment technologies into their water treatment plants. More advancement is also needed in the hopes of bringing down the cost of PFAS removal from drinking water. As it stands, just the testing for PFAS is an expensive and complicated process compared to the actual removal. There are also concerns about what to do with the PFAS after it is removed from the water, a concern the EPA has yet to come up with a solution to.[20]

While a lot of the uncertainty around PFAS is to be expected since they are a relatively newer concern, it is important not to overburden already underfunded water treatment facilities by requiring prohibitively expensive and the implementation of new technologies. PFAS removal technologies still need vast improvement before cash strapped municipal water treatment facilities can even consider complying with the EPA's newly proposed maximum allowable standards for PFAS in drinking water. PFAS removal is an amicable goal, and one that does need to be strived for. However, the technology as it stands is not enough to address the concerns around PFAS in drinking water.

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[13] *Id.*
[14] Peter Urban, *Strapped Cities Struggling to Fund Water Treatment Upgrades*, NEW YORK TIMES (March 30, 2010), https://archive.nytimes.com/www.nytimes.com/gwire/2010/03/30/30greenwire-strapped-cities-struggling-to-fund-water-treat-68631.html?scp=44&sq=construction&st=cse.
[15] *Id.*
[16] Speth, *supra* note 7.
[17] *Supra* note 5.
[18] Jon Greenberg, *What the federal infrastructure bill means for water systems nationwide*, POLITIFACT (Sept. 2, 2022), https://www.politifact.com/article/2022/sep/02/what-federal-infrastructure-bill-means-water-syste/.
[19] Lindwall, *supra* note 1.
[20] *Supra* note 4.