May 30, 2023

Public comments on the U.S. EPA PFAS National Primary Drinking Water Regulation Rulemaking, 40 CFR Parts 141 and 142.

We are writing in support of the U.S. Environmental Protection Agency's proposed PFAS National Primary Drinking Water Regulations for six PFAS compounds. The PFAS Project Lab (www.pfasproject.com) is an interdisciplinary academic research group that studies the scientific, social, and political factors related to PFAS. We produce accessible research and information about PFAS contamination and work in collaboration with impacted communities to address this significant health and environmental crisis. We also collaborate with state and federal agencies and have provided testimony on state regulation. We were involved in the 2022 NASEM Guidance on PFAS Testing and Health Outcomes. Since organizing the inaugural National PFAS Conference in 2017, we have played a major role in this biennial conference, which is a highly visible venue. Indeed, EPA announced its revised Health Advisory for certain PFAS at our June 2022 conference. Our map of known and presumptive PFAS contamination sites (PFAS Project Lab 2023), jointly produced with our collaborators at Silent Spring Institute, is widely used across the US and was the prompt to European investigative journalists to prepare a similar map for Europe (Dagorn et al. 2023).

EPA must act quickly to implement long overdue drinking water regulations for this class of chemicals with serious environmental and human health impacts. Exposure to PFAS is associated with cancers, weakened immune response, developmental and reproductive harm, hormonal disruption, thyroid toxicity, and liver and kidney diseases, among other adverse health outcomes (ATSDR, 2021). Moreover, the mobility and persistence of PFAS released has resulted in widespread contamination of drinking water. In 2018, a joint USGS and EPA study measured 17 PFAS compounds in 25 paired samples of source and treated drinking water and found detectable levels of PFAS in 100 percent of samples (Boone et al. 2019). Furthermore, a 2020 analysis of public data sets of PFAS occurrence in drinking water in the U.S. revealed mixtures of PFAS are nearly ubiquitous in surface water, the predominate source of drinking water in the U.S., when testing with detection limits below 1 ng/L (Andrews & Naidenko 2020). It is estimated that over 200 million individuals receive drinking water with PFOA and PFOS levels at or above 1 ng/L (Andrews & Naidenko 2020), above EPA's proposed MCLGs for these compounds. The longer that PFAS remain unregulated, the more people will be exposed and harmed, in violation of the Safe Drinking Water Act's mandate to protect against adverse health effects from drinking water contaminants.

The need for federal MCLs

EPA has long been aware of the scientific evidence pointing to harm from low-dose exposure to PFOA and PFOS, and regulations for these two compounds are long overdue. For example, EPA documented evidence of PFOA's carcinogenicity in its 2016 Health Effects Support Document,

and following studies have strengthened that finding. Moreover, the scientific evidence supports regulating additional PFAS, including PFHxS, HFPO-DA, PFNA, and PFBS, and it is thus critical that they also be included. In 2021, ATSDR conducted a comprehensive assessment of PFHxS and PFNA in its toxicological profile for perfluoroalkyls, and it is justified that EPA uses the derived Minimum Risk Levels for these two compounds. Moreover, EPA has undertaken toxicological evaluations of PFBS and HFPO-DA and it is thus critical that they also be included in current rulemaking given their adverse health outcomes. Communities are frequently exposed to these PFAS, as well as others, as mixtures in drinking water (Pelch et al. 2023) and scientific practice supports approaching the health risks posed by possible mixtures of PFHxS, HFPO-DA, PFNA, and PFBS as part of a Hazard Index. While EPA has adopted few MCLs in recent decades (and thus has not had much opportunity to employ this approach in drinking water regulation), Hazard Indices are commonly used by EPA, including in developing health protective clean-up goals under CERCLA.

In the absence of federal PFAS standards, 10 states have enforceable drinking water levels that require testing and remediation for PFAS in drinking water and two have regulations in development (Safer States 2023). Twelve other states have adopted non-enforceable guidance or notification levels for PFAS in drinking water (Safer States 2023). In a peer-reviewed paper published in 2019 in the *Journal of Exposure Science and Environmental Epidemiology*, our lab examined PFOA and PFOS water guideline levels adopted by the EPA and state agencies in order to understand how and why these levels differ (Cordner et al. 2019). While states who develop their own standards can serve as important models, not all states have the ability to do so: for example, some lack the funding, technical expertise, and occurrence data to set protective state standards. Our article on this has been cited 229 times. As a result, these differences in state standards regarding PFAS can lend themselves to public health disparities across the country. In addition, it takes much energy from affected residents, scientists, and environmental organizations to seek regulations in each state. By contrast, a "sufficiently protective, scientifically sound, and enforceable federal standard would provide more consistent protection" for all communities (Cordner et al. 2019). It has been over four years since we published this peer-reviewed article, underscoring how these federal drinking standards are long overdue.

Environmental justice considerations

The burdens of PFAS exposure are not evenly distributed along geographic, racial or ethnic, and socioeconomic lines, and it is critical that EPA act now to ensure that communities are more evenly protected. A study utilizing CalEnviroScreen assessed the interplay between PFAS pollution and environmental justice communities and found that higher potential exposure to PFAS-contaminated water overlapped with communities experiencing the most disproportionate pollution and socioeconomic burdens (Lee et al. 2021). Notably, the most vulnerable communities (as determined by CalEnviroScreen) had either the highest levels of PFAS pollution or had not been tested for PFAS pollution at all. Silent Spring Institute also identified that water

systems serving communities with higher proportions of non-Hispanic Black residents and Hispanic residents were more likely to detect PFAS contaminants (Schaider et al. 2022).

Moreover, our PFAS Project Lab analyzed UCMR3 testing of PFAS levels in public drinking water systems (PWSs), and found that populations served by Tribal PWSs were significantly underrepresented in past nationwide PFAS sampling efforts, compared with populations served by non-Tribal PWSs. Moreover, predicted sampling for UCMR5 (2023-2025) will still exclude Tribal PWSs at a rate higher than the rest of the population. This research was published in *Environmental Health Perspectives* (Mok et al. 2022). It is thus critical that adopted regulations and funding take into account ways to support Tribal Nations and PWSs in addressing reporting and remediation under promulgated drinking water standards. Relatedly, the Tribal PFAS Working Group (TPWG) was formed in April 2020 and seeks to address and reduce impacts of PFAS on Tribal lands. We are honored to participate regularly with the TPWG, which has informed our understanding of their concerns about PFAS for Tribal Nations in the U.S. Continued collaboration between EPA and TPWG will be beneficial in implementing drinking water regulations.

The Health Risk Reduction and Cost Analysis (HRRCA) underestimates significant health and environmental benefits of the proposed drinking water regulations

We agree with EPA's own economic analysis that there "are significant nonquantifiable sources of benefits that were not captured in the quantified benefits." The includes numerous health benefits and medical savings beyond the very limited ones quantified in the analysis. For example, impacts on immune system dysfunction and on women's breast cancer risk and lactation duration, are just some risks that are not properly accounted for in the HRRCA.

Importance of current and future rulemaking

EPA can use the new MCLs as a prompt to pursue other important work in its domain, including reducing unnecessary uses of PFAS, preventing the entry of dangerous new PFAS chemicals into commerce under the Toxic Substances Control Act; minimizing PFAS emissions under the Clean Air Act; cleaning up PFAS contaminated sites under the Comprehensive Environmental Response, Compensation, and Liability Act; and regulating PFAS disposal under the Resource Conservation and Recovery Act.

In conclusion, we emphasize the importance of adopting the proposed drinking water standards without delay given EPA's obligation to protect human health and the environment. We see this as **the first step** in addressing a long overdue lack of regulatory oversight over these chemicals of significant health concern. Given the number of PFAS in commerce (and the dozens of new PFAS awaiting EPA approval), EPA cannot fully protect public health and the environment until pursuing broader class-based action following the adoption of this proposed rule. Following this, we encourage separate rulemaking that takes a more comprehensive class-based approach to

addressing additional PFAS not covered by EPA's proposal, yet found frequently in environmental media such as drinking water; EPA can look towards the European Union's work to establish a drinking water standard for "the totality of per- and polyfluoroalkyl substances" for guidance (E.U. 2022).

Respectfully,

Dr. Alissa Cordner, Associate Professor of Sociology, Whitman College, co-director of the PFAS Project Lab

Dr. Phil Brown, University Distinguished Professor of Sociology and Health Sciences, Northeastern University, co-director of the PFAS Project Lab

Dr. Jennifer Liss Ohayon, Affiliate Researcher at Northeastern University and member of the PFAS Project Lab

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