Attorneys General of the States of California, Colorado, Connecticut, Delaware, District of Colombia, Illinois, Iowa, Maine, Maryland, Massachusetts, Minnesota, New Mexico, Oregon, North Carolina, Pennsylvania, Rhode Island, Virginia, Washington, and Wisconsin

May 10, 2020

Administrator Michael S. Regan
Water Docket
Docket Id. No. EPA-HQ-OW-2020-0530
U.S. Environmental Protection Agency
Mail Code: 28221T
1200 Pennsylvania Ave., NW
Washington DC 20460

Re: Comments on Docket ID No. EPA-HQ-OW-2020-0530; Proposed Rule; Revisions to the Unregulated Contaminant Monitoring Rule (UCMR 5) for Public Water Systems

Dear Administrator Regan:

The State Attorneys General of California, Colorado, Connecticut, Delaware, District of Colombia, Illinois, Iowa, Maine, Maryland, Massachusetts, Minnesota, New Mexico, North Carolina, Oregon, Pennsylvania, Rhode Island, Virginia, Washington, and Wisconsin (collectively States) offer these comments in support of the U.S. Environmental Protection Agency's (EPA) proposed revisions to the Unregulated Contaminant Monitoring Rule (UCMR 5) for Public Water Systems, 86 Fed. Reg. 13,846 (Mar. 11, 2021). In these comments, the States also urge EPA to expand the per- and polyfluoroalkyl substances (PFAS) covered by the rule and to gather more and better data to protect public health from drinking water contamination.

On March 11, 2021, EPA proposed the UCMR 5 to revise the Unregulated Contaminant Monitoring Rule (UCMR) for public water systems under the Safe Drinking Water Act (SDWA), 42 U.S.C. §§ 300f *et seq*. This rule addresses the PFAS monitoring required by Congress in the 2021 National Defense Authorization Act[1] (monitoring requirements which a group of State Attorneys General supported)[2] by

[1] National Defense Authorization Act for Fiscal Year 2021, H.R. 6395, 116th Cong. (enacted).
[2] Attorneys General of Michigan, et al., Comment Letter on the Fiscal Year 2021 National Defense Authorization Act (FY2021 NDAA) conference report (Oct. 5, 2020), https://www.michigan.gov/documents/ag/Letter_2020-10-05_Multistate_Letter_704191_7.pdf.

including the 29 PFAS for which there are validated analytical methods[3] but which are not currently subject to national drinking water standards.[4] The proposed rule is an important step towards collecting information from drinking water systems on the 29 PFAS and will provide EPA, states, and communities with scientifically valid data on these contaminants to inform regulatory decisions. The States have the following specific recommendations to enhance the proposed rule to ensure comprehensive data collection, improve our understanding of PFAS, and maintain safe drinking water across the nation: (1) require monitoring for total PFAS in the UCMR 5; (2) promptly validate an analytical method to analyze total PFAS; (3) lower the minimum reporting levels in UCMR 5; and (4) advance environmental justice with PFAS monitoring.

INTRODUCTION

The States have a strong interest in ensuring that their residents have access to safe drinking water. Although numerous studies have shown that exposures to PFAS negatively affect human health, there is currently no national requirement that all public water systems test for and remove unsafe levels of PFAS in drinking water.[5] Millions of people across the United States are exposed to PFAS-contaminated drinking water and widespread releases of PFAS into the environment. The States have limited resources to comprehensively assess and address PFAS. Therefore, it is crucial for EPA to broadly regulate PFAS under the SDWA to protect public health and the environment and to do so in accordance with the States' proposed enhancements to the UCMR 5.

Congress long ago recognized the substantial threat that unsafe drinking water poses and passed the SDWA to limit exposures to harmful contaminants.[6] The SDWA requires that the EPA, among other things, establish "primary drinking water regulations" applicable to public water systems to limit exposure to contaminants that the EPA has determined "may have any adverse effect on the health of persons."[7]

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[3] These 29 PFAS are within the scope of EPA Methods 533 and 537.1. Method 533 was published by EPA in December 2019. Method 537.1 was initially published by EPA in November 2018 and updated in March 2020. U.S. Envtl. Prot. Agency, *PFAS Analytical Methods Development and Sampling Research* (last updated Jan. 26, 2021), https://www.epa.gov/water-research/pfas-analytical-methods-development-and-sampling-research.

[4] *See* Proposed Rule Revisions to the Unregulated Contaminant Monitoring Rule (UCMR 5) for Public Water Systems and Announcement of Public Meeting, 86 Fed. Reg. 13,846 (proposed Mar. 11, 2021) (to be codified at 40 C.F.R. pt. 141). The term PFAS in these comments refers to per- and poly-fluoroalkyl substances.

[5] *See* Announcement of Final Regulatory Determinations for Contaminants on the Fourth Drinking Water Contaminant Candidate, 86 Fed. Reg. 12,272, 12,278 (Mar. 3, 2021) (to be codified at 40 C.F.R. pt. 141).

[6] Safe Drinking Water Act of 1974, Pub. L. No. 93-523, 88 Stat. 1660.

[7] 42 U.S.C. § 300f.

The SDWA established the UCMR to identify contaminants that pose a threat to public health and to gather national occurrence data about those contaminants from public water systems. If EPA determines, based on the information gathered from the UCMR, that a particular contaminant is present in drinking water systems and a drinking water standard is necessary to protect public health, then EPA will make a determination to regulate and establish a maximum contaminant level (MCL) for the contaminant.[8] "[T]he purpose of the MCLs is to protect the public, as much as feasible, from the adverse health effects of drinking contaminated water."[9]

The States support EPA's recent determination to regulate perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) under the SDWA.[10] We also recognize that EPA's proposal to require monitoring of 29 PFAS in the UCMR 5 is a move in the right direction to address PFAS contamination and exposure. That said, there is an urgent need for the federal government to aggressively and holistically regulate these compounds—to prevent the ongoing PFAS contamination of drinking water supplies.

Ultimately, regulation should address the manufacturing and processing of these chemicals and their use in food, food packaging, and in consumer products across all environmental media.[11] While we acknowledge that this is not directly relevant to the proposed UCMR 5, to remedy PFAS contamination, we urge EPA to apply the full breadth of its statutory authorities to regulate these substances—not just pursuant to the SDWA but also pursuant to the Toxic Substances Control Act, the Clean Water Act, the Resource Conservation and Recovery Act, and the Comprehensive Environmental Response, Compensation and Liability Act. We applaud EPA's recent formation of the EPA Council on PFAS and its "PFAS 2021-2025—Safeguarding America's Waters, Air and Land" strategy to tackle PFAS approaches holistically and in a coordinated, expansive fashion.

IMPACTS OF PFAS

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[8] *Id.*, § 300f(b)(1)(A)–(B), (E).

[9] *City of Waukesha v. EPA*, 320 F.3d 228, 243 (D.C. Cir. 2003); *see also infra* at X (explaining that, in limited circumstances where a MCL is not feasible, EPA may require a treatment technology rather than a MCL).

[10] *See* Announcement of Final Regulatory Determinations for Contaminants on the Fourth Drinking Water Contaminant Candidate, 86 Fed. Reg. 12,272 (Mar. 3, 2021) (to be codified at 40 C.F.R. pt. 141).

[11] Although these comments are focused on drinking water standards for PFAS as a class, there is also an urgent need to develop comprehensive standards for PFAS compounds across the board, including but not limited to, surface water quality standards, pre-treatment standards for industrial users; storm water discharge permits; and limits for land application of sludge. In addition, there is an urgent need to develop scientific understanding of the shorter-chain PFAS being developed as replacement chemicals. Fortunately, some product manufacturers and retailers have proactively taken measures to phase out PFAS from their supply chains. We urge EPA to phase out all "non-essential" uses of PFAS.

PFAS are a class of thousands of synthetic chemicals that have been manufactured and in widespread use since the 1940s.[12] Although estimates vary, there are at least 5,000 PFAS in current use[13] and our knowledge about the negative impacts of PFAS on health and the environment and their occurrence in public drinking water systems continues to grow.

PFAS are Widespread

To date, many studies have focused on perfluoroalkyl acids, particularly PFOA and PFOS, though research is increasingly focusing on other PFAS as well.[14] PFAS are used widely in a variety of products and applications due to their unique chemical properties and resistance to degradation.[15] Scientists have detailed more than 200 uses of PFAS in 64 industrial areas.[16] These products and uses include (a) consumer products such as clothing, food packaging, cookware, cosmetics, and carpeting, (b) industrial use in mining, electroplating, and biotechnology, among others, and (c) in fire-fighting foam.[17] As a result of the manufacturing and processing of PFAS and PFAS-containing products and the use of these products at airports and military installations, PFAS have been released into the air, soil, and water. The widespread use and presence of PFAS creates exposure pathways through occupational exposure, and through contaminated food and drinking water. PFAS are found across the world,[18] including in indoor and outdoor environments in wildlife,

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[12] Announcement of Final Regulatory Determinations for Contaminants on the Fourth Drinking Water Contaminant Candidate, 86 Fed. Reg. 12,272 (Mar. 3, 2021) (to be codified at 40 C.F.R. pt. 141).

[13] U.S. Envtl. Prot. Agency, PFAS Master List of PFAS Substances (Version 2) (last updated Sept. 16, 2020), https://comptox.epa.gov/dashboard/chemical_lists/pfasmaster.

[14] *See* News Release, U.S. Environmental Protection Agency, EPA Releases Updated PFBS Toxicity Assessment (Apr. 8, 2021), https://www.epa.gov/newsreleases/epa-releases-updated-pfbs-toxicity-assessment-after-rigorous-scientific-review-0.

[15] Guelfo JL, Adamson DT. Evaluation of a national data set for insights into sources, composition, and concentrations of per- and polyfluoroalkyl substances (PFASs) in U.S. drinking water. *Environ. Pollut.* 2018 May;236:505–513. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5849529/; Brusseau ML. The Influence of Molecular Structure on the Adsorption of PFAS to Fluid-Fluid Interfaces: Using QSPR to Predict Interfacial Adsorption Coefficients. *Water. Res.* 2019 Apr 1;152:148-158. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6374777/.

[16] Glüge J, Scheringer M, Cousins IT, DeWitt JC, Goldenman G, Herzke D, Lohmann R, Ng CA, Trier X, Wang Z. An overview of the uses of per-and polyfluoroalkyl substances. *Environ. Sci. Processes.* 2020 Oct 30;22:2345–2373. https://doi.org/10.1039/D0EM00291G.

[17] *Id.*

[18] There are many studies documenting this wide-spread occurrence. *See, id.*; Joseph Allen, *Stop playing whack-a-mole with hazardous chemicals*, WASH. POST, Dec. 15, 2018, https://www.washingtonpost.com/opinions/stop-playing-whack-a-mole-with-hazardous-chemicals/2016/12/15/9a357090-bb36-11e6-91ee-1adddfe36cbe_story.html; *See also* Blum A, Bălan SA, Scheringer M, Trier X, Goldenman G, Cousins IT, Diamond M, Fletcher T, Higgins C, Lindeman AE, Peaslee G, de Voogt P, Wang Z, Weber R. The Madrid Statement on Poly-

and in human tissue and blood serum concentrations,[19] underscoring the need for urgent and comprehensive action to monitor and regulate these contaminants.

PFAS are Toxic "Forever" Chemicals

In recognition of the harmful effects and persistence of PFAS, EPA has begun the process of regulating two of the long-chain[20] PFAS (PFOA and PFOS) pursuant to the SDWA.[21] Many of the undersigned State Attorneys General commented on EPA's Preliminary Determination to regulate PFOA and PFOS.[22] There is substantial scientific evidence demonstrating that some long-chain PFAS, including PFOA and PFOS, have adverse effects on human health.[23] The toxicity of PFOA and PFOS to humans and animals has been studied for decades, including internal tests conducted by 3M on PFOS and by DuPont on PFOA.[24] As recited in the EPA's Final Regulatory Determination to regulate PFOA and PFOS, the vast body of research demonstrates serious adverse health effects associated with exposure to PFOA and PFOS, including "decreases in female fecundity and fertility, decreased birth weights in offspring and other measures of postnatal growth," as well as "high cholesterol, increased liver enzymes, decreased vaccination response, thyroid disorders, pregnancy-induced hypertension and preeclampsia, and cancer."[25]

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and Perfluoroalkyl Substances (PFASs). *Envtl. Health Perspectives.* 2015 May;123(5):A107–A111. http://dx.doi.org/10.1289/ehp.1509934.

[19] *See* Centers for Disease Control and Prevention, *Poly- and Perfluoroalkyl Substances, Peer Reviewed Publications* (last reviewed Mar. 6, 2019), https://www.cdc.gov/nceh/dls/oatb_capacity_14.html.

[20] Defined as perfluorocarboxylic acids with 8 or carbons and perfluorosulfonic acids with 6 or more carbons.

[21] Announcement of Final Regulatory Determinations for Contaminants on the Fourth Drinking Water Contaminant Candidate, 86 Fed. Reg. 12,272 (Mar. 3, 2021) (to be codified at 40 C.F.R. pt. 141).

[22] *See* Attorneys General of Wisconsin, et al., Comment Letter on the Preliminary Regulatory Determinations for Contaminants on the Fourth Drinking Water Contaminant Candidate List (Jun. 10, 2020), https://www.regulations.gov/comment/EPA-HQ-OW-2019-0583-0258.

[23] *See* Attorneys General of Wisconsin, et al., Comment Letter on the Preliminary Regulatory Determinations for Contaminants on the Fourth Drinking Water Contaminant Candidate List (Jun. 10, 2020), https://www.regulations.gov/comment/EPA-HQ-OW-2019-0583-0258. *See also* Agency for Toxic Substance and Disease Registry, *Perfluoroalkyls - ToxFAQs™* (Mar. 2018), https://www.atsdr.cdc.gov/toxfaqs/tfacts200.pdf.

[24] *See, e.g.,* Office of Minn. Attorney General Keith Ellison, *State's Second Amended Exhibit List*, https://www.ag.state.mn.us/Office/Cases/3M/StatesExhibits.asp (last visited Apr. 27, 2021) (providing documentation of, *inter alia*, research performed by 3M and DuPont regarding the toxic effects of PFOA and PFOS exposure to humans and animals).

[25] Preliminary Determination, 85 Fed. Reg. at 14,115–16; *see also* Agency for Toxic Substances & Disease Registry, *What are the health effects?*, https://www.atsdr.cdc.gov/pfas/health-effects.html (last visited Apr. 27, 2021) (reporting that human exposure to PFAS, such as PFOA and PFOS, may increase the risk of cancer, alter the immune system, increase cholesterol levels, interfere with natural hormones, decrease fertility, and affect the

Various PFAS show similar indicia of toxicity, environmental persistence (hence, the common reference to PFAS as "forever" chemicals), bioaccumulation, and ubiquity in the environment.[26] Additionally, some chemicals in the PFAS class are precursors that are known to break down or transform to PFOA and PFOS in the environment and the human body.[27] Release of a single precursor may result in formation of multiple intermediate PFAS with different terminal PFAS products. Other PFAS have similar health risks as PFOA and PFOS and are, in some cases—as with 6:2 fluorotelomer alcohol (6:2 FTOH)—more toxic than their terminal perfluoroalkyl acid products.[28] "The widespread use, large number, and diverse chemical structures of PFAS pose challenges to any sufficiently protective regulation […] Regulating only a subset of PFAS has led to their replacement with similar hazards."[29]

Epidemiologic studies have shown that potential adverse human health effects from exposure to longer-chain perfluoroalkyl acids (PFAAs) include increased serum cholesterol, immune dysregulation, pregnancy-induced hypertension, and kidney and testicular cancers.[30] Long-chain PFAA exposure is also associated with low birthweight in humans, suppressed immune system response, dyslipidemia, impaired

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growth, learning, and behavior of infants and children); Cal. Water Bds., *Per- and Polyfluoroalkyl Substances (PFAS)*, https://www.waterboards.ca.gov/pfas (last updated Apr. 14, 2021) (human exposure to PFAS, such as PFOA and PFOS, may also result in low birth weight, birth defects, delayed puberty onset, increased risk of thyroid disease, and increased risk of asthma).

[26] Attorneys General of New York et al., Comment Letter on the Advance Notice of Proposed Rulemaking, Addition of Certain Per- and Polyfluoroalkyl Substances; Community Right-to-Know Toxic Chemical Release Reporting (Feb. 3, 2020), https://www.regulations.gov/document?D=EPA-HQ-TRI-2019-0375-0086.

[27] Buck RC, Franklin J, Berger U, Conder JM, Cousins IT, de Voogt P, Jensen AA, Kannan K, Mabury SA, van Leeuwen SP. Perfluoroalkyl and polyfluoroalkyl substances in the environment: terminology, classification, and origins. *Integrated Envtl. Assessment and Mgmt.* 2011 Oct;7(4):513–541. https://www.ncbi.nlm.nih.gov/pubmed/21793199;
Concawe, Environmental Fate and Effects of Poly- and Perfluoroalkyl Substances (PFAS), Report No. 8/16 - Environmental Science for the European Refining Industry (2016), https://www.concawe.eu/wp-content/uploads/2016/06/Rpt_16-8.pdf.

[28] Rice PA, Aungst J, Cooper J, Bandele O, Kabadi SV. Comparative analysis of the toxicological databases for 6:2 fluorotelomer alcohol (6:2 FTOH) and perfluorohexanoic acid (PFHxA). *Food and Chem. Toxicology.* 2020;138:111210. https://doi.org/10.1016/j.fct.2020.111210.

[29] Bălan SA, Mathrani VC, Guo DF, Algazi AM. Regulating PFAS as a Chemical Class under the California Safer Consumer Products Program. *Environ. Health Perspectives* 2021 Feb 17;129(2). https://doi.org/10.1289/EHP7431.

[30] *Id.*; *see also* Steenland K, Fletcher T, Stein CR, Bartell SM, Darrow L, Lopez-Espinosa M, Ryan PB, Savitz DA. Review: Evolution of evidence on PFOA and health following the assessments of the C8 Science Panel. *Environ. International*. 2020 Dec;145:106125. https://doi.org/10.1016/j.envint.2020.106125.

kidney function, and delayed onset of menstruation.[31] Approximately 85 percent of all PFAS compounds can degrade or metabolize into PFAAs in the environment or within living organisms.[32] Because most PFAS break down into PFAAs through degradation, metabolism, or combustion, regulation of the entire class of PFAS is necessary to prevent human and environmental exposure to PFAAs and the hazards they present.[33]

PFAS contamination detected in the environment is generally made up of mixtures of PFAS.[34] This PFAS mixture results from multiple sources of PFAS present in an area, the use of PFAS as mixtures in a single product (e.g., fire-fighting foam), and the changes in the types of PFAS that have been commonly used over time. Mixtures of PFAS, which often contain PFOA or PFOS, may pose similar health risks to those associated with exposure to PFOA or PFOS alone.[35]

Because longer-chain PFAS, such as PFOA and PFOS, are becoming regulated, manufacturers have employed new alternative PFAS as substitute chemicals, which are not yet regulated.[36] The most common replacements for the long-chain PFAS are short-chain PFAS with similar structures or compounds with fluorinated segments joined by ether linkages.[37] While some of these shorter-chained PFAS alternatives may be less bioaccumlative, they are still as environmentally persistent as long-chain PFAS or have persistent degradation products. Thus, there is no evidence that introduction of shorter-chained alternatives reduces the amount of harmful PFAS in the environment. In fact, because some of the shorter-chained alternatives are less effective, larger quantities may be needed to provide the same performance as long-chain PFAS.[38] While some of the shorter-chained PFAS are being widely used, new ones are being employed with little information about them publicly available, including their occurrence in drinking water.[39]

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[31] Bălan SA, Mathrani VC, Guo DF, Algazi AM. Regulating PFAS as a Chemical Class under the California Safer Consumer Products Program. *Environ. Health Perspectives* 2021 Feb 17;129(2). https://doi.org/10.1289/EHP7431.
[32] *Id.*
[33] *Id.*
[34] *Id.*
[35] *Id.*
[36] Joseph Allen, *Stop playing whack-a-mole with hazardous chemicals*, WASH. POST, Dec. 15, 2018,https://www.washingtonpost.com/opinions/stop-playing-whack-a-mole-with-hazardous-chemicals/2016/12/15/9a357090-bb36-11e6-91ee-1adddfe36cbe_story.html.
[37] *Id.*
[38] Long-chain PFAS are generally as toxic as much lower doses than shorter-chained PFAS. *See* N.J. Dept. of Envtl. Prot. Science Advisory Board, Approaches for Addressing Drinking Water and Wastewater Contaminants of Emerging Concern (CECs) in a Broader Context: Identification, Ranking and Treatment Removal (Apr. 22, 2020), https://www.nj.gov/dep/sab/sab_cec.pdf.
[39] For these reasons, it makes sense to approach PFAS holistically, using broad statutory authorities. This includes requiring manufacturers of newer PFAS to conduct extensive

In sum, the occurrence of any and all PFAS in the environment is a critical concern—due to their prevalence of use and release and harmful effects—yet, as stated above, there is insufficient data available on many PFAS.

REGULATE PFAS AS A CLASS

Although not directly relevant to the proposed UCMR 5, we urge EPA to consider regulation of PFAS as a class. Our comments below ask EPA to gather occurrence data for total PFAS or a subclass of PFAS, and we acknowledge that gathering such data is a prerequisite to setting drinking water standards for these groups of contaminants. A class-based approach is the most effective way to regulate PFAS as it provides greater protection to the public, decreases the burden on regulatory agencies, and provides greater certainty to the operators of public water systems. Gathering occurrence data as a class or subclass will allow the agency to fully understand the threat this suite of chemicals poses and to devise appropriate regulatory measures to safeguard human health and the environment.[40]

Regulating PFAS as a class is consistent with EPA's authority to regulate classes of contaminants.[41] EPA has regulated several classes of chemicals, including polychlorinated biphenyls and disinfection byproducts, under the SDWA.[42]

There is a growing body of evidence that many PFAS, in addition to PFOA and PFOS, have similar indicia of toxicity, environmental persistence, bioaccumulation, and ubiquity in the environment. One of the most consistent features of the PFAS class is that, despite the diversity of PFAS substances, all PFAS are extremely resistant to environmental and metabolic degradation.[43] Due to their persistence, all

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toxicological testing, to report the chemical structures to EPA, to develop and provide to EPA analytical methods for detecting these chemicals, to develop nonfluorinated alternatives, and to develop safe disposal methods.

[40] Cousins IT, DeWitt JC, Glüge J, Goldenman G, Herzke D, Lohmann R, Miller M, Ng CA, Scheringer M, Vierke L, Wang Z. Strategies for grouping per- and polyfluoroalkyl substances (PFAS) to protect human and environmental health. *Environ. Sci.: Processes Impacts*, 2020 Jun 4;22:1444–1460, 1452. https://doi.org/10.1039/D0EM00147C.

[41] ELENA H. HUMPHREYS, CONG. RESEARCH SERV., R46652, REGULATING CONTAMINANTS UNDER THE SAFE DRINKING WATER ACT (SDWA) 21 (updated Mar. 3, 2021), *available at* https://fas.org/sgp/crs/misc/R46652.pdf.

[42] U.S. Envtl. Prot. Agency, *National Primary Drinking Water Regulations,* https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations (last updated Jan. 5, 2021).

[43] Cousins IT, DeWitt JC, Glüge J, Goldenman G, Herzke D, Lohmann R, Ng CA, Scheringer M, Wang Z. The high persistence of PFAS is sufficient for their management as a chemical class. *Environ Sci Process Impacts.* 2020 Dec 16;22(12):2307-2312. https://pubmed.ncbi.nlm.nih.gov/33230514/; Kwiatkowski CF, Andrews DQ, Birnbaum LS, Bruton TA, DeWitt JC, Knappe D, Maffini MV, Miller MF, Pelch KE, Reade A, Soehl A, Trier X, Venier M, Wagner CC, Wang Z, Blum A. Scientific Basis for Managing PFAS as a Chemical Class. *Environ. Sci. Technol. Lett.* 2020 Jun 30;7, 8:532-543. https://doi.org/10.1021/acs.estlett.0c00255.

PFAS bioaccumulate in water, air, sediment, soil, and plants.[44] There is also a growing body of evidence that shorter-chained PFAS have similar toxicological effects to the well documented adverse effects of longer-chained PFAS such as PFOA and PFOS.[45] Based on the characteristics shared by many PFAS and the number of individual chemicals, some researchers are calling for PFAS to be regulated as a class. For example, in a June 2020 article published in Environmental Science & Technology Letters, Carol F. Kwiatkowski and colleagues presented the scientific basis for managing PFAS as a class and recommended that they be regulated as a class.[46] Similarly, in a December 2020 article published in Environmental Science Process Impacts, Dr. Ian Cousins and colleagues also recommended that PFAS be managed as a chemical class and all nonessential uses be banned.[47]

Further, it is not practical for EPA to regulate these chemicals on an individual basis. It is too resource intensive and will take decades to provide adequate protection to the public. Instead, EPA should take a holistic approach to protect public health and welfare from the dangers of PFAS contamination.

A class-based approach also provides greater certainty to public water systems. Without such an approach, a public water system may invest in a treatment technology appropriate for individual PFAS only to later learn that the water supply is also contaminated by other PFAS that require a different treatment technology.[48]

If EPA later concludes that it is not economically or technologically feasible to set an appropriate MCL for PFAS as a class or for PFAS subclasses, EPA can exercise

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[44] Cousins IT, DeWitt JC, Glüge J, Goldenman G, Herzke D, Lohmann R, Ng CA, Scheringer M, Wang Z. The high persistence of PFAS is sufficient for their management as a chemical class. *Environ Sci Process Impacts.* 2020 Dec 16;22(12):2307-2312. https://pubmed.ncbi.nlm.nih.gov/33230514/; Kwiatkowski CF, Andrews DQ, Birnbaum LS, Bruton TA, DeWitt JC, Knappe D, Maffini MV, Miller MF, Pelch KE, Reade A, Soehl A, Trier X, Venier M, Wagner CC, Wang Z, Blum A. Scientific Basis for Managing PFAS as a Chemical Class. *Environ. Sci. Technol. Lett.* 2020 Jun 30;7, 8:532–543. https://doi.org/10.1021/acs.estlett.0c00255.

[45] Kwiatkowski CF, Andrews DQ, Birnbaum LS, Bruton TA, DeWitt JC, Knappe D, Maffini MV, Miller MF, Pelch KE, Reade A, Soehl A, Trier X, Venier M, Wagner CC, Wang Z, Blum A. Scientific Basis for Managing PFAS as a Chemical Class. *Environ. Sci. Technol. Lett.* 2020 Jun 30;7, 8:532–543. https://doi.org/10.1021/acs.estlett.0c00255.

[46] *Id.*

[47] Cousins IT, DeWitt JC, Glüge J, Goldenman G, Herzke D, Lohmann R, Ng CA, Scheringer M, Wang Z. The high persistence of PFAS is sufficient for their management as a chemical class. *Environ Sci Process Impacts.* 2020 Dec 16;22(12):2307–2312. https://pubmed.ncbi.nlm.nih.gov/33230514/.

[48] One of the most studied treatment technologies, granular activated carbon (GAC), "works well on longer-chain PFAS like PFOA and PFOS, but shorter chain PFAS like Perfluorobutanesulfonic acid (PFBS) and Perfluorobutyrate (PFBA) do not adsorb as well." U.S. Envtl. Prot. Agency, Reducing PFAS in Drinking Water with Treatment Technologies (Aug. 23, 2018), https://www.epa.gov/sciencematters/reducing-pfas-drinking-water-treatment-technologies.

its authority to specify a PFAS treatment technique to remove PFAS as a class to the extent practicable.[49] This alternative route requires that the EPA instead adopt a treatment technique regulatory regime that will "prevent known or anticipated adverse effects on the health of persons to the extent feasible."[50] Thus, we urge EPA to consider this approach as yet another alternative.

STATES' RECOMMENDATIONS

The States support EPA's proposal to include 29 PFAS in UCMR 5 and urge EPA to strengthen this proposed rule. We ask EPA to: (1) require monitoring for total PFAS in the UCMR 5; (2) promptly validate an analytical method to analyze total PFAS in drinking water; (3) lower the minimum reporting levels in UCMR 5;[51] and (4) advance environmental justice with PFAS monitoring.[52]

A. EPA Should Require Monitoring for Total PFAS in the UCMR 5.

EPA should seize the opportunity presented by the UCMR 5 to gather the best possible data about the occurrence of PFAS in public water systems. The States ask EPA to require public water systems to monitor for total PFAS or, in the alternative, for subclasses of PFAS, and additional, individual PFAS. As explained further below, analytical methods that can measure total PFAS are available, so it is feasible to require monitoring for total PFAS in the UCMR 5.[53]

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[49] 42 U.S.C. § 300g-1(b)(7)(A).

[50] *Id*.

[51] The Oregon Health Authority (OHA) is currently evaluating its regulatory approach to address PFAS issues. Oregon joins these comments and recommendations generally in that they discuss the public health concerns presented by PFAS, highlight the states' interest in protecting our residents from the adverse health effects of PFAS exposure, argue for the importance of proper regulation of these chemicals by EPA, and urge EPA to move as expeditiously as possible to develop appropriate regulatory standards. However, Oregon does not join the recommendation that the UCMR use a lower minimum reporting level for PFAS out of concern that such levels may produce technical issues for laboratories and may not result in significant safety benefits.

[52] The Colorado Department of Public Health and Environment (CDPHE) is currently evaluating the best regulatory approach to address PFAS issues. For that reason, Colorado joins these comments only to the extent that they discuss the public health concerns presented by PFAS, highlight the states' interest in protecting our residents from the adverse health effects of PFAS exposure, argue for the importance of proper regulation of these chemicals by EPA, and urge EPA to move as expeditiously as possible to develop appropriate regulatory standards. Given CDPHE's ongoing evaluations, Colorado takes no position on specific recommendations, scientific conclusions, or the validity of any of the scientific sources referenced herein.

[53] *See infra* at 10, 13—16 for a discussion of the analytical methods that measure total PFAS and the monitoring tiers available in the UCMR.

We urge EPA to require monitoring for total PFAS in the largest monitoring tier, the Assessment Monitoring Tier, of the UCMR 5.[54] In the alternative, if EPA decides not to require monitoring for total PFAS in the Assessment Monitoring Tier, then we urge EPA to require a subset of public water systems determined to be vulnerable to PFAS contamination to monitor for total PFAS. EPA can do so either through the Screening Survey Tier or the Pre-Screen Testing Tier. EPA recommends a Screening Survey Tier when the analytical techniques are less established. Thus, the Screening Survey Tier is appropriate for PFAS test methods that are not yet validated by EPA. Alternatively, EPA could require monitoring for total PFAS through a Pre-Screen Testing Tier. EPA describes the Pre-Screen Testing Tier as monitoring that:

> can be customized to meet the specific monitoring objectives for a specific group of PWSs. EPA has used pre-screening tools in the past. For example, it used Pre-Screen Testing to collect data for two viruses under UCMR 3. That monitoring relied on specialized analytical methods and sampling techniques, and focused on 800 small, undisinfected groundwater systems in vulnerable areas.[55]

Based on this description of the Pre-Screen Testing Tier, it too seems appropriate for the analytical methods used to measure total PFAS.

If EPA declines to require monitoring for total PFAS at this time, then EPA should pursue other more protective alternatives than requiring monitoring for only 29 PFAS. EPA should consider requiring monitoring for subgroups of PFAS with a focus on PFAAs and their precursors, which would capture 85 percent of PFAS.[56] Monitoring for and ultimately regulating scientifically based PFAS subgroups is also a logical step toward class-wide regulation.[57]

We also ask EPA to consider including additional individual PFAS in the UCMR 5. For example, EPA could consider some of the 172 PFAS added to the Toxic Release Inventory (TRI) Program through section 7321 of the National Defense Authorization Act for Fiscal Year 2020 (NDAA), as well as the 3 added for reporting

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[54] In the UCMR 5 proposal, EPA discusses different tiers of contaminant monitoring associated with lists of contaminants but proposes only the Assessment Monitoring Tier. The Assessment Monitoring Tier is the largest in scope and used for estimating national population exposure and generally results in the most complete set of data. EPA did not propose the use of Tier List 2 or Tier List 3 in UCMR 5. It states that it did not do so because the larger Assessment Monitoring Tier is large in scope and will provide robust information.
[55] 86 Fed. Reg. at 13,851.
[56] Kwiatkowski CF, Andrews DQ, Birnbaum LS, Bruton TA, DeWitt JC, Knappe D, Maffini MV, Miller MF, Pelch KE, Reade A, Soehl A, Trier X, Venier M, Wagner CC, Wang Z, Blum A. Scientific Basis for Managing PFAS as a Chemical Class. *Environ. Sci. Technol. Lett.* 2020 Jun 30;7, 8:532–543. https://doi.org/10.1021/acs.estlett.0c00255.
[57] See *Id*.

year 2021.[58] Pursuant to the 2021 NDAA, the 29 PFAS listed in the proposed UCMR 5 do not count toward the 30 contaminant limit in the UCMR.[59] Thus, EPA can and should include 29 additional PFAS in the UCMR 5 if EPA can validate an analytical method to measure them.

B. EPA Should Promptly Validate an Analytical Method to Analyze Total PFAS in Drinking Water.

We also urge EPA to promptly validate an analytical method for analyzing total PFAS contamination in drinking water. EPA should require use of such a method in any of the various tiers of monitoring in the UCMR 5 to detect a larger spectrum of PFAS comprehensively.[60] Since the UCMR 5 sampling will not begin until 2023, there is ample time for EPA to validate an analytical method and for laboratory capacity to be developed. We recognize there are challenges to understanding total PFAS[61] in drinking water.[62] But those challenges are not insurmountable and having occurrence data on the total PFAS in a given sample quantified along with occurrence data on the 29 individual PFAS would allow us to understand the value of analytical methods that measure total PFAS. As EPA states in the preamble of this proposal, the nation's residents, the States, and the federal government all benefit from complete information about whether these unregulated contaminants are present in drinking water.[63] Without analytical methods that

[58] U.S. Environmental Protection Agency, *Chemicals Added to the Toxics Release Inventory Pursuant to Section 7321 of the National Defense Authorization Act,* https://www.epa.gov/sites/production/files/2021-01/documents/tri_non-cbi_pfas_list_1_8_2021_final.pdf. (last visited Apr. 16, 2021).

[59] National Defense Authorization Act for Fiscal Year 2021, H.R. 6395, 116th Cong. (enacted).

[60] U.S. Envtl. Prot. Agency, *PFAS Analytical Methods Development and Sampling Research* (last updated Jan. 26, 2021), https://www.epa.gov/water-research/pfas-analytical-methods-development-and-sampling-research.

[61] The term "total PFAS" refers to the quantification of all or a large subset of PFAS in a given sample. U.S. Envtl. Prot. Agency, *PFAS Analytical Methods Development and Sampling Research*, https://www.epa.gov/water-research/pfas-analytical-methods-development-and-sampling-research. One constraint on regulating or measuring "total PFAS" is that it is limited by the subclass of PFAS or PFAS that any given analytical method can identify. Cousins IT, DeWitt JC, Glüge J, Goldenman G, Herzke D, Lohmann R, Miller M, Ng CA, Scheringer M, Vierke L, Wang Z. Strategies for grouping per- and polyfluoroalkyl substances (PFAS) to protect human and environmental health. *Environ. Sci.: Processes Impacts*, 2020 Jun 4;22:1440–1460, 1452. https://doi.org/10.1039/D0EM00147C.

[62] See e.g., Cousins IT, DeWitt JC, Glüge J, Goldenman G, Herzke D, Lohmann R, Miller M, Ng CA, Scheringer M, Vierke L, Wang Z. Strategies for grouping per- and polyfluoroalkyl substances (PFAS) to protect human and environmental health. *Environ. Sci.: Processes Impacts*, 2020 Jun 4;22:1440-1460. https://doi.org/10.1039/D0EM00147C.

[63] Revisions to the Unregulated Contaminant Monitoring Rule (UCMR 5) for Public Water Systems and Announcement of Public Meeting, 86 Fed. Reg. 13,846, 13,850 (proposed Mar. 11, 2021) (to be codified at 40 C.F.R. pt. 141).

measure total PFAS, public water systems will likely continue to have undetected PFAS contamination.

1. Current EPA-Validated Methods are Targeted and Insufficient.

Currently, EPA proposes using two validated and targeted PFAS analytical methods to support the analysis of the 29 PFAS in the proposed UCMR 5: Method 533 and 537.1.[64] The targeted analytical methods validated to date quantify PFAS concentrations using liquid chromatography with tandem mass spectrometric detection. Method 537, was first published in 2009 and updated in 2020; and EPA validated Method 537.1 analyzes samples for 18 of the 29 PFAS in the UCMR 5.[65] Method 533 was developed in 2019 to support the UCMR 5 and is validated for an additional 11 PFAS. Method 533 complements Method 537.1 by targeting short-chain PFAS (none greater than C_{12}) and measures a total of 25 PFAS.[66] These validated methods—referred to as "targeted analyses"—differ in scope, limits of detection and quantification and method analyte lists. Each is aimed at specifically identified chemicals.[67]

The targeted analytical methods screen for known, specific species of PFAS and thus are one step behind the many thousands of ever-changing PFAS. Using the targeted approach, EPA decides what it wants to know, sets up the method for detecting that known chemical and performs the analysis. But that approach is ill suited to protect the public from the thousands of PFAS present in unknown quantities around the country.

2. EPA Should Validate an Analytical Method to Measure Total PFAS.

The validated targeted analytical methods allow EPA to monitor only a small fraction of the *total* PFAS that may be present in drinking water. In contrast to the targeted analyses, there are other analytical methods that measure the total PFAS in a sample and then a targeted method can be used to extract information about a

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[64] *See* U.S. Envtl. Prot. Agency, *PFAS Analytical Methods Development and Sampling Research*, https://www.epa.gov/water-research/pfas-analytical-methods-development-and-sampling-research. EPA lists methods approved by DOD and other agencies as well.
[65] U.S. Envtl. Prot. Agency, *PFAS Analytical Methods Development and Sampling Research*, https://www.epa.gov/water-research/pfas-analytical-methods-development-and-sampling-research.
[66] *Id.*
[67] *See* Revisions to the Unregulated Contaminant Monitoring Rule (UCMR 5) for Public Water Systems and Announcement of Public Meeting, 86 Fed. Reg. 13,846, 13,870 (proposed Mar. 11, 2021) (to be codified at 40 C.F.R. pt. 141). *See also* U.S. Envtl. Prot. Agency, *PFAS Analytical Methods Development and Sampling Research*, https://www.epa.gov/water-research/pfas-analytical-methods-development-and-sampling-research.

specific compound. This additional holistic information on the occurrence of total PFAS is essential to effectively understand how to regulate and remediate PFAS in our drinking water. This rulemaking presents an opportunity to obtain critically needed data to understand exposures. According to some estimates based on the UCMR 3 data, at least 6 million U.S. residents were receiving drinking water contaminated by PFAS at levels exceeding local, state, or national regulations or advisories.[68] Many studies indicate that the full extent of PFAS contamination is significantly underestimated when only targeted analytical methods are used.[69] Thus, we urge EPA to require that public water systems use an analytical method that will measure the total PFAS in drinking water.

There are many additional advantages to using analytical methods that measure total PFAS. Using such an analytical method along with targeted analyses for specific PFAS will also allow us to investigate and identify sources of contamination based on concentrations of total PFAS, the identification of individual PFAS, and temporal trends in the occurrence data.[70] As stated above, analytical methods that measure total PFAS will allow public water systems to appropriately invest in treatment systems that can remove more PFAS than just the 29 PFAS identified by targeted analyses. Without information on total PFAS, public water systems may not know about significant concentrations of PFAS in drinking water, which could have serious public health and environmental consequences.

Thus, EPA should validate and require use of analytical methods that measure total PFAS because they provide more complete data about the occurrence of PFAS in public water supplies. Additionally, it is less likely that EPA will have to modify analytical methods as new PFAS continue to emerge.[71] Furthermore, analytical methods that measure total PFAS also have the advantage of allowing retrospective analyses for unknown chemicals.

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[68] Hu XC, Andrews DQ, Lindstrom AB, Bruton TA, Schaider LA, Grandjean P, Lohmann R, Carignan CC, Blum A, Bălan SA, Higgins CP, Sunderland EM. Detection of Poly- and Perfluoroalkyl Substances (PFASs) in U.S. Drinking Water Linked to Industrial Sites, Military Fire Training Areas, and Wastewater Treatment Plants. *Environ. Sci. Technol. Lett.* 2016 Oct11; 3(10):344–350. https://doi.org/10.1021/acs.estlett.6b00260.

[69] McDonough CA, Guelfo JL. Measuring total PFASs in water: The tradeoff between selectivity and inclusivity. *Curr. Opin. Environ. Sci. Health.* 2019 Feb;7:13–18. https://doi.org/10.1016/j.coesh.2018.08.005.

[70] Guelfo JL, Adamson DT. Evaluation of a national data set for insights into sources, composition, and concentrations of per- and polyfluoroalkyl substances (PFASs) in U.S. drinking water, *Environ. Pollut.* 2018 May;236: 505–513. https://doi.org/10.1016/j.envpol.2018.01.066.

[71] Winchell LJ, Wells M, Ross JJ, Fonoll X, Norton JW Jr., Kuplicki S, Khan M, Bell KY. Analyses of per- and polyfluoroalkyl substances (PFAS) through the urban water cycle: Toward achieving an integrated analytical workflow across aqueous, solid, and gaseous matrices in water and wastewater treatment. *Science of the Total Environment*. 2021 Jun 20;774:145257. https://doi.org/10.1016/j.scitotenv.2021.145257.

3. Several Analytical Methods that Measure Total PFAS Are Available and Can Be Used Together with Targeted Methods.

Available analytical techniques provide a more comprehensive assessment of PFAS contamination—including total PFAS. These methods, such as the Total Oxidized Precursor (TOP) Assay, are currently in use commercially throughout the US and in Canada and have been used to identify many PFAS.[72] Some states have approved the use of analytical methods that measure total PFAS for various media.[73] The European Union is likely to soon require use of a testing method for total PFAS.[74]

As an example of what can be done to advance understanding of PFAS in U.S. drinking water, we recommend EPA look to the type of occurrence data survey recently conducted in Pennsylvania. In March 2021, the United States Geological Survey (USGS), in cooperation with the Pennsylvania Department of Environmental Protection, released a first-of-its-kind study of Pennsylvania surface waters.[75] They collected 216 samples from rivers and streams in this study intended to understand the occurrence, distribution, and concentrations of PFAS across Pennsylvania. The USGS utilized a traditional targeted analytical method and a method that measures total PFAS, the TOP Assay.[76] The results provide data for 33 individual PFAS compounds, 19 PFAS precursors as well as various sums of total PFAS compounds. The sampling results showed a significant difference between the summed

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[72] U.S. Envtl. Prot. Agency, *EPA Researchers Use Innovative Approach to Find PFAS in the Environment* (Aug. 13, 2018), https://www.epa.gov/sciencematters/epa-researchers-use-innovative-approach-find-pfas-environment. The TOP Assay converts PFAA precursor compounds to PFAAs through an oxidative digestion process.

[73] For a review of the status of analytical methods that measure total PFAS, *see* U.S. Envtl. Prot. Agency, *Research on Per- and Polyfluoroalkyl Substances (PFAS)* (last updated Apr. 20, 2021),https://www.epa.gov/chemical-research/research-and-polyfluoroalkyl-substances-pfas#2 and *see also* U.S. Envtl. Prot. Agency, *PFAS Analytical Methods Development and Sampling Research*, https://www.epa.gov/water-research/pfas-analytical-methods-development-and-sampling-research.

[74] The EU is likely to adopt a limit for "total PFAS" and may use the extractable or adsorbable organofluorine methods to determine compliance with that limit. Cousins IT, DeWitt JC, Glüge J, Goldenman G, Herzke D, Lohmann R, Miller M, Ng CA, Scheringer M, Vierke L, Wang Z. Strategies for grouping per- and polyfluoroalkyl substances (PFAS) to protect human and environmental health. *Environ. Sci.: Processes Impacts*, 2020 Jun 4;22:1440–1460, 1452. https://doi.org/10.1039/D0EM00147C.

[75] News Release, USGS Releases First-of-its-Kind Survey of PFAS in Pennsylvania Surface Waters (Mar. 18, 2021), https://www.usgs.gov/center-news/usgs-releases-first-its-kind-survey-pfas-pennsylvania-surface-waters?qt-news_science_products=2#qt-news_science_products.

[76] *Id.* The USGS total PFAS sum values are mathematical sums, rather than an analysis of all fluorinated organic compounds (TOF) analysis. The USGS laboratory provided a large number of PFAS compounds results: up to 40 specific compounds.

PFOA/PFOS results when compared to the broader total PFAS results. Each time, the total PFAS concentrations were greater than the summed concentrations of only PFOA and PFOS. For example, Valley Forge's Valley Creek in Pennsylvania had a PFOA/PFOS total sum of 25.2 ng/l but a total PFAS sum of 103.3 ng/l.[77] This USGS occurrence study demonstrates that not only are the broad-based methods for total PFAS available but that the results could provide critical information.

Despite the availability of analytical methods that measure total PFAS, the presence and extent of PFAS contamination in drinking water is still poorly understood because we only sample for a small number of PFAS. We urge EPA to use these available analytical methods to rectify this knowledge gap in PFAS occurrence data and provide significantly more insights on PFAS contamination.

4. EPA is Currently Working to Validate an Analytical Method for Total PFAS and Promised to Do So in 2021.

Consistent with availability of analytical methods just described, EPA is working on a method that the States urge the agency to adopt as an analytical method for measuring total PFAS for use in the largest monitoring tier in the UCMR 5. On its website, EPA states that it is developing two "total" methods aimed at quantifying large groups of PFAS in environmental samples, advertising these methods as "*coming soon*."[78] EPA identified one such method as Total Organic Fluorine (TOF), which will be available soon. EPA states:

> EPA is developing a potential rapid screening tool to identify total PFAS presence and absence. This eventual standard operating procedure will be used to quantify TOF. Note: EPA is working to develop this method in 2021.[79]

Similarly, EPA describes the TOP Assay method as follows:

> EPA is considering the development of a method, based on existing protocols, to identify PFAS precursors that may transform to more persistent PFAS. Note: *TOP methods are commercially available. EPA*

[77] The USGS used the TOP Assay method together with a targeted method for the total PFAS sums. Duris JW, Eicholtz LW, Williams A, and Shull D. 2021, Per-and Polyfluorinated Alkyl Substances (PFAS) and associated ancillary data from the Commonwealth of Pennsylvania, USA, 2019: U.S. Geological Survey data release, https://doi.org/10.5066/P9L4AHN2 (providing the referenced results in the attached file "dataset.1_PA_PFAS_stream_lake_discrete_201909_wide_simple.csv").

[78] *See* U.S. Envtl. Prot. Agency, *PFAS Analytical Methods Development and Sampling Research*, https://www.epa.gov/water-research/pfas-analytical-methods-development-and-sampling-research.

[79] *Id.*

will consider the need for a thorough multi-laboratory validation study in 2021.[80]

Given that EPA plans to validate these methods before the UCMR 5 sampling begins, we urge EPA to require monitoring for total PFAS in the UCMR 5 as explained in Section A of these comments.

C. **<u>EPA Should Lower the Minimum Reporting Levels in the UCMR 5.</u>**

Setting minimum reporting levels (MRLs) at the lowest achievable quantification level for PFAS is both necessary and attainable. In the proposed rule, EPA states that it established MRLs for the UCMR 5 to ensure consistency in the quality of the information reported to the Agency.[81] As defined in 40 C.F.R. § 141.40(a)(5)(iii), the MRL is the minimum quantitation level that, with 95 percent confidence, can be achieved by capable analysis at 75 percent or more of the laboratories using a specified analytical method. EPA calculates the MRLs for this UCMR by obtaining data from three laboratories that performed "lowest concentration minimum reporting level" studies.[82] In the UCMR 5, EPA proposes MRLs for each of the 29 PFAS. For example, EPA proposes an MRL for PFOS of 4 ng/l.

But, as the Natural Resources Defense Council (NRDC) recently found following a laboratory survey, a lower MRL is attainable and practicable.[83] In NRDC's survey, Vista Labs, an accredited commercial laboratory, reports an MRL for PFOS of 2 ng/l – lower than EPA's proposal of 4 ng/l. Also, in NRDC's survey, another accredited commercial laboratory, Eurofins, has an MRL of 2 ng/l for PFOS as does Pace Analytical.[84] We urge EPA to reconsider the proposed MRLs and take into consideration the current abilities of commercial laboratories to attain a lower MRL.

Using the lowest attainable MRLs is also necessary given past experience with other UCMR sampling efforts. The UCMR 3 survey used a minimum reporting level of 20 ppt for PFOA[85] and 40 ppt for PFOS.[86] Contamination below these levels may

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[80] *Id.*

[81] Revisions to the Unregulated Contaminant Monitoring Rule (UCMR 5) for Public Water Systems and Announcement of Public Meeting, 86 Fed. Reg. 13,846, 13,858 (proposed Mar. 11, 2021) (to be codified at 40 C.F.R. pt. 141).

[82] 86 Fed. Reg. 13,859.

[83] *See* NRDC comments in the UCMR 5 docket.

[84] This information is also available by contacting each of the commercial laboratories through their webpages.

[85] U.S. Envtl. Prot. Agency, *Regulatory Determination 4 Support Document* 4-16 (Dec. 2019), https://www.regulations.gov/document?D=EPA-HQ-OW-2019-0583-0004.

[86] *Id.* at 3–15. Minimum reporting levels for other types of PFAS may also underrepresent the occurrence of these PFAS at concentrations of public health concern. For example, UCMR 3 minimum reporting levels were 90 ppt for perfluorobutanesulfonic acid (PFBS), 10 ppt for

be harmful to human health but was not reported in the UCMR 3 data. State sampling efforts conducted with much lower MRLs have detected more widespread PFAS contamination than the UCMR 3 data showed.[87] Additionally, PFAS were detected much more frequently than was reported in the UCMR 3 data when a large subset of the UCMR 3 analytical results were reevaluated using lower reporting levels by a laboratory that analyzed about 30 percent of all UCMR 3 PFAS samples.[88] Thus, we urge EPA to set the lowest attainable MRLs in the UCMR 5 to ensure that the results accurately reflect the occurrence of PFAS in our public water supplies.

D. EPA Should Prioritize and Advance Environmental Justice with PFAS Monitoring

The States urge EPA to collect census tract data or zip codes for each public water system's service area, as collected under the UCMR 3 and UCMR 4, to support future assessments of impacts on environmental justice communities.[89] Census data are more granular and precise for identifying potential environmental justice areas as compared to zip code data. Additionally, census data cover a well-defined area and align conterminously with county boundaries, which may better align with the boundaries of public water system service areas.

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perfluoroheptanoic acid (PFHpA), 30 ppt for perfluorohexanesulfonic acid (PFHxS), and 20 ppt for perfluorononanoic acid (PFNA). U.S. Envtl. Prot. Agency, *Third Unregulated Contaminant Monitoring Rule (UCMR 3): Data Summary* (Jan. 2017), https://www.epa.gov/sites/production/files/2017-02/documents/ucmr3-data-summary-january-2017.pdf.

[87] *Regulatory Determination 4 Support Document* at 3-20-22, 3-22-24, 4-21-23, 4-24-25; Post GB, Louis JB, Lippincott RL, Procopio NA. Occurrence of Perfluorinated Compounds in Raw Water from New Jersey Public Drinking Water Systems. *Environ. Sci. Technol.* 2013 Nov 4;47, 23:13266–13275. https://doi.org/10.1021/es402884x; Post GB, Louis JB, Cooper KR, Boros-Russo J, Lippincott RL. Occurrence and potential significance of perfluorooctanoic acid (PFOA) detected in New Jersey public drinking water systems. *Environ. Sci, Technol.* 2009;43:4547–4554. https://doi.org/10.1021/es900301s.

[88] Post GB, Gleason JA, Cooper KR. Key scientific issues in developing drinking water guidelines for perfluoroalkyl acids: Contaminants of emerging concern. *PLoS Biol.* 2017 Dec 20;15(12):e2002855. https://doi.org/10.1371/journal.pbio.2002855.

[89] A potential environmental justice area is defined to mean "a minority or low-income community that may bear a disproportionate share of the negative environmental consequences" of a project. New York Dep't of Envtl. Conserv., Commissioner Policy 29, Environmental Justice and Permitting, at 4 (Mar. 19, 2003). U.S. Census Bureau data are used for identifying these areas. A "minority population" is a population recognized by the U.S. Census Bureau as "Hispanic, African-American or Black, Asian and Pacific Islander or American Indian." *Id.* For an urban area, a "minority community" means a census block group or groups with a 51.1 percent or more minority population. *Id.* at 3. A "low-income population" means a population having an annual income less than the poverty level, as established by the U.S. Census. *Id.* A "low-income community" is a census block group or groups having a low-income population equal or greater than 23.59 percent of the total population, as demonstrated by census data. *Id.*

Throughout the United States, communities of color and low-income communities have faced disproportionate harm from environmental contamination for decades. The White House has identified environmental justice as a top priority for the Biden Administration, directing federal agencies to develop programs and policies to address the disproportionate health and environmental impacts on disadvantaged communities.[90] It is critical that EPA evaluate potential disparate impacts created by PFAS contamination of drinking water. EPA's PFAS rulemakings must adequately address such environmental justice concerns.[91]

PFAS substances are a major concern for communities living near PFAS manufacturers or industries using PFAS. Epidemiological studies have been done in communities near such sites, linking exposure to contaminated local drinking water supplies to cancer and other illnesses.[92] By collecting geographic locational data in the UCMR 5, we can gain insight on proximity to PFAS sources, the drinking water exposure pathways, and the cumulative impact of multiple stressors, exposure to air pollution and other toxic chemicals.[93] With this information, EPA will be better able to analyze potential environmental justice concerns associated with the presence of PFAS in drinking water and the cumulative risk of multiple contaminants and other community stressors.

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[90] News Release, FACT SHEET: President Biden Takes Executive Actions to Tackle the Climate Crisis at Home and Abroad, Create Jobs, and Restore Scientific Integrity Across Federal Government (Jan. 27, 2021), https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/27/fact-sheet-president-biden-takes-executive-actions-to-tackle-the-climate-crisis-at-home-and-abroad-create-jobs-and-restore-scientific-integrity-across-federal-government/; *see* U.S Environmental Protection Agency, Technical Guidance for Assessing Environmental Justice in Regulatory Analysis (Jun 2016), https://www.epa.gov/sites/production/files/2016-06/documents/ejtg_5_6_16_v5.1.pdf.

[91] Federal agencies have a unique responsibility to prevent environmental injustice and discrimination based on race, including in federally assisted housing. Benfer, "Contaminated Childhood: How the United States Failed to Prevent the Chronic Led Poisoning of Low-Income Children and Communities of Color," 41 *Harv. Envtl. L. Rev.* 493, 537–38 (2017); *see also* Exec. Order No. 12,898, 59 Fed. Reg. 7,629 (Feb. 16, 1994).

[92] Studies have been conducted of various fence-line communities, including Parkersburg, West Virginia and in Alabama. *See e.g.*, Worley RR, Moore SM, Tierney BC, Ye X, Calafat AM, Campbell S, Woudneh MB, Fisher J. Per- and polyfluoroalkyl substances in human serum and urine samples from a residentially exposed community. *Environment International*. 2017;106:135–143. https://doi.org/10.1016/j.envint.2017.06.007. *See also* C8 Science Panel (last updated Jan. 22, 2020), http://www.c8sciencepanel.org/.

[93] Post GB, Louis JB, Lippincott RL, Procopio NA. Occurrence of Perfluorinated Compounds in Raw Water from New Jersey Public Drinking Water Systems. *Environ. Sci. Technol.* 2013 Nov 4;47, 23:13266–13275. https://doi.org/10.1021/es402884x; *see also* Olden K, Lin Y-S, Gruber D, Sonawane B. Epigenome: Biosensor of Cumulative Exposure to Chemical and Nonchemical Stressors Related to Environmental Justice. *Am J Public Health*. 2014 Oct;104(10):1816–1821. https://dx.doi.org/10.2105%2FAJPH.2014.302130.

CONCLUSION

The States appreciate the opportunity to submit these comments on the proposed UCMR 5. To ensure public health is protected from harmful drinking water contamination, as required by the SDWA, we strongly believe EPA should regulate PFAS as a class. To do so, we urge EPA to (1) require monitoring for total PFAS or PFAS subgroups in the UCMR 5, (2) promptly validate analytical methods that measure total PFAS for use in the UCMR 5, (3) lower the MRLs for the PFAS in the UCMR 5, and (4) advance environmental justice with PFAS monitoring.

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