Pew

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Submitted via regulations.gov

The Honorable Lee Zeldin, Administrator
U.S. Environmental Protection Agency
EPA Docket Center, Water Docket
Mail code: 28221T
1200 Pennsylvania Ave, NW
Washington, DC 20460

RE: Drinking Water Contaminant Candidate List - Draft; Notice of Availability (EPA-HQ-OW-2022-0946)

Dear Administrator Zeldin:

On behalf of The Pew Charitable Trusts (Pew), thank you for the opportunity to provide comments on the Environmental Protection Agency's (EPA) notice of availability for the sixth Contaminant Candidate List (CCL 6) under the Safe Drinking Water Act (SDWA) (Drinking Water Contaminant Candidate List 6-Draft, 91 FR 17186).

Pew is a non-profit, nonpartisan research and policy organization dedicated to informing the public, improving public policy, and invigorating civic life with several initiatives related to the health and well-being of American communities, including Pew's safer chemicals project focused on reducing Americans' exposures to endocrine-disrupting chemicals (EDCs) and Pew's preventing plastic pollution project.

A national survey conducted by Pew and global market research and public opinion firm IPSOS found that more than 70% of adults in the United States are very or somewhat concerned about their own or their loved ones' exposures to harmful chemicals in food and drinking water, and a majority is also concerned about chemicals in food packaging, children's and baby products, farmland, and other sources. Further, a substantial majority, about 5 in 6, want government and business to do more to ensure chemical safety and increase transparency around the use of chemicals.[1]

We appreciate the Agency's effort in development of the CCL 6 proposal, and we look forward to issuance of the final rule and subsequent work to gather and analyze new health and occurrence data, develop effective test methods, and make regulatory determinations to protect public health. We are particularly pleased to see the inclusion on the list of microplastics and multiple chemicals that have been associated with endocrine-disrupting effects.

Overview of Comments

- Pew commends EPA's inclusion of individual and groups of contaminants that have endocrine-disrupting effects on its draft CCL 6 and recommends listing a subset of additional bisphenols widely used as replacements for bisphenol A (BPA) and with evidence for similar adverse health effects as BPA.
- We support EPA's inclusion of microplastics as a group which was recommended by EPA's Science Advisory Board (SAB) among other key stakeholders during the CCL 5 comment period. We recommend also including nanoplastics.
- We support the inclusion of per- and polyfluoroalkyl substances (PFAS) as a group and recommend EPA revise its definition to include shorter-chain PFAS such as trifluoroacetate (TFA).
- We support EPA's inclusion of disinfection byproducts (DBPs) as a group and the agency's expansion of the group to cover additional SDWA-unregulated DBPs with evidence of adverse health effects.
- Finally, we recommend that EPA move expeditiously to finalize the CCL 6 and commit adequate resources and staffing to understand the potential health effects and occurrence of listed chemicals. The CCL is an important step toward identifying and understanding harmful contaminant exposures that may occur via drinking water but must be followed by adoption of appropriate health-protective regulatory measures.

[1] Jennifer McPartland, "Americans Are Concerned About Harmful Chemicals in Food, Water and Everyday Products," news release, February 26, https://www.pew.org/en/research-and-analysis/articles/2026/02/26/americans-are-concerned-about-harmful-chemicals-in-food-water-and-everyday-products.

Contaminant Selection

In developing the CCL, the SDWA requires that EPA prioritize the inclusion of chemicals posing the greatest health risks considering impacts to sensitive subgroups such as infants, children, and pregnant mothers.[2] EDCs are particularly harmful to these groups as well as adults of reproductive age, because developmental and reproductive periods are especially sensitive to endocrine disruption. Among other impacts, EDC exposures during these periods have been linked to adverse birth outcomes, reproductive and neurodevelopmental disorders, diabetes, and obesity.[3]

Related to these concerns and the need for identifying the endocrine-disrupting characteristics of various chemicals, we support EPA's consideration of androgen and estrogen receptor bioactivity as an approach to informing the CCL. However, we would also note that a reliance solely on these factors may not be sufficient, because EDCs can cause harm through numerous other mechanisms.[4] We recommend that the Agency also utilize information from authoritative lists of possible EDCs and we have tracked the proposed CCL 6 listed chemicals against several valuable lists. [5] As detailed below, our review suggests that the majority of chemicals on the list may present or are under evaluation for endocrine-disrupting effects.

Of the 75 individual chemicals listed under exhibit 1a of EPA's draft CCL 6, our analysis found that six, including 4-tert-octylphenol, benzyl butyl phthalate, bisphenol A, flufenacet, nonylphenol and triphenyl phosphate, are known EDCs, either for human health or the environment according to evaluations performed under regulations in the European Union

[2] USC Sec. 300g-1(b)(3)(C)(i)(V)
[3] Linda G. Kahn et al., "Endocrine-Disrupting Chemicals: Implications for Human Health," *The Lancet Diabetes & Endocrinology* 8, no. 8 (2020): 703-18, https://doi.org/10.1016/S2213-8587(20)30129-7.
[4] Christopher J. Martyniuk et al., "Emerging Concepts and Opportunities for Endocrine Disruptor Screening of the Non-EATS Modalities," *Environmental Research* 4 (2022): 111904, https://doi.org/10.1016/j.envres.2021.111904.
[5] "Endocrine Disruptor List," The Danish Environmental Protection Agency, April 2026, https://edlists.org/the-ed-lists/list-i-substances-identified-as-endocrine-disruptors-by-the-eu.

(EU).[6,7,8] (See Appendix 1, which includes sources of information regarding individual chemicals.)

Another eight, 1,2,4-triazole, diuron, imazalil, isophorone, methyl tert-butyl ether (MTBE), p-cresol, propargite, and silver, are suspected EDCs due to "explicit concerns for possible endocrine disrupting properties" and their evaluation as endocrine disruptors in the EU.[9,10] An additional 20 of the CCL 6 proposed chemicals are part of the EPA Endocrine Disruptor Screening Program included in either List 1[11] or List 2.[12] Further, an additional 23 chemicals have some indication of endocrine-disrupting potential based on the peer-reviewed literature, as identified on The Endocrine Disruptor Exchange List (TEDX),[13] or through estrogen and androgen receptor bioactivity or prediction models available on the EPA Chemical Dashboard,

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[6] *Ibid.*

[7] Regulation (Ec) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 Concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (Reach), Establishing a European Chemicals Agency, Amending Directive 1999/45/Ec and Repealing Council Regulation (Eec) No 793/93 and Commission Regulation (Ec) No 1488/94 as Well as Council Directive 76/769/Eec and Commission Directives 91/155/Eec, 93/67/Eec, 93/105/Ec and 2000/21/Ec, No 1907/2006, European Chemicals Agency, October 18 2006, https://eur-lex.europa.eu/legal-content/EN/LSU/?uri=CELEX:32006R1907.

[8] Amending Annex II to Regulation (Ec) No 1107/2009 by Setting out Scientific Criteria for the Determination of Endocrine Disrupting Properties COMMISSION REGULATION (EU) 2018/605 European Commission, April 19, 2018, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R0605&from=EN.

[9] "List II: Substances under Evaluation for Endocrine Disruption under an Eu Legislation," The Danish Environmental Protection Agency, April 2026, https://edlists.org/the-ed-lists/list-ii-substances-under-eu-investigation-endocrine-disruption.

[10] "ED Assessment List," European Chemicals Agency, https://chem.echa.europa.eu/activity-lists/edAssessment

[11] "Final List of Initial Pesticide Active Ingredients and Pesticide Inert Ingredients to be Screened Under the Federal Flood, Drug, and Cosmetic Act," EPA-HQ-OPPT-2004-0109-0080, Environmental Protection Agency, 2009, https://www.regulations.gov/document/EPA-HQ-OPPT-2004-0109-0080.

[12] Endocrine Disruptor Screening Program: Final Second List of Chemicals and Substances for Tier 1 Screening, EPA-HQ-OPPT-2009-0477-0074, Environmental Protection Agency, 2013, https://www.regulations.gov/document/EPA-HQ-OPPT-2009-0477-0074.

[13] "The Endocrine Disruption Exchange: Partners in Science," TedX List, September 2018, https://endocrinedisruption.org/interactive-tools/tedx-list-of-potential-endocrine-disruptors/search-the-tedx-list.

namely the ER Pathway Model,[14] AR Pathway Model,[15] and CERAPP[16] and COMPARA[17] prediction models. Additionally, 13 chemicals on exhibit 1a are found on California's Proposition 65 list due to reproductive toxicity concerns.[18] In sum, there is concern or consideration for reproductive toxicity or endocrine disruption for the majority of the draft CCL 6 listed chemicals.

Again, we encourage EPA to consider expanding its approach to include additional EDC-relevant pathways (e.g., progesterone, thyroid, retinoid, glucocorticoid, peroxisome proliferator-activated receptors, steroidogenesis, and oxidative stress) to more fully capture the range of health effects that endocrine-disrupting chemicals can exhibit.[19]

Recommended Inclusion of Additional Bisphenols

In addition to bisphenol A (BPA), and in line with the recommendation of EPA's Scientific Advisory Board (SAB) review of the CCL 5,[20] Pew recommends inclusion of other bisphenol chemicals to the CCL 6, namely bisphenol AF (BPAF), bisphenol B (BPB), bisphenol E (BPE), bisphenol F (BPF), and bisphenol S (BPS), with consideration for additional bisphenols like bisphenol AP (BPAP), bisphenol P (BPP) and bisphenol Z (BPZ).

Although still detected in drinking water sources and in people and linked to serious health risks including neurodevelopmental harm; impacts on growth, development and reproduction; and

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[14]Richard S. Judson et al., "Integrated Model of Chemical Perturbations of a Biological Pathway Using 18 in Vitro High-Throughput Screening Assays for the Estrogen Receptor," *Toxicological Sciences* 148, no. 1 (2015): 137-54, https://doi.org/10.1093/toxsci/kfv168.
[15]Nicole C. Kleinstreuer et al., "Development and Validation of a Computational Model for Androgen Receptor Activity," *Chemical Research in Toxicology* 30, no. 4 (2017): 946-64, https://doi.org/10.1021/acs.chemrestox.6b00347.
[16]Mansouri Kamel et al., "Cerapp: Collaborative Estrogen Receptor Activity Prediction Project," *Environmental Health Perspectives* 124 (2016): 1023-33.
[17]Mansouri Kamel et al., "Compara: Collaborative Modeling Project for Androgen Receptor Activity," *Environmental Health Perspectives* 128 (2020): 027002.
[18]California Office of Environmental Health Hazard Assessment, The Proposition 65 List, (2025), https://oehha.ca.gov/sites/default/files/media/downloads/proposition-65//p65chemicalslist.pdf.
[19] Christopher J. Martyniuk et al., "Emerging Concepts and Opportunities for Endocrine Disruptor Screening of the Non-EATS Modalities," *Environmental Research* 4 (2022): 111904, https://doi.org/10.1016/j.envres.2021.111904.
[20]U.S. EPA Science Advisory Board, Review of the EPA's Draft Fifth Contaminant Candidate List (CCL 5), Letter to The Honorable Michael S. Reagan, August 19, 2022, EPA-SAB-22-007.pdf

breast cancer, BPA exposures have been declining while replacement bisphenols are now regularly detected in people and the environment.[21,22,23] In a recent study of 201 children from six cohorts across four states—California, Georgia, New York, and Washington—49% had detectable levels of BPA, while 99% had detectable levels of BPS with BPS levels in children higher than maternal levels. Additionally, four other bisphenols, BPAP, BPZ, BPB, and BPZ were detected in more than 10% of the children sampled.[24]

Many of the BPA replacement chemicals demonstrate health concerns similar to those of BPA, including endocrine disruption.[25] In fact, BPAF was shown to have stronger estrogenic activity than BPA in the EPA model for estrogen receptor bioactivity, one of the sources EPA used in developing the CCL 6.[26] Multiple bisphenols have also been detected in numerous types of environmental media, including wastewater effluent, suggesting they could potentially end up in drinking water sources.[27]

Listing of Microplastics

Pew supports the listing of microplastics as a group in the CCL 6, as also recommended by EPA's SAB in its review of the draft CCL 5.[28] Pew recommends amending the listing to "micro- and nanoplastics (MNPs)" to explicitly include nanoplastics, given growing evidence of health

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[21]"Fourth National Report on Human Exposure to Environmental Chemicals: Updated Tables, January 2019, Volume One," (2019): https://stacks.cdc.gov/view/cdc/75822.
[22]A. C. Gore et al., "Edc-2: The Endocrine Society's Second Scientific Statement on Endocrine-Disrupting Chemicals," no. 1945-7189 (Electronic).
[23]W. Bao et al., "Association between Bisphenol a Exposure and Risk of All-Cause and Cause-Specific Mortality in Us Adults," no. 2574-3805 (Electronic).
[24]Jiwon Oh et al., "Exposures to Contemporary and Emerging Chemicals among Children Aged 2 to 4 Years in the United States Environmental Influences on the Child Health Outcome (Echo) Cohort," *Environmental Science & Technology* 59, no. 27 (2025): 13594-610, https://doi.org/10.1021/acs.est.4c13605.
[25]Mark Stanojević and Marija Sollner Dolenc, "Mechanisms of Bisphenol a and Its Analogs as Endocrine Disruptors Via Nuclear Receptors and Related Signaling Pathways," *Archives of Toxicology* 99, no. 6 (2025): 2397-417, https://doi.org/10.1007/s00204-025-04025-z.
[26]"Endocrine Disruptor Screening Program (EDSP)," Environmental Protection Agency, June 2023, https://www.epa.gov/endocrine-disruption.
[27]Jingchuan Xue and Kurunthachalam Kannan, "Mass Flows and Removal of Eight Bisphenol Analogs, Bisphenol a Diglycidyl Ether and Its Derivatives in Two Wastewater Treatment Plants in New York State, USA," *Science of the Total Environment* 648 (2019): 442-49, https://www.sciencedirect.com/science/article/pii/S0048969718330158.
[28]U.S. EPA Science Advisory Board, Review of the EPA's Draft Fifth Contaminant Candidate List (CCL 5), Letter to The Honorable Michael S. Reagan, August 19, 2022, EPA-SAB-22-007.pdf

harm and environmental presence and specialized monitoring needs for this subgroup that EPA is well-positioned to help advance.[29,30,31]

Research has shown that MNPs are pervasive, found in air, food, drinking and surface water, and within the human body.[32] The urgency of understanding current exposures through a robust national drinking water monitoring program cannot be overstated as the volume of MNPs in the environment continues to grow.

Pew's *Breaking the Plastic Wave 2025* – a comprehensive analysis of plastic pollution in Earth's waters, land, and air – assessed the global scale of microplastic (encompassing nanoplastics) pollution and found that seven sources account for roughly a tenth of global plastic pollution annually.[33] Without action, global emissions via tire wear; washing of plastic at recycling facilities; mishandling of pellets during transport and at recycling and production facilities; production and washing of synthetic and semi-synthetic textiles; personal care products; application, wear and tear, and removal of paint; and agricultural products and practices will grow by 50% from 17 million metric tons (Mt) in 2025 to roughly 26 Mt by 2040. Including other sources of microplastic pollution – such as building materials and breakdown from larger plastic items – would increase this estimate. In high-income economies, microplastic pollution will make up 79% of overall plastic pollution by 2040.[34] According to Pew's national U.S. analysis, microplastic pollution from just two sources – tires and textiles – will be equal to pollution from plastic packaging in 2040 under a business-as-usual scenario.[35]

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[29]Julien Gigault et al., "Current Opinion: What Is a Nanoplastic?," *Environmental Pollution* 235 (2018): 1030-34, https://www.sciencedirect.com/science/article/pii/S0269749117337247.
[30]Nanna B. Hartmann et al., "Are We Speaking the Same Language? Recommendations for a Definition and Categorization Framework for Plastic Debris," *Environmental Science & Technology* 53, no. 3 (2019): 1039-47, https://doi.org/10.1021/acs.est.8b05297.
[31] Denise M. Mitrano et al., "Placing Nanoplastics in the Context of Global Plastic Pollution," *Nature Nanotechnology* 16 (2021): 491-500, https://www.nature.com/articles/s41565-021-00888-2.
[32]Albert A. Koelmans et al., "Microplastics in Freshwaters and Drinking Water: Critical Review and Assessment of Data Quality," *Water Research* 155 (2019): 410-22, https://www.sciencedirect.com/science/article/pii/S0043135419301794.
[33]The Pew Charitable Trusts, "Breaking the Plastic Wave 2025," 2025, https://www.pew.org/en/research-and-analysis/reports/2025/12/breaking-the-plastic-wave-2025.
[34]*Ibid.*
[35]The Pew Charitable Trusts, "Modeling Policy Options for Reducing Plastic Packaging Waste and Microplastics in the United States," 2026, https://www.pew.org/-/media/assets/2026/02/us-pathways-white-paper-final.pdf

As a result of their presence throughout the environment, MNPs have been detected in over 1,300 aquatic and terrestrial species and throughout the human body, and recent studies on cells and tissues and experimental animal models suggest potential human health impacts, including on the endocrine system.[36,37] Effects of animal exposure to MNPs include impaired growth, survival, and reproduction.[38] Scientists contributing to the California State Policy Evidence Consortium (CalSPEC) report found that MNP exposure is suspected to be a hazard to human reproductive and digestive systems.[39] Additionally, MNPs can contain plasticizers with endocrine-disrupting effects, such as bisphenols and phthalates, and can serve as carriers for additional chemicals, like polyaromatic hydrocarbons (PAHs), which can exacerbate human health effects.[40] MNP contamination of soil and agricultural land may also have consequences for soil health and crop production.[41,42]

Listing MNPs as a group and capturing a span of sizes using the 1 nanometer to 5 millimeter range, which encompasses nanoplastics (1 nm - 1 µm), aligns with the California regulatory definitions and is appropriate for this listing.[43] California, along with other states such as New Jersey,[44] are already utilizing this definition to plan for and conduct water monitoring. Pew

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[36]Richard C. Thompson et al., "Twenty Years of Microplastic Pollution Research—What Have We Learned?," *Science* 386, no. 6720 (2024): eadl2746, https://www.science.org/doi/abs/10.1126/science.adl2746.
[37]Stefan R. Bornstein et al., "Implications of Microplastics as Emerging Endocrine Disruptors," *The Lancet Diabetes & Endocrinology* 14, no. 6 (2026): 449, https://doi.org/10.1016/S2213-8587(26)00074-4.
[38]Richard C. Thompson et al., "Twenty Years of Microplastic Pollution Research—What Have We Learned?," *Science* 386, no. 6720 (2024): eadl2746, https://www.science.org/doi/abs/10.1126/science.adl2746.
[39]Richard Kravitz et al., *Microplastics Occurrence, Health Effects, and Mitigation Policies* (2023).
[40]Bernardo Lannes Monteiro Fontes et al., "The Possible Impacts of Nano and Microplastics on Human Health: Lessons from Experimental Models across Multiple Organs," *Journal of Toxicology and Environmental Health, Part B* 27, no. 4 (2024): 153-87, https://doi.org/10.1080/10937404.2024.2330962.
[41]Susanne M. Brander et al., "Reining in Plasticulture from Land to Sea: Pacific Northwest (USA) Perspectives on Agriculture and Aquaculture," *Frontiers in Sustainable Food Systems* Volume 9 - 2025 (2025): https://www.frontiersin.org/journals/sustainable-food-systems/articles/10.3389/fsufs.2025.1634747.
[42]Abel Machado et al., "Microplastics Can Change Soil Properties and Affect Plant Performance," *Environmental Science & Technology* 53 (2019).
[43]Adoption of Definition of 'Microplastics in Drinking Water', 2020-0021, California State Water Resources Control Board (SWRCB), 2020, https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2020/rs2020_0021.pdf.
[44]New Jersey Department of Environmental Protection, "Microplastics: Nj Dep's Approach to Evaluating Sources, Impacts, and Removal Technologies." March 18, 2025), https://dep.nj.gov/wp-content/uploads/cleanwatercouncil/presentations/microplastics-in-new-jersey.pdf.

encourages EPA to consider amending this listing to "MNPs" to highlight the importance of nanoplastics as a subclass of microplastics. Nanoplastics may have unique toxicity and require specific methodologies for monitoring and thus should be added to the CCL 6 and future CCLs. California methods for Phase 2 of monitoring drinking water systems include plans to detect smaller particles that fall within the nanoplastic-size range, in addition to those greater than 1 micrometer.[45]

EPA's addition of MNPs to the CCL 6 could spur valuable research and methods development, and advance understanding of the environmental and human health impacts of these ubiquitous and hazardous substances. In particular, prioritizing additional and sustained research within EPA can help to develop affordable and accessible detection technology which could drive significant progress in the field.

Listing of PFAS

Pew also supports the listing of PFAS as a group of chemicals requiring action to protect public health. The persistence and prevalence of PFAS demands agency prioritization to identify and expand the availability of sound detection methods, to better understand the occurrence and co-occurrence of chemicals within this class, and to accelerate action to limit exposures. The work that EPA's research arm has done previously to develop Methods 533[46] and 537[47] has been critical to the establishment of drinking water regulations. Further progress to protect public drinking water supplies from PFAS and other chemicals on the CCL 6 is likewise reliant on the Agency's commitment of resources and staffing in this arena.

Exposures to PFAS have been linked to serious health risks, including impacts on reproduction and development, thyroid disruption, suppression of the immune system, increased cancer risk,

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[45]Scott Coffin et al., "Development and Application of a Health-Based Framework for Informing Regulatory Action in Relation to Exposure of Microplastic Particles in California Drinking Water," *Microplastics and Nanoplastics* 2, no. 1 (2022): 12, https://doi.org/10.1186/s43591-022-00030-6.
[46]Environmental Protection Agency, "Method 533: Determination of Per- and Polyfluoroalkyl Substances in Drinking Water by Isotope Dilution Anion Exchange Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry," 2019, https://www.epa.gov/dwanalyticalmethods/method-533-determination-and-polyfluoroalkyl-substances-drinking-water-isotope.
[47]Environmental Protection Agency, "Method 537.1: Determination of Selected Per- and Polyfluorinated Alkyl Substances in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (Lc/Ms/Ms),," 2020, https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P10111J4.txt.

and metabolic disruption including through endocrine-mediated mechanisms.[48] In many cases, health impacts develop long after exposure occurs, not only in an exposed individual but also potentially in offspring where exposures occur gestationally. Given the size of the PFAS class and their ubiquity, most people may be exposed to a combination of PFAS, including through drinking water. These combined exposures can result in greater or different health risks than would occur at lower or similar levels of exposure to individual PFAS due to the possibility of additive effects.[49]

The Tap Water Database, created and maintained by the Environmental Working Group (EWG), aggregates data on drinking water testing at public water systems across the country.[50] With EPA's latest release of detection data from the first round of monitoring for unregulated contaminants (UCMR5) which included a subset of 29 PFAS,[51] the EWG dataset now shows more than 9,700 sites with PFAS contamination.[52] Overall, PFAS have been found in drinking water in every state across the nation.[53] EWG estimates that the tap water of roughly 176 million people in the U.S. has been contaminated by PFAS.[54]

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48 Suzanne E. Fenton et al., "Per- and Polyfluoroalkyl Substance Toxicity and Human Health Review: Current State of Knowledge and Strategies for Informing Future Research," *Environmental toxicology and chemistry* 40, no. 3 (2021): 606-30, https://doi.org/10.1002/etc.4890.

49 Karla M. Ríos-Bonilla et al., "Neurotoxic Effects of Mixtures of Perfluoroalkyl Substances (PFAS) at Environmental and Human Blood Concentrations," *Environmental Science & Technology* 58, no. 38 (2024): 16774-84, https://doi.org/10.1021/acs.est.4c06017.

50 "Know What's in Your Tap Water," Environmental Working Group, https://www.ewg.org/tapwater/.

51 "Data Summary of the Fifth Unregulated Contaminant Monitoring Rule," Environmental Protection Agency, January 2026, https://www.epa.gov/dwucmr/data-summary-fifth-unregulated-contaminant-monitoring-rule.

52 Environmental Working Group, "Mapping the PFAS Contamination Crisis: New Data Show 9,728 Sites with PFAS in 50 States, the District of Columbia and Four Territories," March 5, 2026, https://www.ewg.org/interactive-maps/pfas_contamination/.

53 "PFAS Contamination in the U.S. (March 5, 2026)," Environmental Working Group, https://www.ewg.org/interactive-maps/pfas_contamination/map/.

54 Environmental Working Group, "New Data Shows 176m Exposed to 'Forever Chemicals' as Trump EPA Rolls Back Drinking Water Limits," news release, March 10, 2026, https://www.ewg.org/news-insights/news-release/2026/03/new-data-shows-176m-exposed-forever-chemicals-trump-epa-rolls.

We understand that during the development of the CCL 5, several commentors, including EPA's Science Advisory Board,[55] the Association of State Drinking Water Administrators,[56] and the Natural Resources Defense Council,[57] recommended that EPA use the more inclusive 2021 Organization for Economic Co-operation and Development (OECD) approach, defining PFAS as any compound that contains at least one fully fluorinated methyl or methylene carbon atom (i.e. without any H/Cl/Br/I atom attached to it).[58] While the final CCL 5 list did not incorporate the OECD definition, it did amend its initial proposal to add additional PFAS subtypes. Given the knowledge gaps and the potential health risks associated with PFAS pollution, we appreciate that EPA is retaining the more expansive definition used in the CCL 5 for the CCL 6. However, Pew recommends that EPA adopt the more inclusive OECD definition across its program areas to capture additional relevant PFAS, such as trifluoroacetate (TFA), that may also pose adverse health effects.

TFA is an ultrashort chain PFAS, and its presence in the environment, including groundwater and surface water, as well as in people has been on the rise globally.[59] A recent study in North Carolina, an area known for PFAS drinking water contamination from industrial discharges, found that TFA accounted for 70% of the total PFAS detected in drinking water samples from 2017 and was found in the blood of 77% of individuals sampled from the area between 2010 and 2016. The serum levels of TFA were at concentrations much higher relative to the other PFAS detected.[60]

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[55]U.S. EPA Science Advisory Board, Review of the EPA's Draft Fifth Contaminant Candidate List (CCL 5), Letter to The Honorable Michael S. Reagan, August 19, 2022, EPA-SAB-22-007.pdf

[56]P.E. J. Alan Roberson, Proposed Rule - Drinking Water Contaminant Candidate List 5-Draft [Docket # EPA-HQ-OW2018-0594], Association of State Drinking Water Administrators, Public Comment to Ms. Radhika Fox, Assistant Administrator, Office of Water, U.S. Environmental Protection Agency, September 17, 2021, https://downloads.regulations.gov/EPA-HQ-OW-2018-0594-0075/attachment_1.pdf.

[57]Natural Resources Defense Council, Drinking Water Contaminant Candidate List 5-Draft.
Docket: EPA-HQ-OW-2018-0594. Submitted via Regulations.gov, Public Comment to Radhika Fox, Assistant Administrator for the Office of Water, U.S. Environmental Protection Agency, September 17, 2021, https://downloads.regulations.gov/EPA-HQ-OW-2018-0594-0089/attachment_1.pdf.

[58]Zhanyun Wang et al., "A New Oecd Definition for Per- and Polyfluoroalkyl Substances," *Environmental Science & Technology* 55, no. 23 (2021): 15575-78, https://doi.org/10.1021/acs.est.1c06896.

[59]Hans Peter H. Arp et al., "The Global Threat from the Irreversible Accumulation of Trifluoroacetic Acid (Tfa)," *Environmental Science & Technology* 58, no. 45 (2024): 19925-35, https://doi.org/10.1021/acs.est.4c06189.

[60]Lan Cheng et al., "Historical Blood Serum Samples from Wilmington, North Carolina: The Importance of Ultrashort-Chain Per- and Polyfluoroalkyl Substances," *Environmental Science & Technology* 59, no. 43 (2025): 23125-35, https://doi.org/10.1021/acs.est.5c08146.

A recent presentation of preliminary data from the California Water Resources Board showed TFA detected in all 237 groundwater wells sampled and tested for TFA in 2023 and 2024, with many wells exceeding health guidance values established for TFA in several European countries.[61] These health guidance values are primarily based on TFA induced liver toxicity in animals, yet evidence from additional animal studies suggests that TFA may also harm the reproductive system and the immune system.[62,63] TFA is also a terminal breakdown product of several pesticides.[64] Understanding the scope of TFA contamination of water in the United States is essential to fully protect public health from exposures to PFAS.

Given these findings, Pew urges EPA to adopt the OECD definition of PFAS as a group which would incorporate TFA in the CCL. At a minimum, EPA should list TFA separately as a distinct chemical on the final CCL 6 and assemble all available information regarding the chemical's health effects and occurrence into a Contaminant Information Sheet. EPA could then make appropriate and health-protective regulatory determinations for TFA and other similar PFAS.

Listing of Disinfection Byproducts (DBPs)

EPA currently regulates some disinfection byproducts (DBPs) in drinking water, namely total trihalomethanes which includes chloroform, bromodichloromethane, dibromochloromethane and bromoform, and a group of haloacetic acids, encompassing monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid and dibromoacetic acid. Yet,

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[61]Wendy Linck, "PFAS DAC Community Water System Sampling Project" March 25, 2025), https://biomonitoring.ca.gov/sites/default/files/downloads/Linck_032525.pdf.
[62]Martina Iulini et al., "Decoding PFAS Immunotoxicity: A Nams-Based Comparison of Short Vs. Long Chains," *Frontiers in Toxicology* Volume 7 - 2025 (2025): https://www.frontiersin.org/journals/toxicology/articles/10.3389/ftox.2025.1665163.
[63]CLH Report Proposal for Harmonised Classification and Labelling Based on Regulation (Ec) No 1272/2008 (CLP Regulation), Annex VI, Part 2 International Chemical Identification: Trifluoroacetic Acid … % No 1272/2008, European Chemicals Agency, April 2025, https://echa.europa.eu/documents/10162/0dae2d2a-2b4c-b63e-c669-bd3a76197aa1.
[64]Hanna Joerss et al., "Pesticides Can Be a Substantial Source of Trifluoroacetate (Tfa) to Water Resources," *Environment International* 193 (2024): 109061, https://www.sciencedirect.com/science/article/pii/S0160412024006470.

there are hundreds of additional DBPs that have been detected in drinking water and remain unregulated.[65]

Several peer-reviewed human and animal studies have linked DBPs exposures via drinking water to adverse health outcomes related to endocrine disruption [66] or have shown that DBPs can induce endocrine disruption in cells through both receptor and non-receptor mediated effects.[67] In a study of Chinese men, urinary haloacetic acid concentrations were positively correlated with urinary levels of several sex hormones, and studies in cells showed the chemicals could modulate hormone production.[68] In a separate study of Chinese women, haloacetic acid concentrations were also associated with changes in thyroid hormone levels.[69] Exposure to DBPs, like trihalomethanes, during pregnancy has been linked to adverse reproductive outcomes like low birth weight.[70,71]

Pew supports EPA's proposal to expand the list of DBPs on the CCL 6 given the adverse health effects linked to regulated DBPs in similar classes, namely trihalomethanes and haloacetic acids.

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[65] Richardson SD, Plewa MJ, Wagner ED, Schoeny R, Demarini DM. Occurrence, genotoxicity, and carcinogenicity of regulated and emerging disinfection by-products in drinking water: a review and roadmap for research. Mutat Res. 2007 Nov-Dec;636(1-3):178-242. doi: 10.1016/j.mrrev.2007.09.001. Epub 2007 Sep 12. PMID: 17980649.

[66] Andressa Gonsioroski, Vasiliki E. Mourikes, and Jodi A. Flaws. "Endocrine Disruptors in Water and Their Effects on the Reproductive System." *International Journal of Molecular Sciences* 21, no. 6 (2020): 1929, https://doi.org/10.3390/ijms21061929.

[67]Shuxin Sui, Huihui Liu, and Xianhai Yang. "Research Progress of the Endocrine-Disrupting Effects of Disinfection Byproducts." *Journal of Xenobiotics*, 145-57, 2022.

[68]Meiping Tian et al., "Exposure to Haloacetic Acid Disinfection by-Products and Male Steroid Hormones: An Epidemiological and in Vitro Study," *Journal of Hazardous Materials* 468 (2024): 133796, https://www.sciencedirect.com/science/article/pii/S0304389424003753.

[69]Yang Wu et al., "Urinary Haloacetic Acid Concentrations and Thyroid Function among Women: Results from the Tree Study," *Science of the Total Environment* 927 (2024): 172368, https://www.sciencedirect.com/science/article/pii/S0048969724025142.

[70]R. B. Smith et al., "Birth Weight, Ethnicity, and Exposure to Trihalomethanes and Haloacetic Acids in Drinking Water during Pregnancy in the Born in Bradford Cohort," no. 1552-9924 (Electronic).

[71]Zorimar Rivera-Núñez and J. Michael Wright, "Association of Brominated Trihalomethane and Haloacetic Acid Exposure with Fetal Growth and Preterm Delivery in Massachusetts," *J Occup Environ Med* 55, no. 10 (2013): https://journals.lww.com/joem/fulltext/2013/10000/association_of_brominated_trihalomethane_and.1.aspx.

Conclusion

As EPA works to finalize the CCL 6, Pew emphasizes the list's potential importance in advancing critical research on health effects and detection methodology for drinking water contaminants and informing future regulatory decisions. We encourage EPA to finalize the CCL 6 promptly and we appreciate the opportunity to provide these comments.

Please contact Velma Smith, Senior Officer, Government Relations (vsmith@pewtrusts.org) for additional information or questions.

Sincerely,

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Appendix 1: Table of chemicals in exhibit 1a with evidence for endocrine disruption based on listing status.[a]

Chemical Name	CASRN	EDC Evidence	Listing Authority or evidence source	Prop 65 Reproductive Toxicity
1,2,3-Trichloropropane	96-18-4	Under evaluation	EPA EDSP List 2	
1,2,4-Triazole	288-88-0	Suspected EDC	ECHA ED Assessment List	
1,2,4-Trimethylbenzene	95-63-6			
1,2-Diphenylhydrazine	122-66-7	Possible EDC	EPA Models	
1,4-Dioxane	123-91-1	Under evaluation	EPA EDSP List 2	
1-Methylnaphthalene	90-12-0			
2,4,6-Trinitrotoluene	118-96-7	Possible EDC	TEDX	
2,6-Dinitrotoluene	606-20-2			Yes
4-tert-Octylphenol	140-66-9	Known EDC	EU EDC List 1	
Acephate	30560-19-1	Under evaluation	EPA EDSP List 1	
Acrylonitrile	107-13-1	Possible EDC	TEDX	
alpha-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	Under evaluation	EPA EDSP List 2	
Aluminum	7429-90-5	Possible EDC	TEDX	
Anthraquinone	84-65-1	Possible EDC	EPA Models	
Bensulide	741-58-2	Under evaluation	EPA EDSP List 2	
Benzyl butyl phthalate	85-68-7	Known EDC	EU EDC List 1	Yes
Bisphenol A	80-05-7	Known EDC	EU EDC List 1	Yes
Bromoxynil	1689-84-5	Potential EDC	TEDX	Yes

Carbaryl	63-25-2	Under evaluation	EPA EDSP List 1	Yes
Carbendazim	10605-21-7	Possible EDC	TEDX	
Chlordecone (Kepone)	143-50-0	Possible EDC	TEDX	Yes
Chloromethane	74-87-3			Yes
Chlorothalonil	1897-45-6	Under evaluation	EPA EDSP List 1	
Chlorpyrifos	2921-88-2	Under evaluation	EPA EDSP List 1	Yes
Clothianidin	210880-92-5	Possible EDC	TEDX	
Cobalt	7440-48-4			
Diazinon	333-41-5	Under evaluation	EPA EDSP List 1	
Dicamba	1918-00-9	Possible EDC	TEDX	
Dichlorvos	62-73-7	Possible EDC	TEDX	
Dicrotophos	141-66-2	Under evaluation	EPA EDSP List 2	
Dithiopyr	97886-45-8			
Diuron	330-54-1	Suspected EDC	EU EDC List II, ECHA ED Assessment List	
Ethalfluralin	55283-68-6	Possible EDC	EPA Model	
Ethylene thiourea	96-45-7	Under evaluation	EPA EDSP List 2	Yes
Fenbuconazole	114369-43-6	Possible EDC	TEDX	
Fipronil	120068-37-3	Possible EDC	TEDX	
Flufenacet	142459-58-3	Known EDC	EU EDC List 1	
Fluometuron	2164-17-2			
Fluoranthene	206-44-0	Possible EDC	TEDX	

Imazalil	35554-44-0	Suspected EDC	ECHA ED Assessment List	
Iodide	20461-54-5			
Iprodione	36734-19-7	Under evaluation	EPA EDSP List 1	
Isophorone	78-59-1	Suspected EDC	ECHA ED Assessment List	
Lithium	7439-93-2			
Malaoxon	1634-78-2	Possible EDC	TEDX	
Malathion	121-75-5	Under evaluation	EPA EDSP List 1	
Manganese	7439-96-5	Possible EDC	TEDX	
Methomyl	16752-77-5	Under evaluation	EPA EDSP List 1	
Methyl mercury	22967-92-6			Yes
Methyl tert-butyl ether (MTBE)	1634-04-4	Suspected EDC	ECHA ED Assessment List	Considered, but not listed
Nicotine	54-11-5	Possible EDC	TEDX	Yes
Nitroglycerin	55-63-0	Under evaluation	EDSP List 2	
Nonylphenol	25154-52-3	Known EDC	EU EDC List 1	
Oryzalin	19044-88-3	Possible EDC	TEDX	
Oxadiazon	19666-30-9	Possible EDC	TEDX	Yes
Oxyfluorfen	42874-03-3	Under evaluation	EPA EDSP List 2	
p-Cresol	106-44-5	Suspected EDC	ECHA ED Assessment List	
Phorate	298-02-2			

Phosmet	732-11-6	Under evaluation	EPA EDSP List 1	
Propargite	2312-35-8	Suspected EDC	ECHA ED Assessment List	Yes
Quinoline	91-22-5	Under evaluation	EPA EDSP List 2	
Silver	7440-22-4	Suspected EDC	ECHA ED Assessment List	
Strontium	7440-24-6			
Terbufos	13071-79-9	Under evaluation	EPA EDSP List 2	
tert-Butyl alcohol	75-65-0			
Thiamethoxam	153719-23-4	Possible EDC	TEDX	
Tolyltriazole	29385-43-1			
Tri-allate	2302-17-5			
Tributyl phosphate	126-73-8	Possible EDC	TEDX	
Trifluralin	1582-09-8	Under evaluation	EPA EDSP List 1	
Triphenyl phosphate	115-86-6	Known EDC	EU EDC List 1	
Tris(2-chloroethyl) phosphate	115-96-8	Possible EDC	TEDX	
Tungsten	7440-33-7			
Vanadium	7440-62-2			
Zinc	7440-66-6	Possible EDC	TEDX	

[a] Known EDCs were identified as those that were listed on the European Union Endocrine Disruptor (ED) List 1, which encompasses substances identified as EDCs under the Plant Protection Products Regulation (PPPR), the Biocidal Products Regulation (BPR) or REACH (the Candidate- and Authorization Lists). Suspected EDCs were identified as those on the EU ED List 2 which encompasses "substances that are currently under evaluation in an EU legislative process due to *explicit* concerns for possible endocrine disrupting properties" and the European Chemicals Agency (ECHA) ED Assessment List. Possible EDCs were identified as those on The Endocrine Disruption Exchange (TEDX) list, for which some evidence in the peer-reviewed literature for endocrine disruption exists. Chemicals were then additionally checked on the EPA's Chemical Dashboard for endocrine activity in EPA models. Lastly, chemicals found on California's Prop 65 lists for reproductive toxicity were also included. An

absence of information in this table should not be interpreted as absence of evidence for possible endocrine disruption, since a full literature review and alternate sources were out of the scope of this assessment. Additionally, chemicals may be present on multiple lists but not indicated here as this is not a comprehensive assessment.