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Regulating Drinking Water Contaminants: EPA PFAS Actions

The detection of certain per- and polyfluoroalkyl substances (PFAS) in some public water supplies has generated public concern and increased attention to the U.S. Environmental Protection Agency's (EPA's) actions to respond to PFAS using Safe Drinking Water Act (SDWA) authorities. In March 2021, EPA finalized a positive regulatory determination (RD) to develop SDWA regulations for the two most frequently detected PFAS, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) (86 *Federal Register* 12272). On March 29, 2023, EPA proposed a national primary drinking water regulation (NPDWR) for PFOA and PFOS, and issued a preliminary positive RD and a proposed NPDWR for several other PFAS (88 *Federal Register* 18638). Under SDWA, EPA is required to finalize the rule within 18 months of the proposal.

Background

PFAS include thousands of diverse chemicals, some of which have been used for decades. The chemical characteristics of PFAS led to their use in an array of industrial, commercial, and U.S. military applications. These include use in fighting fuel-based fires and the processing and manufacturing of numerous products (e.g., stain-resistant and waterproof fabrics, nonstick cookware, and food containers). PFOA and PFOS were the most produced PFAS, historically. EPA worked with U.S. manufacturers as they voluntarily phased out production of PFOS, PFOA, and related substances.

In 2016, EPA reported that PFOA and/or PFOS were detected in at least one public water system in 24 states. Four other PFAS were also detected in some systems. SDWA provides EPA with several authorities to address contaminants in drinking water supplies and sources. These include the authority to issue health advisories, regulate contaminants in public water supplies, and issue "emergency powers" orders in certain circumstances.

Drinking Water Health Advisories

SDWA authorizes EPA to issue health advisories for contaminants (42 U.S.C. §300g-1(b)(1)(F)). Advisories provide information on health effects, testing methods, and treatment techniques, as well as identify nonenforceable levels to help water suppliers and others address contaminants that lack federal (or state) drinking water standards. In 2016, EPA issued Lifetime Health Advisory levels for PFOA and PFOS in drinking water at 70 parts per trillion (ppt) separately or combined. In June 2022, EPA revised the advisories for PFOA and PFOS, and issued new advisories for perfluorobutane sulfonic acid (PFBS) and GenX chemicals. EPA finalized Lifetime Health Advisory levels for PFBS and GenX chemicals at 2,000 ppt and 10 ppt, respectively. EPA issued interim Lifetime Health

Advisory levels at 0.004 ppt for PFOA and 0.02 ppt for PFOS, significantly lower than the 2016 levels.

Regulating Contaminants Under SDWA

SDWA authorizes EPA to regulate contaminants in water provided by public water systems and specifies a multistep process for evaluating contaminants to determine whether a drinking water regulation is warranted (42 U.S.C. §300g-1). As discussed below, the process includes identifying contaminants of potential concern, assessing health risks, collecting occurrence data (and developing any necessary test methods), and making determinations as to whether a federal drinking water regulation is warranted.

Identifying Contaminants for Evaluation

Every five years, EPA is required to publish a list of contaminants that are known or anticipated to occur in public water systems and may warrant regulation under the act (42 U.S.C. §300g-1(b)). In 2009, EPA placed PFOA and PFOS on the third such contaminant candidate list (CCL 3) for evaluation (74 *Federal Register* 51850). In November 2016, EPA issued CCL 4, which carried over many CCL 3 contaminants, including PFOA and PFOS, for further evaluation (81 *Federal Register* 81103).

Monitoring for Unregulated Contaminants

To generate nationwide occurrence data for unregulated contaminants, SDWA directs EPA to promulgate, every five years, an unregulated contaminant monitoring rule (UCMR) that requires water systems operators to test for up to 30 contaminants (42 U.S.C. §300j-4). EPA generally requires monitoring by operators of all public water systems that serve more than 10,000 persons, plus a representative sample of smaller systems. (More than 80% of U.S. residents receive water from public water systems that serve more than 10,000 individuals. More than half of water systems serve fewer than 500 people.)

In 2012, EPA issued the UCMR 3, requiring roughly 5,000 water systems to monitor for six PFAS—including PFOA and PFOS—between January 2013 and December 2015. According to EPA, 63 water systems (1.3%) serving an estimated 5.5 million individuals detected PFOA and/or PFOS at levels above EPA's 2016 health advisory level of 70 ppt (separately or combined). UCMR 4 did not require monitoring for PFAS.

As directed by the National Defense Authorization Act for FY2020 (2020 NDAA; P.L. 116-92), EPA included on the next UCMR (i.e., UCMR 5) every PFAS for which EPA had identified a validated test method. (EPA has validated test methods for 29 PFAS.) In December 2021, EPA finalized UCMR 5, which requires all water systems serving 3,300 or more people to monitor for 29 PFAS

(including the 6 PFAS identified in UCMR 3) and a metal (i.e., lithium) between 2023 and 2025, and report the data by 2026 (86 *Federal Register* 73131). As amended by P.L. 115-270, SDWA requires EPA to pay the reasonable costs of testing and laboratory analysis for systems serving between 3,300 and 10,000 individuals (42 U.S.C. §300j-4(j)). Accordingly, EPA stated that the inclusion of such systems in UCMR 5 is dependent on appropriations, and the agency's FY2024 budget request notes that the 5,200 systems that serve between 3,300 and 10,000 individuals and a sample of 800 systems serving fewer than 3,300 individuals will be required to monitor under UCMR 5.

Regulatory Determinations

SDWA requires EPA to make a regulatory determination (RD) of whether or not to promulgate an NPDWR for at least five contaminants every five years. In selecting contaminants for RDs, SDWA directs EPA to prioritize those that present the greatest health concern while considering a contaminant's effects on subgroups that may be at greater risk of adverse health impacts from exposure.

To make a positive RD, SDWA directs EPA to find the following: (1) a contaminant may have an adverse health effect; (2) it is known to occur or there is a substantial likelihood that it will occur in water systems at a frequency and at levels of public health concern; and (3) in the sole judgment of the EPA Administrator, regulation of a contaminant presents a meaningful opportunity for reducing health risks. EPA finalized positive RDs for PFOA and PFOS in March 2021 (86 *Federal Register* 12272). In March 2023, EPA proposed positive RDs for PFBS, PFNA, PFHxS, and GenX chemicals (88 *Federal Register* 18638).

Developing Drinking Water Regulations

Once EPA makes a final determination to regulate a substance, SDWA prescribes a schedule for promulgating NPDWRs. EPA is required to propose a rule within 24 months and promulgate an NPDWR within 18 months after the proposal. EPA may extend the deadline to publish a final rule for up to nine months (42 U.S.C. §300g-1(b)(1)). NPDWRs generally take effect three years after promulgation. EPA may allow up to two additional years if the Administrator determines that water system capital improvements are needed. States have the same authority to allow two additional years on a system-by-system basis (42 U.S.C. §300g-1(b)(10)).

For each NPDWR, EPA is required to establish a nonenforceable maximum contaminant level goal (MCLG) at a level at which no known or anticipated adverse health effects occur, with an adequate margin of safety. For each contaminant covered by the rule, EPA generally specifies a maximum contaminant level (MCL)—an enforceable standard applicable to public water suppliers. SDWA directs EPA to set the MCL as close to the MCLG as is “feasible” using best available technology or other means available, taking costs into consideration. SDWA requires that NPDWRs include analytical methods and feasible treatment methods that public water systems can use to monitor for contaminants and comply with the MCL. They also include monitoring and reporting requirements (42 U.S.C. §300f(1), §300g-1).

Drinking Water Regulation Enforcement

NPDWR enforcement is generally a state responsibility. SDWA requires EPA to delegate enforcement authority for SDWA to states that meet certain criteria (42 U.S.C. §300g-2). Currently, 49 states, the territories, and the Navajo Nation have received primacy for the drinking water program. EPA retains enforcement authority for Wyoming, the District of Columbia, and other Indian tribes.

Proposed PFAS Drinking Water Regulation

In March 2023, EPA proposed an NPDWR for PFOA and PFOS. At the same time, the agency proposed a positive regulatory determination for perfluorobutane sulfonic acid (PFBS), perfluorononanoic acid (PFNA), perfluorohexane sulfonic acid (PFHxS), and hexafluoropropylene oxide dimer acid (HFPO-DA) and its ammonium salt (also known as the GenX chemicals). EPA also proposed a regulation for these substances (88 *Federal Register* 18638). For more information about EPA's proposal, see CRS In Focus IF12367, *Safe Drinking Water Act: Proposed National Primary Drinking Water Regulation for Specified PFAS*.

Emergency Powers

SDWA authorizes EPA to take actions it deems necessary to abate an imminent and substantial endangerment to public health from a contaminant (regulated or unregulated) that is present in or likely to enter a public water system or an underground source of drinking water, if state and local authorities have not acted (42 U.S.C. §300i). EPA may issue orders to require persons who caused or contributed to the endangerment to provide alternative water supplies or to treat contamination. Since 2002, EPA has used this authority to require responses to PFOA and/or PFOS at five sites, including three Department of Defense (DOD) sites.

MCLs and Remedial Actions

Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or “Superfund”), MCLs may be considered in selecting remedial actions for releases of hazardous substances, pollutants, and other contaminants (42 U.S.C. §9621(d)). CERCLA establishes liability only for releases of hazardous substances. No PFAS has been designated as a hazardous substance, though EPA proposed to designate PFOA and PFOS as hazardous substances in September 2022 (87 *Federal Register* 54415). See CRS Report R45986, *Federal Role in Responding to Potential Risks of Per- and Polyfluoroalkyl Substances (PFAS)* for more information.

Recent Congressional Action

Numerous bills have been introduced in recent Congresses to address PFAS in drinking water, and some have been enacted. The Infrastructure Investment and Jobs Act (IIJA; P.L. 117-58) Division J, Title VI appropriates \$4 billion over FY2022-FY2026 to address emerging contaminants with a focus on PFAS in drinking water through a grant program within the Drinking Water State Revolving Fund added by the 2020 NDAA. IIJA also appropriates \$5 billion over FY2022-FY2026 for an SDWA grant program to address emerging contaminants in small and disadvantaged communities. See CRS Report R45793, *PFAS and Drinking Water: Selected EPA and Congressional Actions*, for more information on EPA actions and recent bills.

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