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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. For more than a decade, EPA has been evaluating PFAS under SDWA to determine whether a national drinking water regulation is warranted for one or more of these substances. In March 2021, EPA finalized determinations to develop SDWA regulations for the two most frequently detected PFAS, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) (86 *Federal Register* 12272). EPA's determination triggers a SDWA requirement to propose a regulation within 24 months (e.g., by March 2023 for PFOA and PFOS), and finalize the rule within 18 months of the proposal. In EPA's October 2021 *PFAS Strategic Roadmap*, the agency states that it intends to propose a PFOA and PFOS drinking water regulation by fall 2022, and finalize the rule by fall 2023.

In addition, the 116th Congress enacted legislation directing EPA to increase PFAS monitoring in water supplies, and authorizing appropriations for grants to address PFAS in public water supplies, among other provisions. The 117th Congress provided appropriations for such grants.

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 for contaminants of concern. They also include 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. EPA developed these advisory levels to protect the most sensitive population groups, with a margin of protection, over a lifetime of daily exposure.

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 lifetime 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 America’s Water Infrastructure Act of 2018 (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 in its rule that the inclusion of such systems in UCMR 5 is dependent on appropriations. For FY2023, EPA requests \$12 million to support such monitoring.

Regulatory Determinations

SDWA requires EPA to make a regulatory determination of whether or not to promulgate a national drinking water regulation for at least five contaminants every five years. In selecting contaminants for regulatory determinations (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 (e.g., infants, pregnant women).

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). Since 1996, EPA has finalized positive RDs for three contaminants (i.e., PFOA, PFOS, and perchlorate). (In 2020, EPA withdrew the positive RD for perchlorate [85 *Federal Register* 43990].)

Developing Drinking Water Regulations

Once EPA makes a final determination to regulate a substance, SDWA prescribes a schedule for promulgating regulations. EPA is required to propose a rule within 24 months and promulgate a final drinking water regulation 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)). Regulations 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 regulation, 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 regulation, 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 “feasible” using best available technology or other means available, taking costs into consideration. SDWA requires that regulations 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

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

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 (42 U.S.C. §300i). This authority is available if state and local authorities have not acted. 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 contamination of water supplies associated with four 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 the *PFAS Strategic Roadmap* states that EPA plans to propose to designate PFOA and PFOS as hazardous substances in spring 2022, and finalize by summer 2023. (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 a 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.

Elena H. Humphreys, Analyst in Environmental Policy

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