Congressional Research Service
Informing the legislative debate since 1914

IN FOCUS

Updated February 26, 2020

Regulating Drinking Water Contaminants: EPA PFAS Actions

The 116th Congress has held hearings and passed legislation directing the U.S. Environmental Protection Agency (EPA) and other departments and agencies to take a range of actions to address per- and polyfluoroalkyl substances (PFAS) in drinking water. EPA actions to respond to PFAS contamination under the Safe Drinking Water Act (SDWA) have received significant attention. The National Defense Authorization Act for FY2020 (NDAA, P.L. 116-92) amended SDWA to increase PFAS monitoring and authorize appropriations for grants to address PFAS in public water supplies, among other PFAS provisions.

Over the past decade, EPA has been evaluating several PFAS under SDWA to determine whether national drinking water regulations are warranted for one or more of these substances. On February 20, 2020, EPA announced preliminary decisions to develop SDWA regulations for the two most frequently detected PFAS, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). This In Focus outlines EPA actions to address PFAS under SDWA and reviews related legislation.

Background

PFAS include thousands of diverse chemicals, some of which have been used for decades in an array of industrial, commercial, and U.S. military applications. The chemical characteristics of PFAS have led to the use of various PFAS for an array of purposes such as fighting fuel-based fires and for processing and manufacturing numerous commercial products (e.g., stain-resistant and waterproof fabrics, nonstick cookware, and food containers).

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. (Historically, PFOA and PFOS were the most produced PFAS, and U.S. manufacturers have phased out their production and most uses.)

SDWA provides EPA with several authorities to address unregulated contaminants in drinking water supplies and sources. As briefly discussed below, these include the authority to issue health advisories, regulate contaminants in public water supplies, and issue enforcement orders in certain emergency circumstances.

Drinking Water Health Advisories

SDWA authorizes EPA to issue health advisories for contaminants that are not regulated under the act (42 U.S.C. §300g-1(b)(1)(F)). Health advisories provide information on health effects, testing methods, and treatment techniques for unregulated 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 national primary drinking water regulation is warranted (42 U.S.C. §300g-1). 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 national drinking water regulation is warranted.

To make a positive determination to regulate a contaminant, 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 the contaminant presents a meaningful opportunity for reducing health risks. Below is an overview of each step and related EPA efforts regarding the assessment of specific PFAS.

Contaminant Selection

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 no more than 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. (Roughly, 82% of the U.S. population receives water from public water systems that serve more than 10,000 individuals.)

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 health advisory level of 70 ppt (separately or combined).

Regulatory Determinations

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

In 2016, EPA included PFOA and PFOS on its "short list" of contaminants identified for regulatory determinations in CCL 4 (81 *Federal Register* 81103). On February 20, 2020, the EPA administrator signed preliminary determinations to regulate PFOA and PFOS, along with preliminary determinations not to regulate six other chemicals. EPA is required to publish a preliminary determination and seek public comment before finalizing a determination.

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 drinking water regulation within 18 months after the proposal. EPA may extend the deadline for up to nine months (42 U.S.C. §300g-1(b)(1)).

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 is "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).

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 actions may include issuing orders requiring persons who caused or contributed to the endangerment to provide alternative water supplies or to treat contamination, among other actions. 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)). However, CERCLA establishes liability only for releases of hazardous substances. No PFAS has been designated as a hazardous substance. In the 116th Congress, several bills (e.g., H.R. 535 and S. 638) would direct EPA to designate PFAS as hazardous substances under CERCLA. The NDAA for FY2020 (P.L. 116-92), Section 316, expands DOD responsibility for response actions to include PFAS and other pollutants or contaminants but does not establish CERCLA liability for these chemicals. (See CRS Report R45986, *Federal Role in Responding to Potential Risks of Per- and Polyfluoroalkyl Substances (PFAS)*.)

PFAS Action Plan: Drinking Water

In February 2019, EPA issued a PFAS Action Plan (EPA 823R18004) that identifies the agency's efforts to address PFAS under several laws. Among other actions, EPA has developed analytical test methods to support UCMR monitoring of more PFAS and at lower levels. (EPA has validated test methods for 29 PFAS.) The agency is also developing PFAS toxicity information and providing more information about treatment techniques and costs.

Legislation in the 116th Congress

In the 116th Congress, numerous bills would address PFAS through various authorities and agencies. Enacted on December 20, 2019, the FY2020 NDAA (P.L. 116-92) includes multiple PFAS provisions, primarily regarding DOD, but several involve EPA and other federal agencies. Title LXXIII includes several PFAS drinking water provisions. Section 7311 requires EPA to add to UCMR 5 all PFAS or classes of PFAS with validated test methods. Section 7312 authorizes, within the Drinking Water State Revolving Fund, a grant program for water systems to address emerging contaminants with an emphasis on PFAS. Section 7312 authorizes appropriations of $100 million annually for FY2020-FY2024 for this purpose.

On January 10, 2020, the House passed H.R. 535, a broad PFAS bill with several SDWA amendments. The bill would direct EPA to promulgate drinking water regulations for PFAS (with standards for at least PFOS and PFOA) within two years. H.R. 535 would establish a drinking water regulatory process and schedule specifically for PFAS. It would direct EPA to issue a health advisory within a year of finalizing a toxicity value for a single PFAS or class of PFAS. Among other bills, several would direct EPA to issue final or interim regulations for all or some PFAS, authorize grants for systems and/or households to treat PFAS, and/or increase PFAS monitoring. For further discussion of PFAS drinking water bills and EPA actions, see CRS Report R45793, *PFAS and Drinking Water: Selected EPA and Congressional Actions*.

Mary Tiemann, Specialist in Environmental Policy
Elena H. Humphreys, Analyst in Environmental Policy

Disclaimer