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Regulating PFAS Under the Clean Water Act

In recent decades, improvements in monitoring technologies and analytical methods, combined with health research, have increased national attention to the presence of *emerging contaminants* in surface water. Detections of one particular group of contaminants, per- and polyfluoroalkyl substances (PFAS), have heightened public and congressional interest in the U.S. Environmental Protection Agency's (EPA's) authorities under the Clean Water Act (CWA) to address PFAS in surface water.

Overview

EPA has several CWA authorities it may use to address contaminants, such as PFAS, in surface water (for more information, see CRS Report R45998, *Contaminants of Emerging Concern Under the Clean Water Act*, by Laura Gatz). Under the CWA, a primary mechanism to control contaminants in surface waters is through permits. The statute prohibits the discharge of pollutants from any point source (i.e., a discrete conveyance) to waters of the United States without a permit. The CWA authorizes EPA, and states with delegated CWA permitting authority, to limit or prohibit discharges of pollutants in the National Pollutant Discharge Elimination System (NPDES) permits they issue. These permits incorporate technology-based and water-quality-based requirements.

The CWA requires EPA to establish technology-based effluent (i.e., discharge) limits for industrial dischargers, known as Effluent Limitation Guidelines (ELGs). EPA is also required to issue water quality criteria for use in establishing water quality standards and water-quality-based effluent limitations. The CWA also authorizes EPA to utilize certain NPDES permit authorities to address contaminants; to set pollutant limits and monitoring and reporting requirements for contaminants in biosolids (i.e., sewage sludge from wastewater treatment facilities) if sufficient scientific evidence shows there is potential harm to human health or the environment; and to designate contaminants as toxic or hazardous pollutants.

To date, EPA has not published any final technology-based effluent limits or water quality criteria to address any PFAS but has taken steps toward doing so. EPA announced projected timelines for these actions in its latest agency-wide PFAS plan, the 2021 *PFAS Strategic Roadmap*. EPA has not established requirements for PFAS in biosolids but included an associated action and timeline in the *Roadmap*. In some instances, EPA has used NPDES permit authorities to address PFAS and has taken steps to encourage states to use such authorities. EPA has not designated any PFAS as a toxic pollutant or hazardous substance.

Effluent Limitation Guidelines

The CWA requires EPA to publish ELGs, which are the required minimum standards for specific pollutants in industrial wastewater discharges. EPA has developed ELGs for 59 industrial source categories. For industrial facilities that discharge directly to regulated waters, EPA or states incorporate the limits established in ELGs into the NPDES permits they issue. For indirect dischargers—facilities that discharge to publicly owned treatment works (POTWs)—pretreatment standards established in ELGs to prevent pass through and interference at the POTW apply.

The CWA also requires EPA to annually review all existing ELGs and publish a biennial plan that includes a schedule for review and revision of promulgated ELGs, identifies categories of industrial sources discharging toxic or nonconventional pollutants that do not have ELGs, and establishes a schedule for promulgating ELGs for any newly identified categories. EPA's most recent biennial plans have included details on the agency's efforts to determine whether the agency should update ELGs for certain industrial source categories to set effluent limitations for PFAS. In these plans, EPA noted that while there has been significant study in recent years of the presence of PFAS in the environment and drinking water, there has been relatively little study of the discharges of PFAS to surface water and POTWs. Hence, EPA's recent biennial plans and related actions have included efforts to identify and characterize PFAS discharges, including the types and concentrations of PFAS discharged and the significant sources of PFAS discharges.

In the *Roadmap*, EPA broadened the goals it included in recent biennial plans to address PFAS discharges through ELGs and targeted the end of 2024 as the deadline for "significant progress in its ELG regulatory work." Specifically, EPA established timelines for action on the following industrial categories: Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF); Pulp, Paper, and Paperboard; Textile Mills; Electroplating; Metal Finishing; Leather Tanning and Finishing; Paint Formulating; Electrical and Electronic Components; Plastics Molding and Forming; Landfills; and Airports.

NPDES Authorities

In cases where EPA has not established an ELG for a particular industrial category or type of facility, or where pollutants or processes were not considered when an ELG was developed, the permitting authority (EPA or states) may still impose technology-based effluent limits on a case-by-case basis. The permitting authority may also require facilities with NPDES permits to monitor for pollutants or conduct special studies as a means to collect data to support future permit limits. The permitting authority may also

include best management practices in permits on a case-by-case basis to carry out CWA provisions. However, the use of some of these authorities can be limited when analytical methods to detect specific pollutants are not available.

In the *Roadmap*, EPA discussed plans to leverage some of these NPDES authorities. Central to these plans was the September 2021 publication of a draft EPA-validated laboratory analytical method to test for 40 PFAS compounds in eight different environmental media, including surface water and wastewater. Specifically, for federally issued permits, EPA indicated that it plans to require monitoring at facilities where PFAS are expected or suspected to be present in discharges, using the analytical method. EPA also discussed plans to issue guidance to state permitting authorities recommending that they leverage the same NPDES authorities where appropriate.

In April 2022, EPA issued a memorandum, in line with the *Roadmap*, detailing how the agency will address PFAS discharges in EPA-issued NPDES permits and for indirect dischargers where EPA is the pretreatment control authority. The memorandum recommends that EPA permit writers include certain permit conditions for facilities where PFAS are expected or likely to be present in discharges. These conditions include effluent monitoring for the 40 PFAS detectable by EPA's draft analytical method and best management practices and pollution prevention conditions (e.g., product elimination or substitution when a reasonable alternative to PFAS is available, minimizing accidental discharge through good housekeeping practices, equipment decontamination, or replacement). The memorandum also includes recommended permit conditions for POTWs where EPA is the permitting authority and where EPA is the pretreatment control authority, including effluent, influent, and biosolids monitoring requirements and best management and pollution prevention practices. It also states that EPA regions are expected to notify potentially affected downstream public water systems of draft permits with PFAS-specific monitoring, best management practices, or other conditions.

Water Quality Criteria

CWA Section 304(a) requires EPA to develop and publish and "from time to time thereafter revise" criteria for water quality that accurately reflect the latest scientific knowledge. Water quality criteria provide concentrations for specific contaminants or conditions in a water body that, if not exceeded, will protect particular designated uses of the water body (e.g., protection of aquatic life, public drinking water supply, recreation). These criteria are recommendations to states and tribal governments for use in developing their own water quality standards, which they use to protect and restore waters and to inform water-quality based effluent limits in permits. EPA has developed several types of criteria targeted to protect different designated uses, such as human health, aquatic life, and recreational criteria.

In the *Roadmap*, EPA announced plans to develop national recommended ambient water quality criteria for PFAS to protect aquatic life and human health. EPA targeted winter 2022 as its deadline for publishing recommended aquatic life criteria for perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). It also stated that the agency intends to issue benchmarks for other PFAS that do not have sufficient data to define a recommended aquatic life criteria value. EPA targeted the fall of 2024 for publishing human health criteria for PFOA and PFOS. In May 2022, EPA published draft recommended aquatic life criteria for PFOA and PFOS for public comment. EPA intends to issue final PFOA and PFOS criteria, considering public comment and any new toxicity data.

Biosolids Requirements

Biosolids, also known as sewage sludge, are a product of the wastewater treatment process. Biosolids may be applied to land for beneficial purposes (e.g., agriculture) or disposed of through incineration or surface disposal. CWA Section 405(d) requires EPA to establish numeric limits and management practices to protect public health and the environment from the reasonably anticipated adverse effects of pollutants during the use or disposal of biosolids. It also requires EPA to review its biosolids regulations at least every two years to identify additional toxic pollutants that may be present in biosolids and then promulgate regulations for those pollutants if sufficient scientific evidence shows they may adversely affect public health or the environment. EPA's process to determine whether a pollutant may warrant regulation includes sewage sludge surveys (i.e., surveys to identify the presence of pollutants in biosolids using samples taken from wastewater treatment plants), risk screening for pollutants found in biosolids, and risk assessments for pollutants identified in biosolids that exceed a level of concern.

To date, EPA has not established numeric limits or monitoring or reporting requirements for PFAS in biosolids. In the *Roadmap*, EPA states that it plans to complete, by winter 2024, a risk assessment for PFOA and PFOS in biosolids, which EPA will use to determine whether to regulate these contaminants in biosolids.

Toxic Pollutants or Hazardous Substances

The CWA authorizes EPA to designate contaminants as toxic pollutants (§307) or as hazardous substances (§311), which may trigger other actions under the CWA and the Comprehensive Environmental Response, Compensation, and Liability Act (for more information, see CRS Report R45986, *Federal Role in Responding to Potential Risks of Per- and Polyfluoroalkyl Substances (PFAS)*). EPA has not designated any PFAS as toxic pollutants or hazardous substances under CWA authorities and did not indicate in the *Roadmap* that it plans to do so.

Recent Congressional Action

Recent Congresses have held hearings and introduced and passed legislation to address PFAS in surface water. The Infrastructure Investment and Jobs Act (P.L. 117-58) provides $1 billion over five fiscal years to address emerging contaminants (including PFAS) in wastewater through the Clean Water State Revolving Fund. The PFAS Action Act of 2021 (H.R. 2467), passed by the House in July 2021, would require EPA to take a number of regulatory actions to address PFAS under certain federal environmental laws, including the CWA, among other

actions. Members have introduced additional bills related to PFAS in surface water that have not passed either chamber.

Laura Gatz, Analyst in Environmental Policy

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