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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. 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 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 for surface waters 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.

EPA announced projected timelines for several actions to address PFAS using CWA authorities in its agency-wide PFAS plan, the 2021 *PFAS Strategic Roadmap*. EPA has released annual progress reports on the 2021 *Roadmap*, most recently in November 2024, which included updates to the *Roadmap*'s time frames. To date, EPA has not published any final technology-based effluent limits to address any PFAS, has not established requirements for PFAS in biosolids, and has not designated any PFAS as a toxic pollutant or hazardous substance. EPA has published water quality criteria for certain PFAS, and in some instances has used NPDES permit authorities to address PFAS and has encouraged states to use such authorities.

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 recent ELG 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. The plans have also 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 the 2021 *Roadmap*, EPA established timelines for action, including data collection or rulemaking, on 11 industrial categories. EPA targeted the end of 2024 as the deadline for "significant progress in its ELG regulatory work." In January 2023, EPA released its latest ELG biennial plan, which updated some of the agency's plans and timelines. In the 2024 *Roadmap* progress report, EPA indicated that it expects to propose ELGs for the PFAS manufacturing sector "in the coming months." In these documents, EPA has indicated that the agency

- plans to publish proposed rules revising ELGs for the Organic Chemicals, Plastics, and Synthetic Fibers category, the Metal Finishing and Electroplating Categories, and the Landfills Category;
- will expand its study of the Textile Mills Category;
- is moving forward with a POTW Influent Study to collect nationwide data on industrial discharges of PFAS to POTWs; and
- will continue to monitor several other sectors to determine whether additional steps are necessary.

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 2021 *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 (Method 1633A) to test for 40 PFAS compounds in eight different environmental media, including surface water and wastewater. EPA finalized this method in January 2024, along with a second method (Method 1621) that can broadly screen for thousands of known PFAS compounds in water samples. In the 2024 *Roadmap* progress report, EPA stated that it expects to propose the two methods for adoption in the *Code of Federal Regulations*, “a necessary step for them to be nationally required for CWA use.” In the interim, EPA recommends their use in NPDES permits.

In line with the 2021 *Roadmap*, EPA has issued two memoranda regarding PFAS and NPDES permits. In April 2022, EPA issued an EPA-specific memorandum detailing how the agency will address PFAS discharges in EPA-issued NPDES permits and for indirect dischargers where EPA is the pretreatment control authority. It recommended that EPA permit writers include certain permit conditions for industrial 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 Method 1633A and best management practices and pollution prevention conditions. The memorandum also 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 stated that EPA regions are to notify potentially affected downstream public water systems of any draft NPDES permits with PFAS-specific monitoring, best management practices, or other conditions. In December 2022, EPA issued a companion memorandum to states providing guidance on using similar NPDES authorities to reduce PFAS.

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., 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 2021 *Roadmap*, EPA announced plans to develop national recommended ambient water quality criteria for PFAS to protect human health and aquatic life. EPA targeted fall 2024 for publishing human health criteria for perfluorooctanoic acid (PFOA) and perfluorooctane

sulfonate (PFOS). In December 2024, EPA published draft recommended human health criteria for PFOA, PFOS, and perfluorobutane sulfonic acid (PBS) for public comment. EPA targeted winter 2022 as its deadline for publishing recommended aquatic life criteria for PFOA and PFOS. EPA published draft recommended aquatic life criteria for PFOA and PFOS for public comment in May 2022, and issued final criteria in October 2024. EPA also issued benchmarks for eight PFAS that do not have sufficient data to define a recommended aquatic life criteria value.

Biosolids Requirements

Biosolids (i.e., 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 biosolid use or disposal. Section 405(d) 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 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 (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.

EPA has not established numeric limits or monitoring or reporting requirements for PFAS in biosolids. In the 2021 *Roadmap* EPA said it would complete, by winter 2024, a risk assessment for PFOA and PFOS in biosolids, which it will use to determine whether to regulate these contaminants in biosolids. In the 2024 *Roadmap* progress report, EPA said that it expects to release the draft risk assessment “in the coming months.”

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. EPA has not designated any PFAS as toxic pollutants or hazardous substances under CWA authorities and has not indicated that it plans to do so.

Recent Congressional Action

PFAS-related issues have generated considerable congressional interest in recent years. 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) provided \$1 billion over five fiscal years to address emerging contaminants (including PFAS) in wastewater through the Clean Water State Revolving Fund. In the 118th Congress, Members introduced several bills related to PFAS in surface water.

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