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Five Key Takeaways From the EPA's Proposal to Limit PFAS in Drinking Water

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Special to the Legal

In proposing the first legally enforceable federal limits on per- and polyfluoroalkyl substances (PFAS) in drinking water, the U.S. Environmental Protection Agency (EPA) said it is fulfilling a foundational commitment in its PFAS strategic roadmap, the EPA's comprehensive plan for addressing PFAS through 2024. The roadmap is a three-pronged plan of action that includes research, restrictions and remediation. On March 29, the EPA officially proposed nationwide restrictions to limit the presence of six PFAS in drinking water through a proposed National Primary Drinking Water Regulation (NPDWR). The EPA invited public comment through May 30 and anticipates finalizing the NPDWR by year end. As proposed, public water systems (PWS) would have three years after finalization to demonstrate compliance.

The proposal would require PWS to monitor for six PFAS and, if standards are exceeded, to notify the public and reduce PFAS levels through treatment or use of alternative water supplies. While thousands of PFAS chemicals have been used in consumer and industrial products since the 1940s, the EPA has focused proposed restrictions on a subset of PFAS it believes are likely to occur in drinking water and result in adverse health effects. These PFAS



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include perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), perfluorononanoic acid (PFNA), hexafluoropropylene oxide dimer acid and its ammonium salt (also known as GenX) (HFPO-DA), perfluorohexane sulfonic acid (PFHxS), and perfluorobutane sulfonic acid (PFBS).

Given the NPDWR's length and complexity, and short time remaining for comment, this article distills five key takeaways to help quickly understand significant aspects of the proposal.

THE LIMITS—A UNIQUE APPROACH

The EPA proposes to set individual numerical limits for the Maximum Contamination Level (MCL) and the Maximum Contaminant Level Goal (MCLG) for PFOA and PFOS. The MCL

is the legally enforceable limit and the MCLG is a nonenforceable health-based level at which the EPA believes no known or anticipated adverse health effects are expected to occur, allowing for a margin of safety. For PFOA and PFOS, the EPA proposes an MCL of 4.0 parts per trillion (ng/L) for each, as the EPA believes that is the lowest level that can be reliably measured through laboratory analysis. A MCLG of zero has been proposed for PFOA and PFOS on the basis that they are each likely to cause adverse health affects and there is no level below which either one has been shown to be safe in drinking water.

In contrast to the individual limits for PFOA and PFOS, the EPA proposes to regulate the remaining four PFAS (PFNA, PFHxS, HFPO-DA, and PFBS) as a mixture and to use a unique hazard index (HI) approach for the limits. A HI is a reference value used to evaluate potential cumulative health risks from exposure to a mixture of chemicals. The EPA has never before used a HI for a national drinking water standard, although it has used the approach in remediation programs such as Superfund. The EPA explains that it is proposing this approach because it believes that the remaining four PFAS are likely to be found together in different combinations in drinking water (co-occurrence) and that exposure to a mixture of them may result in greater adverse health affects (referred to as dose additivity) than if they were only considered individually.

As such, the EPA is proposing to set both the MCL and MCLG for these four PFAS and any mixture containing one or more of them at a HI of 1.0 (unitless). Water systems would use a calculator tool provided by the EPA to determine if the combined levels of PFAS detected in the water exceed the HI. An exceedance may result from a high level of any single PFAS or by lesser levels in combination.

MONITORING—SOME FLEXIBILITY

PWS would need to complete initial monitoring for the six PFAS at each entry point to the water distribution system within three years of NPDWR finalization. Initial monitoring frequency would depend upon system size and water source. However, all systems would be allowed to use certain types of previously collected data to satisfy these requirements. For example, systems could use data collected as part of the fifth unregulated contaminant monitoring rule (UCMR 5), state-level drinking water occurrence monitoring, or other appropriate data collection program. Subsequent ongoing monitoring frequency would be based upon results of initial monitoring. For large systems, quarterly compliance monitoring would be typical. However, monitoring frequency could be reduced where sampling results remain less than 1/3 of the MCL (referred to as the “trigger level”).

The proposed trigger levels are below their practical quantitation limits (PQL), which are the lowest concentration that can be reliably achieved during routine laboratory conditions. The PQLs for PFOA and PFOS are 4 ng/l and for the HI PFAS are between 3 ng/l and 5 ng/l. While analysis of samples below the PQLs is not required for compliance purposes, the EPA is proposing reduced monitoring frequency as incentive to do so.

COMPLIANCE—USE OF AVERAGES AND ZEROS

A key feature of the proposal is the use of a running annual average

to determine compliance, such that a single result above the MCL may not automatically be considered a violation. Compliance would be determined at each sampling point and, for water systems monitoring quarterly, a running annual average would be calculated from the past four quarters for each point. Under the proposal, there would generally be no violation of an MCL until a water system has completed at least one year of quarterly sampling, except in circumstances where a single sampling result is sufficiently high so as to cause the running annual average to exceed the MCL. This could occur where the quarterly sampling result is greater than four times the MCL and the system would be deemed immediately out of compliance.

Where a covered PFAS is detected in a sample at less than its PQL, EPA proposes to allow the water system to use a value of zero for that result when calculating the running annual average—on the basis that levels below the PQL cannot be reliably measured. However, it has also requested comment on whether, instead, it should require water systems to use the trigger level (1/3 of PQL), rather than zero, as the value in calculating the average.

TREATMENT—OPTIONS AVAILABLE

Water systems would be required to reduce regulated PFAS levels in drinking water to meet MCLs either through treatment or other actions such as using an alternative water source. The EPA has determined that the following represent best available treatment technologies (BAT) and can effectively reduce the six PFAS in drinking water to below analytical detection limits: granular activated carbon (GAC), anion exchange (AIX) resins, reverse osmosis (RO), and nanofiltration (NF). The EPA notes that an added benefit of these technologies is that they can also remove other types of PFAS and contaminants. The EPA

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has developed interim guidance and is undertaking further research on disposal options for treatment residuals.

IMPACT ON STATE STANDARDS

Where the EPA has delegated primary enforcement authority to a state for NPDWRs and the state already has its own PFAS standards, it will need to review and update those standards within two years of rule finalization to ensure they are at least as stringent as the federal standards. For example, earlier this year, Pennsylvania established its own MCLs for PFOA and PFOS at 14 ng/l and 18 ng/l respectively and would therefore need to update these standards. Ripple effects would also be felt on state cleanup/brownfield programs, as groundwater cleanup standards are oftentimes based on published MCLs. •

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