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PFAS 101

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If you are in the water sector, and even if you are not, you have most likely heard about PFASs, yet you may not understand what they are or why they seem to have suddenly become the focus of the water sector.

PFASs is an acronym for per- and polyfluoroalkyl substances. These are human-made substances, chemicals, actually, used in the creation of products that are part of our daily lives. For example, people in the know often point to products like firefighting foam and Teflon, but PFASs are also found in shampoo, paint, and even fast-food packaging. The list is quite long.

There are over 4,000 individual human-made chemicals that make up the family of PFASs, and their creation dates back to the 1940s. The US Environmental Protection Agency (USEPA) reports that more than 1,200 PFAS compounds have been used in commerce and about 600 are still used today. The most well-known PFAS compounds—at least in the water sector—are PFOA (perfluorooctanoic acid) and PFOS (perflurorooctane sulfontate); they were the subjects of USEPA's health advisories in 2016.

The proliferation of PFAS use over the years has created a present-day challenge for water systems. These chemicals can be found in source waters, including groundwater, lakes, and rivers; because PFASs degrade slowly in the environment, many describe them as “forever” chemicals.

The prevalence and staying power of PFASs in the environment—including drinking water sources—raises questions about the possibility of adverse public health impacts from these compounds. Some studies suggest that PFASs may be related to a number of health issues,

such as increasing cancer risk, affecting human growth and reproduction, and elevating cholesterol levels. It is helpful to know that advanced treatment solutions like granular activated carbon, anion exchange resin, and membrane technologies are effective at removing PFASs.

USEPA has not proposed a drinking water regulation for PFAS compounds, but it's important to note that the agency has been systematically collecting data and conducting research to support a decision whether to regulate. USEPA's systematic process is outlined in the Safe Drinking Water Act. In simplified terms, USEPA must create a list of contaminants that may require a national drinking water regulation in the future; that list is called the Contaminant Candidate List (CCL). USEPA then uses the Unregulated Contaminant Monitoring Rule (UCMR) to collect data on the occurrence of unregulated contaminants, like PFASs. Here's the connection: USEPA's choice of which contaminants to include in the UCMR generally comes from the CCL.

In 2012, USEPA selected six PFAS compounds from the CCL to be part of the UCMR. The data indicated that PFOS and PFOA were the most frequently detected PFAS in finished drinking water. During the UCMR part of the process, PFOS and PFOA were detected in approximately 1.9% and 2.4% of public water systems, respectively.

PFAS have become a big issue not only for USEPA and water utilities but also for states. In February of this year, USEPA issued its PFAS Action Plan—including a goal to move forward with a regulatory determination for PFOS and PFOA before year's end. It seems, however, that some states are unwilling to wait—12 states have already moved ahead and put policies in place for PFASs in drinking water, and 17 others have established policies to protect drinking water from PFASs.

On behalf of AWWA and its members, my colleague Tracy Mehan, AWWA's executive director of government affairs, testified on PFASs before the Senate Committee on Environment and Public Works and the House Subcommittee on the Environment and Climate Change in May. First and foremost, Tracy urged Congress to take steps to protect source water from PFAS contamination. He pointed to existing authorities that Congress already has for this purpose, such as the Toxic Substances Control Act as a major tool to prevent introduction of dangerous chemicals into the environment. He also stressed the importance of using sound scientific process, adding that “we are eager to follow the data on PFAS compounds wherever it may go in the investigative process so that we may know how to best protect public health.” He further highlighted the need to fund additional research on PFAS health effects, analytical methods, and treatment technologies.

There is certainly a great deal of uncertainty surrounding PFASs, and water systems again find themselves at the center of an emotional public health debate. It is worth pointing out that this

uncertainty will be repeated as we evaluate other emerging contaminants in the future. And when that happens, just as it is happening now with PFASs, AWWA will stand by the twin pillars that uphold smart water policy: a commitment to public health protection and fidelity to rigorous scientific process.

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