



A thermal oxidizer tower at Chemours in Fayetteville, N.C., reduces PFAS and greenhouse gas emissions. The Biden administration is requiring municipal water systems to remove six synthetic chemicals that often contaminate tap water.

ED KASHI/REUTERS

'Forever chemicals' can't stay in tap water, EPA says

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Almost half the tap water in the United States contains PFAS, a class of chemicals linked to serious health problems. On Wednesday, the Environmental Protection Agency announced that, for the first time, municipal utilities will have to detect and remove PFAS from drinking water.

The extraordinary move from the Environmental Protection Agency mandates that water providers

reduce perfluoroalkyl and polyfluoroalkyl substances, known collectively as PFAS, to near-zero levels.

The EPA estimated it would cost water utilities about \$1.5 billion annually to comply with the rule, though utilities maintain that the costs could be twice that amount and are worried about how to fund it.

Public water systems have three years to complete their monitoring. If those samples show that levels of PFAS exceed the new EPA standards, the utilities would have another two years to purchase and install equipment designed to filter out PFAS.

Here's what you need to know.

Q: What are PFAS?

A: In 1938 a young chemist working on refrigerants for DuPont accidentally discovered a new compound that was remarkably resistant to water and grease, a finding that would lead to the creation of the Teflon brand of nonstick cookware.

Today there are nearly 15,000 per- and polyfluoroalkyl substances, which collectively go by the acronym PFAS, according to a database maintained by the EPA.

The common link is that they have a special bond

of carbon and fluoride atoms, making them incredibly strong and resistant to heat, water, oil and dirt. For that reason, PFAS is used for everyday items as varied as microwave popcorn bags, water-repellent clothing and stain-resistant carpets. PFAS are also in firefighting foam, cosmetics, shampoos, toys and even dental floss.

Q: Where are PFAS?

A: Everywhere, including drinking water. The indestructible nature that makes PFAS useful in some products also makes them harmful to human health. The chemicals are virtually indestructible and do not fully degrade,

accumulating in the environment and the human body.

The chemicals are so ubiquitous that they can be found in the blood of almost every person in the country. One recent government study detected PFAS chemicals in nearly half the nation's tap water.

A global study of more than 45,000 water samples around the world found that about 31% of tested groundwater samples that weren't near any obvious source of contamination had PFAS levels considered harmful to human health.

Q: What do PFAS do to the body?

A: According to the EPA, exposure to PFAS can cause damage to the liver and immune system and also has been linked to low birth weight, birth defects and developmental delays as well as increased risk of some prostate, kidney and testicular cancers. New research published in the past year found links between PFAS exposure and a delay in the onset of puberty in girls, leading to a higher incidence of breast cancer, renal disease and thyroid disease; a decrease in bone density in teenagers, potentially leading to osteoporosis; and an increased risk of Type 2 diabetes in women.

Q: Why didn't the EPA regulate PFAS in water sooner?

A: Many environmental advocates argue that PFAS contamination should have been dealt with long ago.

"For generations, PFAS chemicals slid off every federal environmental law like a fried egg off a Teflon pan," said Ken Cook, president and co-founder of the Environmental Working Group, a non-

profit advocacy group.

Activists blame chemical companies, which for decades hid evidence of the dangers of PFAS, according to lawsuits and a peer-reviewed study, published in the *Annals of Global Health*, of previously secret industry documents.

The new EPA rule requires utilities to reduce PFAS in drinking water to near-zero levels.

Q: How can I get rid of PFAS?

A: Not easily. In homes, filters attached to faucets or in pitchers generally do not remove PFAS substances. Under-sink reverse-osmosis systems have been shown to remove most but not all PFAS in studies performed by scientists at Duke University and North Carolina State University.

Municipal water systems can install one of several technologies including carbon filtration or a reverse-osmosis water filtration system that can reduce levels of the chemicals.

Q: Now that limits have been set, when will PFAS disappear from tap water?

A: It could take years. Under the rule, a water system has three years to monitor and report its PFAS levels. Then, if the levels exceed the EPA's new standard, the utility will have another two years to purchase and install filtration technology.

But trade groups and local governments are expected to mount legal challenges against the regulation, potentially delaying it even before a court makes a final ruling. And if former President Donald Trump were to retake the White House in November, his administration could also reverse or weaken the rule.