'Forever chemicals' in thousands of private wells near military sites, study finds

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Water tests show nearly 3,000 private wells located near 63 active and former U.S. military bases are contaminated with "forever chemicals" at levels higher than what federal regulators consider safe for drinking.

According to the Environmental Working Group, a Washington, D.C.-based nonprofit that analyzed Department of Defense testing data, 2,805 wells spread across 29 states were contaminated with at least one of two types of per- and polyfluoroalkyl substances, or PFAS, above 4 parts per trillion, a limit proposed earlier this year by the Environmental Protection Agency. That new drinking water standard is expected to take effect by the end of the year.

But contamination in those wells was lower than the 70 parts per trillion threshold the Pentagon uses to trigger remediation.

EWG researchers said they did not know how many people rely on the wells for drinking, cooking, and bathing, but the 76 tested locations represent just a fraction of the private wells near 714 current or former military sites spread across the U.S. According to EWG, Texas had nearly a third of the contaminated wells, with 909. Researchers recorded clusters of tainted wells in both urban and rural areas, from Riverside County and Sacramento in California to Rapid City, South Dakota, and Helena, Montana.

"They are going to have to test more bases," said Jared Hayes, a senior policy analyst with EWG, in an interview with KFF Health News. "Those 2,805 are going to be a small number when they start testing drinking water wells near every single base."

Defense Department officials are investigating hundreds of current and former domestic U.S. military installations and communities that surround them to determine whether their soil, groundwater, or drinking water is contaminated with PFAS chemicals.

The Defense Department is a major contributor of PFAS pollution nationwide—the result of spills, dumping, or use of industrial solvents, firefighting foam, and other substances that contain what have been

dubbed forever chemicals because they do not break down in the environment and can accumulate in the human body.

Exposure to PFAS has been associated with health problems such as decreased response to vaccines, some types of cancer, low birth weight, and high blood pressure during pregnancy, according to a report published last year by the National Academies of Sciences, Engineering, and Medicine.

A study published this year linked testicular cancer in military personnel to exposure to PFOS, the main type of PFAS chemical used in firefighting foam.

In July, a U.S. Geological Survey study estimated that at least 45% of U.S. tap water contains at least one type of PFAS chemical.

USGS researchers tested 716 locations nationwide and found the forever chemicals more frequently in samples that were collected near urban areas and potential sources of PFAS like military installations, airports, industrial sites, and wastewater treatment plants, according to Kelly Smalling, a USGS research chemist and lead author of the study.

"We knew we would find PFAS in tap water," she told KFF Health News in July. "But what was really interesting was the similarities between the private wells and the public supply."

Drinking water sources near military installations that test above 70 parts per trillion draw immediate action from the Defense Department. Those responses include providing alternate drinking water sources, treatment, or water filtration systems.

Below that threshold, federal officials leave it up to homeowners to weigh and mitigate the health risks of contamination, Hayes said.

"It's unclear what, if anything, these private individuals are being advised," Hayes said. "If DoD is saying that 70 parts per trillion is the level they are going to provide clean water … the understanding would be if it's below that, it must be fine."

The Pentagon bases its 70 parts per trillion standard for PFOS and PFOA chemicals on a 2016 health advisory issued by the EPA. Officials have said they're waiting for the new federal standard to go into effect before changing Defense Department parameters.

The Department of Defense did not respond by publication deadline to questions about EWG's findings, or how it will address the new EPA limits.

While EWG's examination found that thousands of wells contained PFAS at levels above the new EPA standard, but below the military's 70 ppt threshold for action, it also learned that the Defense Department had found 1,800 private wells that registered higher than 70 ppt and had provided mitigation services to the owners of those wells.

Hayes said the combined levels of PFOS and PFOA in some wells were as high as 10,000 ppt.

Hayes said it's unclear how long people near those military sites have been drinking contaminated water. "Chances are it's been years, decades," he said.

Federal law requires public water systems to be monitored regularly for pollutants, but private wells have no similar requirements. Hayes recommended that people who live near any current or former military installations and use a well for their drinking water have their water tested and use a filter designed specifically to remove PFAS.

According to the Defense Department's PFAS remediation website, as part of its ongoing investigation and remediation effort, it has closed contaminated wells, installed new water sources, and treated drinking water on military bases. According to the Pentagon, it is working "to ensure no one on-base is exposed to PFOS or PFOA in drinking water above 70ppt."

"Addressing DoD's PFAS releases is at the core of the Department's commitment to protect the health and safety of its Service members, their families, the DoD civilian workforce, and the communities in which DoD serves," Pentagon officials said on the site.