



# PFAS in Private Drinking Water Wells

## Background on PFAS:

The purpose of this document is to provide private well owners information and guidance on per- and polyfluoroalkyl substances (PFAS) that may be present in some private wells. PFAS are a group of human-made chemicals, including perfluorooctanoic acid (PFOA), perfluorooctane sulfonate (PFOS), perfluorohexanesulfonic acid (PFHxS), hexafluoropropylene oxide dimer acid (HFPO-DA or GenX), and over 7,000 other compounds. Throughout the nation, PFAS have been detected in drinking water, groundwater, surface water, soils, and other environmental media. Since the 1940s, PFAS have been present in a variety of industrial and commercial applications and products because of their ability to resist heat, oil, and water.

Due to the rapidly evolving PFAS science, the Maryland Department of the Environment (MDE), in partnership with the Maryland Department of Health (MDH), may update this guidance on PFAS compounds as new information becomes available on health effects, sampling, analysis, treatment techniques, and any changes in federal or state guidance or policy. For more information on PFAS, please visit MDE's PFAS webpage at: [mde.maryland.gov/PublicHealth/Pages/PFAS-Landing-Page.aspx](https://mde.maryland.gov/PublicHealth/Pages/PFAS-Landing-Page.aspx)

## Should I be concerned about PFAS?

The U.S. Environmental Protection Agency (EPA) and U.S. Centers for Disease Control and Prevention Agency for Toxic Substances and Disease Registry (ATSDR) continue to investigate the human health impacts of chronic exposure to PFAS. According to ATSDR, studies have suggested that chronic exposure to two PFAS, PFOA and PFOS, **may** be linked to: increased cholesterol levels, increased risk of high blood pressure or pre-eclampsia in pregnant women, changes in liver enzymes, decreased vaccine response, and small decreases in infant birth weights. Additionally, the EPA has classified PFOA and PFOS as having potential carcinogenic effects in humans. More information on the human health effects and routes of exposure to these compounds and other PFAS compounds can be found through the following links:

CDC: [https://www.cdc.gov/biomonitoring/PFAS\\_FactSheet.html](https://www.cdc.gov/biomonitoring/PFAS_FactSheet.html)

ATSDR: <https://www.atsdr.cdc.gov/pfas/index.html>

EPA: <https://www.epa.gov/pfas/pfas-explained>



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In March 2023, the EPA published proposed enforceable limits in drinking water for PFOA and PFOS at 4 parts per trillion (ppt) each. In addition, EPA published a proposed enforceable limit on a combination of

PFNA, PFHxS, PFBS, and HFPO-DA (GenX). This limit is based off the following Health-Based Water Concentrations:

PFHxS – 9.0 ppt      PFNA – 10 ppt      HFPO-DA (GenX) – 10 ppt      PFBS – 2000 ppt

More information regarding these proposed regulations can be found at the following link:

[www.epa.gov/system/files/documents/2023-03/Fact%20Sheet\\_PFAS\\_NPWDR\\_Final\\_3.14.23.pdf](http://www.epa.gov/system/files/documents/2023-03/Fact%20Sheet_PFAS_NPWDR_Final_3.14.23.pdf)

While toxicity assessments for many other PFAS are currently limited, MDE actively monitors federal PFAS work – including toxicity assessments – and may adjust this factsheet as needed.

## How do I test my well water for PFAS?

Private wells are not regulated by the state or federal government. It is the responsibility of the individual homeowners to test and maintain their well and piping. It is recommended that private well owners get their well water tested at least once a year to ensure that their water is safe to drink. General sampling and maintenance recommendations for private drinking water wells can be accessed on MDE's [Be Well Wise](#) webpage.

A list of labs that test in Maryland for PFAS in drinking water can be found at the following link:

[https://mde.maryland.gov/programs/water/water\\_supply/Documents/PFAS\\_Labs\\_DrinkingWater\\_NEL\\_AP.pdf](https://mde.maryland.gov/programs/water/water_supply/Documents/PFAS_Labs_DrinkingWater_NEL_AP.pdf)

Currently, there are a limited number of certified laboratories capable of testing for PFAS in drinking water. Generally, the state does not fund or provide testing for private well owners. Reach out to your local health department for information regarding possible testing assistance.

## What should I do if my test results show PFAS compounds above EPA's proposed regulatory limits?

For wells that have test results above the EPA proposed regulatory limits, MDE recommends installing treatment on any outlets from which you will be drinking the water. Switching to bottled water may also be an option, however consumers should be aware that PFAS can be present in bottled water. We encourage reaching out to your local public water utility to see if connecting to public water is possible from your location. Public water utilities are regulated by the state and federal government. This means water utilities are required to meet EPA and State standards for drinking water and follow strict monitoring requirements.



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## What about the other PFAS compounds detected in my water that aren't regulated?

EPA has proposed regulatory standards for six prevalent PFAS compounds found in drinking water: PFOA, PFOS, PFBS, PFHxS, PFNA, and HFPO-DA (GenX). Although other PFAS chemicals can be detected, these six compounds act as a basis for when actions should be taken.

## How can I remove PFAS from my water?

Two treatment technologies that are effective in removing PFAS for private well owners are Granular Activated Carbon Filters and Reverse Osmosis. A brief description for both technologies are below:

**Granular Activated Carbon Filters:** Contaminants accumulate on the filter while water passes through.

**Reverse Osmosis:** Energy is used to push water through a membrane with tiny pores. The membrane stops many contaminants while allowing water to pass through.

Both options can be installed as point-of-use (POU) treatments. This refers to treatment that can be added to a single faucet or other outlet used for drinking water in your home. Point-of-use treatment is generally more cost effective than point-of-entry treatment. Point-of-entry (POE) treatment refers to a system that treats all the water in your home. This is generally more expensive to install and maintain and can create challenges for septic system longevity. It is important to note that all water treatment systems require regular maintenance to work properly and remain effective.

Whichever type of treatment is installed, it is important to properly install, test, maintain and dispose of the filters according to manufacturers' specifications. Be advised that not all over-the-counter cartridge filters will remove PFAS from water. It is important to review individual filter specifications.

It is also good practice to test the water after treatment has been installed to verify that the treatment system is effective.

**Note: Boiling water will not remove PFAS chemicals from water and could increase their concentration due to evaporation.**

## How do I have treatment installed?

MDE strongly recommends using a Licensed Plumber or a properly licensed (well driller or water conditioner installer) to install and maintain treatment on your water system. Below is a link to a list of licensed well drillers and water conditioner installers in the state of Maryland.



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<https://mde.maryland.gov/programs/permits/EnvironmentalBoards/Documents/Roster-by-Company.pdf>

**Note: Look for an individual with a license number that starts with WCI (Water Conditioner Installer) MWD (Master Well Driller), or MSD (Master Water Supply Driller).**

Cost of treatment depends on the type of treatment selected and individual system requirements.

## Is it safe to shower, wash clothing, or water plants with untreated water?

According to the best available science, use of water for non-consumable purposes is considered safe. For edible plants, it is advised to use water treated for consumption.

## Where can I find more information?

More information and resources can be found at:

MDE's PFAS Home Page: [mde.maryland.gov/PublicHealth/Pages/PFAS-Landing-Page.aspx](https://mde.maryland.gov/PublicHealth/Pages/PFAS-Landing-Page.aspx)

MDE's Be Well Wise Webpage:

[https://mde.maryland.gov/programs/Water/Water\\_Supply/Pages/Be\\_Well\\_Wise.aspx](https://mde.maryland.gov/programs/Water/Water_Supply/Pages/Be_Well_Wise.aspx)

EPA's Steps You Can Take to Reduce your Risk: <https://www.epa.gov/pfas/meaningful-and-achievable-steps-you-can-take-reduce-your-risk>

EPA's Proposed PFAS NPDWR Webinar Slides: [https://www.epa.gov/system/files/documents/2023-03/PFAS%20NPDWR%20Public%20Presentation\\_Overview\\_3.16.23\\_508.pdf](https://www.epa.gov/system/files/documents/2023-03/PFAS%20NPDWR%20Public%20Presentation_Overview_3.16.23_508.pdf)

ATSDR: How can I be exposed?: <https://www.atsdr.cdc.gov/pfas/health-effects/exposure.html>