

## Proposed PFAS National Primary Drinking Water Regulation Frequently Asked Questions and Answers

### Overview: What action is EPA taking to address PFAS in drinking water?

The U.S. Environmental Protection Agency (EPA) is taking a key step to protect public health by proposing to establish legally enforceable levels for six per- and polyfluoroalkyl substances (PFAS) known to occur in drinking water, fulfilling a foundational commitment in the Agency's PFAS Strategic Roadmap. Through this proposed rule, EPA is leveraging the most recent science and building on existing state efforts to limit PFAS and provide a nationwide, health-protective standard for these specific PFAS in drinking water. EPA is requesting public comment on this proposed National Primary Drinking Water Regulation (NPDWR).

### Question 1: What are PFAS chemicals, and why are they in our drinking water?

Per- and polyfluoroalkyl substances, also called "PFAS," are a group of manufactured chemicals that have been used in industry and consumer products since the 1940s. PFAS have characteristics that make them useful in a variety of products, including nonstick cookware, waterproof clothing, stain-resistant carpets and fabrics, and firefighting foam, as well as in certain manufacturing processes. There are thousands of different PFAS. The domestic production or use of some PFAS (like PFOA and PFOS) has been largely phased out but others continue to be used.

PFAS tend to break down extremely slowly in the environment and can build up in people, animals, and the environment over time. PFAS have been found in water, air, and soil across the nation and around the globe. Because of this, PFAS can end up in the water sources that communities rely on for drinking water. Scientific studies show links between certain levels of PFAS exposure and harmful health effects in humans and animals.

### Question 2: Which PFAS does this action propose to regulate?

EPA is proposing to regulate six specific PFAS: PFOS, PFOA, PFHxS, GenX chemicals (also known as HFPO-DA), PFNA, and PFBS. The proposed rule addresses PFOS and PFOA as individual contaminants and addresses the other four PFAS as a mixture of chemicals. For more information about these specific chemicals, including their uses and history of use in industry and products, and their known health effects, please see the following:

- [PFOS \(Perfluorooctane Sulfonic Acid\)](#)
- [PFOA \(Perfluorooctanoic Acid\)](#)
- [PFHxS \(Perfluorohexane Sulfonic Acid\)](#)
- [GenX chemicals \(hexafluoropropylene oxide \(HFPO\) dimer acid and its ammonium salt – developed as replacements for PFOA\)](#)
- [PFNA \(Perfluorononanoic Acid\)](#)
- [PFBS \(perfluorobutane sulfonic acid and its related compound potassium perfluorobutane sulfonate – developed as replacements for PFOS\)](#)

### Question 3: What health effects can result from exposure to PFAS, specifically the six covered by the proposed rule (PFOS, PFOA, PFHxS, GenX Chemicals, PFNA, and PFBS)?

People can be exposed to PFAS in several ways, including by consuming drinking water containing PFAS. EPA's analysis of a wide range of scientific studies shows that long-term exposure, and exposure during certain critical life stages like pregnancy and in developing babies, to certain levels of these six PFAS may lead to a range of

significant health effects including (but not limited to):

- Reproductive effects, such as increased high blood pressure in pregnant people
- Developmental effects or delays in babies and young children, including low birth weight, bone variations, or behavioral changes
- Increased risk of some cancers, including kidney and testicular cancers
- Reduced ability of the body's immune system to fight infections, including reduced vaccine effectiveness
- Interference with the body's natural hormones, including thyroid hormones
- Increased cholesterol levels, which can increase risk of heart attack and stroke
- Liver damage

#### **Question 4: What is a National Primary Drinking Water Regulation (NPDWR)?**

National Primary Drinking Water Regulations are legally enforceable standards that apply to public water systems. NPDWRs protect public health by limiting the levels of contaminants within drinking water. These standards are most frequently expressed as Maximum Contaminant Levels (MCLs), which are described further below.

#### **Question 5: How do I provide comment on the proposed PFAS NPDWR?**

EPA invites members of the public to review the proposed NPDWR and supporting information and provide comment in the public docket associated with this rulemaking at [www.regulations.gov](http://www.regulations.gov), identified by Docket ID Number: EPA-HQ-OW-2022-0114.

EPA will consider all public comments in informing the development of the final regulation. For more information and instructions on how to submit input to the public docket, visit [www.epa.gov/dockets/commenting-epa-dockets](http://www.epa.gov/dockets/commenting-epa-dockets). EPA will also hold a virtual public hearing on May 4, 2023, at which the public will be invited to provide EPA with verbal comments. For more information on the public hearing and how to provide EPA with verbal comments, visit <https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas>.

#### **Question 6: When is EPA issuing a final NPDWR for PFAS?**

EPA will issue a final PFAS NPDWR after reviewing public comments provided on the proposed NPDWR. As outlined in EPA's [PFAS Strategic Roadmap](#), EPA anticipates finalizing the regulation by the end of 2023. EPA will consider all comments submitted to the Agency as EPA develops the final regulation.

#### **Question 7: What is a Maximum Contaminant Level Goal (MCLG)? What is a Maximum Contaminant Level (MCL)?**

In the proposed rule, EPA is proposing a Maximum Contaminant Level Goal and a Maximum Contaminant Level for these six PFAS.

MCLGs are non-enforceable public health goals. An MCLG is the level of a contaminant in drinking water at which no known or anticipated negative health effects occur and which allows an adequate margin of safety. MCLGs consider only public health risks, including for sensitive populations like pregnant people, developing babies and infants, children, elderly, and immuno-compromised individuals. MCLGs do not consider limits of detection or treatment technology effectiveness. Therefore, MCLGs are sometimes set at levels that water systems cannot meet because of current technological limitations. For example, if a contaminant is a known or likely carcinogen, EPA sets the MCLG at 0.

MCLs are enforceable standards. An MCL protects public health by setting a maximum level of a contaminant allowed in drinking water, which can be delivered to users of a public water system. An MCL is set as close as feasible to an MCLG while taking into consideration the ability to measure and treat to remove a contaminant. EPA also evaluates costs and benefits in determining MCLs.

### Question 8: What are the proposed MCLs for these six PFAS and how did EPA determine these levels?

EPA must establish an enforceable MCL as close to the MCLG as is feasible. The Agency evaluates feasibility according to several factors including the availability of tests or “analytical methods” capable of measuring the regulated chemicals in drinking water. EPA also examines whether proven treatment technologies capable of removing these chemicals under both laboratory and field conditions exist. Based on these factors, EPA is proposing the following enforceable MCLs:

Compounds	Proposed Maximum Contaminant Levels
PFOS	4 parts per trillion (4.0 ng/L)
PFOA	4 parts per trillion (4.0 ng/L)
PFHxS	Hazard Index = 1.0 (unitless)*
GenX Chemicals	
PFNA	
PFBS	
*Learn more about the hazard index calculation, and the specific levels for these four PFAS below	

### Question 9: What is a Hazard Index and how is this implemented as an MCL?

EPA is proposing to regulate four PFAS – PFHxS, GenX Chemicals, PFNA, and PFBS – as a mixture, using an established approach called a hazard index. The Hazard Index is a tool used to evaluate health risks from simultaneous exposure to mixtures of certain chemicals. Many PFAS are found together and in different levels and combinations. Estimating risk by considering one chemical at a time may underestimate the health risks associated with exposure to many PFAS at the same time.

To prevent health risks from mixtures of certain PFAS in drinking water, EPA is proposing to use this Hazard Index calculation to regulate PFHxS, GenX Chemicals, PFNA, and PFBS in public water systems. To determine the Hazard Index for these four PFAS, water systems would monitor and compare the amount of each PFAS in drinking water to its associated Health Based Water Concentration (HBWC), which is the level below which no health effects are expected for that PFAS. Water systems would add the comparison values for each PFAS contained within the mixture. If the value is greater than 1.0, it would be an exceedance of the proposed Hazard Index MCL for PFHxS, GenX Chemicals, PFNA, and PFBS.

For ease of use, EPA intends to provide water systems with a web-based form that will automatically calculate the Hazard Index. More information on the Hazard Index, including an example of how to calculate it, can be found in the proposed rule at: [www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas](http://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas).

### Question 10: If the rule is finalized, what will public water systems have to do?

In addition to establishing MCLs and MCLGs, the proposed regulation, if finalized, would require water systems to take the following steps:

- **Monitor.** EPA is proposing requirements for monitoring for the six PFAS that build upon EPA’s long-established monitoring frameworks under which monitoring frequency depends on previous results. The

proposal also includes flexibilities allowing systems to use some previously collected data to satisfy initial monitoring requirements.

- **Notify consumers.** Public water systems would be required to notify the public if monitoring detects these PFAS at levels that exceed the proposed regulatory standards.
- **Treat to achieve the MCLs.** Public water systems would be required to take actions to reduce the levels of these PFAS in drinking water if they exceed the proposed regulatory standards. This could include removing these chemicals through various types of treatment or switching to an alternative water supply that meets the standard.

### Question 11: What should public water systems do now if they have concentrations of these contaminants above the proposed MCLs?

This is a proposed rule for public comment. It does not require any actions for drinking water systems until EPA considers public input on the proposed rule and finalizes a rule. Once the rule is finalized, water systems will not be required to meet the MCLs until after a specified implementation time period.

EPA has also developed Drinking Water Health Advisories for four PFAS: PFOS, PFOA, GenX Chemicals, and PFBS. These non-regulatory and non-enforceable health advisories provide information on actions that water systems may take to address PFAS contamination. For more information, <https://www.epa.gov/sdwa/drinking-water-health-advisories-pfoa-and-pfos>.

EPA and its partner agencies have several other materials that can inform steps that water systems and the public may take now to reduce levels of these PFAS in their drinking water.

- To learn more about PFAS and steps that can be taken to reduce risks: <https://www.epa.gov/pfas/meaningful-and-achievable-steps-you-can-take-reduce-your-risk>
- For information on protecting and maintaining home drinking water wells: <https://www.epa.gov/privatewells>
- Consider any resources and recommendations from states: <https://www.epa.gov/pfas/us-state-resources-about-pfas>
- Learn more about EPA's process of developing the PFAS National Primary Drinking Water Regulation: <https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas>

### Question 12: How can I find out if there are PFAS in my drinking water?

If you are concerned about PFAS in your drinking water, EPA recommends you contact your local water utility to learn more and see whether they have monitoring data for PFAS or can provide any specific recommendations for your community.

If you own a home drinking water well, EPA recommends learning more about how to protect and maintain your well to address PFAS and other contaminants of concern. For information on home drinking water wells visit <https://www.epa.gov/privatewells>.

Additionally, between 2023 and 2025, EPA is collecting nationally representative drinking water occurrence data from public water systems for 29 PFAS, including these six PFAS, as part of EPA's Fifth Unregulated Contaminant Monitoring Rule (UCMR 5). EPA will be making these monitoring results available starting in mid-2023 at the following website: <https://www.epa.gov/dwucmr/occurrence-data-unregulated-contaminant-monitoring-rule>. EPA has proposed to allow using this newer UCMR 5 data to satisfy initial water system monitoring requirements under the proposed rule.

### **Question 13: What if I am concerned about PFAS in my drinking water?**

If you get your water from a drinking water system, reach out to your local water utility to learn about how they may be addressing PFAS as well as ask them to test the water for PFAS or to share information with you if they have already tested the water. NOTE: Some public drinking water systems may not have this information. If you choose to test your water yourself, it is important to use a state-certified laboratory using EPA-developed testing methods. Check with your state's drinking water program to see if they have issued guidance or standards for PFAS in your state and what actions they recommend or require when there is PFAS contamination. If your state does not have standards or guidance for PFAS see EPA's Health Advisories for certain PFAS for information regarding these PFAS in drinking water and [advice on actions that you may want to consider](#). You may also consider installing in-home water treatment (e.g., filters) that are certified to lower the levels of PFAS in your water. [Learn about certified in-home water treatment filters](#).

To learn more about PFAS and steps that can be taken to reduce risks: [www.epa.gov/pfas/meaningful-and-achievable-steps-you-can-take-reduce-your-risk](http://www.epa.gov/pfas/meaningful-and-achievable-steps-you-can-take-reduce-your-risk)

### **Question 14: What does this proposed regulation mean for households on private wells?**

While the Safe Drinking Water Act does not regulate private wells and this proposed rule does not set any requirements or standards for private well owners, EPA understands that people who consume water from private wells may be concerned about contamination of their drinking water by PFAS or other contaminants. EPA has resources to help people who rely on private wells for their drinking water. First, EPA has information on protecting private wells to prevent contamination, testing private wells, and protecting your health at <https://www.epa.gov/privatewells>. (The Centers for Disease Control and Prevention also provides similar information about private water systems at <https://www.cdc.gov/healthywater/drinking/private/index.html>)

Second, If test results from an approved laboratory show levels of PFOA, PFOS, Gen X or PFBS, see EPA's PFAS health advisories [Questions and Answers](#) to learn about actions that you might consider based on your test results. Third, State Drinking Water State Revolving Loan Fund programs may provide funding to households served by private wells to connect to a drinking water system, or to form a new drinking water system that would be subject to Safe Drinking Water Act requirements. SRF funds can be used by states to provide household water quality testing for these PFAS where there is an intent to connect with a public water system, or to form a new one, and to provide temporary household or point-of-use filters while a connection to a public water system is established. For more information on these funding programs, please visit [www.epa.gov/infrastructure](http://www.epa.gov/infrastructure).

### **Question 15: Does the proposed PFAS regulation apply to bottled water?**

The proposed National Primary Drinking Water Regulation does not apply to bottled water, it applies to public water systems. The Food and Drug Administration has authority for bottled water. EPA has coordinated with the FDA on this proposed rule. When EPA establishes a drinking water standard for a contaminant, the FDA evaluates and adopts the standard as appropriate for bottled water. See <https://www.fda.gov/consumers/consumer-updates/bottled-water-everywhere-keeping-it-safe> for more information about how FDA oversees bottled water standards.

### **Question 16: What tests or “analytical methods” exist to measure PFAS in drinking water?**

Using EPA methods 533 and 537.1, both government and private laboratories can now effectively measure 29

PFAS, including the six PFAS EPA is proposing to regulate, at very low levels in drinking water – including at the levels proposed as MCLs. EPA continues to conduct research and monitor advances in testing technology, methods, and techniques that may improve our ability to measure these and other PFAS at even lower levels.

### **Question 17: What treatment technologies exist to remove PFOS, PFOA, PFHxS, GenX Chemicals, PFNA, and PFBS in drinking water?**

Proven technologies, including activated carbon, anion exchange, and high-pressure membranes, can remove these six PFAS, as well as many other PFAS and additional contaminants, such as disinfection byproducts, organic contaminants, certain heavy metals, and pesticides, from drinking water systems. These treatment technologies can be installed at a water system’s treatment plant and are also available as in-home filter options.

The proposed drinking water regulation and related drinking water treatment supporting documents provide information on these treatment technologies that EPA has found effectively reduce the six PFAS. It may also be possible for water systems to reduce these six PFAS in their water by switching to other water supplies rather than through treatment.

### **Question 18: What do water systems do with treatment residuals that contain PFAS?**

Many treatment solutions generate “residuals” – filters or other by-products of media that have been used in the treatment process to capture PFAS and remove it from drinking water. As part of EPA’s evaluation of available treatment technologies for PFAS, the Agency has assessed factors around residuals waste streams and disposal options. For more information on current residuals management practices, see *EPA’s Best Available Technologies and Small System Compliance Technologies for Per- and Polyfluoroalkyl Substances (PFAS) in Drinking Water*, which will be available in the docket for the proposed rule at [www.regulations.gov](http://www.regulations.gov), identified by Docket ID Number: EPA-HQ-OW-2022-0114.

EPA’s 2020 [Interim Guidance on the Destruction and Disposal of PFAS Substances and Materials Containing PFAS Substances](#) outlines destruction and disposal technologies that may be effective for PFAS, as well as uncertainties and information gaps associated with these technologies and ongoing research to address them. As indicated in EPA’s PFAS Strategic Roadmap, the Agency anticipates releasing an updated version of the Guidance by December 2023. EPA is committed to ongoing efforts to evaluate and develop technologies for reducing PFAS in the environment.

### **Question 19: My state (or Tribe or territory) currently has a different safety level for PFOS, PFOA, PFHxS, GenX Chemicals, PFNA, and PFBS than EPA’s proposed values. Why is this?**

Some states have established drinking water regulations or guidance values for some PFAS prior to this proposed rule and have led the way in monitoring for and limiting some of these chemicals. The NPDWR proposed by EPA, if finalized, will provide a nationwide, health protective level for these six PFAS in drinking water. The rule reflects regulatory development requirements under the Safe Drinking Water Act (SDWA), including EPA’s analysis of the best available and most recent peer-reviewed science; available drinking water occurrence, treatment and analytical feasibility information; and consideration of costs and benefits.

At this time, communities and water systems should follow all applicable current state requirements, recognizing that EPA’s proposed rule does not require water systems to take any action at this time. When the final NPDWR goes into effect, states will be required to have a standard that is no less strict than the NPDWR, as

SDWA requires.

### **Question 20: Besides drinking water, how else can people be exposed to PFOS, PFOA, PFHxS, GenX Chemicals, PFNA, and PFBS?**

An individual's exposure to PFAS can vary due to a number of factors. PFAS have been found in the environment across the nation and around the globe. Certain PFAS have been detected in drinking water, soil, and water near waste sites, areas where fire extinguishing foam has been used, and around manufacturing or chemical production facilities that produce or use PFAS. PFAS can also be found in certain foods, food packaging, household products, dust, personal care products, and biosolids.

Current research shows that people can be exposed to PFAS by working in occupations such as firefighting or chemical manufacturing and processing, eating certain foods such as fish that may contain PFAS, swallowing contaminated soil or dust, breathing air containing PFAS, or using products made with PFAS or that are packaged in materials containing PFAS. When a person's drinking water is contaminated with PFAS, it can be a significant portion of their total PFAS exposure.

### **Question 21: What funding is available to support communities that are addressing PFAS contamination in drinking water?**

The Bipartisan Infrastructure Law provides an unprecedented \$9 billion specifically to invest in communities with drinking water impacted by PFAS and other emerging contaminants. This includes \$4 billion to the Drinking Water State Revolving Fund (DWSRF) and \$5 billion through EPA's Emerging Contaminants in Small or Disadvantaged Communities Grant Program. States and communities can further leverage an additional nearly \$12 billion in the DWSRF dedicated to making drinking water safer, and billions more that the federal government has annually provided to fund DWSRF loans. These funds will help communities make important investments in solutions to remove PFAS from drinking water.

EPA will ensure that states, Tribes, and localities get their fair share of this federal water infrastructure investment – especially disadvantaged communities. More information about the Bipartisan Infrastructure Law and its emerging contaminant funding can be found at <https://www.epa.gov/infrastructure>.

### **Question 22: Will EPA develop drinking water regulations for other PFAS?**

At this time, EPA is not proposing drinking water regulations for PFAS chemicals other than PFOS, PFOA, PFHxS, GenX Chemicals, PFNA, and PFBS. The Agency and other research organizations are actively working to better understand potential health risks for other PFAS in drinking water. EPA is gathering information from public water systems across the nation on the occurrence of 29 PFAS under the Fifth Unregulated Contaminant Monitoring Rule between 2023 and 2025. Using this and other occurrence information, as well as evolving research on PFAS health effects, treatment technologies, and other available scientific and technical information, EPA will evaluate if other PFAS should be regulated in the future.

The drinking water treatment technologies that EPA has found to effectively reduce the six PFAS that the Agency is proposing to regulate are also expected to reduce the levels of other PFAS.

### **Question 23: What is a regulatory determination, and why is EPA concurrently making a regulatory determination for PFHxS, GenX Chemicals, PFNA, and PFBS in this proposal?**

A regulatory determination is a decision on whether EPA should initiate a rulemaking process to develop an

NPDWR for a specific contaminant. In March 2021, EPA issued a final regulatory determination to regulate PFOA and PFOS. Concurrent with EPA's March 2023 proposed rule, EPA is making a preliminary determination to regulate PFHxS, GenX Chemicals, PFNA, and PFBS, as well as mixtures of these four PFAS. New information demonstrates that these PFAS meet the SDWA criteria for regulation including that they may have adverse health effects, that they are likely to be found in public water systems with a frequency and at levels of concern, and that there is a meaningful opportunity for health risk reduction through a national drinking water regulation.

EPA is publishing the preliminary regulatory determination for PFHxS, GenX Chemicals, PFNA, and PFBS for public comment. EPA will consider the comments prior to making the final regulatory determination and, if appropriate, publishing a final NPDWR that addresses these four PFAS.