

PFAS in New Hampshire

Frequently Asked Questions (FAQ) and Responses

What are PFAS?

Per- or poly-fluoroalkyl substances, or PFAS, are a family of fluorine containing compounds. This family includes over 5,000 different chemicals. PFOA, PFOS, PFHxS, and PFNA have the greatest research focus, because historically, they are the most abundant PFAS in the environment. More recently GenX, a chemical replacement for PFOA, has been researched in other regions of the nation due to concerns about how it may influence the health of humans and wildlife. Currently, there is not a high occurrence of GenX in New Hampshire (NH).

What are the PFAS drinking water standards for New Hampshire?

- In July 2020, legislation was signed into law setting maximum contaminant levels for PFOA, PFOS, PFHxS, and PFNA in NH. These are enforceable limits for public water suppliers and recommendations for private well users.
- PFAS drinking water standards currently vary from state to state because there are no national standards set for PFAS in drinking water by the U.S. Environmental Protection Agency (EPA). States develop these standards using the best science, the professional judgment of toxicologists and health risk assessors, and long-established risk assessment methods. As new studies inform our knowledge and risk assessment, PFAS drinking water standards may change. NH specific and other state contaminant levels can be found [here](#) on the Duke “PFAS in Drinking Water: Sources & Standards” fact sheet published in 2020.
- The following chart displays the PFAS standards specific to NH at this time, which are currently some of the strictest in the country:

Per- and Polyfluoroalkyl Substance (PFAS)	NH Maximum Contaminant Level nanograms per liter (parts per trillion, or ppt)
Perfluorooctanoic acid (PFOA)	12
Perfluorooctane sulfonic acid (PFOS)	15
Perfluorohexane sulfonic acid (PFHxS)	18
Perfluorononanoic acid (PFNA)	11

What are steps I can take to reduce my family’s exposure?

Get your well water tested: You can find out how and what to do next by visiting the NH Department of Environmental Services (NHDES) [private wells webpage](#) or look for laboratories recommended by the NHDES for [testing services](#).

- Enter your results for PFAS (and other contaminants) into the [NHDES Be Well Informed app](#) to receive an evaluation of your well water quality and, if advisable, water treatment options.
- If your well water tests above the PFAS maximum contaminant levels for NH, here are some resources designed to find the right water filter for your budget to protect your family from PFAS in your drinking water:

- NHDES PFAS in-home [Water Filtration Webpage](#)
- Environmental Working Group's (EWG) [Water Filter Guide](#)
- If your private well tap water has high PFAS levels, choose an alternative water source. However, note that bottled water is not currently held to NH state drinking water standards (unless it is bottled in NH). You should choose bottled water brands that are confirmed to have low PFAS concentrations and packaging without PFAS.
 - You can learn more about the amount of PFAS in various bottled waters through the [results of a study conducted by the NH Department of Environmental Services](#). Samples were collected in 2019 and some companies have since updated their practices in response to this study.

Minimize dust in your home to limit exposure to PFAS particles in the air:

- Leave shoes at the door to avoid tracking in dirt and pollutants.
- Wet mop or vacuum the floor instead of using a broom to avoid flying PFAS particles. Vacuum with a HEPA (high-efficiency particulate air) filter.
- Regular maintenance of home air filters has been shown to reduce levels of other persistent pollutants in dust in the home and is anticipated to provide similar reductions in PFAS. Find the right air filter for your home using the EPA's [Guide to Air Cleaners in the Home](#) or EWG's [Healthy Living: Home Guide](#).
- The average person spends 65 percent of their entire life inside their home! Check out [Homes For Health](#) for more tips on keeping each area of your home healthier.

Buy common products like pans, rain jackets and makeup thoughtfully:

- **Avoid** non-stick cookware containing PFAS. Instead, buy stainless steel and cast-iron pots and pans. If you have old non-stick pans you cannot part with, do not heat them over 450°F or use them in the oven. When the coating shows signs of wear-and-tear, it is time to let them go.
- **Avoid** stain-resistant treatments by asking for furniture, carpet and cleaning supplies that do not contain PFAS or are not marketed as “stain-resistant.”
- **Purchase** PFAS-free products from companies who have committed to eliminating PFAS from their manufacturing. You can find a list of these companies at [PFAS Central](#).
- **Be aware** that water and stain resistant treatments for textiles used as clothing or carpets are often made using PFAS. Many companies are seeking to eliminate PFAS from their stain and water-resistant products; however, until these transitions are complete it is important to be aware that these products may contain PFAS, particularly if they are older products:
 - PTFE (e.g., Teflon® coating, Gore-Tex® materials)
 - PFOS or PFBS (e.g., Scotchgard® coating), older items contain PFOS (e.g., Polartec® materials)
- **Minimize** your consumption of foods that are packed in materials containing PFAS. [Research suggests](#) that people who eat more meals prepared at home have lower PFAS concentrations in their bodies than those that regularly eat out or get takeout. Common food packaging that may contain PFAS includes:
 - Microwave popcorn
 - Fast food boxes (like French fry containers and pizza boxes)
 - Bakery bags
 - Bottled water

- **Find out which cosmetics and personal care products contain PFAS** using the ingredient list below, or [EWG's Skin Deep database](#) to find PFAS free cosmetics. [PFAS Central also maintains a list of PFAS free personal care products](#). **Generally, be cautious when ingredients contain the words “fluoro” or “perfluoro.”** PFAS are found in certain types of [dental floss](#), nail polish, facial moisturizers, eye make-up and more. Here are ingredients to look out for:
 - [PTFE](#)
 - [Perfluorononyl Dimethicone](#)
 - [Perfluorodecalin](#)
 - [C9-15 Fluoroalcohol Phosphate](#)
 - [Octafluoropentyl Methacrylate](#)
 - [Perfluorohexane](#)
 - [Pentafluoropropane](#)
 - [Polyperfluoroethoxymethoxy Difluoroethyl Peg Phosphate](#)
 - [Polyperfluoroethoxymethoxy Peg-2 Phosphate](#)
 - [Methyl Perfluorobutyl Ether](#)
 - [Perfluorononylethyl Carboxydecyl Peg-10 Dimethicone](#)
 - [Perfluorodimethylcyclohexane](#)
 - [Perfluoroperhydrophenanthrene](#)

What is being done about PFAS in NH?

In addition to the activities listed in the fact sheet, the NH Department of Health and Human Services (NHDHHS) is conducting a [public health surveillance study of NH residents](#) to measure their exposure to environmental contaminants, including PFAS. Community level studies are also ongoing, including the area surrounding the former [Pease Air National Guard Base](#).

Communities are taking action and have been instrumental in advocating for a PFAS blood testing program, PFAS community health studies, water filtration, PFAS remediation, and state and federal legislative action.

- [Merrimack Citizens for Clean Water](#) was formed in 2016 when NHDES ordered the closing of two of the six Merrimack public water wells as they tested over the state regulatory limit for PFAS at that time.
- [Testing for Pease](#) is a community action group founded in 2015 in response to PFAS contamination at the Pease Tradeport.

How can I find out if my family is being exposed to PFAS at high levels?

Biomonitoring (measurement of the toxic chemical compounds, elements, or their breakdown products, in the body) studies suggest that most people in the general population have [measurable levels of PFAS](#) in their blood. This exposure primarily comes from ingestion of contaminated water and food, as well as from exposure to consumer and personal care products that contain PFAS. **However, NH residents are often exposed to PFAS at higher levels than the general population.**

It is important to have well water testing done every 3-5 years for PFAS and other chemicals such as arsenic, copper, and lead. You can find out how to get your well water tested and what to do after you receive your test results on the [NHDES private wells page](#), and find out which laboratories the NHDES recommends for [testing services](#).

If you are concerned about your PFAS exposure start by speaking with your doctor. The Agency for Toxic Substances and Disease Registry (ATSDR) published [advice and a fact sheet](#) to help you begin this conversation. Also, NHDHHS has written a [letter that you can share with your health care provider](#). Printing these materials and sharing them with your primary care provider is a useful first step. Blood

testing may be suggested, and NH recently passed a law to support insurance coverage for the costs of PFAS blood testing. You can find out more about blood testing on this [NH Department of Health & Human Services](#) webpage.

What health effects have been associated with exposure to PFAS?

Many studies have been conducted to understand the association between PFAS exposure and human health effects. While research on these topics is still ongoing, PFAS exposure has been shown to impact human health as listed below. For examples of scientific journal articles discussing each health effect see the links provided.

PFAS has been shown to:

- Interfere with the body's natural hormones ([See ATSDR Report](#); [Additional Journal Article](#))
 - Studies suggest that PFAS interact and interfere with a variety of hormones including, but not limited to estrogen, androgens, insulin, and thyroid-related hormones.
- Increase cholesterol levels ([See ATSDR Report](#); [Additional Journal Article](#)) and risk of thyroid disorder ([See ATSDR Report](#); [Additional Journal Article](#))
 - Various studies suggest that greater PFAS blood levels are related to increased cholesterol levels, with heightened cholesterol levels leaving individuals at risk for other chronic conditions.
- Affect the immune system ([See ATSDR Report](#) and [National Toxicology Program Report](#))
 - Studies have found PFAS exposure to both heighten and diminish immune responses depending on the specific chemical under study.
- Alter physical growth and brain development in children ([See ATSDR Report](#); [Additional Journal Article](#))
 - Most studies indicate that PFAS adversely affect growth *in utero* and increase risk of obesity in childhood.
 - Some studies suggest that PFAS are neurotoxins and may delay and alter development in children who have been exposed to high PFAS levels, but these health effects have been less consistent across research studies than many of the other observed effects of PFAS on health.
- Increase the risk of certain types of cancer ([See ATSDR Report](#); [Additional Journal Article](#))
 - Research suggests a correlation between PFAS exposure and both kidney and testicular cancers in humans; however, further studies are needed to confirm these findings.
 - Animal studies have suggested the potential for PFAS exposure to trigger the growth of tumors in breast, liver, and pancreatic tissues.

For a more detailed description on the probable links of PFAS with human health see:

- The C8 Science Panel which specifically investigated the health effects of PFOA and created [Probable Link Reports](#) which summarize whether or not PFOA is likely to cause a number of specific health conditions. These reports establish that there was a probable link between PFOA and the following conditions:
 - [High Cholesterol](#)
 - [Ulcerative colitis](#)
 - [Thyroid disease](#), including hyperthyroidism or overactive thyroid (particularly among women) and hypothyroidism or underactive thyroid (particularly among men).

- [Testicular cancer](#)
- [Kidney cancer](#)
- [Pregnancy-induced hypertension](#)
- Rhode Island [STEER Report](#) on health effects

What if I live in a New England state that is not New Hampshire?

The New England Pediatric Environmental Health Specialty Unit [has produced a report](#) that explains federal advisory levels and details the state-wide regulations for New England states.

This FAQ was last updated: May 2021