

PFAS IN DRINKING WATER: SOURCES & STANDARDS

WHAT ARE PFAS?

PFAS (per- and polyfluoroalkyl substances) are pollutants that can be found in drinking water across the United States, including North Carolina.

- PFAS are a group of man-made chemicals used as water and grease repellents.
- PFAS are sometimes called “forever chemicals” because they do not easily break down in the environment or in people.



PFOS molecule

HOW DO PFAS GET INTO DRINKING WATER?

The Haw River (the source of Pittsboro’s drinking water) has detectable levels of PFAS, but researchers are still unsure of potential sources.

There may be several upstream point sources that introduced PFAS into the Haw River, such as land-applied biosolids or effluent from wastewater treatment plants. PFAS chemicals are not efficiently removed by standard drinking water treatment.

MORE QUESTIONS?

Have more questions about PFAS and the Haw River Study? Visit the study website at sites.nicholas.duke.edu/pfas/



OTHER SOURCES OF PFAS

PFAS are used in industry and are also found in a variety of consumer products. PFAS in the environment can lead to contaminated drinking water.



Carpeting & flooring

Clothing & textiles



Food packaging

Fire-fighting foams



Industrial sources

ARE PFAS HARMFUL?

Two of the most well-studied are PFOS and PFOA, and both have been linked to health effects in humans. Newer PFAS chemicals are replacing PFOS and PFOA, but health effects of these are still unknown. PFAS have been linked to health effects such as:

- Thyroid disease
- Increased cholesterol
- Pregnancy-induced hypertension
- Developmental & reproductive health effects
- Some cancers

More research is needed to better understand the links between our health, and exposure to the nearly 5,000 PFAS chemicals.

WHAT CAN I DO ABOUT PFAS IN MY WATER?

See our flyer on water filters and their effectiveness in removing PFAS chemicals from drinking water! <http://bit.ly/filterPFAS>

Unlike the water you drink and swallow, water used for bathing or cleaning is not thought to be an exposure concern.

ADDITIONAL INFORMATION

Government Sources

- NC Department of Health and Human Services | bit.ly/NCDHHS-pfas
- NC Department of Environmental Quality | bit.ly/NCDEQ-pfas
- U.S. Environmental Protection Agency | epa.gov/pfas
- National Institute of Environmental Health Sciences | bit.ly/NIEHS-pfas
- Agency for Toxic Substances and Disease Registry | atsdr.cdc.gov/pfas/

NC PFAS Testing Network
<https://ncpfastnetwork.com/>

PFAS Central's List of PFAS-free products
<https://bit.ly/PFAS-Central>

PFAS DRINKING WATER STANDARDS

PFAS STANDARDS IN NORTH CAROLINA

The US EPA has established a non-enforceable health advisory level of **70 parts per trillion** for the sum of 2 PFAS chemicals, **PFOS and PFOA**.

North Carolina Department of Health and Human Services has set a health goal for the chemical **GenX** at **140 parts per trillion**.

There are currently **no enforceable limits for PFAS levels in drinking water in North Carolina**.



PFOS + PFOA
< 70 ppt

GenX < 140 ppt

PPT = ng/L

parts per trillion (ppt)
is the same as
nanograms per liter (ng/L)
70 ppt = 70 ng/L

Parts per trillion (ppt) are also a lot less than either parts per billion (ppb) or parts per million (ppm)

STANDARDS ACROSS THE U.S.

Some states have started setting their own standards for some PFAS chemicals in drinking water. Other states not shown are also considering PFAS standards. This information is up to date as of June 3, 2020

The figures below can help you compare the PFAS levels in your water to various state standards.

Non-enforceable

These non-enforceable standards include health advisories, notification limits, guidance values, & health goals.

USA  **PFOS + PFOA < 70 ppt**

NC  **GenX < 140 ppt**

CA  **PFOS < 40 ppt**
PFOA < 10 ppt

MN  **PFOS < 15 ppt**
PFOA < 35 ppt
PFHxS < 47 ppt


Enforceable

Maximum contaminant levels (MCLs) are legally enforceable standards for drinking water

NJ  **PFOS < 13 ppt**
PFOA < 14 ppt
PFNA < 13 ppt

NY  **PFOS < 10 ppt***
PFOA < 10 ppt*

NH  **PFOS < 15 ppt***
PFOA < 12 ppt*
PFNA < 11 ppt*
PFHxS < 18 ppt*

MI  **PFOS < 16 ppt**
PFOA < 8 ppt
PFNA < 6 ppt*
PFHxS < 51 ppt*
PFBS < 420 ppt*
GenX < 370 ppt*
PFHxA < 400,000 ppt*

VT  **Total PFAS < 20 ppt****

MA  **Total PFAS < 20 ppt*****

* - proposed standard

** - VT has MCL for combination of PFOS, PFOA, PFNA, PFHxS, and PFHpA

*** - MA has proposed MCL for combination of PFOS, PFOA, PFNA, PFHxS, PFHpA, and PFDA

WHY ARE THERE STANDARDS FOR SOME PFAS BUT NOT OTHERS?

PFOS and PFOA have been in use for longer than other PFAS, so we have more information on their potential health effects. We do not know as much about other, newer PFAS, so it is more difficult to set standards for these.

WHY DO STATES SET DIFFERENT STANDARDS?

With minimal guidance from the U.S. EPA, every state uses their own unique process to set standards. This can be guided by state laws, political priorities, and specific geographical and environmental conditions.