WHAT ARE PFAS?

PFAS, short for per- and polyfluoroalkyl substances, is a group of thousands of man-made compounds that are extremely stable and resistant to most degradation processes. PFAS bioaccumulate in the environment, earning them the label of "forever chemicals". PFAS have been detected in drinking waters across the US. In NYS, high concentrations were found in the Village of Hoosick Falls, Town of Petersburgh, the Newburgh area and in Nassau, Dutchess, and Suffolk counties 1,2.

WHAT ARE SOME PRODUCTS THAT COMMONLY CONTAIN PFAS?

PFAS have been used since the 1940s in consumer products such as non-stick cookware and utensils, food packaging, polishes, cleaning agents, stain-resistant and waterproof clothing, textiles, and paper, and in industrial products such as aqueous firefighting foams (AFFF), hydraulic fluids, mist suppressants, lubricating oils, and during the manufacturing of electronics.

HOW ARE PEOPLE EXPOSED TO PFAS?

People are exposed to PFAS through ³:

- Drinking water and consumption of fish and shellfish that is contaminated with PFAS,
- Consumption of meat, milk and eggs of livestock raised on PFAS-contaminated land,
- Household use of PFAS-containing products, and
- Consumption of food that comes in contact with PFAScontaining products (e.g., some microwaveable popcorn bags and grease-resistant papers)

WHAT ARE THE HEALTH EFFECTS OF EXPOSURE TO PFAS?

Research has shown a probable link of PFAS exposure to increased cholesterol levels, liver damage, increased risk of kidney and testicular cancer, thyroid disease, increased risk of high blood pressure or pre-eclampsia in pregnant women, as well as delayed mammary gland development, reduced response to vaccines, and lower birth weight in unborn children e.g., ⁴⁻¹⁰.

ARE PFAS STILL BEING PRODUCED IN THE U.S.?

The two most studied PFAS (PFOS and PFOA) and other longchain PFAS have been phased out in the U.S. but can still be imported into the U.S. in consumer goods. Shorter chain PFAS are still commercially produced in the U.S. While branded as a safer and less toxic alternative, they are shown to be persistent in the environment and may have similar impacts e.g., 11-13.

ARE PFAS REGULATED IN DRINKING WATER IN THE NYS?

In March of 2023, the US Environmental Protection Agency proposed the first National Drinking Water Regulation for two individual PFAS (PFOA and PFOS) and four PFAS as a mixture (PFNA, PFHxS, PFBS, and HFPO-DA, known as GenX) ¹⁴. This step will establish enforceable standards, such as maximum contaminant levels (MCLs), when finalized at the end of 2023. Water systems are then required to monitor and report on PFAS in drinking water within three years and notify the local health department and the public upon recorded exceedances. Water systems may also be required to develop a plan of action to treat and to reduce PFAS levels in their drinking water. In NYS, the Department of Health established MCLs of 10 ppt each for PFOA and PFOS in July of 2020 ¹⁵. Upon implementation of the federal rule, all state regulations will need to be at least as strict as the federal regulations.

HOW DO I KNOW IF MY TAP WATER IS CONTAMINATED WITH PFAS?

To test your tap water for PFAS, you should have your samples tested by an EPA-certified laboratory. There are 6 EPA-accredited labs that measure PFAS in NYS, 3 of which are commercial labs that accept home samples. To search for an EPA-certified lab online:

- Go to the Department of Health's "<u>Search NY Accredited</u> <u>Environmental Laboratories</u>" tool.
- **2.** Use the Advanced Search box, then choose: "Potable Water" for CATEGORY and a PFAS compound (e.g, perfluorooctanesulfonoic acid (PFOS)) for ANALYTE.
- **3.** Hit "View Results"
- **4.** Type "NY" in the Search bar (skip this step if you are not restricting your search by state).
- **5.** Under "Type", you'll find the available "Commercial" labs that you can contact for instructions on testing.

WHAT CAN I DO IF MY HOUSEHOLD DRINKING WATER IS CONTAMINATED WITH PFAS?

To remediate PFAS contamination in your household, you can install a certified in-home treatment system that uses activated carbon filtration or reverse osmosis. Certified filters that have NSF/ANSI 53 or NSF/ANSI 58 are verified as able to remove PFAS. While anion exchange treatment can also remove PFAS, there is currently no product certification for it. A list of certified products can be found here. You may also consider contacting your elected officials to communicate your PFAS results and urge action on the matter.

MORE INFORMATION ON PFAS CAN BE FOUND HERE:

- National Institute of Environmental Sciences: Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)
- American Water Works Association: Per- and Polyfluoroalkyl Substances (PFAS): Overview and Prevalence
- NYS Department of Environmental Conservation (DEC): <u>Per- and Polyfluoroalkyl Substances (PFAS)</u>
- Environmental Protection Agency: <u>Per- and Polyfluoroalkyl Substances (PFAS)</u>

REFERENCES

- 1. NYS DEC, 2017. Per- and polyfluoroalkyl substances (PFAS). Website: https://www.dec.ny.gov/chemical/108831.html
- 2. Environmental Working Group (EWG), 2020. PFAS contamination in the U.S. Website: https://www.ewg.org/interactive-maps/pfas contamination/map/
- 3. United States Environmental Protection Agency (USEPA), 2018. Basic Information on PFAS. Website: https://www.epa.gov/pfas/basic-information-pfas#exposed
- 4. ATSDR, 2020. Per- and polyfluoroalkyl substances (PFAS) and your health. https://www.atsdr.cdc.gov/pfas/health-effects/index.html
- 5. Agency for Toxic Substances and Disease Registry (ATSDR). 2018. Toxicological profile for Perfluoroalkyls. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.
- 6. <u>C8 Health Project Reports</u>, 2012, 'C8 Science Panel Website' accessed 2 December 2019.
- 7. WHO IARC, 2017, Some Chemicals Used as Solvents and in Polymer Manufacture.
- 8. Barry, V., et al., 2013, 'Perfluorooctanoic Acid (PFOA) Exposures and Incident Cancers among Adults Living Near a Chemical Plant', Environmental Health Perspectives 121(11-12), pp. 1313-1318 (DOI: 10.1289/ehp.1306615).
- 9. Fenton, S. E., et al., 2009, 'Analysis of PFOA in dosed CD-1 mice. Part 2. Disposition of PFOA in tissues and fluids from pregnant and lactating mice and their pups', Reproductive Toxicology (Elmsford, N.Y.) 27(3-4), pp. 365-372.
- 10. White, S. S., et al., 2011, 'Gestational and chronic low-dose PFOA exposures and mammary gland growth and differentiation in three generations of CD-1 mice', Environmental Health Perspectives 119(8), pp. 1070-1076 (DOI: 10.1289/ehp.1002741).
- 11. Kabadi, S.V., Fisher, J.W., et al., 2020. Characterizing biopersistence potential of the metabolite 5:3 fluorotelomer carboxylic acid after repeated oral exposure to the 6:2 fluorotelomer alcohol. Toxicology and Applied Pharmacology, 338, 114878.
- 12. Rice, P.A., Aungst, J., Cooper, J., Bandele, O., Kabadi, S.V., 2020. Comparative analysis of the toxicological databases for 6:2 fluorotelomer alcohol (6:2 FTOH) and perfluorohexanoic acid (PFHxA). Food and Chemical Toxicology, 138, 111210.
- 13. US National Toxicology Program, 2020. Per- and Polyfluoroalkyl Substances (PFAS). Retrieved from: https://ntp.niehs.nih.gov/whatwestudy/topics/pfas/index.html
- 14. USEPA, 2023. Per- and Polyfluoroalkyl Substances (PFAS): Proposed PFAS National Primary Drinking Water Regulation. Retrieved from: https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas
- 15. Governor Cuomo Announces First in the Nation Drinking Water Standard for Emerging Contaminant 1,4-Dioxane. Retrieved from: https://www.governor.ny.gov/news/governor-cuomo-announces-first-nation-drinking-water-standard-emerging-contaminant-14-dioxane