

Aqua Illinois – Eastwood Manor Water System (PWSID # IL1115250)*

The Illinois Environmental Protection Agency (Illinois EPA) tested our Aqua Eastwood Manor water system in February and March of 2021 for 18 compounds known as Per- and Polyfluoroalkyl Substances (PFAS) as part of a statewide investigation of community water supplies. PFAS are a group of thousands of manmade substances that have been produced in the United States since the 1940s and utilized for a variety of applications ranging from water and stain-proofing to firefighting. Some PFAS have been phased out of production due to environmental and human health concerns, yet they persist in the environment and may contaminate surface and ground waters.

Neither the Illinois EPA nor the U.S. EPA have yet developed enforceable drinking water standards for PFAS. In the interim, Illinois EPA has developed health-based guidance levels for the small number of PFAS for which there is appropriate information to do so. The health-based guidance levels are intended to be protective of all people consuming the water over a lifetime of exposure. It is important to understand that health-based guidance levels are not regulatory limits for drinking water. Rather, the health-based guidance levels are benchmarks against which sampling results are compared to determine if additional investigation or other response action is necessary.

Illinois EPA testing has determined that one PFAS analyte was detected in our water system at a value greater than or equal to the Illinois EPA health-based guidance level, as provided in the table below. The levels are presented in units of nanogram per liter (ng/L) or parts per trillion (ppt).

PFAS Analyte	Acronym	Minimum Reporting Level (ng/L)	IEPA Health-Based Guidance Level (ng/L)	Analytical Result (ng/L)
Perfluorobutanesulfonic acid	PFBS	2	2,100	2.2 – 2.3
Perfluoroheptanoic acid	PFHpA	2	---- ^a	ND
Perfluorohexanesulfonic acid	PFHxS	2	140	ND
Perfluorononanoic acid	PFNA	2	21	ND
Perfluorooctanesulfonic acid	PFOS	2	14 ^b	ND
Perfluorooctanoic acid	PFOA	2	2 ^b	2.0 – 2.4
Perfluorodecanoic acid	PFDA	2	---- ^a	ND
Perfluorododecanoic acid	PFDoA	2	---- ^a	ND
Perfluorohexanoic acid	PFHxA	2	560,000	5.8 – 6.1
Perfluorotetradecanoic acid	PFTA	2	---- ^a	ND
Perfluorotridecanoic acid	PFTTrDA	2	---- ^a	ND
Perfluoroundecanoic acid	PFUnA	2	---- ^a	ND
11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	2	---- ^a	ND
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	9Cl-PF3ONS	2	---- ^a	ND
4,8-dioxa-3H-perfluorononanoic acid	ADONA	2	---- ^a	ND
Hexafluoropropylene oxide dimer acid	HFPO-DA	2	560	ND
N-ethyl perfluorooctanesulfonamidoacetic acid	NEtFOSAA	2	---- ^a	ND
N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA	2	---- ^a	ND

^a Toxicity criteria is not available to calculate a health-based guidance level.

^b EPA established the health advisory levels at 70 parts per trillion. When both PFOA and PFOS are found in drinking water, the combined concentrations of PFOA and PFOS should be compared with the 70 parts per trillion health advisory level. This health advisory level offers a margin of protection for all Americans throughout their life from adverse health effects resulting from exposure to PFOA and PFOS in drinking water. See attached EPA 800-F-16-03, November 2016.

ND = Not Detected

Our water may contain other PFAS at concentrations greater than or equal to the lowest concentration the laboratory can reliably detect, known as the minimum reporting level. However, neither the Illinois EPA nor the U.S. EPA currently have health-based guidance levels for these additional compounds. Results can also be found on the PFAS Investigation Network Interactive Map webpage: <https://illinois-epa.maps.arcgis.com/apps/opsdashboard/index.html#/d304b513b53941c4bc1be2c2730e75cf>.

PFAS are present in many consumer goods, including food packaging and personal care products, and scientists have found levels of PFAS in blood of nearly all individuals tested. Studies have indicated that exposure to high levels of PFAS may cause adverse health effects such as increased cholesterol levels, increased risk for thyroid disease, low infant birth weights, reduced response to vaccines, pregnancy-induced hypertension and increased risk of liver and kidney cancer as seen in studies of laboratory animals. Exposure to PFAS above the recommended health-based guidance levels does not necessarily mean that a person will get sick or an adverse health effect will occur. Health-based guidance levels are conservative estimates. The possible health effects from PFAS are dependent on how much a person is exposed to and how long they are exposed to it. Exposure to PFAS above recommended health-based guidance levels for periods of time may mean that a person is at a greater risk of experiencing these adverse effects.

Additional information regarding PFAS, the statewide PFAS investigation network, and the impact to public health can be found in the attached EPA Fact Sheet FOAS & PFOS Drinking Water Health Advisories (EPA 800-F-16-03, November 2016) as well as on the Illinois EPA PFAS webpage: <https://www2.illinois.gov/epa/topics/water-quality/pfas/Pages/default.aspx>.

The confirmed sampling results for the Aqua Eastwood Manor Public Water System are also available on Illinois EPA's Drinking Water Watch system at <http://water.epa.state.il.us/dww/index.jsp>.

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* This notice contains regulatory required or recommended language, and nothing herein is, is intended as, nor should be construed as, a promise of or contract for payment or reimbursement of expenses incurred for any action you take on account of this notice.

Overview

EPA has established health advisories for PFOA and PFOS based on the agency's assessment of the latest peer-reviewed science to provide drinking water system operators, and state, tribal and local officials who have the primary responsibility for overseeing these systems, with information on the health risks of these chemicals, so they can take the appropriate actions to protect their residents. EPA is committed to supporting states and public water systems as they determine the appropriate steps to reduce exposure to PFOA and PFOS in drinking water. As science on health effects of these chemicals evolves, EPA will continue to evaluate new evidence.

Background on PFOA and PFOS

PFOA and PFOS are fluorinated organic chemicals that are part of a larger group of chemicals referred to as perfluoroalkyl substances (PFASs). PFOA and PFOS have been the most extensively produced and studied of these chemicals. They have been used to make carpets, clothing, fabrics for furniture, paper packaging for food and other materials (e.g., cookware) that are resistant to water, grease or stains. They are also used for firefighting at airfields and in a number of industrial processes.

Because these chemicals have been used in an array of consumer products, most people have been exposed to them. Between 2000 and 2002, PFOS was voluntarily phased out of production in the U.S. by its primary manufacturer. In 2006, eight major companies voluntarily agreed to phase out their global production of PFOA and PFOA-related chemicals, although there are a limited number of ongoing uses. Scientists have found PFOA and PFOS in the blood of nearly all the people they tested, but these studies show that the levels of PFOA and PFOS in blood have been decreasing. While consumer products and food are a large source of exposure to these chemicals for most people, drinking water can be an additional source in the small percentage of communities where these chemicals have contaminated water supplies. Such contamination is typically localized and associated with a specific facility, for example, an industrial facility where these chemicals were produced or used to manufacture other products or an airfield at which they were used for firefighting.

EPA's 2016 Lifetime Health Advisories

EPA develops health advisories to provide information on contaminants that can cause human health effects and are known or anticipated to occur in drinking water. EPA's health advisories are non-enforceable and non-regulatory and provide technical information to states agencies and other public health officials on health effects, analytical methodologies, and treatment technologies associated with drinking water contamination. In 2009, EPA published provisional health advisories for PFOA and PFOS based on the evidence available at that time. The science has evolved since then and EPA is now replacing the 2009 provisional advisories with new, lifetime health advisories.

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PFOA & PFOS Drinking Water Health Advisories

EPA's 2016 Lifetime Health Advisories, continued

To provide Americans, including the most sensitive populations, with a margin of protection from a lifetime of exposure to PFOA and PFOS from drinking water, EPA established the health advisory levels at 70 parts per trillion. When both PFOA and PFOS are found in drinking water, the combined concentrations of PFOA and PFOS should be compared with the 70 parts per trillion health advisory level. This health advisory level offers a margin of protection for all Americans throughout their life from adverse health effects resulting from exposure to PFOA and PFOS in drinking water.

How the Health Advisories were developed

EPA's health advisories are based on the best available peer-reviewed studies of the effects of PFOA and PFOS on laboratory animals (rats and mice) and were also informed by epidemiological studies of human populations that have been exposed to PFASs. These studies indicate that exposure to PFOA and PFOS over certain levels may result in adverse health effects, including developmental effects to fetuses during pregnancy or to breastfed infants (e.g., low birth weight, accelerated puberty, skeletal variations), cancer (e.g., testicular, kidney), liver effects (e.g., tissue damage), immune effects (e.g., antibody production and immunity), thyroid effects and other effects (e.g., cholesterol changes).

EPA's health advisory levels were calculated to offer a margin of protection against adverse health effects to the most sensitive populations: fetuses during pregnancy and breastfed infants. The health advisory levels are calculated based on the drinking water intake of lactating women, who drink more water than other people and can pass these chemicals along to nursing infants through breastmilk.

Recommended Actions for Drinking Water Systems

Steps to Assess Contamination

If water sampling results confirm that drinking water contains PFOA and PFOS at individual or combined concentrations greater than 70 parts per trillion, water systems should quickly undertake additional sampling to assess the level, scope and localized source of contamination to inform next steps

Steps to Inform

If water sampling results confirm that drinking water contains PFOA and PFOS at individual or combined concentrations greater than 70 parts per trillion, water systems should promptly notify their State drinking water safety agency (or with EPA in jurisdictions for which EPA is the primary drinking water safety agency) and consult with the relevant agency on the best approach to conduct additional sampling.

Drinking water systems and public health officials should also promptly provide consumers with information about the levels of PFOA and PFOS in their drinking water. This notice should include specific information on the risks to fetuses during pregnancy and breastfed and formula-fed infants from exposure to drinking water with an individual or combined concentration of PFOA and PFOS above EPA's health advisory level of 70 parts per trillion. In addition, the notification should include actions they are taking and identify options that consumers may consider to reduce risk such as seeking an alternative drinking water source, or in the case of parents of formula-fed infants, using formula that does not require adding water.

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PFOA & PFOS Drinking Water Health Advisories

Recommended Actions for Drinking Water Systems, continued

Steps to Limit Exposure

A number of options are available to drinking water systems to lower concentrations of PFOA and PFOS in their drinking water supply. In some cases, drinking water systems can reduce concentrations of perfluoroalkyl substances, including PFOA and PFOS, by closing contaminated wells or changing rates of blending of water sources. Alternatively, public water systems can treat source water with activated carbon or high pressure membrane systems (e.g., reverse osmosis) to remove PFOA and PFOS from drinking water. These treatment systems are used by some public water systems today, but should be carefully designed and maintained to ensure that they are effective for treating PFOA and PFOS. In some communities, entities have provided bottled water to consumers while steps to reduce or remove PFOA or PFOS from drinking water or to establish a new water supply are completed.

Many home drinking water treatment units are certified by independent accredited third party organizations against American National Standards Institute (ANSI) standards to verify their contaminant removal claims. NSF International (NSF®) has developed a protocol for NSF/ANSI Standards 53 and 58 that establishes minimum requirements for materials, design and construction, and performance of point-of-use (POU) activated carbon drinking water treatment systems and reverse osmosis systems that are designed to reduce PFOA and PFOS in public water supplies. The protocol has been established to certify systems (e.g., home treatment systems) that meet the minimum requirements. The systems are evaluated for contaminant reduction by challenging them with an influent of $1.5 \pm 30\%$ $\mu\text{g}/\text{L}$ (total of both PFOA and PFOS) and must reduce this concentration by more than 95% to $0.07 \mu\text{g}/\text{L}$ or less (total of both PFOA and PFOS) throughout the manufacturer's stated life of the treatment system. Product certification to this protocol for testing home treatment systems verifies that devices effectively reduces PFOA and PFOS to acceptable levels.

Other Actions Relating to PFOA and PFOS

Between 2000 and 2002, PFOS was voluntarily phased out of production in the U.S. by its primary manufacturer, 3M. EPA also issued regulations to limit future manufacturing, including importation, of PFOS and its precursors, without first having EPA review the new use. A limited set of existing uses for PFOS (fire resistant aviation hydraulic fluids, photography and film products, photomicro lithography process to produce semiconductors, metal finishing and plating baths, component of an etchant) was excluded from these regulations because these uses were ongoing and alternatives were not available.

In 2006, EPA asked eight major companies to commit to working toward the elimination of their production and use of PFOA, and chemicals that degrade to PFOA, from emissions and products by the end of 2015. All eight companies have indicated that they have phased out PFOA, and chemicals that degrade to PFOA, from emissions and products by the end of 2015. Additionally, PFOA is included in EPA's proposed Toxic Substance Control Act's Significant New Use Rule (SNUR) issued in January 2015 which will ensure that EPA has an opportunity to review any efforts to reintroduce the chemical into the marketplace and take action, as necessary, to address potential concerns.

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PFOA & PFOS Drinking Water Health Advisories

Other Actions Relating to PFOA and PFOS, continued

EPA has not established national primary drinking water regulations for PFOA and PFOS. EPA is evaluating PFOA and PFOS as drinking water contaminants in accordance with the process required by the Safe Drinking Water Act (SDWA). To regulate a contaminant under SDWA, EPA must find that it: (1) may have adverse health effects; (2) occurs frequently (or there is a substantial likelihood that it occurs frequently) at levels of public health concern; and (3) there is a meaningful opportunity for health risk reduction for people served by public water systems.

EPA included PFOA and PFOS among the list of contaminants that water systems are required to monitor under the third Unregulated Contaminant Monitoring Rule (UCMR 3) in 2012. Results of this monitoring effort are updated regularly and can be found on the publicly-available National Contaminant Occurrence Database (NCOD) (<https://www.epa.gov/dwucmr/occurrence-data-unregulated-contaminant-monitoring-rule#3>). In accordance with SDWA, EPA will consider the occurrence data from UCMR 3, along with the peer reviewed health effects assessments supporting the PFOA and PFOS Health Advisories, to make a regulatory determination on whether to initiate the process to develop a national primary drinking water regulation.

In addition, EPA plans to begin a separate effort to determine the range of PFAS for which an Integrated Risk Information System (IRIS) assessment is needed. The IRIS Program identifies and characterizes the health hazards of chemicals found in the environment. IRIS assessments inform the first two steps of the risk assessment process: hazard identification, and dose-response. As indicated in the 2015 IRIS Multi-Year Agenda, the IRIS Program will be working with other EPA offices to determine the range of PFAS compounds and the scope of assessment required to best meet Agency needs. More about this effort can be found at <https://www.epa.gov/iris/iris-agenda>.

Non-Drinking Water Exposure to PFOA and PFOS

These health advisories only apply to exposure scenarios involving drinking water. They are not appropriate for use, in identifying risk levels for ingestion of food sources, including: fish, meat produced from livestock that consumes contaminated water, or crops irrigated with contaminated water.

The health advisories are based on exposure from drinking water ingestion, not from skin contact or breathing. The advisory values are calculated based on drinking water consumption and household use of drinking water during food preparation (e.g., cooking or to prepare coffee, tea or soup). To develop the advisories, EPA considered non-drinking water sources of exposure to PFOA and PFOS, including: air, food, dust, and consumer products. In January 2016 the Food and Drug Administration amended its regulations to no longer allow PFOA and PFOS to be added in food packaging, which will likely decrease one source of non-drinking water exposure.

Where Can I Learn More?

- EPA's Drinking Water Health Advisories for PFOA and PFOS can be found at: <https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos>
- PFOA and PFOS data collected under EPA's Unregulated Contaminant Monitoring Rule are available: <https://www.epa.gov/dwucmr/occurrence-data-unregulated-contaminant-monitoring-rule>
- EPA's stewardship program for PFAS related to TSCA: <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/and-polyfluoroalkyl-substances-pfas-under-tsca>
- EPA's research activities on PFASs can be found at: <http://www.epa.gov/chemical-research/perfluorinated-chemical-pfc-research>
- The Agency for Toxic Substances and Disease Registry's Perfluorinated Chemicals and Your Health webpage at: <http://www.atsdr.cdc.gov/PFC/>

