PFAS IN DRINKING WATER

WHAT YOU SHOULD KNOW

Muscatine Power and Water (MPW) is one of many community water systems participating in the Iowa Department of Natural Resources' (IDNR) **PFAS Action Plan** —a statewide water sampling initiative to determine the prevalence of man-made chemicals known as "PFAS" (per- and poly-fluoroalkyl substances). The IDNR's initiative follows guidance from the U.S. Environmental Protection Agency (EPA).

PFAS

PFAS belongs to a vast class of man-made compounds (more than 5,000 individual chemicals). For over 70 years, PFAS compounds have been used in the manufacturing process for non-stick cookware, stain-resistant and water repelling carpeting, upholstery, clothing, and fabrics, along with food packaging, personal care products, fire-fighting foams, and in metal plating operations. Due to their widespread use and persistence in the environment, PFAS are now found in water, air, fish, wildlife, and soil around the world. When tested, PFAS concentration is measured in parts per trillion (ppt) or nanograms per liter (ng/l).

2016 EPA HEALTH ADVISORY (HA)

In 2016, the US Environmental Protection Agency (EPA) established the first Drinking Water Health Advisory (HA) for PFAS at 70 parts per trillion (ppt). Health advisories are interim guidance before a formal regulation and are not enforceable like regulations. The advisory includes the following statement:

> *"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. 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."*

The most widely produced PFAS compounds in the class, Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) have been used in many consumer products for years and most people have been exposed to them. In fact, researchers have found PFOA and PFOS in the blood of nearly all people they tested.

SOURCE: US EPA Fact Sheet *https://www.epa.gov/sites/default/files/2016-06/documents/ drinkingwaterhealthadvisories_pfoa_pfos_updated_5.31.16.pdf.*

2022 IDNR PFAS BASELINE DATA COLLECTION

The IDNR conducted statewide sampling to determine the prevalence of PFAS in Iowa water systems. The results of samples collected in MPW water facilities and tested by IDNR in early 2022, are summarized here. These results were very good compared to the EPA Health Advisory Level of 70 parts per trillion in effect at that time.

Feedback from state regulators indicated that levels were very low and typical of findings from other locations around the state.

Parts per trillion (ppt)

Location	PFOA	PFOS
Well #5	3.3	4.0
Well #26	7.8	7.9
Well #24	ND	ND
Main Treatment Facility	3.4	4.2
Progress Park Treatment Facility	2.7	3.7
Combined PFOA+PFOS HA Reporting Level	70	

Collecton Date: 1/2022

The IDNR asked MPW to monitor the concentrations at four locations in MPW's three water treatment facilities quarterly (every three months). As an extra measure of caution, MPW voluntarily expanded monitoring for PFAS for all active wells.

JUNE 2022: EPA Interim HA

In June 2022, EPA abruptly set new interim HA levels for PFOA and PFOS, and final HA levels for GenX chemicals and PFBS. The new health advisory levels are listed here:

Previous Combined HA level for PFOA+PFOS	70 ppt
Updated HA level for PFOA (interim)	0.004 ppt
Updated HA level for PFOS (interim)	0.02 ppt
Final HA level for GenX chemicals	10 ppt
Final HA level for PFBS	2,000 ppt

Effective 6/15/2022

The new HA levels are significantly lower than those set in 2016, and combined with increased sampling and testing, communities reporting PFAS in their drinking water has continued to grow nationwide.

OCTOBER 2022: State of Iowa Reporting Limit

The IDNR met with the largest water systems in the state, including MPW, to determine a plan to notify the public regarding PFAS levels in their drinking water, and set 4.0 ppt (ng/l) in either PFOA or PFOS as the customer reporting limit. Because some of the samples collected in July 2022 exceed the State of Iowa Reporting Limit of 4.0 ppt, MPW has notified the public of the test results.

MPW continues to monitor PFAS compounds quarterly. The results, most of which are trending downward, are listed below. We continue to engage with regulatory entities and industry partners. As techniques are refined regarding collection and detection, and remediation solutions are developed, we act on those in the most prudent manner possible.

Subsequent data will be updated on our website, www.mpw.org.

MPW PFAS Results (reported in ppt (ng/l)

Location	Main Wellfield Treatment Facility	Progress Park Treatment Facility	Grandview Avenue 1 Treatment Facility	Grandview Avenue 2 Treatment Facility	State of Iowa Reporting Limit
DNR Initial **PFOA**	3.4	2.7	N/A	N/A	4.0
DNR Initial **PFOS**	4.2	3.7	N/A	N/A	4.0
MPW Initial **PFOA**	3.7	2.7	4.9	8.5	4.0
MPW Initial **PFOS**	4.2	3.6	4.8	3.3	4.0
Q12023 **PFOA**	3.6	2.1	4.6	7.5	4.0
Q12023 **PFOS**	4.6	3.7	4.6	3.3	4.0
Q2 2023 **PFOA**	3.0	3.3	3.7	7.2	4.0
Q2 2023 **PFOS**	4.5	2.9	3.6	2.7	4.0
Q3 2023 **PFOA**	3.8	3.6	4.4	5.2	4.0
Q3 2023 **PFOS**	3.6	3.3	4.3	2.7	4.0
Q4 2023 **PFOA**	2.4	<2.0	3.0	3.8	4.0
Q4 2023 **PFOS**	3.1	<2.0	3.8	<2.0	4.0
Q1 2024 **PFOA**	4.7	2.7	4.3	5.0	4.0
Q1 2024 **PFOS**	4.4	3.5	6.0	3.1	4.0
Q2 2024 **PFOA**	3.0	2.4	3.5	3.7	4.0
Q2 2024 **PFOS**	4.2	3.4	5.3	3.1	4.0

APRIL 2024: EPA Final Rule

The EPA issued a final rule for PFAS and the maximum contaminant level is now 4.0 parts per trillion for PFOA and PFOS. Public water systems have three years to complete their monitoring. If the samples show they exceed the new EPA standard, they then have two years to purchase and install treatment to bring PFAS levels below the new limits. MPW has engaged in preliminary discussion with treatment vendors to develop viable treatment options, if needed.

FAQ

Q. Is Muscatine's water safe to drink because of the PFAS?

A. Yes. Muscatine tap water continues to meet all federal and state standards for drinking water safety. Customers can continue to drink tap water. The US EPA Health Advisory Level includes an added margin of safety that protects the most vulnerable population.

Q. Is the source of the detected PFAS known?

A. Because of the wide-spread use of PFAS compounds over the past 70+ years, the compounds are widely prevalent. That is, they can be found almost anywhere in the environment, including in ground water.

Q. Is there any plan to perform any sort of "groundwater remediation?"

A. The Iowa DNR indicated, based on the overall low levels found, they are not planning any sort of hazardous waste site assessment or groundwater remediation.

Q. Is there any additional testing planned?

A. Yes. The sampling performed by the IDNR was just a snapshot that looked at what they considered to be the most vulnerable wells. As noted above, the IDNR asked MPW to monitor the concentrations in MPW's three water treatment facilities quarterly (every three months). The DNR staff indicated if the concentrations continue to be found at the same low levels, the monitoring frequency would likely be reduced due to the low risk.

Q. If a customer wants to take extra precautions on their own, what recommendations would MPW suggest?

A. There are some home filters that customers could use. A study performed by the New Hampshire Department of Environmental Services found two classes of home filters that can be effective at removing PFAS compounds. The National Sanitation Foundation (NSF) maintains a listing of products that claim to remove PFOA and PFOS compounds on their website.
Visit: https://info.nsf.org/Certified/DWTU/ to view the list.

Granular Activated Carbon (GAC) filters can be effective if the customer regularly replaced the carbon filters at the interval recommended by the filter manufacturer.

Reverse Osmosis (RO) systems can also be quite effective. But RO systems tend to waste two to four gallons for every gallon treated, so their use should be limited to points where water is used for drinking.

Q. What are the health effects of PFAS?

A. The IDNR states that exposure to PFAS may result in a wide range of adverse health outcomes, including: cancer (e.g., testicular, kidney); liver effects (e.g., cellular lesions); thyroid effects and other effects (e.g., cholesterol changes); developmental effects including to fetuses after exposure during pregnancy or postnatal development (e.g., low birth weight, accelerated puberty, skeletal variations, development of the immune system); and immune effects (e.g., decreased antibody response to vaccination, decreased immune response immunity).

The EPA acknowledges that robust information about PFAS is needed to better understand the risks they pose and to be able to take effective actions to protect people and the environment. While research is ongoing, the IDNR recommends residents concerned about PFAS levels in their drinking water to contact their health care provider.

Additional information on the potential health effects of PFAS exposure can be found at the following websites:

- Per- and Polyfluoroalkyl Substances – PFAS (EPA) *https://www.epa.gov/pfas*
- Action Steps to Reduce Risk (EPA) *https://www.epa.gov/pfas/meaningful-and-achievable-steps-you-can-take-reduce-your-risk*
- PFAS Action Plan (Iowa DNR) *https://www.iowadnr.gov/Environmental-Protection/pfas*