

Per and Polyfluoroalkyl Substances (PFAS)

Frequently Asked Questions

1) What is PFAS?

Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that includes perfluorooctane sulfonic acid (PFOS); perfluorooctanoic acid (PFOA), GenX, and many other chemicals. PFAS have been manufactured and used in a variety of industries around the globe, including in the United States since the 1940s. PFOA and PFOS have been the most extensively produced and studied of these chemicals. Both chemicals are very persistent in the environment and in the human body – meaning they don't break down and they can accumulate over time. There is evidence that exposure to PFAS can lead to adverse human health effects.

2) What well supplies the water to my house?

It is impossible to tell what well supplies water to a specific area. Clearly, the well closest to your house will supply the majority of water. However, the water in the system is blended together. Consequently, we have only a general idea of which well your water came from and it is likely that water came from a combination of wells.

3) Is the water that is currently entering our homes safe to consume according to all state and federal regulations?

Yes, Sharon drinking water meets all Federal and Commonwealth quality regulations and operational guidelines.

4) Is the water safe for sensitive groups: pregnant or nursing women, infants and young children?

EPA established the health advisory levels at 70 nanograms/liter (ng/L) (parts per trillion) for the sum of concentrations of the two compounds, PFOA and PFOS 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. Massachusetts chose to take several steps further in October 2020, setting the maximum contaminant level at 20 ng/l for the sum of 6 PFAS compounds, including PFOA and PFOS, plus perfluorohexane sulfonic acid (PFHxS), perfluorononanoic acid (PFNA), perfluoroheptanoic acid (PFHpA), and perfluorodecanoic acid (PFDA).

As soon as April testing results indicated one well with PFAS6 results above 20 ng/L, we shut off that well. Our other wells returned results for the sum of the 6 PFAS compounds ranging from less than 2 ng/L to 8.6 ng/L. As a result, our water is considered safe for consumption for even the most sensitive groups.

5) If the state regulation was promulgated in October, why did Sharon wait 7 months until it was mandatory to do the testing in April 2021?

The Massachusetts regulation that addresses PFAS compounds was promulgated in October, 2020 and required testing for systems our size to start in April 2021. The staggered start allowed for laboratories to be certified, the laboratory method to undergo

several changes, the sample collection protocol for communities our size to be standardized and approved by DEP and public notice and education requirements for communities our size to be standardized and approved by DEP.

6) How sensitive are the tests for PFAS compounds?

PFAS testing is extremely sensitive to the point where sample technicians wearing perfumes, deodorants and water proof clothing can contaminate sample collection bottles. Concentrations are measured in parts per trillion. One part per trillion is the equivalent of one second in over 31,000 years.

7) Should we currently be buying bottled water for drinking, food preparation, cooking and brushing our teeth?

Use of bottled water is not my recommendation but ultimately a personal decision. Ironically, public water supply is subject to stricter regulatory and testing requirements than is bottled water.

8) Will a Britta filter remove PFAS6?

Britta and other charcoal filters will remove PFAS compounds. However, most commercially available filters are designed to meet the EPA PFAS quality recommendation of 70 ng/L for the sum of two compounds and are not likely to treat to the Massachusetts regulatory limit of 20 ng/L for the sum of 6 compounds. Further, most small charcoal filters are not replaced often enough by homeowners to prevent “breakthrough” of contaminants.

9) How long after Well #4 was shut down was water from that well in the system?

The contents of the water distribution system is turned over within a week, so no water from Well #4 has been in the system since the end of April.

10) The last PFAS testing of the system was conducted in 2013. Why was it not tested periodically during the last 8 years?

The 1996 Safe Drinking Water Act (SDWA) amendments require that once every five years EPA issue a new list of no more than 30 unregulated contaminants to be monitored by public water systems (PWSs).

The third Unregulated Contaminant Monitoring Rule (UCMR3) was published on May 2, 2012. UCMR3 required monitoring for 30 contaminants (28 chemicals and two viruses) between 2013 and 2015 using analytical methods developed by EPA. This monitoring provides a basis for future regulatory actions to protect public health. PFAS compounds were included for monitoring at that time.

PFAS substances were not detected in any Sharon wells during the UCMR3 sampling period. However, sample method detection limits were in the parts per billion. Recent approved advances in sample analysis methods and sample collection protocol resulted in detection limits in the parts per trillion, three orders of magnitude lower.

Additional testing was not required for PFAS substances under the latest sample analysis methods and collection protocols until new Massachusetts drinking water regulations were promulgated last October when testing for systems our size was required to start in April of 2021.

11) What is the difference between a Federal EPA health advisory and a Massachusetts DEP Drinking Water standard?

EPA 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.

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 ng/L (parts per trillion) for the sum of concentrations of the two compounds, PFOA and PFOS.

Health advisories 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 but provide technical information to states agencies and other public health officials on health effects, analytical methodologies, and treatment technologies associated with drinking water contamination. EPA's health advisory level for PFOA and PFOS 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.

On October 2, 2020, MassDEP published its public drinking water standard for PFAS, called a Massachusetts Maximum Contamination Level (MCL), of 20 ng/L (parts per trillion (ppt)) for the sum of the concentrations of six specific PFAS. These PFAS are perfluorooctane sulfonic acid (PFOS); perfluorooctanoic acid (PFOA); perfluorohexane sulfonic acid (PFHxS); perfluorononanoic acid (PFNA); perfluoroheptanoic acid (PFHpA); and perfluorodecanoic acid (PFDA). MassDEP abbreviates this set of six PFAS as "PFAS6." This drinking water standard was set to be protective against adverse health effects for all people consuming the water and is an enforceable regulation.

12) Was Well #4 in full use from 2013 through April 2021?

The Town has 6 permitted groundwater sources, all of which have been in production for the past several decades.

13) What are the current PFAS levels in the "mixed" water that is being distributed (now that Well #4 has been turned off)?

PFAS6 concentration of all wells currently in use are below 10 ng/L, ranging from less than 2 ng/L (not detected) to 8.6 ng/L

14) What actions are taking place to lower the PFAS in Well #4?

We have implemented a temporary (one year) resin filter treatment system to remove PFAS compounds. Discharge from the treatment vessels has been tested. No PFAS

compounds were detected using the new testing and sampling methodologies. This will allow the well to be used pending installation of a permanent filter system solution.

15) Will the Water Department be working to identify the cause/source of contamination?

The Water Department is actively working to identify the source of contamination.

16) How was the regulatory limit determined?

*In deriving human risk levels (HRLs), the RfD (for noncancer) or dose associated with additional cancer risk equal to or less than 1/100,000 (for cancer) is converted from mg/kg-day to a water concentration in micrograms per liter ($\mu\text{g/L}$) by dividing by an intake rate. Intake rate is expressed as the quantity of water consumed per kilogram of body weight per day (L/kg-day). Studies of water consumption indicate that infants and young children drink more water for their body weight than do adults. The algorithm used for the 1993/1994 HRLs followed standard risk assessment practice at the time and used a **default adult daily intake rate of two liters (2 quarts) and a default adult body weight of 70 kilograms (154 lbs)** (equivalent to approximately 0.029 L/kg-day). Based on current intake information, 0.029 L/kg-day corresponds to the 86th percentile of adult consumers of water from community supplies.*

Newborns derive all, or nearly all, their nutrition from liquid. Intake rates fall rapidly with age; by age seven, intake rates are nearly the same as those of adults. Generally, HRLs are thought of as protecting against adverse health effects from long-term exposures to contaminants in drinking water. However, they must protect against adverse effects from shorter exposures as well. MDH considered sensitive life stages and subpopulations as well as the magnitude and duration of exposure necessary to elicit a toxic effect.

EPA has recommended the evaluation of multiple exposure durations, including: acute – dosing up to 24 hours; short-term– repeated dosing for more than 1 day, up to approximately 30 days; subchronic– repeated dosing for more than 30 days, up to approximately ten percent of a lifespan in humans (more than 30 days up to approximately 90 days in typical laboratory rodent studies); and chronic– repeated dosing for more than approximately ten percent of a life span. The external Expert Advisory Panel also recommended that MDH evaluate less-than-chronic exposure durations to ensure that shorter periods of exposure were adequately protected. In this rules revision MDH has used a life expectancy of 78 years.