2022 Drinking Water Report

Town of Holbrook, Massachusetts

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2022 Drinking Water Quality Report

This report contains important information about your water system for the 2022 calendar year. It describes the quality of the Randolph-Holbrook Joint Water System's drinking water, the sources, and programs that protect the high quality of our water supply.

This publication complies with federal law that requires water utilities to provide water quality information to customers each year.

While most of the content of this report is required by regulation, we also include information that responds to typical questions our customers ask about our water system.

If you are interested in learning more about the Randolph-Holbrook Joint Water System or water quality and other related information in the Town of Holbrook please contact the Holbrook Public Works Department at 781-767-1800. You may also inquire about drinking water issues at the posted meetings of the Select Board and Public Works Commissioners meetings. Meetings are held every other Wednesday at 7:00 pm at the Holbrook Town Hall in the Noel King Meeting Room. For more information regarding the meetings, please visit https://www.holbrookma.gov/calendar.

Randolph-Holbrook Joint Water System Information

The Towns of Randolph and Holbrook jointly manage and treat the water supply that each town uses for its drinking water. In 2022, the Randolph-Holbrook Joint Water System produced 219,798,960 gallons of finished water. The maximum amount of water pumped in one day was 702,000 gallons (July 27, 2022). The annual average daily volume of water supplied from the Randolph-Holbrook water treatment plant was 602,189 gallons per day. In total, the Town of Holbrook bought 209,354,000 gallons of finished water from the Joint Water System. All of this water was pumped into the Holbrook water distribution system by means of the Water Street Booster Pump Station.

Source Water Assessment and Protection (SWAP) Program

The source water supply is derived from the Great Pond Reservoir System. The Source Water Assessment and Protection (SWAP) program assesses the susceptibility of public water supplies to contamination due to land uses and human activities. Randolph and Holbrook maintain and operate four public water supply sources: Lower Great Pond (4040000-01S), Upper Great Pond (4040000-04S), Richardi Reservoir (4040000-02S), and Farm River (4040000-03S).

A high susceptibility ranking was assigned by the DEP to the four water sources. A high ranking is given to any water supply that has at least one high threat land use within the water supply protection area. Randolph and Holbrook have 17 high threat land uses within the protection areas, including livestock operations, manure storage or spreading, body shops, gas stations, service stations/auto repair shops, bus and truck terminals, paint shops, photo processors, hazardous materials storage, industry/industrial parks, machine/machine working shops, pharmaceutical manufacturers, plastic manufacturers, clandestine dumping, large quantity hazardous waste generators, past and present military facilities, and transportation corridors. If you would like more information, the complete SWAP report is available at the Holbrook Board of Health and online at https://www.mass.gov/lists/source-water-assessment-and-protection-swap-program-documents.

Holbrook Water System Projects

As a member of the Tri-Town Water System (Braintree, Randolph, Holbrook), the Town of Holbrook is anxiously awaiting the construction of the new state of the art drinking water treatment plant for the consistent production of high quality drinking water for the three member communities. The new facility will include several advanced water treatment processes including dissolved air flotation, ozonation, and granular activated carbon filtration media. The project is scheduled to begin in 2023 and be completed in 2025. The project is being funded by a low interest loan under the Department of Environmental Protection State Revolving Fund loan program. In addition, the Town is making plans to replace the smaller of the two water storage tanks on Sycamore Street, built in 1887.

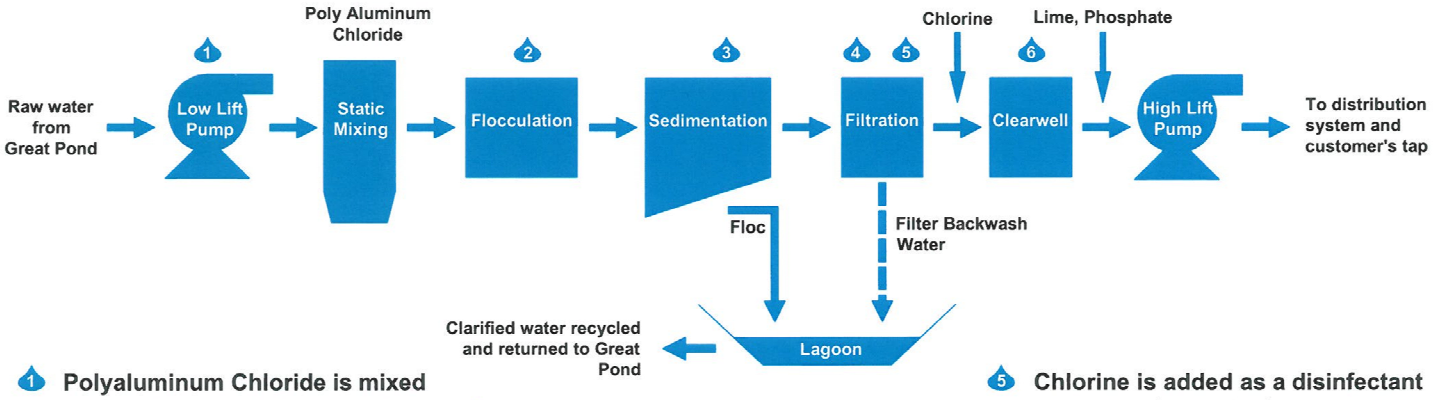
Protecting Your Raw Water Quality

According to the USEPA, the Cochato River and Lake Holbrook do not meet water quality standards. Besides the impacts from the Baird McGuire superfund site, the Cochato River is considered to be impaired due to excess bacteria and phosphorus levels. Lake Holbrook is on USEPA's list of being impaired due to high phosphorus levels. Please help protect our valuable waters by picking up your pet's waste, which is full of harmful bacteria and excess nutrients that can wash into the town's storm drains and eventually lead to streams and lakes. Deposit the waste in the trash, not the nearby catch basin, which is part of the storm drain system, and not a sewer. Also, use lawn fertilizer without phosphorus, which is usually in plentiful supply in our soils. For more information, go to the USEPA's website "How's My Waterway" to check out the condition of waters in your neighborhood https://mywaterway.epa.gov/.

Lead Information

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Randolph-Holbrook Joint Water Board is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water.

Randolph-Holbrook Joint Water System's Drinking Water Treatment Process



1. Polyaluminum Chloride is mixed uniformly through the water to enable the flocculation process.
2. Flocculation is a treatment process that uses gentle stirring to bring suspended particles together so that they will form larger, more settleable clumps called floc.
3. Sedimentation is a treatment process that involves reducing the velocity of water in basins so that the suspended material, or floc, can settle to the bottom of the basin by gravity.
4. Filtration, through the use of granular activated carbon/sand filters, removes remaining particles suspended in the water and clarifies the water.
5. Chlorine is added as a disinfectant to ensure that water is pathogen-free before it enters the distribution system.
6. Lime is mixed uniformly to the water to adjust pH. Phosphate is mixed uniformly to control corrosion of lead and copper from household plumbing fixtures.

Water Quality

During the year 2022, hundreds of water samples were collected from the system and tested for compliance with federal and state health standards. Federal and state regulators routinely monitor our compliance and testing protocols to assure that we deliver safe drinking water to our customers. A summary of contaminants detected in 2022 is provided in the table on the next page. The most recent results from the last seven years are given for contaminants that are not required to be sampled annually, and not sampled in 2022. Not listed are other substances for which we tested, but were not detected during 2022.

2022 Treated Drinking Water Quality Data

Substance	Highest Detected Levels	Range of Detected Levels	Highest Level Allowed (MCL)	Highest Quarterly Average	Violation	Possible Health Effects	Source of Contamination
Regulated for Source Water or After Treatment							
PFAS6	23.7 ppt	ND – 23.7 ppt	20 ppt	18.55 ppt	Yes	May cause adverse effects on the liver, blood, immune system, thyroid, and fetal development. May also cause an increase risk of certain cancers.	Industrial waste; Disposal of products containing PFAS containing products, such as fire-fighting foams
Substance	**Highest Detected Levels**	**Range of Detected Levels**	**Highest Level Allowed (MCL)**	**Ideal Goal (MCLG)**	**Violation**	**Possible Health Effects**	**Source of Contamination**
Total Organic Carbon[1] (TOC)	5.4	3.62 – 5.4	TT	NA	No	TOC has no health effects. TOC provides a medium for the formation of THM and HAA5, which may cause adverse health effects, liver and kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer	Naturally present in the environment
Turbidity[2]							
Daily Compliance	2.67 NTU	0.015 – 2.67 NTU	TT	NA	No	No health risks	Soil runoff
Monthly Compliance[3]	100% of monthly sample results <0.35 NTU	–	At least 95% of samples <0.35 NTU	NA	No	No health risks	Soil runoff
Regulated in the Town's Distribution System							
Chlorine (total)	2.02 ppm[4]	0.002 – 2.02 ppm[5]	4 ppm (MRDL)	4 ppm (MRDLG)	No	May cause irritating effects to the eyes and nose. May cause stomach discomfort	Water additive used to control microbes
Haloacetic Acid	46.5 ppb[4]	4.1 – 46.5 ppb[5]	60 ppb[6]	NA	No	After many years, may increase the risk of getting cancer	By-product of drinking water chlorination
Total $Coliform_{20}$	1 positive samples per month	0-1 positive samples per month	TT	NA	No	Coliform is used as an indicator for other potentially harmful waterborne pathogens	Human and animal Fecal waste; Naturally present in the environment
Total Trihalomethanes	99.4 ppb[4]	25.8 – 99.4 ppb[5]	80 ppb[6]	NA	No	After many years, may cause liver, kidneys, or central nervous problems and an increase risk of getting cancer	By-product of drinking water chlorination
Regulated at the Customer's Tap							
$Lead_{20}$ (2020) (30 Samples)	4 ppb[7]	ND – 4 ppb (90th Percentile = 0.002)	15.0 ppb (Action Level)	0 ppb	No	May cause delay of mental and physical development in infants. May cause kidney problems and high blood pressure	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (2020) (30 Samples)	0.36 ppm	0.03 – 0.36 ppm (90th Percentile = 0.26)	1.3 ppm (Action Level)	1.3 ppm	No	Copper in excess of the action level over a relatively short amount of time could cause gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives.
Unregulated Contaminants[8]							
$Potassium_{19}$ (2021)	2.68 ppm	Single sample	NA	NA	No		Naturally present in the environment
Fluoride	0.26 ppm	Single sample	2 ppm	NA	No	May cause bone disease, including pain and tenderness of the bones	Naturally present in the environment
Sodium[9]	69.2 ppm	Single sample	20 ppm (ORSG)	NA	No	After many years, may cause an increase in blood pressure	Naturally present in the environment
Chloroform	2.4 ppb	Single sample	70 ppb (OSRG)	NA	No	After many years, may cause liver and kidney problems and an increase risk of getting cancer	By-product of drinking water chlorination
Bromodichloromethane	2.2 ppb	Single sample	NA	NA	No	After many years, may cause liver and kidney problems	By-product of drinking water chlorination
$Chlorodibromomethane_{20}$	1 ppb	Single sample	NA	NA	No	After many years, may increase the risk of degenerative effects to the to the brain, effects on red blood cells, and nutritional and metabolic effects	By-product of drinking water chlorination

2022 Treated Drinking Water Quality Data (Continued)

Substance	Highest Detected Levels	Range of Detected Levels	Average	ORSG	Possible Health Effects	Source of Contamination
Perfluoro butane Sulfuric Acid (PFBS)	3.28 ppt	ND – 3.28 ppt	2.5 ppt	NA	May cause adverse effects on the liver, blood, immune system, thyroid, and fetal development. May also cause an increase risk of certain cancers.	Industrial waste; Disposal of products containing PFAS containing products, such as fire-fighting foams
Perfluorohexanoic Acid (PFHxA)	5.24 ppt	ND – 5.24 ppt	4.16 ppt	NA	May cause adverse effects on the liver, blood, immune system, thyroid, and fetal development. May also cause an increase risk of certain cancers.	Industrial waste; Disposal of products containing PFAS containing products, such as fire-fighting foams

Substance	Highest Detected Levels	Range of Detected Levels	SMCL	Ideal Goal (MCLG)		Noticeable Aesthetic Effects above the Secondary MCL	Source of Contamination
Secondary Contaminants							
Manganese (2021)	66 ppb	Single sample	50 ppb	NA	No	Colored water, unpleasant taste, stains on plumbing fixtures.	Naturally present in the environment
Aluminum (2021)	0.07 ppm	Single sample	0.05 ppm	NA	No	Colored water	Residue from water treatment process; Naturally present in the environment
Calcium (2021)	17.3 ppm	Single sample	NR	NA	No	Taste and deposition on plumbing fixtures	
Chloride (2021)	151 ppm	Single sample	250 ppm	NA	No	Salty taste	Naturally present in the environment
Hardness (2021)	58.3 ppm	Single sample	NR	NA	No	Taste and deposition on plumbing fixtures	
Magnesium$_{19}$ (2021)	4.15 ppm	Single sample	NR	NA	No	Taste and deposition on plumbing fixtures	
Odor (2021)	9 TON	Single sample	3 TON	NA	No	"Rotten-egg", musty or chemical smell	Naturally present in the environment
Sulfate (2021)	7.3 ppm	Single sample	250 ppm	NR	No	Salty taste	Industrial waste; Naturally present in the environment
Total Dissolved Solids (TDS)$_{19}$ (2021)	320 ppm	Single sample	500 ppm	NR	No	Hardness; deposits; colored water; staining; salty taste	Naturally present in the environment
Zinc (2021)	.015 ppm	Single sample	5 ppm	NR	No	Metallic taste	Corrosion of household plumbing; Naturally present in the environment
Iron (2021)	0.08 ppm	Single sample	3 ppm	NR	No	Metallic taste; Rusty odor; staining of laundry and plumbing fixtures	Corrosion of household plumbing; Industrial waste; Naturally present in the environment
Color (2021)	5 CU	Single sample	15 CU	NR	No	May produce a visible tint	Corrosion of household plumbing; Naturally present in the environment

Definitions and Abbreviations

90th Percentile: Out of every 10 homes sampled, 9 were at or below this level.

AL (Action Level): The concentration of a contaminant that, if exceeded, triggers treatment or other requirements, which a water system must follow.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MRDL (Maximum Residual Disinfectant Level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

ORSG: Office of Research Standards Guideline

SMCL (Secondary Maximum Contaminant Level): Concentration limit for a contaminant which may have aesthetic effects such as taste, odor, and staining.

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.

NA: Not applicable

ND: Not Detected

NTU: Nephelometric Turbidity Units

ppt (part per trillion): One part per trillion is the equivalent of $1 in $1,000,000,000,000

ppb (part per billion): One part per billion is the equivalent of $1 in $1,000,000,000

ppm (part per million): One part per million is the equivalent of $1 in $1,000,000

TON: Threshold Odor Number

V: Violation

<: Less than, **>**: Greater than

$_{19}$: A 2-digit subscript denotes the calendar year for the reported results.

Footnotes

1. Compliance is determined as a running annual average of TOC removal ration (actual percent removal to required percent removal of TOC). The lowest running annual average is indicated as the Highest Detected Value.
2. Turbidity is a measure of the cloudiness of water. It is measured because it is a good indicator of water quality and the effectiveness of filtration. No turbidity samples exceeded the Max Daily NTU Limit.
3. Monthly turbidity compliance is related to the specific Treatment Technique.
4. The highest detected level is from a single quarterly sampling result from one site, not the running annual average of quarterly results from a sampling site.
5. This range or value is based on the individual samples detected in Holbrook.
6. The highest level allowed (MCL) for total trihalomethanes and haloacetic acids is based on the average of four quarterly samples.
7. The level shown in 90th percentile value which is used to determine compliance with the Lead and Copper Rule and must be below the AL.
8. Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining their occurrence in the drinking water and whether future regulation is warranted.
9. The Massachusetts DEP Office of Research and Standards has set a guideline concentration of 20 ppm for sodium. Sodium-sensitive individuals, such as those experiencing hypertension, kidney failure, or congestive heart disease, should be aware of the sodium levels where exposures are carefully controlled.
10. EPA has established a lifetime Health Advisory (HA) for manganese at 300 ppb and an acute HA at 1,000 ppb.
11. Fluoride has a secondary contaminant level (SMCL) of 2 ppm to better protect human health.

Important Health Information

Sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contamination. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791.)

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

In order to ensure that tap water is safe to drink, the Department and EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. FDA and the Massachusetts Department of Public Health regulations establish limits for contaminants in bottled water that must provide the same protection for public health. This report provides you with information about the contaminants found naturally in your drinking water, at levels at which they are found, and the likely source of each contaminant. Common contaminants that may be present in source water include:

- ***Microbial contaminants***, such as viruses and bacteria, may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- ***Inorganic contaminants***, such as salts and metals, can be naturally-occurring or result from urban storm water runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, and farming.
- ***Pesticides and herbicides*** may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- ***Organic chemical contaminants***, include synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.
- ***Radioactive contaminants*** can be naturally occurring or be the result of oil and gas production, and mining activities

Notice of Violation

We are required to monitor the turbidity at each filter within Randolph/Holbrook's Joint water treatment plant, as well as the combined turbidity leaving the treatment plant. The values reported in the 2022 Treated Drinking Water Quality table represent the combined turbidity leaving the treatment plant. Between November 12, 2020 and March 12, 2021, we failed to monitor the turbidity at the individual filters within the treatment plant. Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. New turbidity meters were installed on the discharge line of each filter as of March 12, 2021. Since then, all filter lines are fully monitored.

If you have questions about your water system's operation, water quality monitoring, or response to this issue, please contact us directly. If you have questions about the drinking water regulations or health risks posed by this contaminant you can contact the MassDEP Drinking Water Program at: program.director-dwp@mass.gov or (617) 292-5770. If you have questions about specific symptoms, you can contact your doctor or other health care provider. If you have general questions about public health, you can con-

Unregulated Contaminants Monitoring Rule (UCMR4)

Under the UCMR water systems are required by the USEPA to test for Unregulated Contaminants. Unregulated Contaminants are those for which USEPA has not established drinking water standards. The purpose of monitoring for Unregulated Contaminants is to assist USEPA in determining their occurrence in drinking water and whether future regulation is warranted. For more information about the UCMR, please visit the following USEPA website: http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/ucmr3/index.cfm. Of the 30 Unregulated Contaminants monitored, only 8 were identified as noted below:

Substance	Average Detected Level	Range of Detected Levels	Highest Level Allowed (MCL)
Bromochloroacetic Acid[19]	3.51 ppb	0.624—6.45 ppb	NR
Bromodicloroacetic Acid[19]	5.97 ppb	1.03—9.13 ppb	NR
Chlorodibromoacetic Acid[19]	1.62 ppb	ND-2.41 ppb	NR
Dibromoacetic Acid[19]	0.75 ppb	ND—1.62 ppb	NR

Substance	Average Detected Level	Range of Detected Levels	Highest Level Allowed (MCL)
Dichloroacetic Acid[19]	7.64ppb	1.37—13.7 ppb	NR
Manganese 200.8[19]	20.35 ppb	14.2—26.5 ppb	NR
Monobromoacetic Acid[19]	0.309 ppb	ND—0.386 ppb	NR
Trichloroacetic Acid[19]	12.3 ppb	2.21—24.3	NR

Important Information About Your Drinking Water: PFAS6 Exceedance

Our water system had 3 PFAS6 results that exceeded the PFAS6 MCL drinking water standard, for the 4th quarter but returned to compliance after taking the following corrective actions: Randolph and Holbrook set up Blue Drop water kiosks at the DPW facility in Randolph and Stanney's (300 Union Street) in Holbrook. These will remain open and free of charge 7 days a week, 24 hours a day while PFAS6 levels remain above the MCL or until the new Tri-Town Plant is fully online. The Tri-Town Plant is scheduled to begin in 2023 and completed by 2025.

What does this mean?

This is not an emergency. If it had been, you would have been notified within 24 hours. Although this is not an emergency, as our customer, you have a right to know what happened, what you should do, and what we did and are doing to correct this situation.

On October 2, 2020, the Massachusetts Department of Environmental Protection (MassDEP) promulgated a new drinking water regulation and maximum contaminant level (MCL) of 20 nanograms per liter (ng/L) for the sum of six per- and polyfluoroalkyl substances (called PFAS6).

What should I do?

For consumers in a sensitive subgroup (pregnant or nursing women, infants, and people diagnosed by their health care provider to have a compromised immune system)

- **Consumers in a sensitive subgroup (pregnant or nursing women, infants and people diagnosed by their health care provider to have a compromised immune system), are advised not to consume, drink, or cook with water when the level of PFAS6 is above 20 ng/L.**
- **Consumers in sensitive subgroups** are advised to use bottled water for drinking and cooking of foods that absorb water (like pasta).
- **For infant formula,** use bottled water or use formula that does not require adding water.
    - **Bottled water should only be used if it has been tested**. The Massachusetts Department of Public Health requires companies licensed to sell or distribute bottled water or carbonated non-alcoholic beverages to test for PFAS. See https://www.mass.gov/info-details/water-quality-standards-for-bottled-water-in-massachusetts#list-of-bottlers-

For all other consumers not in a sensitive subgroup

- **If you are not in a sensitive subgroup,** you may continue to consume the water because 20 ng/L value is applicable to a lifetime consuming the water and shorter duration exposures present less risk.
- **If you have specific health concerns regarding your past exposure,** you should see the Centers for Disease Control and Prevention's (CDC) link below and consult a health professional, such as your doctor.

Steps you can take to reduce your intake - Consider taking the following steps while actions are being implemented to address this issue:

- **For older children and adults (not in a sensitive subgroup)**, the 20 ng/L value is applicable to a lifetime of consuming the water. For these groups, shorter duration exposures present less risk. However, if you are concerned about your exposure while steps are being taken to assess and lower the PFAS6 concentration in the drinking water, use of bottled water will reduce your exposure.
- **Home water treatment systems** that are certified to remove PFAS by an independent testing group such as NSF, UL, or the Water Quality Association may be effective in treating the water. These may include point of entry systems, which treat all the water entering a home, or point of use devices, which treat water where it is used, such as at a faucet. For information on selecting home treatment devices that are effective in treating the water for PFAS6 see attached MassDEP factsheet and weblinks listed below.
- **In most situations, the water can be safely used for washing foods, brushing teeth, bathing, and showering.**

Where can I get more information?

Refer to the noted weblinks listed below.

- **MassDEP Fact Sheet - Questions and Answers for Consumers** (https://www.mass.gov/media/1854351)
- **CDC ATSDR Information on PFAS for consumers and health professionals (**https://www.atsdr.cdc.gov/pfas/index.html)
- **Massachusetts Department of Public Health information about PFAS in Drinking Water** (https://www.mass.gov/service-details/per-and-polyfluoroalkyl-substances-pfas-in-drinking-water)