

2022 ANNUAL DRINKING WATER QUALITY REPORT

BARNSTABLE FIRE DISTRICT WATER DEPARTMENT



MASSDEP PWSID #4020000
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Board of Water Commissioners: Evelyn Basset, Chair; David Mason, Member; Stephen Whitmore; Member

This report contains very important information about your drinking water.

The drinking water you receive meets all Federal and State standards for safe drinking water.

If you have questions or concerns about the information in this report, please contact

Sean Anderson, Superintendent at bfdwatersupt@barnstablefiredistrict.com

This report is a snapshot of drinking water quality that we provided last year. Included are details about where your water comes from, what it contains, and how it compares to state and federal standards. We are committed to providing you with information because informed customers are our best allies.

Please translate it or speak with someone who understands it. Landlords, please forward to your tenants. This report can also be viewed at our District's website <http://www.barnstablefiredistrict.com>. Portuguese: Este relatório contém informações importantes sobre a água potável. Ter alguém que traduzi-lo para você, ou falar com alguém que entende-lo.

Opportunities for Public Participation

If you would like to participate in discussions regarding your water quality, you are welcome to attend our regular Board of Water Commissioners Meetings. Meetings are held the 2nd Tuesday of each month at 2:30 P.M. at the Water Department Office 1841 Phinney's Lane, Barnstable, MA. Meeting dates and meeting times are subject to change. Meeting times are posted on the Town of Barnstable's website <http://www.town.barnstable.ma.us>, outside of the Water Department office, and on our website <http://www.barnstablefiredistrict.com>.

Water System Improvements

The Barnstable Fire District Water Department has detected Pre-and Polyfluoroalkyl (PFAS) chemicals in the groundwater used to produce drinking water. PFAS is a group of man-made chemicals that have been in use since the 1940's in consumer products, cookware, food packaging, stain repellants, and firefighting foam. PFAS chemicals are also called, "forever chemicals" because they do not break down in the environment, which makes it an item of particular concern for water suppliers. The Water Department has detected PFAS chemicals approaching the Massachusetts Department of Environmental Protection Maximum Contaminant Level of 20 ng/l (parts per trillion). The Water Department has determined that PFAS levels are very low at well #1 which is located behind the District office. Well #1 was the first District well and completed in 1954. The well was inspected and found to be in good condition. The pumping station for the well was rebuilt with new pumping equipment. A new chemical addition building was constructed to supply required corrosion control and disinfection chemicals. The Water Department is also developing plans to build a treatment facility to remove PFAS chemicals from water produced at Wells #2&5.

Where Does My Drinking Water Come From?

Your water is provided from gravel packed wells listed below:

Source Name	MassDEP Source ID#	Source Type	Location of Source
Well #1	4020000-01G	Groundwater	Phinney's Lane
Well #2	4020000-02G	Groundwater	Breeds Hill Road
Well #3	4020000-03G	Groundwater	Route 132
Well #4	4020000-04G	Groundwater	Route 132
Well #5	4020000-05G	Groundwater	Breeds Hill Road

In the event of an emergency, water may be supplied to our system through interconnections with COMM Water and Yarmouth Water.

How Are These Sources Protected?

MassDEP has prepared a Source Water Assessment Program (SWAP) Report for the water supply sources serving this water system. The SWAP report assesses the susceptibility of public water supplies to potential contamination from land uses and activities within our recharge area. The District owns the land adjacent to our wells and restricts any activities that could potentially contaminate them. This water system has enacted numerous drinking water protection measures recommended by MassDEP.

What Is My System's SWAP Ranking?

A susceptibility ranking of *high* was assigned to this system using information collected during the assessment by MassDEP. This ranking was due to the absence of hydrogeologic barriers that can prevent contaminant migration. A source's susceptibility to contamination does *not* imply poor water quality. Actual water quality is best reflected by results of regular water tests.

Where can I See the SWAP Report?

The complete SWAP report is available at the Water Department, the Town of Barnstable Board of Health, and online at <http://www.mass.gov/eea/agencies/massdep/water/drinking/source-water-protection-for-drinking-water-supplies.html#7> for an archive of SWAP reports by region or <http://www.barnstablefiredistrict.com>. Some of the information may be outdated. For more information, call Superintendent Sean Anderson or Assistant Superintendent Ronald Tivey at 508-362-6498.

What Are the Key issues For Our Water Supply?

The Swap Report notes the key issues of proper storage and use of hazardous materials. Hazardous materials should never be disposed of into a septic system, floor drain, or storm drains leading directly into the ground.

What Can Be Done to Improve Protection?

Residents should support water supply protection initiatives, practice good septic system maintenance, take hazardous household chemicals to hazardous materials collection days, and limit pesticide and fertilizer use.

Is My Water Treated?

Our water system makes every effort to provide you with safe and pure drinking water. To improve the quality of the water delivered to you, we add a disinfectant to protect you against microbial contaminants. We chemically treat the water with Potassium Hydroxide to raise the pH of the water in order to reduce the potential for elevated levels of lead and copper. The water quality of our system is constantly monitored by us and MassDEP to determine the effectiveness of the existing water treatment and to determine if any additional treatment is required.

Substances Found in Tap Water

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.

Contaminants that may be present in source water include:

Microbial contaminants – such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants – such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial, or domestic wastewater discharges, oil and gas production, mining and farming.

Pesticides and herbicides – which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic chemical contaminants – including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

Radioactive contaminants – which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the Massachusetts Department of Environmental Protection (MassDEP) and U.S. Environmental Protection Agency (EPA) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water that must provide the same protection for public health. 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 EPA's Safe Drinking Water Hotline (800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 about drinking water from their health care providers. EPA/Centers for Disease Control and Prevention (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 (800-426-4791)*.

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 Barnstable Fire District Water Department 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 <http://www.epa.gov/safewater/lead>.

Important Definitions:

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

Maximum Containment Level Goal (MCLG) – 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.

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

A Level 1 Assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our system.

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

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

Secondary Maximum Contaminant Level (SMCL) – These standards are developed to protect the aesthetic qualities of water and are not health based

Action Level (AL) – The concentration of a contaminant which, if exceeded triggers treatment or other requirements that a water system must follow.
90th Percentile- Out of every 10 homes sampled, 9 were below this level.

What Does This Data Represent?

The water quality information presented in the tables is from the most recent round of testing done in accordance with the regulations. All data shown was collected during the last calendar year unless otherwise noted in the tables. Only detected contaminants are shown. The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

2022 Monitoring Results for Barnstable Fire District Water Department								
Contaminant	Unit	MCLG Health Goal	MCL EPA's Limits	Highest Level Detected	Range Detected	Violation (Yes / No)	Year Sampled	Potential Source of Contamination
Microbiological Contaminants								
Total Coliform	Positive / Negative	0	>5% monthly	2	>5% monthly	NO	2022	Human and animal fecal waste
Turbidity ¹	NTU	NA	TT	ND	ND	NO	2022	Soil Runoff.
Inorganic Contaminants								
Nitrate	ppm	10	10	1.2	1.3 – 1.9	NO	2022	Runoff from fertilizer use. Leaching from septic tanks, sewage. Erosion of natural deposits.
Nitrite	ppm	1	1	0.27	0.19 -0.27	NO	2020	
Barium	ppm	2	2	0.0076	NA	NO	2018	Discharge of drilling wastes; discharge from metal Refineries; erosion of natural deposits.
Disinfection By – Products								
Total Haloacetic Acids (HAA5)	ppb	N/A	60	2.66	ND– 2.66	NO	2022	By product of drinking water disinfection
Total Trihalomethane (TTHM)	ppb	N/A	80	9.0	ND – 9.0	NO	2022	By product of drinking water disinfection
Radioactive Contaminants								
Gross Alpha	pCi/L	N/A	15	ND	ND	NO	2021	Erosion of Natural Deposits
Combined Radium 226+228	pCi/L	N/A	5	ND	ND	NO	2021	Erosion of Natural Deposits
Lead and Copper								
Copper 20 sample sites	ppm	1.3	1.3 = AL	0.21 (90th percentile)	NO	2020	Corrosion of household plumbing systems. Erosion of natural deposits. Leaching from wood preservatives.	
				0 Sites above AL				
Lead 20 sample sites	ppb	0	15 = AL	0.046 (90th percentile)	NO	2020	Corrosion of household plumbing systems. Erosion of natural deposits.	
				1 Sites above AL				
Disinfectants								
Chlorine	ppm	MRDLG = 4	MRDL = 4	0.68	0.01 – 0.68	NO	2021	Water additive used to control microbes.
Perfluorocarbons								
PFAS 6	ppt	0	20	15.7	ND – 15.7	NO	2021	Discharges and emissions from industrial and manufacturing sources and firefighting foam
Non-Regulated Substances: Unregulated contaminant monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants.								
Substance	Unit	AVG. Level Detected		Range Detected		Year Sampled	Potential Source of Contamination	
Chloroform	ppb	0.64		ND – 1.5		2022	By-product of drinking water chlorination.	
Manganese	ppb	14		ND – 28		2021	Erosion of natural deposits.	
Nickle	ppb	4.70		4.70		2018	Discharge from wastewater or landfills.	
Sodium	ppm	44		44		2022	Erosion of natural deposits	
Perchlorate	ppb	ND		ND		2020	Rocket propellants, fireworks, munitions, and flares, blasting agents also present in bleach and some fertilizers.	

NTU (Nephelometric Turbidity Units): A measure of clarity. **NA:** Not applicable. **pCi/L (picocuries per liter):** a measure of radioactivity. **ND:** Not detectable at testing limits. **PPB (parts per billion):** micrograms per liter (ug/l). **PPM (parts per million):** milligrams per liter (mg/l).

PFAS HEALTH EFFECTS: Some people who drink water containing these PFAS in excess of the 20 ppt drinking water limit may experience certain adverse effects. These include effects on the liver, blood, immune system, thyroid, and fetal development. These PFAS may also elevate the risk of certain forms of cancer.

Last year, as in years past, your tap water met all EPA and State drinking water health standards. Barnstable Fire District Water Department vigilantly safeguards its water supplies and we are proud to report that no maximum containment level was exceeded in 2022.

MassDEP has reduced the monitoring requirements for Synthetic Organic Contaminants (SOC's) because the source is not at risk of contamination. The last sample collected for these contaminants was taken on November 4, 2021, and was found to meet all applicable US EPA and MassDEP standards.

Notes:

1. Sodium test results were **above** the MassDEP Guideline of 20 parts per million. ***Sodium sensitive individuals, such as those experiencing hypertension, kidney failure, or congestive heart failure, should be aware of the sodium levels where exposures are being carefully controlled.***
2. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfectants.

Does My Drinking Water Meet Current Health Standards?

Yes, we are committed to providing you with the best water quality available. We are proud to report that last year your drinking water met all applicable health standards regulated by the state and federal government.

Do I Need to Be Concerned About Certain Contaminants Detected in My Water?

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. 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).

Bacteria - Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contaminants may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.

During 2022 we were required to conduct one level 1 assessment. One level 1 assessment was completed. In addition, we were required to take one corrective action and we completed the action.

Consumer Information:

Chlorine

For public health and safety, the Water Department has been chlorinating the water supply since August 2011.

Cross Connection Program

A cross connection is any actual or potential connection between a drinking water pipe and a source of contamination harmful to water quality. The contamination can come from your own home. For instance, you are going to spray fertilizer on your lawn, so you hook up your hose to the sprayer that contains fertilizer. If the water pressure drops (say because of fire hydrant use in the District) when the hose is connected to the fertilizer, the fertilizer may be sucked back into the drinking water pipes through the hose. Using an attachment on your hose called a backflow prevention device can prevent this problem. The Barnstable Fire District Water Department recommends the installation of backflow prevention devices, such as a low-cost hose bib vacuum breaker, for all inside and outside hose connections. You can purchase this at a hardware store or plumbing supply store. This is a great way for you to help protect the water in your home as well as the drinking water in the District. For additional information on cross connections and on the status of your water systems cross connection program please contact Sean Anderson, Superintendent at 508-362-6498.

Manganese

Drinking water may naturally have manganese and, when concentrations are greater than 50 ppb, the water may be discolored and taste bad. Over a lifetime, the EPA recommends that people drink water with manganese levels less than 300 ppb and over the short term, EPA recommends that people limit their consumption of water with levels over 1000 ppb, primarily due to concerns about possible neurological effects. Children up to 1 year of age should not be given water with manganese concentrations over 300 ppb, nor should formula for infants be made with that water for longer than 10 days.

Please contact our office at (508) 362 - 6498 with any questions you may have or for additional copies of this report.