

BRIDGEWATER WATER DEPARTMENT

ANNUAL WATER QUALITY REPORT

(JANUARY 2021 – DECEMBER 2021)

PWS ID Number: 4042000

The Bridgewater Water Department is committed to providing our customers with water that meets or exceeds all drinking water standards. To ensure that we continue to deliver this quality product, the Water Department has made significant investments over the years in new well sites, water quality monitoring, water source protection, water mains and water treatment.

We are extremely pleased to present our water quality report covering testing performed in 2021. This is indicative of our ability to consistently provide high quality water to our customers year after year. As regulations and drinking water standards change, our commitment to you will be to make appropriate changes in an economical manner. We will remain vigilant in meeting the challenges of source water protection, water conservation and community education while continuing to serve the needs of our water users.

The Safe Drinking Water Act (SDWA) passed by Congress in 1974 requires water suppliers to report annually to their customers on the quality of their drinking water. This Annual “**Water Quality Report**” is designed to provide you with information you need to make educated decisions for yourself, your family, and your town.

This Report will be made available to you annually by July 1st. Included are details about your water source, what we are doing to protect it, what it contains, how it is treated and how it compares to standards set by regulatory agencies. Informed consumers are our best allies in maintaining safe drinking water. Please take the time to review this report and save it as a reference.

What Other Sources of Information Are Available?

MassDEP website: www.mass.gov/dep; American Water Works Association website: www.awwa.org; U. S. Environmental Protection Agency website: www.epa.gov/safewater; EPA Drinking Water Hotline: [1-800-426-4791](tel:1-800-426-4791).

Where Does Your Water Come From?

Your water supply is from groundwater sources that are located in 3 aquifers. We are within the Taunton River basin. The first aquifer consists of 4 wells located on High Street near the Matfield River (Wells #3, #6, #8, and #9, MassDEP Source ID 4042000-02G, -05G, -09G, and -10G respectively). The second aquifer supports 5 wells located in the vicinity of Carver’s Pond (active wells include Wells #2, #4a, and #5a, MassDEP Source ID 4042000-04G, -14G, and -13G respectively). The third aquifer includes 2 wells located on Plymouth Street (Wells #10A and #10B, MassDEP Source ID 4042000-11G and -12G respectively). The wells range in depth from 40-60 feet and are constructed in the sand and gravel deposits that overlie bedrock. The water is delivered to customers through approximately 130 miles of water mains ranging in size from 2 inches to 16 inches. The service pipe into your house is 3/4" or 1" and is tapped into the main in the street.

Sodium hydroxide is added to all the wells to reduce the groundwater’s natural acidity and minimize the corrosion of household plumbing. The wells at Carver’s Pond are treated to remove iron and manganese, and the instrumentation and controls at this water treatment plant were upgraded in May 2021. Construction of the new water treatment plant to remove iron and manganese from the wells at High Street is underway with an anticipated start date of Spring 2023.

Chlorine is added as a precaution against any bacteria that may be present. We carefully monitor the amount of chlorine, only adding the minimum amount necessary to protect the safety of our water without compromising taste.

The Water Department owns over 50 acres at Carver’s Pond and over 18 acres at High Street to protect our water sources. In addition, the Water Department has about 20 acres on Plymouth Street. The Water Department has 2 storage tanks with a total capacity of 4.7 million gallons. This storage capacity helps maintain system-wide pressure while at the same time providing water to help meet peak demands and fire emergencies.

2021 H₂O Facts

**Total Water Pumped:
581 Million Gallons**

**Average Per Capita
Usage:
45 GALLONS/DAY**

Important Health Information

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 the water poses a health risk.

In order to ensure that tap water is safe to drink, the Massachusetts Department of Environmental Protection (MassDEP) and United States Environmental Protection Agency (EPA) prescribe regulations, which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and the Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as people with cancer undergoing chemotherapy, those 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.

More information about contaminants and potential health effects along with the EPA/Center for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available by calling the EPA's [Safe Drinking Water Hotline at 1-800-426-4791](tel:1-800-426-4791).

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 Bridgewater 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>.

Explanation of Expected Contaminants

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, brooks, 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 contaminants resulting from the presence of animals or human activity.

Contaminants that **may** be present in **untreated** source water include:

- *Microbial contaminants*, such as viruses and bacteria that may come from septic systems, wastewater treatment plants, 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 or gas production, mining, or 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 the result of oil and gas production and mining activities.



Water Quality Testing Results

Even though we tested for over **100** of the contaminants mentioned above, the included Water Quality Data Table shows only the substances that **were detected** in our treated drinking water. The presence of these contaminants in the water does not necessarily indicate that the water presents a health hazard. All other contaminants were not detected. The state requires us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent testing results are included along with the year in which the sample was taken. Except for PFAS6 and raw water E. Coli., all regulated contaminants were detected at levels well below the highest levels allowed in drinking water, which is shown in the Maximum Contaminant Level (MCL) column. For additional information on PFAS6, refer to the PFAS quarterly reports at <https://www.bridgewaterma.org/1481/PFAS-Information-Results>.

Water Quality Data Tables

Substance	Date Collected	90 th Percentile ¹	Action Level	MCLG	# of Sites Tested	# Sites Above Action Level	Violation (Y/N)	Possible Source(s) of Contamination
Lead (ppb)	Jul 2021 Aug 2021	2	15	0	30	0	N	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	Sep 2021	0.58	1.3	1.3	30	0	N	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

1 Lead and copper compliance is based on the 90th percentile value, which is the highest level found in 9 out of every 10 homes sampled. When the 90th percentile value is above the action level (AL), a public water system must implement corrosion control treatment. See the education statement on lead in water quality report for more information.

Regulated Contaminant	Date(s) Collected	Highest Result or Average Detected	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
E. Coli	9/13/2021	1 positive sample	ND - 1	0	0	Y ¹	Human and animal fecal waste
Inorganic Contaminants							
Fluoride ² (ppm)	5/24/21 7/12/21	0.23	0.18 – 0.27	4	4	N	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (ppm)	Jan, May, Jun, Jul, and Oct 2021	2.52	0.75 – 3.95	10	10	N	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Tetrachloroethylene (ppb)	Jan 2021	0.65	ND – 2.10	5	0	N	Discharge from factories and dry cleaners; asbestos cement lined pipes
Perchlorate (ppb)	July 2021	0.26	0.16 – 0.41	2	NA	N	Rocket propellants, fireworks, munitions, flares, blasting agents
PFAS ³ (ppt)	Monthly in 2021	23 ⁴	5 – 23	20	NA	Y	Discharge and emission from industrial and manufacturing sources associated with PFAS, such as moisture and oil resistant coatings, and fire-fighting foam; use and disposal of products containing PFAS
Radioactive Contaminants							
Gross Alpha (pCi/L)	2021	0.94	0.26 – 2.00	15	0	N	Erosion of natural deposits
Radium 226 & 228 combined (pCi/L)	2021	1.22	0.98 – 1.45	5	0	N	Erosion of natural deposits
Disinfectants and Disinfection By-Products							
Free Chlorine (ppm)	Twice per month in 2021	0.35 ⁵	0.12 – 0.49	4 (MRDL)	4 (MRDLG)	N	Water additive used to control microbes
Haloacetic Acids (HAA5) (ppb)	Quarterly in 2021	11 ⁵	5 – 19	60	NA	N	Byproduct of drinking water disinfection
Total Trihalomethanes (TTHMs) (ppb)	Quarterly in 2021	27 ⁵	16 – 31	80	NA	N	Byproduct of drinking water chlorination

1 On 9/14/21, the raw water for one well at High Street tested positive for E. Coli. The well was isolated and the flow was discharged as waste. On 9/15/21, 5 additional samples from the well were negative for E. Coli, so it was safely returned to being online. Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems. The raw water from all wells is disinfected with Sodium Hypochlorite to kill viruses and bacteria, including E. Coli, prior to entering the distribution system.

2 Fluoride also has a secondary contaminant level (SMCL) of 2 ppm.

3 Some people who drink water containing these PFAS in excess of the MCL may experience certain adverse effects. These could include effects on the liver, blood, immune system, thyroid, and fetal development. These PFAS may also elevate the risk of certain cancers. For additional information, refer to the PFAS quarterly reports at <https://www.bridgewaterma.org/1481/PFAS-Information-Results>.

4 Highest quarterly locational average is reported.

5 Highest quarterly locational running annual average is reported.

Water Quality Data Tables

Unregulated contaminants are those for which there are no established drinking water standards. The purpose of unregulated contaminant monitoring is to assist regulatory agencies in determining their occurrence in drinking water and whether future regulation is warranted.

Unregulated and Secondary Contaminants	Date(s) Collected	Average Detected	Range Detected	SMCL	ORSG	Possible Source(s) of Contamination
Unregulated Contaminants						
Acetone ¹ (ppm)	May 2021 July 2021 Oct 2021	13.3	ND – 17.1	NA	6.3	Discharge from industrial production and use, in automobile exhaust, from landfills and natural sources
Alkalinity (mg/L as CaCO ₃)	5/24/2021	92.3	65.5 – 113.0	NA	NA	Naturally occurring; result of water treatment process
Bromodichloromethane (ppb)	May 2021 July 2021 Oct 2021	0.75	ND – 1.0	NA	NA	Byproduct of drinking water chlorination
Calcium (ppm)	5/24/2021	13.9	12.9 – 15.4	NA	NA	Naturally occurring as groundwater percolates through minerals containing calcium
Chlorodibromomethane (ppb)	May 2021 July 2021 Oct 2021	0.63	ND – 0.8	NA	NA	Byproduct of drinking water chlorination
Chloroform (ppb)	May 2021 July 2021 Oct 2021	0.90	0.7 – 1.1	NA	70	Byproduct of drinking water chlorination. In non-chlorinated sources, chloroform may be naturally occurring.
Hardness (mg/L as CaCO ₃)	5/24/2021	55.1	52.1 – 57.9	NA	NA	Naturally occurring as groundwater percolates through minerals containing calcium or magnesium
Magnesium (ppm)	5/24/2021	4.95	4.72 – 5.23	NA	NA	Naturally occurring as groundwater percolates through minerals containing magnesium
Nickel (ppb)	May 2021 July 2021	9.3	ND – 16.0	NA	100	Discharge from domestic wastewater, landfills, and mining and smelting operations
Sodium ² (ppm)	May 2021 July 2021	87.1	76.4 – 87.5	NA	20	Discharge from the use and improper storage of sodium-containing de-icing compounds or in water-softening agents
Potassium (ppm)	5/24/2021	4.26	2.09 – 5.19	NA	NA	Naturally occurring; runoff from fertilizer use
Secondary Contaminants						
Aluminum (ppb)	5/24/2021	10	ND – 10	200	NA	Residue from water treatment process; erosion of natural deposits
Chloride (ppm)	5/24/2021	81.1	55.5 – 96.5	250	NA	Runoff and leaching from natural deposits; seawater influence
Copper (ppm)	5/24/2021	0.023	ND – 0.030	1	NA	Naturally occurring organic material
Iron ³ (ppb)	5/24/2021	842	ND – 1820	300	NA	Naturally occurring, corrosion of cast iron pipes
Manganese ⁴ (ppb)	5/24/2021	108	ND – 202	50	300	Natural sources as well as discharges from industrial uses
Odor ⁵ (TON)	5/24/2021	10	9 – 11	3	NA	Erosion of natural deposits; leaching from wood preservatives
pH	5/24/2021	7.2	7.0 – 7.4	6.5 – 8.5	NA	Runoff and leaching from natural deposits
Sulfate (ppm)	5/24/2021	20.8	18.6 – 23.4	250	NA	Runoff and leaching from natural deposits; industrial wastes
Total Dissolved Solids (ppm)	5/24/2021	299	266 – 339	500	NA	Erosion of natural deposits
Zinc (ppm)	5/24/2021	0.009	0.006 – 0.011	5	NA	Naturally occurring; human activities such as melting metals, steel production, burning coal and certain wastes; zinc-coated metal pipes
<p>¹ Some people who drink water containing acetone at high concentrations for many years could experience effects on the blood, kidney, liver, and reproductive system.</p> <p>² Some people who drink water containing sodium at high concentrations for many years could experience an increase in blood pressure.</p> <p>³ Use of water containing iron at concentrations above the secondary MCL may result in aesthetic issues including the staining of laundry and plumbing fixtures and water with an unpleasant metallic taste and rusty odor.</p> <p>⁴ Drinking water may naturally have manganese and, when concentrations are greater than 50 µg/L, the water may be discolored and taste bad. Over a lifetime, the EPA recommends that people limit their consumption of water with levels over 1000 µg/L, primarily due to concerns about the possible neurological effects. Children up to one year of age should not be given water with manganese concentrations over 300 µg/L, nor should formula for infants be made with that water for longer than 10 days.</p> <p>⁵ May produce a "rotten egg", musty, or chemical smell.</p>						

Unregulated PFAS Contaminants

PFAS6 is a group of 6 different contaminants that are regulated as a group. Other PFAS chemicals are unregulated. Three of the 12 unregulated PFAS contaminants were detected. The highest quarterly locational average is reported.

Unregulated PFAS Contaminants	Date(s) Collected	Average Detected	Range Detected
Perfluorobutane sulfonic acid (PFBS) (ppt)	Monthly in 2021	3.9	1.5 – 4.2
Hexafluoropropylene oxide dimer acid (HFPO-DA) (ppt)	Monthly in 2021	2.2	ND – 2.9
Perfluorohexanoic acid (PFHxA) (ppt)	Monthly in 2021	6.0	2.4 – 6.5

Table Key:

90th Percentile	Out of every 10 homes sampled, 9 were at or below this level. This number is compared to the action level to determine lead and copper compliance.	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.
AL	Action Level. The concentration of contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.	NA	Not Applicable.
HAA	Haloacetic Acids.	ND	Not Detected.
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.	ORSG	Office of Research and Standards Guideline.
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.	pCi/L	Picocuries per liter. A unit of radiation.
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.	PFAS	Per- and Polyfluoroalkyl Substance
		ppb	Parts per billion or micrograms per liter (µg/L). This corresponds to 1 penny in \$10,000,000.
		ppm	Parts per million or milligrams per liter (mg/L). This corresponds to 1 penny in \$10,000.
		ppt	Parts per trillion or nanograms per liter (ng/L). This corresponds to 1 penny in \$10,000,000,000.
		SMCL	Secondary Maximum Contaminant Level. These are standards to protect the aesthetic quality of drinking water and are not health based.
		TON	Threshold Odor Number.
		TTHM	Total Trihalomethanes.

Cross-Connection Control and You

Cross-connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment (boilers), systems containing chemicals (air conditioning systems, fire sprinkler systems, irrigation systems), or water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (back pressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks, heavy water demand), causing contaminants to be sucked out from the equipment and into the drinking water line (back siphonage).

Outside water taps and garden hoses tend to be the most common source of cross-connection contaminations at home. The garden hose creates a hazard when submerged in a swimming pool or when attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools, or garden chemicals. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continuously jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed, and maintained. We have surveyed industrial, commercial, and institutional facilities in the service area to make sure that potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test backflow preventers to make sure that they provide maximum protection.

For more information on backflow prevention, contact the Safe Drinking Water Hotline at [\(800\) 426-4791](tel:8004264791).

SOURCE WATER PROTECTION

The Massachusetts Department of Environmental Protection has completed a Source Water Assessment and Protection (SWAP) Report for our system. The SWAP report assesses the susceptibility of public water supplies to potential contamination by microbiological pathogens and chemicals. A susceptibility ranking of high was assigned to our system using information collected during the assessment by MassDEP. A source's susceptibility to contamination does not imply poor water quality. Among the SWAP Report recommendations are public education; partnering with local businesses to ensure proper storage, handling, and disposal of hazardous wastes; monitoring progress on any remedial action at known contamination sites; and developing a wellhead protection plan. Source protection is a key element in providing good quality water.

Protecting our precious water resources is everyone's responsibility. If you observe any activity that could contaminate our drinking water supply, please contact us immediately. The complete SWAP Report is available at the Water Department Office and at MassDEP's website: <https://www.mass.gov/service-details/the-source-water-assessment-protection-swap-program>.

For more information, call Jonas Kazlauskas, Water & Sewer Superintendent at [\(508\) 697-0910](tel:5086970910).

Water Conservation Tips

Here is how you can do your part to conserve water at home:

1. Fix leaking faucets, pipes, toilets, etc.
2. Install water-saving devices.
3. Wash only full loads of laundry.
4. Do not use the toilet for trash disposal.
5. Take shorter showers. Do not let the water run while shaving, washing, or brushing teeth.
6. Run the dishwasher only when full.
7. Water the lawn as little as possible.
8. Choose plants that do not need much water.
9. Obey water bans or regulations.

Homeowners are reminded that only handheld hoses can be used for outside watering and that underground irrigation systems cannot be connected to the Town's water system.

What If I Have Questions About My Water?

Please call the office at [508-697-0910](tel:5086970910). **Contact Person: Jonas Kazlauskas, Water and Sewer Superintendent.**

