

# ANNUAL WATER QUALITY REPORT

Reporting Year 2021



**Presented By**  
**Plymouth Water Division**



## We've Come a Long Way

Once again, we are proud to present our annual water quality report covering the period between January 1 and December 31, 2021. In a matter of only a few decades, drinking water has become exponentially safer and more reliable than at any other point in human history. Our exceptional staff continues to work hard every day—at all hours—to deliver the highest-quality drinking water without interruption, at the lowest possible cost to the ratepayer.

## Source Water Assessment

A Source Water Assessment Plan (SWAP) is now available at our office. This plan is an assessment of the delineated area around our listed sources through which contaminants, if present, could migrate and reach our source water. It also includes an inventory of potential sources of contamination within the delineated area, and a determination of the water supply's susceptibility to contamination by the identified potential sources.

According to the Source Water Assessment Plan, our water system had a susceptibility rating of "medium." If you would like to review the Source Water Assessment Plan, please feel free to contact our office during regular office hours.

When the well is dry, we know the worth of water.

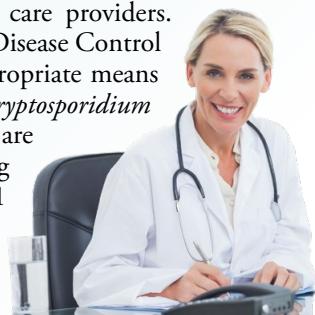
—Benjamin Franklin

## Water Treatment Process

The groundwater is naturally corrosive, so we add sodium hydroxide (used to adjust the pH to 8.5). Chlorine is then added as a precaution against any bacteria that may be present. (We carefully monitor the amount of chlorine, adding the lowest quantity necessary to protect the safety of your water without compromising taste.) Finally, some wells get a phosphate blend (for iron and manganese sequestering). Then all water is pumped to storage tanks and into your home or business.

## Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised people such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/> hotline.



## Ground Water Sampling Update

We routinely monitor for the presence of drinking water contaminants to ensure the safety of the water supply. On 10/7/21, our water system was notified that a water sample collected on 10/5/21 from our South Ponds Well #2 tested positive for *E. coli*, which is a fecal indicator. The samples that tested positive were raw water samples. Our water is treated/disinfected with sodium hypochlorite. No positive samples were detected in the finished water. The well was taken off line and repeatedly flushed and sampled to assure that the water was both safe and aesthetically pleasing.

Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as 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.

## Where Does My Water Come From?

The Town of Plymouth's municipal water supply consists of two aquifers and thirteen gravel-packed wells at eleven locations throughout Plymouth. The Plymouth Water Division spends over \$75,000 annually testing its water to ensure high water quality. We continue our mission to provide the highest-quality drinking water and fire protection at the lowest possible cost to the ratepayers. The Plymouth water system serves the entire northern section of town between Federal Furnace Road and the Kingston and Carver boundaries; Plymouth Center; Chiltonville; Manomet; and Cedarville areas east of Route 3 south to the Bourne town line.



## QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Peter Gordon, Plymouth DPW, Water Division Superintendent, at (508) 830-4162 x12141.

## Lead in Home Plumbing

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. We are responsible for providing high-quality drinking water, but we 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 at (800) 426-4791 or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).



### BY THE NUMBERS

The number of Americans who receive water from a public water system.

**300**  
MILLION

**1**  
MILLION

The number of miles of drinking water distribution mains in the U.S.

The number of gallons of water produced daily by public water systems in the U.S.

**34**  
BILLION

**135**  
BILLION

The amount of money spent annually on maintaining the public water infrastructure in the U.S.

**151**  
THOUSAND

The number of active public water systems in the U.S.

**199**  
THOUSAND

The number of highly trained and licensed water professionals serving in the U.S.

**2**  
BILLION

The age in years of the world's oldest water, found in a mine at a depth of nearly two miles.

## Substances That Could Be in Water

To ensure that tap water is safe to drink, the Massachusetts Department of Environmental Protection (MADEP) and the U.S. Environmental Protection Agency (U.S. EPA) prescribe regulations limiting 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 contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The 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. Substances 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, or wildlife;

**Inorganic Contaminants**, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and 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 may also come from gas stations, urban stormwater runoff, and septic systems;

**Radioactive Contaminants**, which can be naturally occurring or may be the result of oil and gas production and mining activities.

More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

## Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule. Also, the water we deliver must meet specific health standards. Here, we show only those substances that were detected in our water. (A complete list of all our analytical results is available upon request.) Remember that detecting a substance does not mean the water is unsafe to drink; our goal is to keep all detects below their respective maximum allowed levels.

**Although *E. coli* was detected, the water system is not in violation of the *E. coli* MCL. The finished drinking water never tested positive for *E. coli*.**

On 11/4/2021, samples were collected at the South Ponds wells and analyzed for synthetic organic compounds. There was a detect for these contaminants that was not reported to MADEP within 7 days of receiving the results from the lab. We collaborated with MADEP on a compliance plan to prevent this from happening again.

The state recommends monitoring for certain substances less often than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES							
Substance (Unit of Measure)	Year Sampled	MCL [MRDL]	MCLG [MRDLG]	Amount Detected	Range Low-High	Violation	Typical Source
2,4-D (ppb)	2021	70	70	0.135	ND–0.135	No	Runoff from herbicide used on row crops
Barium (ppm)	2020	2	2	0.076	0.011–0.076	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2021	[4]	[4]	0.72	0.02–0.72	No	Water additive used to control microbes
Combined Radium (pCi/L)	2021	5	0	0.846	0.118–0.846	No	Erosion of natural deposits
Di(2-ethylhexyl) Phthalate (ppb)	2021	6	0	0.634	ND–0.634	No	Discharge from rubber and chemical factories
Fluoride (ppm)	2020	4	4	0.06	0.04–0.06	No	Naturally occurring mineral found in ground water
Haloacetic Acids [HAAs]–Stage 2 (ppb)	2020	60	NA	1.52	NA	No	By-product of drinking water disinfection
Nitrate (ppm)	2021	10	10	2.21	0.09–2.21	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
PFAS6 (ppt)	2021	20	NA	2.55	ND–2.55	No	Discharges and emissions from industrial and manufacturing sources associated with the production or use of these PFAS, including production of moisture- and oil-resistant coatings on fabrics and other materials. Additional sources include the use and disposal of products containing these PFAS, such as fire-fighting foams.
TTHMs [Total Trihalomethanes]–Stage 2 (ppb)	2021	80	NA	21.7	3.78–21.7	No	By-product of drinking water disinfection
Tetrachloroethylene (ppb)	2021	5	0	1.36	0.05–1.36	No	Discharge from factories and dry cleaners

Tap water samples were collected for lead and copper analyses from sample sites throughout the community.

Substance (Unit of Measure)	Year Sampled	Amount Detected (90th %ile)			Sites Above AL/Total Sites	Violation	Typical Source
		AL	MCLG				
Copper (ppm)	2021	1.3	1.3	0.1200	0/60	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2021	15	0	3.5	3/60	No	Lead services lines; Corrosion of household plumbing systems including fittings and fixtures; Erosion of natural deposits

## SECONDARY SUBSTANCES

Substance (Unit of Measure)	Year Sampled	SMCL	MCLG	Amount Detected	Range Low-High	Violation	Typical Source
Chloride (ppm)	2021	250	NA	220	13–220	No	Runoff/leaching from natural deposits
Iron (ppb)	2021	300	NA	520	100–520	No	Leaching from natural deposits; Industrial wastes
Manganese <sup>1</sup> (ppb)	2021	50	NA	170	12–170	No	Leaching from natural deposits
Sulfate (ppm)	2021	250	NA	7.7	3.4–7.7	No	Runoff/leaching from natural deposits; Industrial wastes

## UNREGULATED SUBSTANCES<sup>2</sup>

Substance (Unit of Measure)	Year Sampled	Amount Detected	Range Low-High	Typical Source
Bromodichloromethane (ppb)	2021	1.13	0.58–1.13	By-product of drinking water disinfection
Bromoform (ppb)	2021	2.93	0.73–2.93	By-product of drinking water disinfection
Chlorodibromomethane (ppb)	2021	1.95	1.10–1.95	By-product of drinking water disinfection
Chloroform (ppb)	2021	1.12	0.55–1.12	By-product of drinking water disinfection
Sodium (ppm)	2020	116	14–116	Naturally occurring

## OTHER UNREGULATED SUBSTANCES<sup>2</sup>

Substance (Unit of Measure)	Year Sampled	Amount Detected	Range Low-High	Typical Source
Bromide (ppm)	2020	0.08	0.03–0.08	NA
Germanium (ppb)	2020	0.50	ND–0.05	NA
HAA9 (ppb)	2020	3.4	0.40–3.4	NA
Total Organic Carbon [TOC] (ppb)	2020	1091.00	ND–1091.00	NA

<sup>1</sup>Manganese is a naturally occurring mineral found in rocks, soil, groundwater, and surface water. Manganese is necessary for proper nutrition and is part of a healthy diet, but it can have undesirable effects on certain sensitive populations at elevated concentrations. The U.S. EPA and MADEP have established public health advisory levels for manganese to protect against concerns of potential neurological effects.

<sup>2</sup>Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. The purpose of monitoring unregulated contaminants is to assist the EPA in determining their occurrence in drinking water and whether future regulation is warranted.

## Water Conservation Tips

You can play a role in conserving water and saving yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water. Here are a few tips:

- Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.
- Turn off the tap when brushing your teeth.
- Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
- Check your toilets for leaks by putting a few drops of food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak. Fix it and you save more than 30,000 gallons a year.
- Use your water meter to detect hidden leaks. Simply turn off all taps and water using appliances. Then check the meter after 15 minutes. If it moved, you have a leak.

## Definitions

**90th %ile:** 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.

**AL (Action Level):** The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that 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.

**NA:** Not applicable

**ND (Not detected):** Indicates that the substance was not found by laboratory analysis.

**pCi/L (picocuries per liter):** A measure of radioactivity.

**ppb (parts per billion):** One part substance per billion parts water (or micrograms per liter).

**ppm (parts per million):** One part substance per million parts water (or milligrams per liter).

**ppt (parts per trillion):** One part substance per trillion parts water (or nanograms per liter).

**SMCL (Secondary Maximum Contaminant Level):** These standards are developed to protect aesthetic qualities of drinking water and are not health based.

