

ANNUAL WATER QUALITY REPORT

Reporting Year 2023



Presented By
Brewster Water
Department



Our Commitment

We are pleased to present to you this year's annual water quality report. This report is a snapshot of last year's water quality covering all testing performed between January 1 and December 31, 2023. Included are details about your source of water, what it contains, and how it compares to standards set by regulatory agencies. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water and providing you with this information because informed customers are our best allies.

Source Water Description

The town has five groundwater wells pumping water from the Monomoy Lens, one of six groundwater lenses that make up Cape Cod's sole source aquifer. Each well site is surrounded by large town-owned tracts of land for water quality protection. Activity is restricted to passive recreation on town wellfield acreage.

Wells 1 and 2, located near Route 6 south of Freeman's Way, were constructed in 1971 and are about 76 feet deep. Well 3, near Route 6 north of Freeman's Way, was built in 1986 and is about 90 feet deep. Well 4, at the north edge of the Punkhorn Parklands off Run Hill Road, was built in 1991 and is about 101 feet deep. Well 6, in the southern Punkhorn area, was built in 2012 and is approximately 121 feet deep.

Treatment Train Description

The greensand filtration facility is designed to remove iron and manganese in the water pumped from Well 4. Treatment includes the use of sodium hypochlorite, a liquid chlorine solution, for oxidation of the minerals. This causes the iron and manganese to form tiny particles. Once this happens, the water passes through special filters consisting of material that is specifically designed to capture iron and manganese particles. Over time, filters start to clog and need to be cleaned using a high-flow backwash process. Sodium hypochlorite is used as a disinfectant required for water filtration processes, treating the finished water to a concentration of 0.2 to 0.6 part per million (ppm) free chlorine. Potassium permanganate is used periodically to activate the filter media when regeneration is necessary.

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 two 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 www.epa.gov/safewater/lead.

Important Health Information

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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. Environmental Protection Agency (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 at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.



Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. The Board of Water Commissioners meets the first Friday of each month at 11:00 a.m. at Town Hall, 2198 Main Street.

Source Water Assessment

A source water assessment was completed in Brewster in 2003 by the DEP Drinking Water Program (DWP). The susceptibility of the town's wells, as determined during the assessment, is as follows: Wells 1, 2, and 3 were rated high, and Wells 4 and 6 were moderate. While these assessments are serious, the reason for the determination is the lack of underground or geological formations, such as a clay layer, that would create a hydrological barrier to possible contamination. This is not a new issue for a good part of Cape Cod due to its sand-and-gravel composition. The town has wellhead protection regulations and a groundwater protection district in place to oversee land use within that district. If you would like a copy of our assessment, please feel free to contact our office during regular business hours at (508) 896-5454.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Paul Anderson, Water Superintendent, or Alex Provos, Assistant Superintendent, at (508) 896-5454.

Corrosion Control through pH Adjustment

Many drinking water sources in New England are naturally corrosive, meaning they have a pH of less than 7.0. The water they supply has a tendency to corrode and dissolve the metal piping it flows through. This not only damages pipes but can also add harmful metals, such as lead and copper, to the water. For this reason, it is beneficial to add chemicals that make the water neutral or slightly alkaline. This is accomplished by adding any one or a combination of several approved chemicals. The Brewster Water Department adds hydrated lime at two lime treatment facilities located near Wells 1 and 2 and Well 3. Potassium hydroxide is used in place of hydrated lime at Wells 4 and 6 for pH adjustment and corrosion control. Testing throughout the system has shown that this treatment has been effective at reducing lead and copper concentrations.

A Note on Tetrachloroethylene

Detections occur where vinyl-lined water mains were installed in the 1970s. Vinyl-lined asbestos-cement pipe was used in a number of subdivisions until the compound was detected in 1979. Brewster, along with other Massachusetts towns with similar piping, flushes and monitors under a DEP-approved program to deal with the problem. There are 6.3 miles of affected pipe in Brewster's 126-mile distribution system. All locations have bleeders to control the level of the contaminant. The samples are taken after the last service on each street to provide a worst-case concentration. Most homes served by these pipes should receive water that is well below reported levels. For specific area sample results, please call the Brewster Water Department.

The following locations are served by affected pipe and had detections in the range noted in the data table: Heritage Loop.

The following streets had results below the detection limit: Ambergris Circle West, Ambergris Circle East, Damon Road, Woodstock Drive, Bog Pond Road, Bridle Path Road, Carriage Drive, Great Fields Road from Pine Bluff Road north to the end of the water main, Harmony Lane, Highridge Road, John Wings Lane, Linda Circle, Oakwood Road, Pleasant Court, Wagon Wheel Lane, Whiffletree Avenue, Wynn Way, Gages Way North, Puritan Drive, Stonehenge Drive, and Nathan's Pasture Way.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the Department of Environmental Protection (DEP) and the 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, which 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 which 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, and the water we deliver must meet specific health standards. Here, we only show 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.

The state recommends monitoring for certain substances less 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.

We participated in the fifth stage of the U.S. EPA's Unregulated Contaminant Monitoring Rule (UCMR5) program by performing additional tests on our drinking water. UCMR5 sampling benefits the environment and public health by providing the U.S. EPA with data on the occurrence of contaminants suspected to be in drinking water to determine if it needs to introduce new regulatory standards to improve drinking water quality. Unregulated contaminant monitoring data are available to the public, so please feel free to contact us if you are interested in obtaining that information. If you would like more information on the U.S. EPA's Unregulated Contaminant Monitoring Rule, please call the Safe Drinking Water Hotline at (800) 426-4791.

REGULATED SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2023	2	2	0.0059	ND–0.0059	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2023	[4]	[4]	0.4	0.1–0.4	No	Water additive used to control microbes
Haloacetic Acids [HAAs]–Stage 1 (ppb)	2023	60	NA	3.5	ND–3.5	No	By-product of drinking water disinfection
Nitrate (ppm)	2023	10	10	0.85	0.18–0.85	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Nitrite (ppm)	2020	1	1	0.21	0.12–0.21	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Perchlorate (ppb)	2022	2	NA	0.22	ND–0.22	No	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks, and explosives
Tetrachloroethylene (ppb)	2023	5	0	0.66	ND–0.66	No	Discharge from factories and dry cleaners
TTHMs [total trihalomethanes]–Stage 1 (ppb)	2023	80	NA	17.0	3.1–17.0	No	By-product of drinking water disinfection
Xylenes (ppm)	2022	10	10	0.0008	ND–0.0008	No	Discharge from petroleum factories; Discharge from chemical factories

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

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2023	1.3	1.3	0.0240	0/31	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2023	15	0	3.4	0/31	No	Lead service 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
Manganese (ppb)	2023	50 ¹	NA	90	ND–90	No	Leaching from natural deposits
Sulfate (ppm)	2019	250	NA	15	6.8–15	No	Runoff/leaching from natural deposits; Industrial wastes

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

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

“
When the well is dry, we
know the worth of water.”
– Benjamin Franklin

UNREGULATED SUBSTANCES²

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Bromodichloromethane (ppb)	2023	2.5	ND–2.5	By-product of drinking water chlorination
Bromoform (ppb)	2023	0.64	ND–0.64	By-product of drinking water chlorination
Chlorodibromomethane (ppb)	2023	2.4	ND–2.4	By-product of drinking water chlorination
Chloroform (ppb)	2023	5.5	2.2–5.5	Naturally present in the environment
Perfluorodecanoic Acid [PFDA] (ppb)	2018	18.5	3.2–18.5	NA
Sodium (ppm)	02/1/2023	20	13–20	Used in snow removal

About Our Violation

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of monitoring are an indicator of whether your drinking water meets health standards. During third quarter 2023, we did not monitor for the presence of gross alpha particle activity at Well 6 as scheduled. Upon being notified of this violation by DEP, we immediately collected and analyzed the water from Well 6. No gross alpha particle activity was detected above laboratory limits. Results of the analysis have been properly reported as required by state and federal law.

Missing this monitoring requirement did not have any impact on public health and safety since gross alpha particle activity is only sampled every nine years. There is nothing you need to do. You would have been notified immediately had this been an emergency situation. We have already taken steps to ensure that adequate monitoring and reporting will be performed in the future so this oversight will not be repeated.

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 which, 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.

NA: Not applicable.

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

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).

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