2021 Consumer Confidence Report

For

Bellingham DPW Water & Sewer Division
Bellingham, Massachusetts
MASSDEP PWSID # 2025000

This report is a snapshot of the 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 this information because informed customers are our best allies.

PUBLIC WATER SYSTEM INFORMATION

Address**: 26 Blackstone Street**

Contact Person: Jesse Riedle

Telephone #: (508)966-5813 Email DPW@bellinghamma.org

Internet Address: www.bellinghamma.org

Water System Improvements
Our water system is routinely inspected by the Massachusetts Department of Environmental Protection (MassDEP). MassDEP inspects our system for its technical, financial, and managerial capacity to provide safe drinking water to you. To ensure that we provide the highest quality of water available, your water system is operated by a Massachusetts certified operator who oversees the routine operations of our system. As part of our ongoing commitment to you, last year we made the following improvements to our system: allocation of funding for the rehabilitation of our South Main Street Standpipe, replacement of inoperable and damaged fire hydrants throughout the water distribution system, annual cleaning and inspection of standpipes including South Main Street, Grove Street, & Chestnut Street, and distribution system gate valve exercising which took place while hydrant flushing.

Opportunities for Public Participation
If you would like to participate in discussions regarding your water quality, you may attend the following meetings or educational events: Meetings of the Selectboard, which are usually held the first and third Mondays of each month at 7:00 PM at the Municipal Center. Meeting agenda items, minutes and special workshops regarding the water system are posted on the Town website.

YOUR DRINKING WATER SOURCE

Where Does My Drinking Water Come From?
Your water is provided by the following sources listed below:

The Town of Bellingham's drinking water supply system includes sixteen groundwater wells, eight pumping stations, three storage tanks, approximately one hundred miles of water main, and sixty miles of water service pipes.

Twelve wells, which are controlled by four pumping stations, are in the southern part of Town; they draw water from the Blackstone River basin's underground aquifer (Active Wells Source ID's: 02G, 04G, 14G, 15G, 17G, 18G, 20G, 21G, & 22G – Inactive Wells Source ID's:03G, 11G, &13G). The Wrentham Road Filtration Plant treats water from these Blackstone River basin wells.

Four wells, each operated by its own pumping station, are in the northern part of Town; they draw water from the Charles River basin's underground aquifer (Active Wells Source ID's:05G, 08G, 12G, & 23G). The Hartford Ave Filtration Plant treats water from these Charles River basin wells.

Source Name	MassDEP Source ID#	Source Type	Location of Source
Well #1.1	2025000-22G	Groundwater	Cross Street
Well #2.1	2025000-02G	Groundwater	Cross Street
Well #2.3	2025000-14G	Groundwater	Cross Street
Well #2.4	2025000-15G	Groundwater	Cross Street
Well #3.3	2025000-21G	Groundwater	Wrentham Road
Well #4	2025000-04G	Groundwater	Wrentham Road
Well #5	2025000-05G	Groundwater	Taunton Street
Well #7.1	2025000-23G	Groundwater	Hartford Avenue
Well #8	2025000-08G	Groundwater	Hartford Avenue
Well #11.2	2025000-17G	Groundwater	Wrentham Road
Well #11.3	2025000-18G	Groundwater	Wrentham Road
Well #11.5	2025000-20G	Groundwater	Wrentham Road
Well #12	2025000-12G	Groundwater	Cliff Road

Is My Water Treated?

Yes, all water supplied throughout Bellingham is treated. The Hartford Avenue and Wrentham Road Filtration plants are primarily designed to remove iron and manganese through oxidation and filtration. Oxidation is accomplished by adding oxidizing chemicals to the water. Oxidation causes the dissolved iron and manganese in our raw water to form into tiny particles. At the Hartford Ave plant we oxidize with chlorine and potassium permanganate and use alum as a coagulant to enhance filtration and help remove organics. At Wrentham Road we only need to add Chlorine. Once particles have formed, the water passes through special filters specifically designed to capture iron and manganese particles. We have four filters at Wrentham Road and six at Hartford Ave. Each filter is backwashed on a routine schedule to clean and regenerate the filters. At both plants we also add caustic soda to increase the pH to enhance oxidation process.

Chlorine is vital to ensure proper oxidation to optimize filtration, but it is also used as a disinfectant. The water we discharge from the plants must maintain a residual chorine level that is established by regulation. The chlorine disinfectant provides protection against bacterial contamination formation in our drinking water distribution system.

Caustic soda is used to enhance the oxidation process and is a critical chemical used to help achieve a regulatory requirement on pH level. Caustic soda increases the pH which, minimizes corrosion in internal plumbing, thereby reducing exposure to lead and copper for our drinking water customers.
The Bellingham DPW has detailed maps showing these facilities. Anyone who would like to see a map or obtain a copy should contact the DPW.

Here is a simplified explanation of how water comes out of your tap. Water is pumped from wells to a treatment facility via raw water transmission mains. Once treated, the water is pumped to our pipe network called the distribution system. Our standpipes are part of the distribution system and vital to allow us to maintain pressure in the system, even when all pumps are off. Standpipes also play a key role in providing the high volume of water needed to fight fires. The pumps at our treatment facilities run when needed to keep our standpipes at a level that maintains pressure in the distribution system. The pressurized system allows water to come out of your tap when you turn it on and provide pressure and volume at our hydrants for firefighting.

How Are These Sources Protected?

In 2002, the Massachusetts Department of Environmental Protection (MassDEP) issued a draft of our Source Water Assessment and Protection (SWAP) Report. The SWAP program was established under the Federal Safe Drinking Water Act, and it requires that every state inventory land uses within the recharge areas of all public water supply sources, assess the susceptibility of drinking water sources to be contaminated from these uses, and publicize the results to provide support for improved protection.

Some of the land uses that exist within our recharge areas include auto body & repair shops, salvage yards, an old landfill, railroad tracks, hazardous material storage, industries and industrial parks, large quantity hazardous waste generators, and underground storage tanks. There are others but these are considered the highest threats.

The report notes that all of our sources have a high susceptibility of future contamination. Unfortunately, MassDEP has not had the funding to update the report and some of the information is not current; however, it still contains a wealth of information about our source waters and potential risks to its quality.

It is impossible to eliminate all threats from past and present land use, but we have established protective land use restrictions that dramatically reduce our exposure to certain contaminants. We are well equipped to prevent future land uses that could further increase our susceptibility to aquifer contamination. Our key regulations include Board of Health Floor Drain Regulations, Water Resource Protection Bylaws, and the Water Resource District Zoning Map. The Bylaws, Ordinances, and Maps are available online at the Town's Website www.bellinghamma.org.

Our Zone II drinking water well recharge areas extend into Medway, Franklin, Milford, and Wrentham and are all protected by local bylaws except in Milford. We have requested the Town of Milford consider adding our Zone II to their water protection district. To date our Zone II areas within the borders of the Town of Milford do not have bylaw or zoning protection. The Zone II area of a few Blackstone and Franklin wells extend into Bellingham. The Blackstone and Franklin Zone II areas are covered by our Water Resource District Map and protective bylaws and regulations.

In 2021, the U.S. Environmental Protection Agency (EPA) required an updated Vulnerability Assessment (VA) of all critical components associated with the drinking water infrastructure. The Bellingham DPW compiled this information to identify possible threats and provide solutions as alternate means of continued operation. A requirement of this assessment included updates to its Emergency Response Plan (ERP) to keep current and accurate.

What is My System's Ranking?
A susceptibility ranking of high was assigned to this system using the information collected during the assessment by MassDEP.

Where Can I See The SWAP Report?
The complete SWAP report is available at the Bellingham DPW and online at https://www.mass.gov/service-details/the-source-water-assessment-protection-swap-program . For more information, call Jesse Riedle at the Bellingham DPW at (508)966-5813.

Residents can help protect sources by:

- Practicing good septic system maintenance
- Taking hazardous household chemicals to hazardous materials collection days
- Contacting the DPW or Board of Health to volunteer for monitoring or education outreach to schools
- Limiting pesticide and fertilizer use, etc.

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 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.

All 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 (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 some 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 lowering the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

IMPORTANT DEFINITIONS

Maximum Contaminant Level (MCL) – 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.

Maximum Contaminant 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.

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 at or below this level.

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

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

Massachusetts Office of Research and Standards Guideline (ORSG) – This is the concentration of a chemical in drinking water, at or below which, adverse health effects are unlikely to occur after chronic (lifetime) exposure. If exceeded, it serves as an indicator of the potential need for further action.

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

Running Annual Average (RAA) – The average of four consecutive quarter of data.

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

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

Level 1 Assessment - 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 water system.

Level 2 Assessment - A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an *E. coli* MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

ppm = parts per million, or milligrams per liter (mg/l)
ppb = parts per billion, or micrograms per liter (ug/l)
ppt = parts per trillion, or nanograms per liter
pCi/l = picocuries per liter (a measure of radioactivity)
NTU = Nephelometric Turbidity Units
ND = Not Detected
N/A = Not Applicable
mrem/year = millimrems per year (a measure of radiation absorbed by the body)

WATER QUALITY TESTING RESULTS

What Does This Data Represent?
The water quality information presented in the table 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 table.

	Date(s) Collected	90TH percentile	Action Level	MCLG	# of sites sampled	# of sites above Action Level	Possible Source of Contamination
Lead (ppb)	2021	4.3	15	0	**34**	**0**	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	2021	0.4	1.3	1.3	**34**	**0**	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

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 Bellingham DPW is responsible for providing high quality drinking water but cannot control the variety of materials used in plumbing components. When water has been sitting for several hours, you can minimize the potential 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 www.epa.gov/safewater/lead.

Regulated Contaminant	Date(s) Collected	Highest Result or Highest Running Average Detected	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
Inorganic Contaminants							
Nitrate (ppm)	May 2021	1.30	0-1.30	10	10	**N**	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Barium (ppm)	June 2018	0.059	0.022 - .059	2	2	**N**	*Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits*
Perchlorate (ppb)	September 2021	0.21	0.11-0.21	2.0	2.0	**N**	*Rocket propellants, fireworks, munitions, flares, blasting agents*
PFAS6 (ppt)	Jan 2021 Feb 2021 Mar 2021 Apr 2021 May 2021 Jun 2021 Jul 2021 Aug 2021 Sep 2021 Oct 2021 Nov 2021 *~~Dec 2021~~	19.09	0-19.09	20	N/A	**N**	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.

* The Hartford Avenue filtration plant was not sampled for PFAS during December 2021 as the plant was offline

Radioactive Contaminants							
Gross Alpha (pCi/l) (minus uranium)	Quarterly in 2021	3.6	0.0 - 3.6	15	0	**N**	Erosion of natural deposits
Radium 226 & 228 (pCi/L) (combined values)	Quarterly in 2021	1.67	0.81 - 1.67	5	0	**N**	Erosion of natural deposits
Disinfectants and Disinfection By-Products							
Total Trihalomethanes (TTHMs) (ppb)*	Quarterly in 2021	90	36-90	80	N/A	**Y**	Byproduct of drinking water chlorination
Haloacetic Acids (HAA5) (ppb)	Quarterly in 2021	49	27-49	60	N/A	**N**	Byproduct of drinking water disinfection
Chlorine (ppm) (free, total or combined)	Monthly in 2021	0.8	0.55-0.84	4	4	**N**	Water additive used to control microbes

*NON-CE-22-5D00012980 issued April 2022 for TTHM exceedance

Bacterial Contamination

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 contamination 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 assessments to identify any problems that were found during these assessments (Level 1 and Level 2 as noted in definitions above).

Each month we collect at least 40 tap water samples and test for total coliform bacteria as required by the Revised Total Coliform Rule. We also collect and test raw water samples from all active wells and the treated water at the filtration plants. All samples that show the presence of total coliform bacteria are automatically tested for possibly harmful E. coli, a fecal indicator.

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 contamination may enter the drinking water distribution system. We found coliforms in two sample in 2021; both samples tested negative for E Coli bacteria. Immediate confirmatory tests came back absents of any bacteria.

6. COMPLIANCE WITH DRINKING WATER REGS

Does My Drinking Water Meet Current Health Standards?

We are committed to providing you with the best water quality available. However, some contaminants that were tested last year did not meet all applicable health standards regulated by the state and federal government. Due to contaminant violations of Total Trihalomethanes (TTHMs) during the period(s) of August - December our system took the following corrective actions.

- We collected additional samples
- We announced public notification by newspaper, posting notices, etc.
- We flushed the distribution system to eliminate elevated levels of disinfectant byproducts
- We adjusted our treatment techniques to reduce disinfectant byproducts

Our water system and MassDEP monitor and record the effectiveness of actions taken in response to contaminant violations. The health effect statement for this contaminant is listed below.

Two (2) quarterly Public Notices (PN) were issued because of our TTHM exceedances in 2021. These notices were distributed and posted on 11/8/21 & 1/25/22 in response to 2021 Q3 (July-September) & Q4 (October-December). This exceedance is currently ongoing due to the elevated results in August & November 2021. (MassDEP NON-CE-22-5D00012980-Dated 4/11/2022 – 2021 Q3 & 2022 Q1)

Health Effects Statements

Total Trihalomethanes are a byproduct of chlorine disinfection which forms when chlorine combines with natural organic matter commonly found in surface water supplies and sometimes in groundwater sources. Pregnant women, infants, and women of childbearing age may be at increased risk and should seek advice from their health care providers if they have any concerns. Some people who drink water containing (TTHMs) trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.

7. EDUCATIONAL INFORMATON

Do I Need To Be Concerned about Certain Contaminants Detected in My Water?

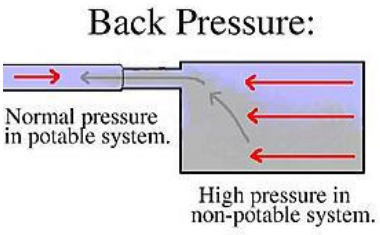
Some people, who drink water containing trihalomethanes in excess of the MCL over many years, experience problems with their liver, kidneys, or central nervous systems, and may have increased risk of getting cancer.

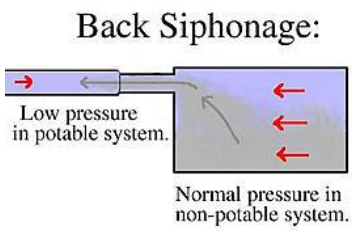
Cross-Connection Control and Backflow Prevention

The Bellingham DPW makes every effort to ensure that the water delivered to your home and business is clean, safe and free of contamination. Our staff works very hard to protect the quality of the water delivered to our customers from the time the water is extracted via deep wells from underground aquifers or withdrawal point from a surface water source, throughout the entire treatment and distribution system. But what happens when the water reaches your home or business? Is there still a need to protect the water quality from contamination caused by a cross-connection? If so, how?

What is a cross-connection?
A cross-connection occurs whenever the drinking water supply is or could be in contact with potential sources of pollution or contamination. Cross-connections exist in piping arrangements or equipment that allows the drinking water to come in contact with non-potable liquids, solids, or gases (hazardous to humans) in event of a backflow.

What is a backflow?
Backflow is the undesired reverse of the water flow in the drinking water distribution lines. This backward flow of water can occur when the pressure created by equipment or a system such as a boiler or air-conditioning is higher than the water pressure inside the water distribution line (back pressure), or when the pressure in the distribution line drops due to routine occurrences such as water main breaks or heavy water demand causing the water to flow backward inside the water distribution system (back siphonage). Backflow is a problem that many water consumers are unaware of, a problem that each and every water customer has a responsibility to help prevent.





What can I do to help prevent a cross-connection?

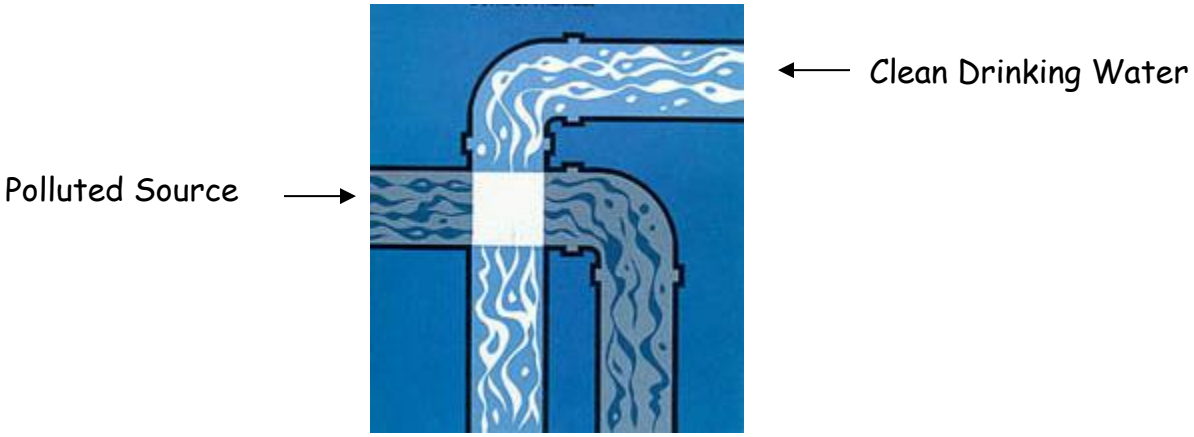
Without the proper protection something as simple as a garden hose has the potential to contaminate or pollute the drinking water lines in your house. In fact over half of the country's cross-connection incidents involve unprotected garden hoses. There are very simple steps that you as a drinking water user can take to prevent

such hazards, they are:

- NEVER submerge a hose in soapy water buckets, pet watering containers, pool, tubs, sinks, drains, or chemicals.
- NEVER attached a hose to a garden sprayer without the proper backflow preventer.
- Buy and install a hose bibb vacuum breaker in any threaded water fixture. The installation can be as easy as attaching a garden hose to a spigot. This inexpensive device is available at most hardware stores and home-improvement centers.
- Identify and be aware of potential cross-connections to your water line.
- Buy appliances and equipment with backflow preventers.
- Buy and install backflow prevention devices or assemblies for all high and moderate hazard connections.

If you are the owner or manager of a property that is being used as a commercial, industrial, or institutional facility you must have your property's plumbing system surveyed for cross-connection by your water purveyor. If your property has NOT been surveyed for cross-connection, contact your DPW to schedule a cross-connection survey.

What is a Cross Connection and what can I do about it?



A cross connection is a connection between a drinking water pipe and a polluted source. The pollution can come from your own home. For instance, you're going to spray fertilizer on your lawn. You hook up your hose to the sprayer that contains the fertilizer. If the water pressure drops at the same time you turn on the hose, the fertilizer may be sucked back into the drinking water pipes through the hose. This problem can be prevented by using an attachment on your hose called a backflow-prevention device.

The Bellingham DPW 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 system in your town! For additional information on cross connections and on the status of your water systems cross connection program, please contact the Bellingham DPW at (508)966-5813.