



ANNUAL WATER
QUALITY
REPORT
REPORTING YEAR 2018

Presented By
**Canton Public Works
Water Sewer Division**

Our Mission Continues

We are once again pleased to present our annual water quality report covering all testing performed between January 1 and December 31, 2018. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please remember that we are always available should you ever have any questions or concerns about your water.

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 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.

Source Water Assessment

Canton Water Sewer Division worked with Massachusetts DEP to prepare the Source Water Assessment Program (SWAP) Report for water supply sources serving Canton. The purpose of the assessment is to determine the susceptibility of each drinking water source to potential contaminant sources. A susceptibility ranking of high was assigned to our system. It is important to understand that a susceptibility rating is not a measure of water quality, only the potential for source contamination in the assessment area. The SWAP commends the town on its existing source protection measures. Consumers can help protect sources by practicing good septic system maintenance, taking hazardous household chemicals to hazardous collection days, and limiting pesticide and fertilizer use.

The complete SWAP is available online at www.town.canton.ma.us under Public Works Water Sewer Division or <https://www.mass.gov/service-details/the-source-water-assessment-protection-swap-program>.

QUESTIONS?

For any questions about the quantity or quality of Canton's drinking water, please contact Christopher Sykes, Water Sewer Supervisor, at (781) 821-5017 or Renee Ruane, Water Treatment Plant Foreman, at (781) 828-4930.

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. 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>.



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. 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, 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.

What's a Cross-Connection?

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 sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or 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.

We remain vigilant in delivering the best-quality drinking water

The Benefits of Fluoridation

Fluoride is a naturally occurring element in many water supplies in trace amounts. In our system the fluoride level is adjusted to an optimal level averaging 0.7 part per million (ppm) to improve oral health in children. At this level, it is safe, odorless, colorless, and tasteless. There are over 3.9 million people in 140 Massachusetts water systems and 184 million people in the U.S. who receive the health and economic benefits of fluoridation.



Water Treatment

Canton Water Sewer Division makes every effort to provide safe and pure drinking water. To improve the quality of the water delivered, we aerate and filter the water to remove volatile organic contaminants, we use chloramination as a disinfectant to protect against microbial contaminants, we adjust pH to reduce lead and copper levels, we add coagulant and filter to reduce iron and manganese levels, and we add fluoride to aid dental health and hygiene. All components of the water treatment process are monitored by state-certified operators through a computerized Supervisory Control and Data Acquisition (SCADA) system.

Water Main Flushing

Distribution mains (pipes) convey water to homes, businesses, and hydrants in your neighborhood. The water entering distribution mains is of very high quality; however, water quality can deteriorate in areas of the distribution mains over time. Water main flushing is the process of cleaning the interior of water distribution mains by sending a rapid flow of water through the mains.

Flushing maintains water quality in several ways. For example, flushing removes sediments like iron and manganese. Although iron and manganese do not pose health concerns, they can affect the taste, clarity, and color of the water. Additionally, sediments can shield microorganisms from the disinfecting power of chlorine, contributing to the growth of microorganisms within distribution mains. Flushing helps remove stale water and ensures the presence of fresh water with sufficient dissolved oxygen, disinfectant levels, and an acceptable taste and smell.

During flushing operations in your neighborhood, some short-term deterioration of water quality, though uncommon, is possible. You should avoid tap water for household uses at that time. If you do use the tap, allow your cold water to run for a few minutes at full velocity before use and avoid using hot water to prevent sediment accumulation in your hot water tank.

Please contact us if you have any questions or if you would like more information on our water main flushing schedule.

Water Sewer Division Operation

Canton's licensed operators maintain and operate a drinking water supply and distribution system that consists of the James P. Moran Water Treatment Facility and three wells, the Edward M. Sullivan Water Treatment Facility and four wells, 128 miles of water main pipe, five storage tanks, 1,100 fire hydrants, and 7,300 service connections delivering drinking water to our customers.

Some of the tasks that they complete on a regular basis include water main flushing, hydrant replacement, valve exercising, meter reading, meter inspection and repair, storage tank inspection, water leak repair, water quality testing and evaluation, and documenting and reporting test results and system operations to regulatory agencies.

Canton also maintains an active Cross Connection Program that continuously inspects private and public facilities' testing devices to protect from cross-contamination.

Community Participation

The Canton Board of Selectmen (BOS) meets as the Water Commissioners at one of their meetings in April or May each year to review water sewer rates and approve any changes. Agenda notices are posted in Memorial Hall or on line at www.town.canton.ma.us.

Public Works submits the Water Sewer Division capital acquisition requests to BOS, Capital Planning Committee and the Finance Committee, along with its' operating budget request to the BOS and the Finance Committee in December for review and discussion. Both the capital requests and operational funding are discussed and voted on at the Annual Town Meeting.

Table Talk

Get the most out of the Testing Results data table with this simple suggestion. In less than a minute, you will know all there is to know about your water:

For each substance listed, compare the value in the Amount Detected column against the value in the MCL (or AL, SMCL) column. If the Amount Detected value is smaller, your water meets the health and safety standards set for the substance.

Other Table Information Worth Noting

Verify that there were no violations of the state and/or federal standards in the Violation column. If there was a violation, you will see a detailed description of the event in this report.

If there is an ND or a less-than symbol (<), that means that the substance was not detected (i.e., below the detectable limits of the testing equipment).

The Range column displays the lowest and highest sample readings. If there is an NA showing, that means only a single sample was taken to test for the substance (assuming there is a reported value in the Amount Detected column).

If there is sufficient evidence to indicate from where the substance originates, it will be listed under Typical Source.



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 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.



Level 2 Assessment Update

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 assessment(s) to identify problems and to correct any problems that were found during these assessments.

During the past year, a Level 2 assessment was required to be completed for our water system. This assessment was completed. In addition, we were required to take one corrective action. We flushed the water distribution system, flushed water storage tanks, and resampled the location that tested positive for total coliform. All repeat samples came back negative. The corrective action was completed.

Where Does My Water Come From?

Canton draws its drinking water from two sources, our own local groundwater wells and the Massachusetts Water Resources Authority (MWRA). The Massachusetts Department of Environmental Protection (DEP) limits the amount of water the town can use to 2.67 million gallons per day. We use MWRA when there is a high demand for water, such as in the summer or in firefighting situations. Canton used an average of 2.34 million gallons per day in 2018, 62 percent of which was supplied by MWRA and 38 percent from our seven groundwater wells.

GROUNDWATER SOURCES	WELL ID NUMBER	WELLS TREATED AT	PLANT ID NUMBER
Well 7	4050000-9G	Sullivan Water Treatment Plant, Neponset St.	4050000-011T
Well 9	4050000-15G	Sullivan Water Treatment Plant, Neponset St.	4050000-011T
Well 13	4050000-13G	Sullivan Water Treatment Plant, Neponset St.	4050000-011T
Well 16	4050000-16G	Sullivan Water Treatment Plant, Neponset St.	4050000-011T
Well 11	4050000-11G	Moran Water Treatment Plant, Pecunit St.	4050000-06T
Well 12	4050000-12G	Moran Water Treatment Plant, Pecunit St.	4050000-06T
Well 14	4050000-14G	Moran Water Treatment Plant, Pecunit St.	4050000-06T

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. All data shown was collected during calendar year 2018, unless otherwise noted in the table(s). 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.

REGULATED SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chlorine (ppm)	2018	[4]	[4]	2.27	0.01–2.27	No	Water additive used to control microbes
Chlorite (ppm)	2018	1	0.8	0.77	ND–0.77	No	By-product of drinking water disinfection
Combined Radium (pCi/L)	2017	5	0	0.84	NA	No	Erosion of natural deposits
Fluoride (ppm)	2018	4	4	0.55	0.55–0.8	No	Water additive which promotes strong teeth
Haloacetic Acids [HAA] (ppb)	2018	60	NA	15	ND–15	No	By-product of drinking water disinfection
Nitrate (ppm)	2018	10	10	1.74	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Perchlorate (ppb)	2018	2	NA	0.44	0.07–0.44	No	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks, and explosives
TTHMs [Total Trihalomethanes] (ppb)	2018	80	NA	22	2.3–33	No	By-product of drinking water disinfection
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)	2017	1.3	1.3	0.11	0/32	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2017	15	0	2	0/32	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
Aluminum (ppb)	2018	200	NA	180	140–180	No	Erosion of natural deposits; Residual from some surface water treatment processes
Chloride (ppm)	2018	250	NA	157	136–157	No	Runoff/leaching from natural deposits
Copper (ppm)	2018	1.0	NA	0.02	NA	No	Corrosion of household plumbing systems; Erosion of natural deposits
Iron (ppb)	2018	300	NA	490	90–490	No	Leaching from natural deposits; Industrial wastes
Manganese (ppb)	2018	50	NA	26	ND–26	No	Leaching from natural deposits
pH (Units)	2018	6.5–8.5	NA	8.9	8.8–8.9	No	Naturally occurring
Sulfate (ppm)	2018	250	NA	13.3	12.9–13.3	No	Runoff/leaching from natural deposits; Industrial wastes
Total Dissolved Solids [TDS] (ppm)	2018	500	NA	400	330–400	No	Runoff/leaching from natural deposits
Zinc (ppm)	2018	5	NA	0.023	0.011–0.023	No	Runoff/leaching from natural deposits; Industrial wastes

UNREGULATED SUBSTANCES¹

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Bromodichloromethane (ppm)	2018	9.3	1.4–9.3	By-product of drinking water chlorination
Bromoform (ppm)	2018	3.0	2.9–3.0	By-product of drinking water chlorination
Chlorodibromomethane (ppm)	2018	7.7	1.0–7.7	By-product of drinking water chlorination
Chloroform (ppm)	2018	16.7	0.6–16.7	By-product of drinking water chlorination
Sodium ² (ppm)	2018	63.6	NA	Natural resources; Runoff from use as salt on roadways; By-product of treatment process

¹Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist U.S. EPA in determining their occurrence in drinking water and whether future regulation is warranted.

²The Massachusetts Department of Environmental Protection maintains a guideline level of 20 ppm for sodium.

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.

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.

LRAA (Locational Running Annual Average): The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters. Amount Detected values for TTHMs and HAAs are reported as the highest LRAAs.

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).

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

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