

ANNUAL WATER QUALITY REPORT

WATER TESTING PERFORMED IN 2018



Presented By
Wayland Water

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.

Source Water Assessment

A Source Water Assessment Plan (SWAP) is 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 high. It is important to understand that a high susceptibility rating does not imply poor water quality, only the system's potential to become contaminated within the assessment area. If you would like to review the Source Water Assessment Plan, please feel free to contact our office during regular office hours.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons 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>.



Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. The Board of Public Works meets the 2nd and 4th Tuesdays of each month, beginning at 7 p.m., at the DPW Facility located at 66 River Road, Wayland, Massachusetts.

Sources of Our Water

The Wayland DPW Water Division operates eight (8) groundwater wells. The three (3) wells located at the Baldwin Pond site are part of the Baldwin Pond Water Filtration Facility. Listed here are the source names and their MADEP ID numbers.

SOURCE NAME	MADEP ID#	TYPE/LOCATION
Campbell Well	3315000-02G	gravel-packed well located off Campbell Rd.
Chamberlain Well	3325000-08G	gravel-packed well located off Moore Rd.
Meadowview Well	3315000-05G	gravel-packed well located off Oak Hill Rd.
Happy Hollow #1R	3315000-10G	gravel-packed well located off Old Conn Path
Happy Hollow #2R	3315000-11G	gravel-packed well located off Old Conn Path
Happy Hollow #3R	3315000-12G	gravel-packed well located off Old Conn Path
Baldwin Pond #1R	3315000-09G	gravel-packed well located off Old Sudbury Rd.
Baldwin Pond #2	3315000-07G	gravel-packed well located off Old Sudbury Rd.
Baldwin Pond #3	3315000-06G	gravel-packed well located off Old Sudbury Rd.

Fluoridation Information

Fluoride addition was passed by Town meeting vote in 1999 to improve oral health in children. Our water system's fluoride level is adjusted to an optimal level averaging 0.70 ppm. Fluoridation results are reported to the MassDPH/Office of Oral Health on a monthly basis.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Don Millette, Water Department Superintendent, at (508) 358-3672.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the 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.

Information on the Internet

The U.S. EPA (<https://goo.gl/TFAMKc>) and the Centers for Disease Control and Prevention (www.cdc.gov) Web sites provide a substantial amount of information on many issues relating to water resources, water conservation and public health. Also, the DEP has a Web site (<https://goo.gl/fg45jY>) that provides complete and current information on water issues in Massachusetts, including valuable information about our watershed.

Level 1 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 one or more assessments to identify problems and to correct any problems that were found during these assessments.

During the past year we were required to conduct a Level 1 assessment, which was completed. We were not required to take any corrective actions because no deficiencies were found. 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. We received notification from our lab on 9/19/2018 for a positive Total Coliform (*E. coli* negative) sample at the bacteria sampling location in Wayland High School. All resamples were negative for Total Coliform. After a thorough investigation of the sample site, sample collection procedure, and the system conditions at the time of sample collection, we were unable to find a cause of contamination.

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.



Treatment Process

The Baldwin Pond Treatment Plant uses a process called Ultra Filtration. This type of filtration has several advantages over traditional water filtration:

- Removes pathogens and turbidity
- Provides an absolute barrier for bacteria, viruses, and parasites
- Compared to conventional disinfection treatment, no deactivated pathogens remain in the water.

This process involves a number of steps, starting with ozonation. Raw water is pumped into the Treatment Plant from a combination of three groundwater wells. Once in the plant, the raw water is dosed with ozone to oxidize the iron and manganese that is naturally present in the groundwater. Next, potassium hydroxide is added to adjust the pH of the raw water and polyaluminum chloride to aid in flocculation of the iron and manganese particles. Then the raw water enters the ozone contact tank, where the oxidation and flocculation take place. After 70 minutes of travel time, the water enters one of two 500-micron prefilters to remove larger particles. Once this process is complete, the raw water enters the Ultra Filtration Units. After filtration, the water travels to the clear well where sodium hypochlorite is added for disinfection and sodium fluoride is added to prevent tooth decay.

The Water Division continues to operate five (5) other wells that all have a similar chemical treatment process, without the filtration step. Water is pumped from the aquifer where potassium hydroxide is added to adjust the pH. Sodium hypochlorite is added for disinfection and sodium fluoride is added to help prevent tooth decay.

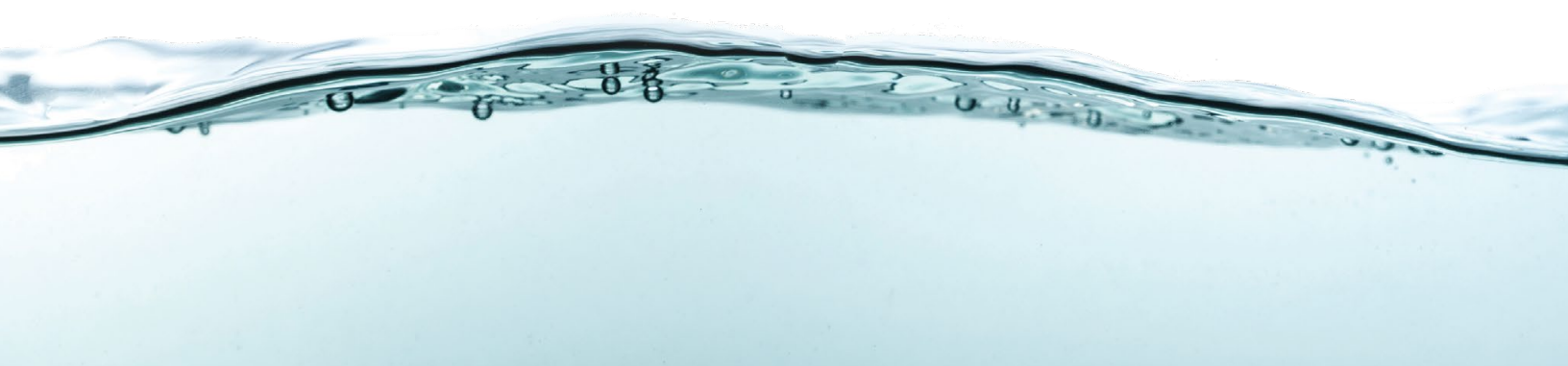
What's a Cross-Connection?

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 (backpressure). 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 (backsiphonage).

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 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.



Test Results

We are pleased to report that your drinking water meets or exceeds all federal and state requirements.

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.

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
Barium (ppm)	2016	2	2	0.032	0.011–0.032	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2018	[4]	[4]	1.2	0.79–1.2	No	Water additive used to control microbes
Haloacetic Acids [HAAs] (ppb)	2018	60	NA	2.2	ND–4.6	No	By-product of drinking water disinfection
Nitrate (ppm)	2018	10	10	3.7	0.63–3.9	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Perchlorate (ppb)	2018	2	NA	0.67	0.07–0.67	No	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks, and explosives
TTHMs [Total Trihalomethanes] (ppb)	2018	80	NA	12.9	6.8–36	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	0.025	0/41	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2017	15	0	5	0/41	No	Corrosion of household plumbing systems; Erosion of natural deposits

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Iron (ppb)	2018	300	NA	314	ND–314	No	Leaching from natural deposits; Industrial wastes
Manganese ¹ (ppb)	2018	50	NA	134	ND–134	No	Leaching from natural deposits

UNREGULATED AND OTHER SUBSTANCES ²

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH
Acetone (ppb)	2018	58	ND–58
Nickel (ppm)	2016	0.002	ND–0.002
Sodium (ppm)	2018	103.7	19.4–103.7

¹ 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.

² 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.

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.

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.

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.