



**2021 Annual Drinking
Water Quality Report
for Water Division
Ayer Department of
Public Works**

**Ayer, Massachusetts
MADEP PWSID # 2019000**

www.ayer.ma.us/water

Where Does My Drinking Water Come From?

The Town of Ayer is supplied by two groundwater supply sources: Two Spectacle Pond Wells (PWS ID #2019000-04G and #05G) and three Grove Pond Wells (PWS ID #2019000-06G, #07G and #08G). The Spectacle Pond well site is in the northeast section of the distribution system near the border of Littleton and Ayer. The Grove Pond well site is located near the southern border of Ayer off Barnum Road. Each well site consists of groundwater wells with pumping stations and a water filtration facility for the removal of iron and manganese. The treated water is pumped into the distribution system and stored in the water tanks behind Page Hilltop School and on top of Pingry Hill. The Grove Pond Treatment System was updated in 2020 to include PFAS removal.

How Are These Sources Protected?

A Source Water Assessment Plan (SWAP) is available at our office and on the Town web site. 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 SWAP, our water system had a susceptibility rating of 'high' due to the presence of high-threat land use within the water supply protection areas

Residents can help protect sources by:

- Practicing good septic system maintenance
- Supporting water supply protection initiatives at the next town meeting
- Taking hazardous household chemicals to hazardous materials collection days
- Contacting the DPW or Board of Health if you see illegal dumping of waste
- Limiting pesticide and fertilizer use, etc.

If you would like to review the SWAP, the complete SWAP report is available at DPW Office at 25 Brook Street and online at <https://www.ayer.ma.us/water> . For more information, call the DPW at 978-772-8240.

The Town of Ayer DPW-Water Division is proud to present our Annual Water Quality Report covering all testing performed between January 1 and December 31, 2021. Over the years, the Ayer DPW has been dedicated 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.

The intent of this report is to provide you with all the information available on Ayer's drinking water quality. Included are details about where your water comes from, how your water is treated, cross connection and water conservation tips, water quality test results, and how these results compare to state and federal standards. We are committed to providing you with information because informed customers are our best allies.

This report contains very important information about your drinking water. Please translate it or speak with someone who understands it.

Este informe contiene información muy importante sobre su agua potable. Por favor, tradúzcalo o hable con alguien que lo entienda.

If you are a property owner who rents or leases your property, please forward a copy of this important report to your tenants or inform them that copies are available at the business office.

How to Contact the Ayer Water Division:

The DPW office is located at 25 Brook St., Ayer, MA 01432
Normal business hours are Monday-Friday (holidays excluded) 7:30 am – 3:30 pm For questions regarding your drinking water, call Kimberly Abraham - Water and Sewer Superintendent or Greg Cormier - Water Department Foreman, at (978) 772-8240.

Copies of this can be found at Ayer Town Hall, the Nashoba Board of Health, Ayer Public Library, and the Ayer DPW office.



Substances found in Drinking Water

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 (1-800-426-4791).

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, Environmental Protection (MassDEP) and U.S. Environmental Protection Agency (EPA) prescribe regulations that limit the number 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.

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).

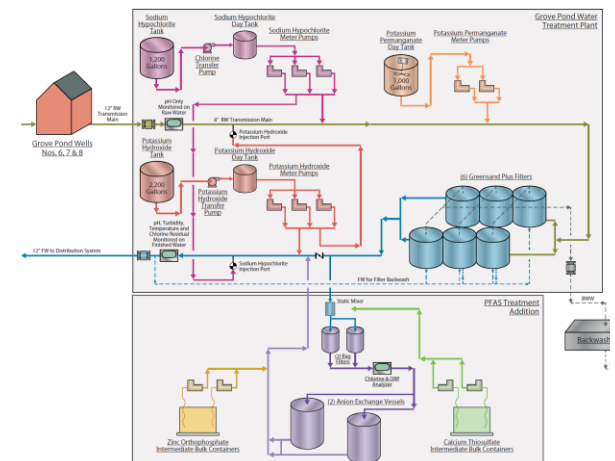
Water Treatment

The Ayer DPW strives to produce high quality drinking water, without any bad taste or color. We treat the water to remove iron and manganese minerals which naturally occur in the Town groundwater supplies.



In 2021, The two treatment plants produced over 572,593,000 gallons combined using the following processes:

- Oxidation: sodium hypochlorite (chlorine) and potassium permanganate are used to bring minerals out of solution.
- Direct Filtration: This removes minerals and other particles from the water using greensand as a filter.
- pH adjustment: Potassium hydroxide is added to reduce the corrosiveness of the water.
- Ion Exchange: The Grove Pond facility has been treating the water for Per- and Poly Fluoroalkyl substances since November 2020.
- Corrosion Control: The Grove Pond facility is also adding zinc orthophosphate corrosion inhibitor.



Above is a diagram of the new treatment plant set up at Gove Pond Wellfield. With the completion of the Grove Pond PFAS treatment system, we are optimizing the operations and treatment to improve the water quality.

Pay Your Bill Online

Town of Ayer accepts online payments for water and sewer bills through our online payment partners. This online service will give customers who do business with the Town of Ayer a convenient, efficient, and user-friendly way to pay bills or select city services 24 hours per day, 7 days a week.

You have two (2) options for paying your bills or ordering services, either by **electronic check** or by **credit card**.

To Register: Click on the links to login and register from <https://unipaygold.unibank.com/customerinfo.aspx>

Water Quality Testing Results for 2021

The tables and descriptions found in this report offer a complete summary of all contaminants detected in Ayer's water in 2021. The tables may contain several terms and abbreviations that may be unfamiliar to you. To help you better understand these terms, we provide the following important definitions.

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 contamination.

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 contamination.

N/A: Not applicable

ND: None detectable

NTU: Nephelometric Turbidity Units

ORSG: Office of Research and Standards Guideline: 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.

pCi/L: picocuries per liter (a measure of radioactivity)

ppm: parts per million or milligrams per liter (mg/L)

ppb: parts per billion or micrograms per liter (µg/L)

RAA: Running Annual Average: The average of four consecutive quarters of data.

SMCL: Secondary Maximum Contaminant Level: These standards are developed to protect 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.

90th Percentile: 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.

Source Water Quality							
Substance (Contaminant)	Date(s) Collected	Highest Result or Average	Range Detected	MCL	MCLG	Possible Sources	Violation (Y/N)
Inorganic Contaminants (IOCs)							
Barium	Jul 2021	25 ppb	N/A	200 ppb	2 ppb	Erosion of natural deposits; runoff from glass and electronics production wastes	N
Nitrate	Jul 2021	430 ppb	300-430 ppb	10,000 ppb	10,000 ppb	Naturally occurring mineral in New England groundwater	N
Manganese ¹	Quarterly	6 ppb	ND-6 ppb	Unregulated SMCL: 50 ppb	Unregulated OSRG: 300 ppb	Natural sources as well as discharges from industrial uses	N
Sodium ²	Jun 2021	42.5 ppm	N/A	Unregulated	Unregulated OSRG: 20 ppm	Natural sources; runoff from use as salt on roadways; by-product of treatment process	N
Iron	Quarterly	18 ppb	ND-18 ppb	Unregulated SMCL: 300 ppb	Unregulated	Natural and industrial sources as well as aging and corroding distribution system and household pipes	N
¹ Manganese: US EPA and MassDEP have established public-health advisory levels for manganese to protect against concerns of potential neurological effects. ² Sodium: Sensitive individuals, such as those experiencing hypertension, kidney failure, or congestive heart failure should be aware of the levels of sodium in their drinking water where exposures are being carefully controlled.							
Radiological Contaminants							
Gross Alpha	Oct 2021	1.6 pCi/L	N/A	15 pCi/L	0 pCi/L	Erosion of natural deposits	N
Radium 226	Oct 2021	0.4 pCi/L	N/A	5 pCi/L	0 pCi/L	Erosion of natural deposits	N

Per- and Poly Fluoroalkyl Substances (PFAS)									
Regulated Substance	Sites	Detect Result or Range	Quarterly Average	MCL	Violation (Y/N)	Possible Sources	Health Effects		
PFAS6	Spectacle Pond Wellfield	22.6-28.1 ppt	25.5 ppt	20 ppt	Y	Discharges and emission from industrial and manufacturing sources associate with the production or use of these PFAS, including production of moisture and oil resistant coating on fabrics and other materials. Additional sources include the use and disposal of products containing PFAS, such as fire-fighting foams.	Some people who drink water containing these PFAS in excess of the MCL may experience certain adverse effects. These could include effects on the liver, blood, immune system, thyroid, and fetal development. These PFAS may also elevate the risk of certain cancers.		
	Grove Pond Wellfield	ND-6.4 ppt	1.6 ppt	20 ppt	N				
Unregulated Substance	Sites	Detect Result or Range	Average	MCL	Violation (Y/N)				
PFBS	Spectacle Pond Wellfield	ND-2.3 ppt	1.4 ppt	NA	NA				
	Grove Pond Wellfield	ND	NA	NA	NA				
PFHxA	Spectacle Pond Wellfield	ND-14.8 ppt	10.2 ppt	NA	NA				
	Grove Pond Wellfield	ND-3.4 ppt	1.0 ppt	NA	NA				

Ayer DPW Water Division has levels of PFAS6 above the Drinking Water Standard.

The location where elevated levels of PFAS6 were reported is one of two water treatment plants that supplies drinking water to our system. PFAS6 levels were reported below the 20 ng/L MCL at our Grove Pond WTP, which has treatment for the removal of PFAS6.

The PFAS removal system at Spectacle Pond Wellfield is scheduled go online in 2022.

Distribution Water Quality							
Disinfectants and Disinfection Byproducts							
Disinfectant/Disinfectant Byproduct	Date(s) Collected	Highest Result or Highest Running Average	Range Detected	MRDL	MRDLG	Typical Sources	Violation (Y/N)
Total Chlorine	Monthly	0.1 ppm	0.02-0.44 ppb	4 ppm	4 ppm	Added during treatment to control microbes	N
Total Trihalomethanes	Aug 2021	44 ppb	NA	80 ppb	NA	Byproduct of disinfection	N
Haloacetic Acids	Aug 2021	17ppb	NA	60 ppb	NA	Byproduct of disinfection	N

Chlorine is an oxidizer and disinfectant used to kill bacteria and microorganisms in drinking water. Disinfection byproducts are organic compounds produced when chlorine reacts with naturally occurring organic matter. Total trihalomethanes (TTHMs), a group of four compounds, and haloacetic acids (HAAs), a group of five compounds, are monitored in Ayer on an annual basis.


Microbiological Contaminants: Bacteria in the Total Coliform group are naturally present in the environment and are not necessarily harmful. We regularly test for this group of bacteria because their presence indicates that conditions are right for the presence of more harmful microorganisms, and we would need to look for potential problems in the water treatment or distribution systems. We did not have to conduct any assessments in 2021.

Lead and Copper							
Contaminant	Dates Collected	90 th Percentile	AL	MCLG	# of Sites Sampled	# of Sites Above AL	Possible Source of Contamination
Lead	Spring	32 ppb	15 ppb	0 ppb	40	6	Corrosion of household plumbing systems; erosion of natural deposits
	Fall	6 ppb			40	3	
Copper	Spring	1.1 ppm	1.3 ppm	1.3 ppm	40	2	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
	Fall	0.78 ppm			40	2	

Despite Ayer’s source and distribution waters being lead-free, 6 out of 40 samples collected in the Spring of 2021 exceeded the Lead AL resulting in a Notice of Non-Compliance being issued by the DEP. Both copper and lead are generally found in water due to materials and components associated with home plumbing and would typically leach out from the water pipes within your home if the water were corrosive. Lead usually comes from the lead solder used, prior to 1986, to connect copper pipes and from some brass fixtures. The copper comes from the pipes themselves.

Copper is an essential nutrient. That said, ingesting elevated levels may upset your stomach, but there are no long-term effects unless you suffer from Wilson’s Disease. If this is the case, consult your personal physician. Elevated lead ingestion, on the other hand, may cause serious health problems. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure. Infants and young children are typically more vulnerable to lead and may cause delays in mental and physical development. Lead is therefore strictly regulated in drinking water.


What You Can Do to Reduce Exposure to Lead from Drinking Water

<p>If your water has gone unused for several hours, you can minimize the potential for lead exposure by flushing your tap water for 30 seconds to 2 minutes before using water for drinking or cooking.</p>	<p>Never Use hot water from the faucet for drinking or cooking, especially when making baby formula or other food for infants.</p>	<p>Be careful of places you may find lead in or near your home. Paint, soil, dust, and some pottery may contain lead.</p> 	<p>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 1-800-428-4791 or at www.epa.gov/safewater/lead</p>
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Use Water Wisely

Flushing water doesn’t have to be wasted water. Washing dishes, watering plants, and showering are all ways water gets used. After water has been in use, collect drinking water from the cold water tap and keep it in the refrigerator. This makes sure cool drinking water is available right when you want it.

Conserving water doesn’t just mean using less water, it also means using water more efficiently.

<p>Indoor Conservation Tips:</p> <ul style="list-style-type: none"> Install low-flow aerators on your faucets. Saves 1-5 gallons per min. Fix leaks. Leaking toilets and dripping faucets can waste hundreds of gallons per week. Never use your toilet as a wastebasket. You’ll save 1-2 gallons per flush. Consider replacing your appliances with water saving ones. 	<p>Outdoor Conservation Tips:</p> <ul style="list-style-type: none"> One inch of water a week is plenty. After heavy rains, you may not need to water for 10 to 14 days. Use mulch in your flower beds. Mulch will keep roots cool and moist and will reduce weeds. Raise the mower blade. Longer grass retains moisture and competes against weeds. 	
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Ayer implements outdoor water use restrictions every summer. Please do your part to preserve our valuable water resources.

Cross Connection Program

A comprehensive cross connection control program is important to the protection of our water supply from the possibility of contamination or pollution where there are cross connections. Cross connections occur within the distribution system or in the plumbing of all types of buildings where non-potable water meets potable water.

Plumbing cross connections exist whenever a pipe carrying drinking water has a direct physical connection to a source of potentially harmful materials. Wherever a cross connection exists there is the potential for drinking water contamination. A cross connection can contaminate drinking water in the building where it is located, or it can contaminate an entire neighborhood.

At each cross connection, there should be a backflow preventor installed. This is a testable or non-testable cross connection control device that prevents potential pollutants and contaminants from flowing into the public water system.

What is the Ayer Water Division doing?

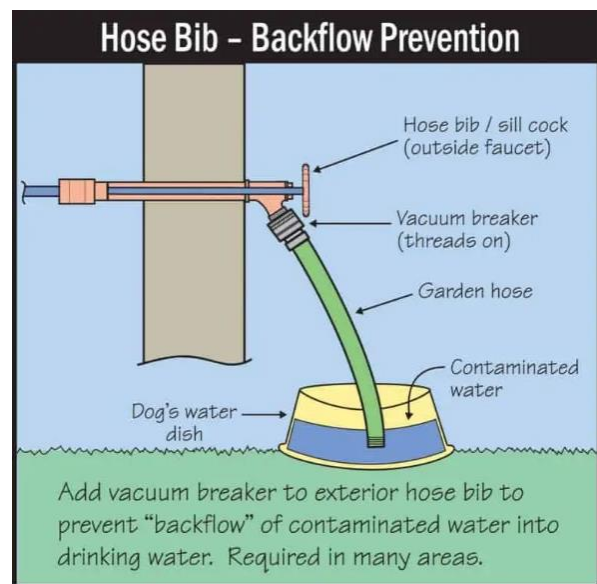
Cross connections are a major concern. We follow the Massachusetts Drinking Water Regulations which requires that all non-residential buildings be surveyed for the need for backflow preventors, resurveyed at regular intervals, and testable devices be tested regularly.

What you can do?

Preventing cross connections in your own home or business protects you and fellow residents and businesses from potentially serious health impacts.

The most common cross connection found in homes and businesses is at a faucet to which a hose can be attached. The garden hose creates a hazard when the end is submerged in dirty water or when attached to a chemical sprayer.

This can easily be corrected by installing a **hose bibb vacuum breaker** on the faucet. These non-testable devices are inexpensive and are available at most plumbing supply, hardware, and home improvement stores.



Has your Water Meter Been Updated?



The Ayer Department of Public Works Water Division is installing new water meters and Automatic Meter Reading (AMR) devices for more accurate and efficient water meter reading. If you have not had a new meter and outside reading device installed, we need your cooperation. Meters will be installed at no cost and will help you find leaks before a high water bill finds you.

To perform the installation, an Ayer Water Division Technician must access your water meter. In most cases the installation can be completed within 60 minutes. All Water Customers need to have the radio transmitter device installed and/or their water meter replaced.

PLEASE CALL the Ayer DPW Office at 978-772-8240 to schedule an appointment.