

2018 Annual Drinking Water Quality Report for Water Division-Ayer Department of Public Works

Ayer, Massachusetts MADEP PWSID # 2019000

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, 2018. Over the years, the Ayer DPW has 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.

For questions regarding your drinking water, call Mark Wetzel, P.E. -Superintendent of Public Works or Rick Linde - Water Department Foreman, at (978) 772-8240.

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

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

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.



# Where Does My Drinking Water Come From?

The Town of Ayer is supplied by two groundwater supply sources: the Spectacle Pond Wells (PWS ID #2019000-04G and #2019000-05G) and three Grove Pond Wells (PWS ID #2019000-06G, #07G and #08G). The Spectacle Pond well site is located 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 two gravel packed wells 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.

#### **How Are These Sources Protected?**

A Source Water Assessment Plan (SWAP) was completed in 2002 and 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 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

http://www.ayer.ma.us/water-department . For more information, call the DPW at 978-772-8240.



The water quality of our system is constantly monitored by us and MassDEP to determine the effectiveness of existing water treatment and to determine if any additional treatment is required.

#### WHY YOUR WATER IS SAFE – 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.



We have two water treatment systems to remove the minerals from the water using oxidation followed by greensand filtration. Oxidation is accomplished by adding sodium hypochlorite (chlorine) and potassium permanganate to the water.



In 2018, the DPW had numerous water quality complaints, primarily due to operational changes required to minimize the PFAS concentrations in the water. The water operators were challenged with reactivation of an old well that has extremely high levels of iron and manganese in the water and loosening the rust build-up in the pipes. This created rusty water complaints. The rusty water is an aesthetic issue (taste, odor and staining) and is not health related. We are in the process of upgrading the filter media which should significantly improve the water treatment of the two plants.

#### Substances found in Drinking 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:

<u>Microbial contaminants</u> -such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

<u>Inorganic contaminants</u> -such as salts and metals, which can be naturallyoccurring or result from urban stormwater runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, and farming.

<u>Pesticides and herbicides</u> -which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

<u>Organic chemical contaminants</u> -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.

<u>Radioactive contaminants</u> -which can be naturally occurring or be the result of oil and gas production and mining activities.

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).

### Does My Drinking Water Meet Current Health Standards?

We are committed to providing you with the best water quality available. We are proud to report that last year your drinking water met all applicable health standards regulated by the state and federal government. In addition, while the PFAS substances described on Page 7 are not regulated, the Ayer DPW is taking available measures to keep the PFAS levels below the Health Advisories.

#### What Does This Data Represent?

The water quality information presented in the tables 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 tables.

During the past year we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. The state allows us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. MassDEP has reduced the monitoring requirements for volatile organic contaminants, inorganic contaminants, synthetic organic contaminants because Ayer's sources are not at risk of contamination.

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 / Organic Contaminants								
Barium (ppb)	June 2018	31	9 - 31	200	2	N	Erosion of Natural deposits; runoff from glass and electronics production wastes	
Nitrate (ppm)	June 2018	0.4	0.17 – 0.4	10	10	N	Naturally occurring mineral in New England groundwater	
Perchlorate (ppb)	Aug & Sept 2018	0.25	0.07 – 0.	2	N/A	N	Rocket propellants, fireworks, munitions, flares, blasting agents	
Radiological Contaminants								
Gross Alpha (pCi/L)	June & Aug	2.3	2.2 – 2.3	15	0	N	Erosion of natural deposits	
Disinfectants and Disinfection By-Products								
Total Trihalomethane (TTHMs) (ppb)	August 2018	28.5	N/A	80		N	Byproduct of drinking water chlorination	
Haloacetic Acids (HAA5) (ppb)	August 2018	6.80	N/A	60		N	Byproduct of drinking water disinfection	
Chlorine (ppm)	Monthly 2018	0.04	0.01 – 0.034	4	4	N	Water additive used to control microbes	

Secondary Contaminants	Date(s) Collected	Results or Range Detected	Average Detected	SMCL	ORSG or EPA Health Advisory	Possible Source
Manganese (ppb)	2018 Various	0 -29	13	50	300*	Erosion of natural deposits
Sodium (ppm)	June 2018	44 - 65	55		20	Natural sources; runoff from use as salt on road ways

 The US EPA and MassDEP have established public health advisory levels for manganese to protect against concerns of potential neurological effects.

• **Sodium** –sensitive individuals, such as those experiencing hypertension, kidney failure, or congestive heart failure, or congestive heart failure should be aware of the levels of sodium in their drinking water where exposures are being carefully controlled.

#### **Revised Total Coliform Rule (RTCR)**

The RTCR establishes a maximum contaminant level (MCL) for E. coli and uses E. coli and total coliform to initiate a "find and fix" approach to address fecal contamination that could enter into the distribution system. It requires public a water system (PWS) to perform assessments to identify sanitary defects and subsequently take action to correct them.

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 a Level 1 assessment to identify any problems that were found during these assessments.

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. During the past year, we were required to conduct two Level 1 assessments. One in July and one in September. Two Level 1 assessments were completed. In addition, we were required to take five corrective actions and we completed five of these actions. 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. During the past year, one Level 2 assessment was completed. In addition, we were required to take eight corrective actions and we completed seven of these actions in 2018 and the final action was completed in early 2019.

In July and August of 2018, several water samples at the remote extent of the water system were positive for total coliform but negative for E-Coli. The DPW added chlorine to the Washington Street water tank and did extensive flushing to draw the chlorine to the extents of the water system. This resolved the problem. In fall 2018 the DPW installed a mixing system and rechlorination system in the tank to improve water guality.



The following definitions relate to terms used in the report or the contaminants reported in the water quality tables:

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.

Variances and Exemptions – State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

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

pCi/l = picocuries per liter (a measure of radioactivity)

NTU = Nephelometric Turbidity Units

- ND = Not Detected
- N/A = Not Applicable

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

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.



Drink Local and Be Green!Tap water is delivered straight to your home without trucking or plastic waste. Bottled water produces over 10,000 times the amount of greenhouse gases as tap water. Our local water supply uses high efficiency pumping systems and we buy electricity from a local solar farm.

# WATER SYSTEM PROJECTS

The Ayer DPW-Water Division is proactive on upgrading the Towns water infrastructure. There are numerous completed and ongoing projects related to providing safe and reliable drinking water.

- Grove Pond PFAS Treatment System The design for the PFAS treatment system was designed and bid and construction will be starting in July 2019
- Water Main replacements are required to upgrade the aging (120 year old) pipes. We recently completed a new water main on Pearl Street and are in the process of designing replacements on Oak, Prospect, Wright, Groton Shirley and West Main Street.
- We completed the construction of a new 70 ft. deep well to replace the Spectacle Pond Well 2 which was plugged with iron minerals.
- We are in the process of replacing the filter media in the Grove Pond Water Treatment Plant to improve the removal of iron and manganese from the drinking water.
- In 2019, we will begin testing for a new water supply well in the Spectacle Pond area



Ayer implements water use restrictions every summer. These restrictions limit the time of day and the days of the week that you can water outdoors. These restrictions have been implemented in order to protect our resources. It is import ant that these conservation efforts continue.





With all the News about lead in drinking water, you may have some concerns about the safety of your tap water. Ayer samples 40 locations in town twice a year for lead in customer's water. We had one violation (1 ppb over the Action Limit) in 2012 and have since made improvements to optimize our water treatment.

# WHAT YOU NEED TO KNOW ABOUT LEAD **IN TAP WATER**

Ayer's water is lead free when it leaves the treatment plants. Our water pipes that carry the water to your house are made mostly of iron and steel and do not add lead to the water. However, lead can get into tap water through pipes in your home, lead solder used in plumbing, and some brass fixtures. Corrosion or wearing away of lead-based materials can add lead to tap water, especially if water sits for a long time in the pipes before it is used. Ayer adds potassium hydroxide to the water to increase the pH and make the water less corrosive, thereby reducing the leaching of lead into drinking water.



#### AYER WATER MEETS LEAD **STANDARD IN 2018**

Under EPA rules, each year the Water Division must test tap water in a sample of homes that are likely to have high levels. These are usually homes with lead solder plumbing. The EPA rule requires that 9 out of 10, or 90%, of the sampled homes must have lead levels below the Action Level of 15 parts per billion (ppb). Results for the 40 samples taken in July and August 2018 are shown in the table. Four sites were over the active level out of the 40 samples were over the lead action level of 15 ppb and none were over the copper action level. However 90% were under the level as required. The Ayer DPW continues to optimize our water treatment to reduce lead and copper levels in the Town's water.

# **Important Information from the EPA** about Lead

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. Ayer is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. If your water has been sitting 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. 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 1-800-428-4791 or at www.epa.gov/safewater/lead.

	Date(s) Collected	90 <sup>th</sup> Percentile	Action Level	MCLG	# of Sites Sampled	# of Sites Above Action Level	Possible Source of Contamination
Lead (ppb)	July & August 2018	15	15	0	40	4	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	July & August 2018	0.60	1.3	1.3	40	1	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

Our system received a Notice of Noncompliance on 7/13/2018 for late notification to our sampling program participants in 2017. Specifically, we failed to provide notification (consumer Notice) within 30 days after we learned of the lead and copper tap monitoring results for samples collected June through September 2017. We sent the Consumer Notices to participants on October 30, 2017. 4 of the 40 late results exceeded the lead action level and only 1 exceeded the copper action level.

# What Can I Do To Reduce Exposure To Lead in Drinking Water?

Let the water run before using: fresh water is better than stale! To save water, fill a pitcher with fresh

use

water and place in the drinking or refrigerator cooking until for future becomes cold.

Any time water Never use hot has gone water from unused for the faucet for more than 6 drinking or hours, run each cooking, faucet used for especially when making baby formula or other food after the water for infants.

Check vour plumbing fixtures to see if they are lead-free. Read the labels closely.

Remove loose lead solder and debris. Every few months remove the aerator from each faucet in your home and flush the pipes for 3-5 minutes.

Be careful of places you may find lead in or near your home. Paint, soil, dust and some pottery may contain lead.



Call the Department of Public Health at 800-532-9571 or EPA at 800-424-LEAD for health information.

# PER- AND POLY FLUOROALKYL SUBSTANCES (PFAS)



Unregulated Contaminants	Dates Collected	Range Detected	Average	ORSG or Health Advisory	Possible Source of Contamination
PFOS and PFOA (ppt) (combined)	Quarterly in 2018	10 - 47	19	70*	Man-made chemicals. Used as surfactants to make products stain or water resistant, in fire-fighting foam, for industrial purposes, and as a pesticide. Used in fluoropolymers (Such as Teflon), cosmetics, greases and lubricants, paints, adhesives and photographic films.
PFOS, PFOA, PFNA, PFHxS, PFHpA (ppt) (combined)	Quarterly in 2018	20 - 87	36	70**	Man-made chemicals. Used as surfactants to make products stain or water resistant, in fire-fighting foam, for industrial purposes, and as a pesticide. Used in fluoropolymers (Such as Teflon), cosmetics, greases and lubricants, paints, adhesives and photographic films.
Perfluorobutanesulfonic acid (PFBS) (ppt)	Quarterly in 2018	2.1-9.0	4.1	+	Man-made chemical; used in products to make the stain, grease, heat and water resistant.
Perfluorohexanoic acid (PFHxA) (ppt)	Quarterly in 2018	15 - 31	21	++	Directly emitted to the environment or are formed indirectly from the environmental degradation or have been used in a wide variety of industrial and consumer applications.

\* The US EPA health Advisory is only applicable to PFOS and PFOA.

\*\* Our system, out of an abundance of caution and the location of potential sources of PFAS in proximity to one or more of our sources sampled for PFAS compounds during 2018. PFAS are unregulated contaminants for which there are no established drinking water standards. The purpose of unregulated contaminant monitoring is to assist regulatory agencies in determining their occurrence in drinking water and whether future regulation is warranted. However, US EPA has set a Health Advisory of 70 ppt for PFOS and PFOA and MassDEP's Office of Research and Standards has set a guideline (ORSG) of 70 ppt for PFOS, PFOA, PFNA, PFHXS and PFHpA individually or as a group.

+There is no MassDEP ORS Guideline or US EPA UCMR3 reference concentration health benchmark for this compound. However, the Minnesota Dept of Health established a drinking water guidance value of 2,000 ppt for PFBS.

See <u>https://www.health.state.mn.us/communities/environment/risk/docs/guidance/gw/pfbsinfo.pdf</u>. EPA also has draft toxicity assessments for PFBS at <a href="https://www.epa.gov/pfas/genx-and-pfbs-draft-toxicity-assessments">https://www.epa.gov/pfas/genx-and-pfbs-draft-toxicity-assessments</a>

++There is no MassDEP ORS Guideline or US EPA UCMR3 reference concentration or other health benchmark for this compound.

**PFAS Contaminants:** Our system's reported PFAS results in 2018 were less than the 70 ppt US EPA Health Advisory but greater than MassDEP's ORSG. In February of 2018, we removed an elevated source (Grove Pond Well 8) from service and notified consumers of this development. Subsequent PFAS levels have been below the US EPA Health Advisory and MassDEP ORSG. If you are a sensitive consumer (pregnant women, nursing mothers, and infants) you can minimize your exposure by using bottled water that has been tested for PFAS for drinking, for making infant formula and cooking foods that absorb water. Please consult your health practitioner if you have any health related questions. For a consumer factsheet on PFAS see <a href="https://www.mass.gov/doc/massdep-fact-sheet-pfas-in-drinking-water-questions-and-answers-for-consumers/download">https://www.mass.gov/doc/massdep-fact-sheet-pfas-in-drinking-water-questions-and-answers-for-consumers/download</a>

Note that MassDEP's ORSG for PFAS contaminants is subject to change based on the following MassDEP actions; 1) MassDEP is proposing draft amendments to the Massachusetts Hazardous Waste cleanup regulations that include a draft standard of 20 ppt for PFOS, PFOA, PFHxS, PFNA, PFHpA and Perfluorodecanoic acid (PFDA) applicable to groundwater used or potentially used as drinking water. 2) MassDEP is also developing a drinking water standard for public systems for PFAS compounds.

For further information regarding MassDEP PFAS regulation development and consumer information refer to: <u>https://www.mass.gov/info-</u> details/per-and-polyfluoroalkyl-substances-pfas

https://www.mass.gov/lists/2019-proposed-mcp-revisions

https://www.mass.gov/lists/development-of-a-pfas-drinking-water-standard-mcl.

#### Ayer DPW Water Division has taken the following actions:

• Grove Pond Well No. 8 was removed from service in February 2018. We are in the process of installing a temporary carbon filter on this well to remove the PFAS.

• The treated water combined for the other wells at the entrance points to the distribution system (Grove Pond WTP and Spectacle Pond WTP) are sampled quarterly and are below MassDEP's current ORSG.

• We have completed the design of a state of the art treatment facility at Grove Pond to remove PFAS from the water. This will be begin construction this summer and completed next spring.

We are designing a second state of the art treatment facility for the Spectacle Pond Wellfield.

• While actions are being implemented to lower the PFAS concentration in our water, Ayer is testing a Point of Use filter. If the filter can

demonstrate that it effectively removes PFAS to below the MassDEP ORSG, we will provide filters, upon request, to the sensitive population.
We are also investigating the source of the PFAS with assistance from MassDEP.



We Take Customer Concerns Seriously Every call is investigated to ensure that there are no problems with the water supply. Most complaints are related to discolored water, which is usually related to local construction or hydrant use. If you have a question or concern, please call the DPW at 978-772-8240.

### INFORMATION ABOUT CROSS CONNECTIONS

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 (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 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 crossconnection contamination.

Community water supplies are continuously jeopardized by crossconnections unless appropriate valves, known as backflow prevention devices, are installed and maintained. For more information, review the Cross-Connection Control Manual from the U.S. EPA's Web site at http://water.epa.gov/Infrastructure/drinkingwater/pws/crossconnectionco ntrol/index.cfm. You can also call the Safe Drinking Water Hotline at (800) 426-4791.

# Has your Water Meter Been Updated?

The Ayer Department of Public Works is installing new water meters and Automatic Meter Reading (AMR) devices for more accurate and efficient water meter reading. We have completed about 80% of the meter replacements. If you have not had a new meter and outside reading device installed, we need your cooperation. Meters will be installed at no cost to the customer.

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 978-772-8240 to schedule an appointment.



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