2018 Annual Drinking Water Quality Report for Andover, MA

Massachusetts Department of Environmental Protection
Public Water Supply ID No. 3009000

Department of Public Works
Water Division
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Inside this issue

Special points of interest

- In 2018, Andover's Water Division treated and delivered over 2 billion gallons of water to the Towns of Andover and neighboring North Reading.
- "Keeping Water Clean" a hands-on interactive program continues to be presented to 5th grade students in Andover schools. Students learn about the water cycle, the importance of watershed protection and water conservation.

About This Report

This consumer confidence report (CCR) is the twenty-first publication to be issued under the Environmental Protection Agency (EPA) regulations requiring annual notification to all consumers about local drinking water sources and water quality information. It is available to all customers, and delivered to the Andover Board of Health, the Massachusetts Department of Public Health (DPH), and the Massachusetts Department of Environmental Protection (DEP). You may obtain an electronic copy on the town's website at http://andoverma.gov/waterquality. Hard copies are available at Memorial Hall Library, Town Hall, and the Water Treatment Plant. If you have any questions or comments about this report, you may contact the Water Treatment Plant at (978) 623-8870, or by email at dpw-treatment@andoverma.gov. We encourage public participation on issues concerning the town's drinking water. The dates, times, and locations of Board of Selectmen, Planning Board, and the Board of Health meetings are posted on the town website at: https://andoverma.gov. We welcome your interest in the Andover water system.

Where Your Drinking Water Comes From

Andover's Drinking Water comes from Haggett's Pond and the surrounding 1,422 acres of watershed area. The pond is also supplemented with additional waters from Fish Brook and the Merrimack River. A combination of the three surface water sources is used to produce up to 18 million gallons of drinking water per day and approximately 2 billion gallons of drinking water per year. Andover retains 14 million gallons of water storage in the distribution system. This storage helps maintain consistent water pressure throughout the 250 miles of underground pipes that deliver drinking water to homes and businesses.

Cross Connections

The Town delivers safe, high quality water to your home and business. The goal is to keep it that way. Help eliminate plumbing cross connections which are potential connections between a public water supply and a source of possible contamination or pollution. Contamination can occur when water flowing through your faucet or other plumbing fixture is suddenly drawn in the reverse direction due to a drop in supply pressure of the water distribution system from a water line break, water main repair, or during rapid withdrawal from a fire hydrant. This creates a vacuum which may pull or siphon contaminants or pollutants into the drinking water supply.

Andover Water Department recommends that residents install a vacuum breaker on your outside faucet or hose. When filling a hot tub or swimming pool, do not submerge the hose; instead leave an air gap between the hose and the water level of the pool. Install backflow prevention devices on your lawn irrigation system, and your boiler if public water supply is used to replenish boiler water. Wells and secondary systems are prohibited from connection to the public water supply.

Install a hose bib vacuum breaker on every threaded water fixture. This device is available at most hardware stores or home improvement centers.

Water Treatment Process

We are proud of the exceptional quality of water that flows to your household or business daily. We treat it very carefully at our water treatment plant to enhance its quality. Source water transferred from Fish Brook and the Merrimack River into Haggett's Pond is drawn into the water treatment plant, which purifies millions of gallons of raw water daily. The water treatment plant process consists of a series of physical and chemical steps designed to produce a safe and consistent quality product. About 0.7 ppm of fluoride is added to the finished water to prevent tooth decay and cavities. At this level it is safe, odorless, colorless and tasteless. Visit http://andoverma.gov/water-sewer to view a virtual tour of the water treatment plant.

To ensure that we provide the highest quality of water available, your water system is operated by Massachusetts certified operators who oversee the routine operations of our system. The water quality of your system is constantly monitored by us in our on-site laboratory, and by MassDEP to determine the effectiveness of existing water treatment and to determine if any additional treatment is required.

How Your Drinking Water is Protected

MassDEP prepared a Source Water Assessment Program (SWAP) Report for the water supply sources serving Andover's water system. The purpose of the assessment was to determine the susceptibility of drinking water sources to potential contaminant sources (PCS) so that we can focus protection efforts. The results of the assessment are available in the SWAP report which is available online at http://www.mass.gov/eea/docs/dep/water/drinking/swap/nero/3009000.pdf Andover was assigned a high susceptibility ranking based on the presence of at least one high threat land use within the water supply protection areas. The high threat activities listed by DEP are those that typically use, produce, or store contaminants of concern, which if managed improperly, are potential sources of contamination. It is important to understand that a release may never occur from the potential source, and the actual risk may be lower than the relative threat ranking assigned to it.

In addition to MassDEP's Report, Andover's Water Division has prepared a Surface Water Protection Plan. The plan is reviewed and updated every five years.

Protecting Our Water Resources

Andover Water Division's Surface Water Protection Plan

Andover has been an industry leader making continual improvements to its water system. The Water Treatment Plant continues to maintain a comprehensive Surface Water Supply Protection Plan, which was reviewed and approved by MassDEP and includes recommendations for watershed monitoring, treatment plant operations, local road salting practices, emergency response planning and preparedness, educational programs and inter-community cooperation on water supply issues. We strive to implement proactive measures to ensure that drinking water delivered to our customers meets all federal and state drinking water standards. The plan is reviewed and updated every five years.

Haggett's Pond—Your Drinking Water Reservoir

Contaminants That May Be Present in Drinking Water

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. Contaminants that may be present in source water include:

Microbial contaminants, such as viruses and bacteria, may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants, such as salts and metals, 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 may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic chemical contaminants include 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 can be naturally occurring or be the result of oil and gas production and mining activities.

Other Important Health Information

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).

What US EPA Says About Contaminants and Health Risks

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contamination. 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).

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.

Water Quality Test Results

During the year, we have taken hundreds of water samples to determine the presence of any biological, inorganic, volatile organic or synthetic organic contaminants. The tables presented here show only those contaminants that were detected in the water. The values reported in the tables are the highest level of each detected contaminant as well as the range of levels detected for each contaminant. 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 calendar year 2018 unless otherwise noted in the tables.

We maintain a certified water quality laboratory at the treatment plant.

Water Quality Test Results for 2018

Regulated Contaminants	Date Collected	Highest Result [1]	Range Detected [2]
Bromate (ppb)	Monthly	1.4	< 1.0—1.4
Fluoride (ppm)	Daily	0.89	0.41—0.89
Nitrate (ppb)	1/3/2018	< 1.0	NA
Perchlorate (ppb)	7/5/2018	0.13	NA
Total Organic Carbon	Monthly	2.146	1.689—2.146
Turbidity (NTU) [3]	Daily	0.34	0.04—0.34
Bacteria Indicator Contaminants	**Date Collected**	**Highest Result**	**Range Detected**
Heterotrophic Plate Count[4] (cfu/ml)	Weekly	810	0—810
Total Coliform (colonies/ml)	Weekly	2.3%	NA
Disinfection Contaminants	**Date Collected**	**Highest Quarterly Running Average [5]**	**Range Detected [6]**
Haloacetic Acids (HAA5, ppb)	Quarterly	4.4	< 2.0—6.1
Total Trihalomethanes (THMs, ppb)	Quarterly	40	24 - 54
Chlorine Residual	Weekly [7]	1.05	0.01—1.05

Notes

[1] We are required to report to you the maximum value detected during the analyses of multiple samples of drinking water collected during the past calendar year.

[2] The values listed here are the overall range of results that were recorded during multiple tests of the drinking water conducted in the past calendar year .

[3] Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

[4] The maximum amount detected is not a violation. A chlorine residual was detected in the sample, and additional testing demonstrated no presence of e.Coli bacteria.

[5] This is the highest average value calculated for all the locations where HAA5 and THMs were sampled during calendar year 2018.

[6] The values in the range are based on individual sample results rather than averages of results.

[7] The concentrations of chlorine that are added to the distribution system are continuously monitored.

MCL	MCLG	Violation (Y/N)	Possible Sources
10	0	N	By-product of ozone disinfection
4	4	N	Water additive which promotes strong teeth
10	10	N	Run-off from fertilizer use, leaking septic tanks, erosion of natural deposits
2	NA	N	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks and explosives
TT = 35-45% Removal	NA	N	Naturally present in the environment
TT = 1.0 maximum	NA	N	Soil run-off
TT < 0.3 95% of time			
MCL	**MCLG**	**Violation (Y/N)**	**Possible Sources**
500	NA	N	Naturally present in the environment
< 5% of samples positive in one month	NA	N	Natural present in the environment, human and animal waste
MCL or MRDL	**MCLG or MRDLG**	**Violation (Y/N)**	**Possible Sources**
60	NA	N	By-product of chlorination
80	NA	N	By-product of chlorination
4	4	N	Water additive used to control microbes

Chlorine

Chlorine is added to your drinking water for disinfection purposes. Chlorine residual is necessary to maintain disinfection throughout the distribution system. We are required to monitor the concentration of chlorine residuals entering the distribution system. The use of chlorine and other disinfectants such as ozone reduces the risk of waterborne disease; however, they can also create compounds known as disinfection by-products (DBPs). The EPA regulates DBPs because they are a potential health risk. Total trihalomethanes (TTHMs) and haloacetic acids (HAAs) are DBPs that form when chlorine is added to the water that contains naturally occurring organic matter.

Definitions

Maximum Contaminant Level (MCL) is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLG's as feasible using the best available treatment technology. **Maximum Contaminant Level Goal (MCLG)** is 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. **Maximum Residual Disinfectant Level (MRDL)** is the highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant (i.e., chlorine, chloramines, chlorine dioxide) is necessary for control of microbial contaminants. **Maximum Residual Disinfectant Level Goal (MRDLG)** is the level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of disinfectants to control microbial contaminants. **Treatment Technique (TT)** is the required process intended to reduce the level of a contaminant in drinking water. **PPM** is parts per million, or milligrams per liter (mg/l). **PPB** is parts per billion, or micrograms per liter (ug/l). **NTU** is Nephelometric Turbidity Units. **NA** means Not Applicable.

Definitions continued on page 6

Water Quality Test Results for 2018, continued

Secondary Contaminants	Date Collected	Result or Range Detected	SMCL	ORSG or Health Advisory	Typical Source
Aluminum (ppm)	1/3/2018	0.11	0.2	NA	
Chloride (ppm)	1/3/2018	87	250	NA	
Manganese (ppb) [8]	1/3/18, 2/5/18, 4/2/18, 7/5/18, & 10/4/18	3.2—54	50	300	Naturally present in the environment
Sodium (ppm) [9]	Monthly Jan-Jun, Aug & Sep	60—79	20	NA	Naturally present in the environment, Road salt
Sulfate (ppm)	1/3/2018	21	250	NA	Naturally present in the environment

Notes

[8] EPA has established a lifetime health advisory (HA) value of 300 ppb for manganese to protect against concerns of potential neurological effects, and a one-day and 10-day HA of 1000 ppb for acute exposure.

[9] Sodium is naturally present in the environment and the raw water treated for drinking water is at levels above the MassDEP Guideline of 20 ppm. This value is strictly a guideline and does not imply that a value greater than 200 ppm imposes a risk. The water treatment process does not remove sodium from the water.

Definitions, continued

Secondary Maximum Contaminant level (SMCL) are standards developed to protect aesthetic qualities of drinking water and are not health based. **Office of Research and Standards Guidelines (ORSG)** are concentrations of a chemical in drinking water at or below which adverse health affects are unlikely to occur after chronic exposure. If exceeded, potential further action may be needed. **Action Level (AL)** is the concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow. 90th Percentile means that out of 10 homes sampled, 9 were at or below the level.

FAQ's

Is Andover's Water Considered "Hard" or "Soft"? Andover's drinking water is considered a "soft water" according to ranges set by the EPA. There is no standard for hardness, only set ranges to define the degree of hardness. 0-75 mg/l is "soft", 75-150 mg/l is "moderately soft" and 150 -300 mg/l is "hard." Andover's treated water is 34 mg/l . Water hardness is defined as the total concentration of calcium and magnesium ions in the water.

How do I get my water tested? If you are an Andover municipal water customer, you may have your water tested at the Water Treatment Plant Laboratory located at 397 Lowell Street. Please contact the Laboratory Director, Karen Martin at 978-623-8873 or at kmartin@andoverma.gov for more information. We do not test well water or businesses regardless of location.

Stormwater

Stormwater can pick up debris, chemicals, dirt and other pollutants and flow untreated directly into a stream, river, wetland or pond used for swimming, fishing, or for drinking water. Polluted stormwater runoff can have many adverse impacts on plants, animals and fish; and also affect your drinking water sources. **Pet Waste** can be a major source of bacteria and excess nutrients in local waters. When walking your pet, remember to pick up the waste and dispose of it properly. **Recycle** or properly dispose of household products that contain chemicals, such as insecticides, pesticides, paint, solvents and used motor oil. Dispose of these products at a household hazardous waste collection event. **Lawn Care:** Excess fertilizer and pesticides applied to lawns and gardens wash off and pollute streams. Use pesticides and fertilizers sparingly. Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.

Lead and Copper Test Results

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 Andover Water Division is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. The Water Division will notify homeowners when lead service lines are found during water main line work or regular maintenance. 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. Also, periodically unscrew the aerator from the faucets and clean out the debris they may have settled in the screens. 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 http://www.epa.gov/safewater/lead.

The Andover Water Division is required to conduct lead an copper testing of the distribution system every three years. Thirty samples were collected from residential home faucets and analyzed for lead and copper content during the summer 2016. The values reported in the table below represent the highest concentration found in 90% of the homes sampled. The results demonstrated that levels are well below the EPA's action levels requiring additional corrective measures. The next round of lead and copper sampling is scheduled for the summer 2019.

Contaminant	90th % Result	USEPA Action Level	MCLG	# Sites Above Action Level	Possible Source of Contamination
Lead (ppb)	< 5.0	15	0	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	< 0.05	1.3	1.3	0	Corrosion of household plumbing systems; Erosion of natural deposits

Sustainable Water Management Initiative

Every twenty (20) years, MassDEP issues new Water Withdrawal Permits to Public Water Supplies that limit the amount of water that can be withdrawn from vital resource ground and surface waters. The current permit term for Andover is coming to a close and our community's projected water needs and water usage will be reviewed in detail and the Sustainable Water Management Initiative (SWMI) will be incorporated into the renewed permit. The anticipated permit will include best management practices for water conservation measures such as limits for non-essential outdoor water use, and unaccounted-for-water metrics.

Water Conservation

Water resources are vital for our community. Andover residents and businesses use a significant amount of water for lawn irrigation during peak water demand months. We ask that you take steps to reduce water usage. By consuming less water, you help to preserve our resources. More efficient water use begins with individuals. For additional information on water conservation, visit the Town's website at http://andoverma.gov/water-sewer, or check out US EPA's website at https://www.epa.gov/watersense.

The Water Division continuously monitors the water demand and levels in our storage tanks and reservoirs to ensure we provide high quality water and fire protection.

FREE

Indoor and Outdoor

Water Conservation Kits Offered

The Town offers **FREE** Indoor and Outdoor water conservation kits. Stop by the Water Treatment Plant during normal business hours to pick up these kits, which include EPA certified WaterSense products such as: low flow shower head, dual spray faucet aerator; adjustable flow garden hose nozzle, garden hose timer, hose repair kit, and rain gauge.

Haggett's Pond—Your Drinking Water Reservoir

Andover's Water Division would like to remind the community that Haggett's Pond is your drinking water reservoir. While it may look inviting for recreational activity, there are some activities that are restricted in order to maintain a high quality resource water and to protect the health and safety of our community. We appreciate your cooperation.

Permissible Activities

Passive Recreation: Walking, Hiking, Jogging and Biking
Fishing from Shoreline or Rowboat **only*** *(Must have valid state license)*
Boating: Rowboats **only**.* No motors of any kind. Boats must be registered*

Restricted Activities

No Swimming, Bathing, or Wading
No dogs or other animals may enter the water
No Hip-waders shall be worn—Fishing from Shoreline or Rowboat **only***

No Ice Fishing	**No** Ice Skating
No Canoes	**No** Kayaks
No Windsurfers	**No** Paddleboards
No Sailboats	**No** Kitesurfing/kiteboarding

**Residents may obtain boat registration from the Treasurer's Office located at Town Offices 36 Bartlet Street; but only after obtaining a Mass. State Fishing License.*

Additional Information about Water Conservation

Andover is a sponsor of US EPA's WaterSense Program. As a partner we are committed to promoting indoor and outdoor water efficiency, to conserving water resources and promoting Watersense certified products. For more information, visit the website at https://www.epa.gov/watersense

Andover is a sponsor of Greenscapes North Shore. Check out their website at: www.greenscapes.org where you can find valuable information on landscaping and lawn care practices to help promote water conservation and the protection of our natural resources.

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Water or Sewer Issue?
Call (978) 623-8860

Water Billing Question?
Call (978) 623-8906

Need an Irrigation Meter?
Visit the Water Treatment Plant
Monday-Friday
8:00—3:30 pm

Stormwater Issue or Concern?
Call the Town Engineering Dept. at (978) 623-8770

Do you have questions about this document?

Call (978) 623-8870