

2015 ANNUAL DRINKING WATER QUALITY REPORT
Town of Andover, MA Department of Public Works Water Division
MassDEP Public Water Supply ID # 3009000

This consumer confidence report (CCR) is the eighteenth 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 Jim McSurdy at (978) 623-8350, or by email at jmcsurdy@andoverma.gov. We welcome your interest in the Andover water system.

Community Participation

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: <http://andoverma.gov>.

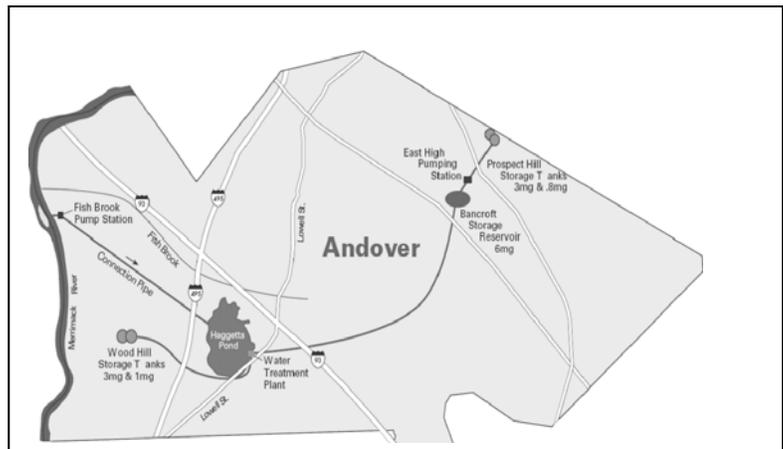
Where Your Drinking Water Comes From

Andover's Drinking Water comes from Haggetts 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.

How Are These Sources 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.



Andover's Drinking Water Treatment Plant



Haggetts Pond 3009000-01S



Fish Brook 3009000-02S, and Merrimack River 3009000-03S

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 Haggetts 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. Fluoride is added to the finished water to about 0.7 ppm to prevent tooth decay and cavities. At this level it is safe, odorless, colorless and tasteless. Visit <http://andoverma.gov/dpw/> 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 our 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.

What EPA Says About Drinking Water Contaminants

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).

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).

Contaminants

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.

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 Testing 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 below 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 2015 unless otherwise noted in the tables.

Regulated Substances						
Parameter (Units)	Maximum Amount Detected ¹	Range of Detection ²	MCL	MCLG	Violation	Typical Source
Bromate (ppb)	2.0	< 1 – 2.0	10	0	No	By-product of ozone disinfection
Fluoride (ppm)	1.12	0 – 1.12 ³	4	4	No	Water additive which promotes strong teeth
Nitrate (ppm)	< 1.0	N/A	10	10	No	Run-off from fertilizer use, leaking septic tanks, erosion of natural deposits
Perchlorate (ppb)	0.10	N/A	2	N/A	No	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks, and explosives
Turbidity (NTU) ⁴	0.09	0.04 – 0.09	TT=1.0 max TT <0.3 95% of time	N/A	No	Soil run-off
Total Coliform (colonies/ml)	0	0	< 5% of samples positive in one month	0	No	Naturally present in the environment, human and animal waste
Heterotrophic Plate Count (cfu/ml)	1470 ⁵	0 – 1470	500	N/A	No	Naturally present in the environment
Total Organic Carbon	2.394	1.636 – 2.394	TT=35-45% removal	N/A	No	Naturally present in the environment
Chlorine (ppm)	0.72	0.00 – 0.72	4 (MRDL)	4 (MRDLG)	No	Water additive used to control microbes

¹ We are obligated 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 conducted in the past calendar year on the drinking water.

³ There were 3 days during the month of December when the fluoride feed was turned off due to a potential leak.

⁴ 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.

⁵ 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.

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.

Water Quality Testing Results, continued

Disinfection By-Products						
Parameter (Units)	Highest Quarterly Running Average ⁶	Range of Detection ⁷	MCL	MCLG	Violation	Typical Source
Haloacetic Acids (HAA5) (ppb)	4.4	< 2 – 5.1	60	N/A	No	By-product of chlorination
Total Trihalomethanes (THMs) (ppb)	35	19 – 40	80	N/A	No	By-product of chlorination
Unregulated or Secondary Contaminants (MCL has not been established)						
Parameter (Units)	Date Collected	Result or Range Detected	SMCL	ORSG or Health Advisory	Typical Source	
Aluminum (ppm)	1/5/2015	0.13	0.2	N/A		
Chloride (ppm)	1/5/2015	83	250	N/A		
Manganese ⁸ (ppb)	1/5/2015	11	50	300	Naturally present in the environment	
Sodium ⁹ (ppm)	monthly	52 – 80	20	N/A	Naturally present in the environment and road salt	
Sulfate (ppm)	1/5/2015	21	250	N/A	Naturally present in the environment	
Unregulated Contaminant Monitoring Results (UCMR3)						
Parameter (Units)	Average	Range of Detection	Typical Source			
Chlorate (ppb)	172.3	136.8 – 230	By-product of drinking water disinfection			
Chromium-6 (ppb)	0.06	0.05 – 0.08	Erosion of natural deposits			
Strontium (ppb)	76.8	68 – 82.4	Erosion of natural deposits			
Vanadium (ppb)	0.38	0.2 – 0.5	Erosion of natural deposits			

⁶ This is the highest average value calculated for all the locations where THMs and HAAs were sampled during calendar year 2015.

⁷ The values in the range are based on individual values, rather than averages.

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 is at levels above the DEP Guideline of 20 ppm. This value is strictly a guideline and does not imply that a value greater than 20 ppm imposes a risk. The water treatment process does not remove sodium from the water.

Unregulated contaminants are those that do not have a drinking water standard set by the United States Protection Agency (US EPA). The UCMR3 results listed in the table above are those contaminants which were found to be greater than the analytical laboratory detection limit. Every five years, public water suppliers are required per the provisions of the Safe Drinking Water Act (SDWA) to monitor for up to 30 contaminants. This is referred to as the “UCMR” monitoring program. The results provide US EPA with valid data on the occurrence of contaminants in drinking water and help determine whether or not standards should be set. During 2014 and 2015, the Andover Water Treatment Plant monitored for 21 contaminants at the entry point to the distribution system. The list of contaminants to be monitored by Andover Water Treatment Plant was established by US EPA, and included metals, organic compounds and perfluorinated compounds. For additional information, please visit <http://www.epa.gov/dwucmr/third-unregulated-contaminant-monitoring-rule>.

Lead and Copper

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 Department is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

The values reported in the table below represent the highest concentration found in 90% of the homes sampled. Water tests were conducted during the summer 2013 and 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 2016.

Parameter (Unit of Measure)	90 TH percentile	Action Level	MCLG	# of sites sampled	# of sites above Action Level	Possible Source of Contamination
Lead (ppb)	14	15	0	30	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	0.076	1.3	1.3	30	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

Important Definitions to Help You Understand the Tables

<u>Term</u>	<u>Definition</u>
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.
Maximum Residual Disinfectant Level (MRDL)	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 (ex., chlorine, chloramines, chlorine dioxide).
Maximum Residual Disinfectant Level Goal (MRDLG)	The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.
Treatment Technique (TT)	A required process intended to reduce the level of a contaminant in drinking water.
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.
ppm	parts per million, or milligrams per liter (mg/l)
ppb	parts per billion, or micrograms per liter (ug/l)
NTU	Nephelometric Turbidity Units
ND	Not Detected. The result was below the detection limit of instrumentation.
N/A	Not Applicable

Stormwater Management

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. Visit the Town’s website for more information at <http://andoverma.gov/stormwater/>.

TIPS:	✓ When walking your pet in the park or in your neighborhood, please pick up the waste and dispose of it in a trash receptacle.
	✓ Use pesticides and fertilizers sparingly. Excess fertilizer and pesticide applied to lawns and gardens wash off and pollute the local streams.
	✓ Sweep up yard debris rather than hosing it down. Compost or recycle yard waste.
	✓ Reduce the amount of paved areas in your yard and direct downspouts away from paved surfaces to increase infiltration and reduce pollutant runoff.
	✓ Do not dispose of household hazardous waste in your toilets. Dispose of these products at a household hazardous waste collection event.
	✓ Have your septic tank pumped and inspected at least every three years.
	✓ Repair vehicle leaks and dispose of auto fluids and batteries at designated drop-offs or recycling locations.
	✓ Use a commercial car wash or wash your car on your lawn using a low-phosphate detergent and let the water infiltrate into the ground.

Water Conservation

Water resources are vital for the functioning of our homes and our community. By consuming less water, and wasting less, you save energy and the environment. More efficient water use begins with individuals. Here are some ways to make your home and your habits more water efficient. For additional information visit the Town’s website at <http://andoverma.gov/dpw/>, or check out US EPA’s website at <https://www3.epa.gov/watersense>.

TIPS:	✓ Equip your kitchen and bath with aerating faucets. Aerators help mix air with water as it leaves the spout, reducing the amount of water needed for washing and rinsing.
	✓ Consider using water saving shower heads.
	✓ Do not let the water run while you brush your teeth, wash fruits and vegetables, or rinse the dishes.
	✓ Use native plants in your landscaping designs to reduce watering needs during a dry season.
	✓ Do not overwater your lawn. Consider using a soaker hose instead of a sprinkler.
	✓ Consider the use of a rain barrel to collect water for your lawn and garden.
	✓ Reduce evaporation by mulching around trees and plants. This controls weeds and promotes plant growth.
	✓ Water during the cool parts of the day. Early morning is better than dusk since it helps to prevent the growth of fungus.
✓ Avoid lawn watering on windy days.	

The Town of Andover has FREE Indoor and Outdoor water conservation kits available for pick-up at the Water Treatment Plant, located at 397 Lowell Street. They include EPA certified WaterSense products.



The **Outdoor** Water Saving Kit includes:

- *Adjustable flow garden hose nozzle*
- *Garden hose timer*
- *Hose repair kit*
- *Rain gauge*



The **Indoor** Water Saving Kit includes:

- *Low Flow Showerhead*
- *Dual spray aerator, w/ on-off valve*
- *Dual thread faucet aerator*
- *Pipe sealing tape*

QUESTIONS OR CONCERNS.....

Water or Sewer Issues?

Call the Water Shop (978) 623-8390

Water Billing Question?

Call (978) 623-8247

Need an Irrigation Meter?

Visit the Main Office at the Water Treatment Plant

Monday - Friday

8:00 am - 3:30 pm

Stormwater Questions, Issues or Concerns?

Call the Engineering Department

(978) 623-8350 x520



2015 Drinking Water Quality Report
(Consumer Confidence Report)

Andover, Massachusetts

MassDEP Public Water Supply ID #3009000

Haggetts Pond 3009000-01S

Fish Brook 3009000-02S

Merrimack River 3009000-03S

PLEASE VISIT:

<http://andoverma.gov/waterquality>
for an electronic version of this document.



Town of Andover

Department of Municipal Services

Water Division – Water Treatment Plant

397 Lowell Street, Andover

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