

ANNUAL WATER QUALITY REPORT

WATER TESTING PERFORMED IN 2016



Presented By
Town of Amherst

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

此份有關你的食水報告，
內有重要資料和訊息，請找
他人為你翻譯及解釋清楚。

PWS ID#: MA1008000

We've Come a Long Way

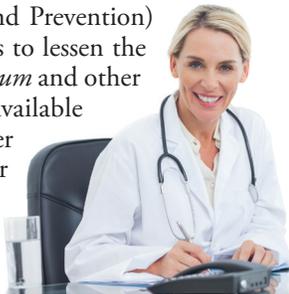
Once again we are proud to present our annual water quality report covering the period between January 1 and December 31, 2016. In a matter of only a few decades, drinking water has become exponentially safer and more reliable than at any other point in human history. Our exceptional staff continues to work hard every day—at any hour—to deliver the highest-quality drinking water without interruption. Although the challenges ahead are many, we feel that by relentlessly investing in customer outreach and education, new treatment technologies, system upgrades, and training, the payoff will be reliable, high-quality tap water delivered to you and your family.

The Benefits of Fluoridation

Fluoride is a naturally occurring element in many water supplies in trace amounts. In our system, the fluoride level is adjusted to an optimal level averaging one part per million (ppm) to improve oral health in children. At this level, it is safe, odorless, colorless, and tasteless. Our water system has been providing this treatment since 1987. There are over 3.9 million people in 140 Massachusetts water systems and 184 million people in the U.S. who receive the health and economic benefits of fluoridation.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.



Substances That Could Be in Water

To ensure that tap water is safe to drink, the State Department of Environmental Protection (MASSDEP) and the U.S. Environmental Protection Agency (U.S. EPA) prescribe regulations limiting the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water that must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and which may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Where Does My Water Come From?

The Town currently has seven sources that contribute to meeting the water demand: Atkins Reservoir, the Pelham Reservoir System, the South Amherst Wells (#1 & #2), the Brown Well (#3), the Lawrence Swamp Well (#4), and the Bay Road Well (#5). Both surface water supplies, Atkins and Pelham, and Wells 1, 2 & 3 are used year round to satisfy the required demands. These five sources supply approximately 90 percent of the total water produced. Wells #4 and #5 operate during high-demand periods and summer months when the reservoirs are low. In 2002, a Source Water Assessment Program (SWAP) was completed on the Amherst water system by the Massachusetts Department of Environmental Protection (MADEP). This SWAP report assesses the susceptibility of the Town's drinking water sources to contaminants and outlines recommendations for drinking water protection. A copy is available at the Department of Public Works and online at www.mass.gov/dep/water/drinking/swapreps.htm.

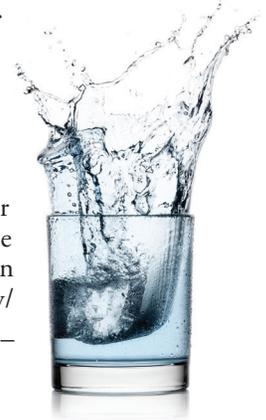
To The Last Drop

The National Oceanic and Atmospheric Administration (NOAA) defines drought as a deficiency in precipitation over an extended period of time, usually a season or more, resulting in a water shortage causing adverse impacts on vegetation, animals, and/or people. Drought strikes in virtually all climate zones, from very wet to very dry.

There are primarily three types of drought: Meteorological Drought refers to the lack of precipitation, or the degree of dryness and the duration of the dry period; Agricultural Drought refers to the agricultural impact of drought, focusing on precipitation shortages, soil water deficits, and reduced ground water or reservoir levels needed for irrigation; and Hydrological Drought, which pertains to drought that usually occurs following periods of extended precipitation shortfalls that can impact water supply (i.e., stream flow, reservoir and lake levels, ground water).

Drought is a temporary aberration from normal climatic conditions, thus it can vary significantly from one region to another. Although drought is normally occurring, human factors, such as water demand, can exacerbate the duration and impact that drought has on a region. By following simple water conservation measures, you can help significantly reduce the lasting effects of extended drought.

To learn more about water conservation efforts, check out the U.S. EPA's Water Conservation Tips for Residents at www.epa.gov/region1/eco/drinkwater/water_conservation_residents.html.



DO NOT FLUSH LIST:



Cigarettes

Condoms

Cotton Swabs



Diapers

Medication

Needles



Paper Towels

Tampons

Wipes

Help us keep your drains and the environment clean

TheRentables.com

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Guilford Mooring, Superintendent of Public Works, at (413) 259-4050.

Lead in Home Plumbing

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high-quality drinking water, but we cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/lead.

What's a Cross-Connection?

Cross-connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment (boilers), systems containing chemicals (air conditioning systems, fire sprinkler systems, irrigation systems), or water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (backpressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks, heavy water demand), causing contaminants to be sucked out from the equipment and into the drinking water line (backsiphonage).

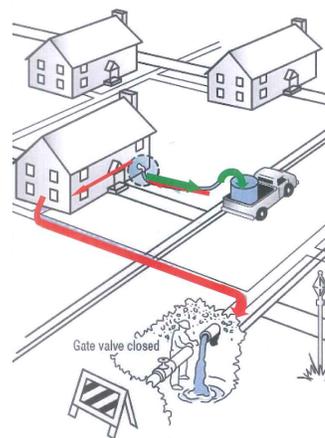
Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or when attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools, or garden chemicals. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continuously jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. We have surveyed industrial, commercial, and institutional facilities in the service area to make sure that potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test backflow preventers to make sure that they provide maximum protection.

For more information on backflow prevention, contact the Safe Drinking Water Hotline at (800) 426-4791.

Real Examples of Backflow

- Insecticide in Water System -



- Contractor applying insecticide treatment, mixing water to dilute chemical from hose bib.
- City workers were completing maintenance on a section of water main.

What occurred:

- Combination of low water pressure and simultaneous use of hose submerged in tank.

• **Back Siphonage!!!**

Instead of water entering the tank, the entire contents of the tank (insecticides) were drawn in the opposite direction, into the potable water supply.



Please throw them in the trash



Test Results

Our water is monitored for many different kinds of contaminants on a very strict sampling schedule. The information below represents only those substances that were detected; our goal is to keep all detects below their respective maximum allowed levels. The State recommends monitoring for certain substances less often than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

We participated in the 3rd stage of the U.S. EPA's Unregulated Contaminant Monitoring Rule (UCMR3) program by performing additional tests on our drinking water. UCMR3 benefits the environment and public health by providing the EPA with data on the occurrence of contaminants suspected to be in drinking water, in order to determine if the EPA needs to introduce new regulatory standards to improve drinking water quality. Contact us for more information on this program.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	Town of Amherst		Atkins Treatment Plant		Centennial Treatment Plant		VIOLATION	TYPICAL SOURCE
				AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH		
Alpha Emitters (pCi/L)	2015	15	0	3.2	ND–3.2	NA	NA	NA	NA	No	Erosion of natural deposits
Barium (ppm)	2016	2	2	NA	NA	0.010	NA	0.0093	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Combined Chlorine (ppm)	2016	[4.0]	[4.0]	NA	2.4–2.8	NA	NA	NA	NA	No	Water additive used to control microbes
Combined Radium (pCi/L)	2015	5	0	1.80	0.14–1.80	NA	NA	NA	NA	No	Erosion of natural deposits
Haloacetic Acids [HAAs] (ppb)	2016	60	NA	NA	ND–67.6	NA	NA	NA	NA	No	By-product of drinking water disinfection
Nitrate (ppm)	2016	10	10	0.91	ND–0.91	NA	NA	0.14	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2016	80	NA	64.0	ND–64.0	NA	NA	NA	NA	No	By-product of drinking water disinfection
Turbidity ¹ (NTU)	2016	TT	NA	NA	NA	0.12	0.08–0.12	0.13	0.09–0.13	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2016	TT = 95% of samples meet the limit	NA	NA	NA	100	NA	100	NA	No	Soil runoff

SECONDARY SUBSTANCES - TOWN OF AMHERST

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Fluoride (ppm)	2016	2.0	NA	1.04	0.24–1.04	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Sulfate (ppm)	2013	250	NA	21.8	4.26–21.8	No	Runoff/leaching from natural deposits; Industrial wastes

UNREGULATED SUBSTANCES - TOWN OF AMHERST²

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Sodium (ppm)	2016	12.0	8.5–12.0	Naturally occurring

¹ Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

² Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. The purpose of monitoring unregulated contaminants is to assist the EPA in determining their occurrence in drinking water and whether future regulation is warranted.

Definitions

90th Percentile: Out of every 10 homes sampled, 9 were at or below this level.

AL (Action Level): The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that 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 contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA: Not applicable

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

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

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

SMCL (Secondary Maximum Contaminant Level): SMCLs are established to regulate the aesthetics of drinking water like appearance, taste and odor.

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.