2014 Water Quality Report

Ashburnham Water Department
Public Water System #2011000

Dear Water Customer,

We are pleased to present you with the 2014 Ashburnham Water Quality Report. The Safe Drinking Water Act (SDWA) requires that utilities issue an annual Consumer Confidence Report (CCR) to customers in addition to other notices that may be required by law. This report provides information about where your water is drawn from, how it is processed, how to protect it, levels of any contaminant detected, compliance with the Massachusetts Department of Environmental Protection (MassDEP) regulations, cross connection control information and helpful definitions. Included in this report is a complete summary of all water quality testing done in the preceding year, along with any compliance issues in 2014. The Ashburnham Water Department is committed to providing you with the safest drinking water and enough capacity to meet your demands.

Water System Contacts and Public Participation Opportunities

The Ashburnham Water Department is located in the DPW Complex at 17 Central Street, Ashburnham, MA 01430. Our regular hours are Monday - Friday 7:00 AM - 3:00 PM. If you have any questions about your drinking water or the information provided in this CCR, please contact us at 978-827-4120 or visit us online at www.ashburnham-ma.gov/Pages/AshburnhamMA_BComm/water. Copies of this report are available online and on request.

The Ashburnham Water/Sewer Commission meets on the 2nd Tuesday of every month at 6:00 PM in the lower-level meeting room of the Town Hall at 32 Main Street. The agendas for these meetings are posted on our website and in Town Hall. The public is welcome to attend and participate.

Leo Collette: Chairman, Ashburnham Water-Sewer Commission
Jim Zarozinski: Ashburnham Water Department

Where? How?

Ashburnham's drinking water comes from the Upper Naukeag Lake. The Upper Naukeag Lake is a shared water source that provides water to both the Town of Ashburnham and the Town of Winchendon. Water is pumped from the lake to the Ashburnham-Winchendon Joint Water Filtration Plant (PWS #2011004) which is located at 204 Lake Road in Ashburnham. Here, the water is clarified and filtered. Chemicals are added to aid in clarification, filtration, disinfection, and corrosion control. The pH of the water is controlled to prevent corrosion to your plumbing which can cause lead, copper, and other metals to enter your water through the deterioration of plumbing pipes. Phosphates (corrosion inhibitors) are also added to aid in plumbing and water main corrosion prevention.

Finally, fluoride is added to the water. 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 1 part per million (ppm) or milligrams per liter (mg/l) to improve dental health in children. At this level, it is safe, odorless, colorless, and tasteless. Our water system has been providing this treatment since 1958. There are over 3.9 million people in 140 Massachusetts water systems and 184 million people in the United States who receive the health and economic benefits of fluoridation.

From the water filtration plant the water is pumped into 53 miles of water transmission mains and into two water storage tanks. Combined capacity provides 1.5 million gallons of storage, which is equivalent to approximately 3 days capacity under normal water usage. The tanks are located on Cushing Street and on Rt. 101 about 4 miles south of the water plant. In 2014 the water plant produced an average of 492,217 gallons per day (GPD) with an annual total of 179.6 million gallons (MG) of water produced for Ashburnham residents. There are approximately 1,300 service connections to the system with over 270 fire hydrants in town.

Sources of Drinking Water and Drinking Water 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 storm water 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 storm water runoff and residential uses. **Organic chemical contaminants** include synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems. **Radioactive contaminants** can be naturally occurring or be the result of oil and gas production, and mining activities.

Health Information

In order to ensure that tap water is safe to drink, MassDEP and the US Environmental Protection Agency (EPA) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. 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 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).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 infants can be particularly at risk from infections. These people should seek advice from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

Important Definitions

Maximum Contaminant Level or MCL: The highest level of a contaminant in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal or 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: The concentration of a contaminant that, if exceeded, triggers treatment or other requirements, which a water system must follow.

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

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.

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

Secondary Maximum Contaminant Level (SMCL): These standards are developed to protect the aesthetic quality 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, with a margin of safety. If exceeded, it serves as an indicator of the potential need for further action.

NTU: Nephelometric turbidity unit.

ppm: One part per million, which also equals 1 milligram per liter(mg/L), is equivalent to one drop in 10 gallons.

ppb: One part per billion, which also equals 1 microgram per liter(ug/L), is equivalent to one penny in $10 million dollars.

2014 Drinking Water Quality Test Results

During 2014 the Water Department and the filtration plant tested your water for chlorine residual, turbidity (clarity), total trihalomethanes, haloacetic acids, bacteria, volatile organic chemicals, inorganics, perchlorate, nitrate and fluoride. The following test results were from monitoring performed during 2014 or the most recent sampling period for each contaminant group, as required by MassDEP. Only detected contaminants in finished water are shown.

Regulated Inorganic & Synthetic Organic Contaminants	Dates Collected	Highest Amount Detected	Range Detected	MCL	MCLG	Violation (Y/N)	Possible Sources
Barium (ppm)	5/7/2014	0.005	----	2	2	N	Erosion of natural deposits
Fluoride (ppm)	Daily at treatment plant 2014	1.1	0.92– 1.1	4*	4	N	Water additive that promotes strong teeth
Perchlorate (ppb)	8/6/2014	0.13	--	2	--	N	Fireworks, munitions, blasting agents
Hexachlorocyclopentadiene (ppb)	5/8/2013 11/14/2013	0.13	0 – 0.13	50	50	N	Manufacturing of chemicals

* Fluoride also has an SMCL (secondary MCL) of 2 ppm

Bacteria	Highest # Positive Samples in a Month	MCL	MCLG	Violation (Y/N)	Possible Sources
Total coliform	**5**	**1**	**0**	**Y**	**Naturally present in the environment**
E. coli	**0**	*****	**0**	**N**	**Human and animal fecal waste**

* Compliance with the *E. coli* MCL is determined upon additional repeat testing.

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 Ashburnham 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 www.epa.gov/safewater/lead.

Many drinking water sources in New England are naturally corrosive (i.e., they have a pH of less than 7.0) so, the water supply has a tendency to corrode and dissolve the metal piping it flows through. This not only damages pipes but can also add harmful metals, such as lead and copper, to the water. For this reason, it is beneficial to add chemicals that provide a protective pipe coating and make the water neutral or slightly alkaline.

This is done by adding combinations of water treatment chemicals. The Ashburnham-Winchendon Water Filtration Plant adds sodium poly-phosphate to its water. Sodium poly-phosphate is often referred to as an inhibitor and is what coats the inside of the pipe. It contains a small concentration of phosphate. Sodium carbonate (commonly known as soda ash) raises the water's pH to a non-corrosive level. Testing throughout the water system has shown that this treatment has been effective at reducing lead and copper concentrations.

Lead and Copper	Date Collected	90th Percentile*	Action Level (AL)	MCLG	# of sites sampled	Exceeds AL (Y/N)	# of sites above AL	Possible Sources
Lead (ppb)	9/19/2012	4	15	0	20	N	0	Corrosion of household plumbing
Copper (ppm)	9/19/2012	0.1	1.3	1.3	20	N	0	Corrosion of household plumbing

* Out of every 10 homes sampled, 9 were at or below this level. This number is compared to the action level to determine compliance.

Disinfection

Disinfection does not sterilize the water; it removes harmful organisms. Ashburnham-Winchendon Water Filtration Plant uses sodium hypochlorite as its primary disinfectant. Chlorine destroys organisms by penetrating cell walls and reacting with enzymes. When combined with proper filtration, disinfection with chlorine has been proven effective at ensuring that water is free of harmful organisms and safe to drink.

Disinfection Contaminants	Year	Highest RAA*	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Sources
Total Trihalomethanes (ppb) - Sampled quarterly	2014	62	17 - 91	80	--	N	Byproduct of drinking water chlorination
Haloacetic Acids (ppb) – Sampled quarterly	2014	35.2	14 - 52	60	--	N	Byproduct of drinking water disinfection
Chlorine (ppm) – Sampled monthly	2014	0.68	0.03 – 2.2	4	4	N	Water additive used to control microbes

*The running annual average (RAA) is the highest average of four consecutive quarters.

Turbidity

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. We begin by monitoring raw water turbidity, then we monitor turbidity after each filter, and finally we take a finished water sample. This tells us how much turbidity we are removing. At the treatment plant, turbidity is monitored continuously in addition to manual sampling each day to confirm that the in-line analyzers are monitoring correctly. In 2013, the average turbidity in the water leaving the filtration plant was 0.07 NTU (see Important Definitions below) with a maximum of 0.27 NTU.

Turbidity	Year	TT	Lowest Monthly % of Samples	Highest Detected Daily Value	Violation (Y/N)	Possible Sources
Daily Turbidity Compliance (NTU)	2014	1	-----	0.27	N	Soil runoff
Monthly Compliance*	2014	At least 95% < 0.3 NTU	100	-----	N	Soil runoff

*Monthly turbidity compliance is related to a specific treatment technique (TT). This treatment facility filters the water so at least 95% of our samples each month must be below the turbidity limits specified in the regulations.

Unregulated and Secondary Contaminants

Unregulated contaminants are those for which the EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist the EPA in determining their occurrence in drinking water and whether future regulation is warranted. Below are the results from the most recent round of testing.

Unregulated and Secondary Contaminants	Date Collected	Amount Detected	SMCL	ORSG	Possible Sources
Sodium (ppm)	5/4/2014	9.6	--	20	Natural sources; runoff from road salt
Manganese (ppb)	5/7/2014	1	50	300	Erosion of natural deposits
Iron (ppb)	5/7/2014	8	300	__	Erosion of natural deposits

Compliance in 2014

The Ashburnham Water Department violated three drinking water requirements over the past year. Even though these were not emergencies, as our customers, you have a right to know what happened and what we did to correct these situations.

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During the month of May 2014 we did not complete all monitoring and reporting for chlorine residual and therefore cannot be sure of the quality of your drinking water during that time. There is nothing you need to do. We are required to take 10 samples every month. We did collect the samples but did not follow the correct protocol. MassDEP issued a notice of noncompliance (NON-CE-145D556). We have monitored correctly for chlorine since then and will return to compliance after providing this public notice to you in our 2014 CCR. For more information about this violation, please contact Jim Zarozinski at the Water Department at 978-827-4120,

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In 2014 MassDEP also issued NON-CE-14-5D100 to the Ashburnham Water Department for violations of the Total Coliform Rule. We violated the monthly MCL in both August and September, failed to properly conduct follow-up sampling in August, failed to properly notify MassDEP of the MCL violations by the end of the next business day after we learned of the violations, and failed to conduct Tier 2 public notice for the MCL violation that occurred in August 2014. We worked cooperatively with MassDEP in our response, which included repeat monitoring at several locations, evaluation and disinfection of the storage tanks, flushing and chlorination of the lines , and continuing to monitor until no bacteria was present.

Total coliform are a group of bacteria that are naturally present in the environment and serve as indicators of potential water quality problems. If they are found in any of our routine monthly samples, additional samples must be collected according to our sampling plan, and all samples must be tested for both total coliform and E. *coli.* We did not detect any *E. coli* in any of our samples.

Source Protection and Water Conservation

Protecting our drinking water is crucial, whether it's from pollution (rain run-off, improper disposal of hazardous materials or cross connection) or waste due to leaks from plumbing fixtures or corroded pipes. Massachusetts DEP has written a Source Water Assessment and Protection (SWAP) report for Ashburnham's water system. This includes potential contamination sources near Upper Naukeag Lake. This report assesses the susceptibility of the water system. Ashburnham was given a rating of "high" susceptibility due to land use in the area. It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking. Many potential sources of contamination are regulated at the federal, state and/or local levels to further reduce the risk. Ashburnham's SWAP report can be obtained at the Ashburnham Water Department office or online at www.mass.gov/eea/docs/dep/water/drinking/swap/cero/2011000.pdf .

Water conservation is another way to protect our drinking water by ensuring that we don't diminish our resource. As much as 97% of the world's water is saltwater, leaving 3% freshwater, two-thirds of which is stored as icecaps or glaciers. This leaves us 1% of the world's water for drinking. Needless to say, water conservation will help us sustain our precious 1%. Here are a few ways to help out. Water your lawn only when it needs it. Step on your grass. If it springs back, when you lift your foot, it doesn't need water. This saves 750-1,500 gallons per month. Turn off the water while brushing your teeth. This saves three gallons each day. Set lawn mower blades one notch higher. Longer grass means less evaporation. This saves 500 to 1,500 gallons each month. Put a layer of mulch around trees and plants. This saves 750 to 1500 gallons per month.

Backflow and Cross-Connections

Massachusetts drinking water regulations state that an approved public water supply may not be connected to an unapproved supply, such as a private well. Such a connection is considered an illegal cross connection. A cross connection is any connection between piping that carries drinking water (also known as potable) and the piping or fixtures that carry other types of water or substances that are not safe to drink (also known as non-potable). Ideally, it is best to not have any cross-connections, but in certain situations they are unavoidable. Examples include residential fire systems, wells or auxiliary water systems, lawn irrigation systems, boilers, swimming pools and hot tubs that are hard piped for filling purposes and even garden hoses.

A garden hose placed into a bucket could pose a backflow risk if a fire hydrant were operated in the water system. The drop in water pressure could cause the contents of the bucket to be drawn into the water system and possibly contaminate the drinking water. An unprotected cross-connection threatens the health and safety of individuals and may contaminate food or beverage products utilizing water from that system. To eliminate the potential for reverse flow back into the potable water supply, the Ashburnham Water Department recommends installing hose bibb vacuum breakers on your outside spigots so that water can only flow in one direction. These devices are small, inexpensive, and readily available from hardware stores.