Acton Water District

SUMMER 2014

Water Words Notice

Water is the most vital of our natural resources, and critical to the quality of life in any community. With the recent culmination of the statewide Sustainable Water Management Initiative (SWMI), and subsequent proposed changes to the Water Management Act (WMA), which governs how much water we are able to withdraw from the aquifer, we are reexamining our ability to supply an existing—and increasing—customer base. This initiative, driven by theoretical science considering multiple environmental parameters, such as maintenance of stream flow and fish populations, will change our water-demand management strategies here in Acton. The ability to plan, finance, and manage our water resources is being further challenged by the convergence of changing regulations and Acton's increasing growth. We consider ourselves aggressive with water conservation and efficiency programs, and, no doubt, water takers are keenly aware of the impacts of our outdoor water use restrictions. However, as plentiful as water may seem in this water-rich area, getting it out of the ground and to your tap, while meeting all regulations of the Safe Drinking Water Act and the WMA, is "where the rubber meets the road."

Supplying water that is both potable and palatable is our primary mission. With ever-changing regulations and increasing customer expectations, meeting this mission is more and more challenging. The construction of the South Acton Water Treatment Plant (SAWTP) is our latest improvement toward achieving those goals. The project comprises the construction of a 1.75 million-gallon-per-day (mgd) facility that will filter approximately 40% of the water that we supply, as well as pipe installation and improvement (to support the new plant) on School Street, Parker Street, and High Street. As many of you know, construction is currently in full swing; we expect the plant will be commissioned during the winter of 2014–2015.

This project is the largest investment in Acton Water District history, carrying a price tag of $13.5 million. Next year, ratepayers will see the Bond Debt Fee increase proportionally to begin paying down the 20-year note on this 2% loan. In 2014, there will be a smaller increase in this Bond Debt Fee to reflect engineering associated with the SAWTP, and water main projects on Hayward Road and Stow Street, in addition to the purchase of 16 Knox Trail for source protection purposes. Please refer to our website at www.ActonWater.com for periodic project updates, important construction notices, and progress photos.

Respectfully submitted,

Chris Allen
District Manager

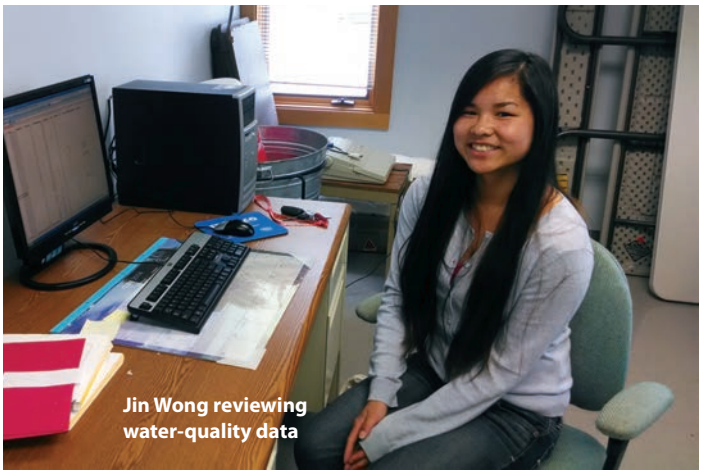
Progress on the South Acton Water Treatment Plant project is on schedule. Masons are building the exterior walls (top) and a water transmission main is horizontally drilled under Cole's Brook.

Julie Hawkins joined the Acton Water District in June 2013 as the Accounts Payable Bookkeeper/Secretary. She was born and raised in Maryland, moved to Massachusetts two years ago, and currently resides in Ayer. Julie enjoys fishing in her spare time and is also a NASCAR fan. Her great customer service and bookkeeping skills help keep the district running smoothly.

Julie Hawkins ready and waiting to help the next customer

Environmental Intern

Jin Wong, a senior at Acton-Boxborough Regional High School (ABRHS), was an environmental intern at the Acton Water District (AWD) in the spring. She collected and tested water samples, recorded data, and learned about water treatment, the wells across Acton, state regulations, and current events at the AWD. The ABRHS Senior Internship Program allows students enrolled in the Senior Seminar elective course to intern for their last three weeks of classes. Jin enjoys nature walks and baking during her free time, and will attend Binghamton University (SUNY Binghamton) in the fall, pursing a Bachelor of Science degree in Biology.



Jin Wong reviewing water-quality data

Unregulated Contaminant Monitoring

In accordance with provisions in the Safe Drinking Water Act (SDWA), public water suppliers are required to monitor for up to 30 unregulated contaminants on a five-year cycle. Unregulated contaminants are those that don't yet have a drinking water standard set by the United States Environmental Protection Agency (EPA). The purpose of monitoring for these contaminants is to help EPA decide whether the contaminants should have a standard. During 2013 and early 2014, the Acton Water District (AWD) monitored for 21 contaminants in its distribution system and at its treatment facilities. These included volatile organic compounds, synthetic organic compounds, metals, oxyhalide anions, and perfluorinated compounds.

Results of the 2013 monitoring are presented in the Water Quality Data Table on page 4. It is interesting to note that this round of UCMR (Unregulated Contaminant Monitoring Rule) monitoring was done with a focus on achieving low-level laboratory detection of the contaminants. Therefore, some of the results are expressed at the parts-per-billion and parts-per-trillion levels. For perspective, that is equivalent to ½-teaspoon of contaminant in the water in an Olympic-size swimming pool, or one drop in the water in 26 Olympic-size swimming pools, respectively! More information on the UCMR program and the specific contaminants can be found at *http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/data.cfm#ucmr2013.*

One of the compounds sampled for in the UCMR program is not new to Acton. For several years we have been monitoring the presence of 1,4-dioxane in our water supply. The AWD continues to work with the Massachusetts Department of Environmental Protection (MassDEP) on understanding the sources and impacts of this contaminant in our aquifers. Additional sampling for this compound by other water suppliers in Massachusetts is helping to guide what steps MassDEP should take for drinking water standards and hazardous material cleanup sites.

Source Water Assessment and Protection Report Available

The Source Water Assessment and Protection (SWAP) program requires states to assess the susceptibility of public water supplies to potential contamination. The Massachusetts Department of Environmental Protection (MassDEP) has completed its assessment on each of the Zone II areas for the Acton Water District's wells. A susceptibility ranking of "high" was assigned to each Zone II using the information compiled by MassDEP. Copies of the SWAP report are available at the Acton Water District office or on the website: *www.ActonWater.com.*

The AWD has long recognized the susceptibility of its sources, and has worked closely with the town and state to maximize the protection of all of its Zone IIs. For more information, please call Matthew Mostoller, AWD Environmental Manager, at 978-263-9107

For more information, additional copies, or comments on this report, contact:

Acton Water District
attn: Matthew Mostoller
PO Box 953, 693 Massachusetts Ave., Acton, MA 01720
Phone: 978-263-9107 • Fax: 978-264-0148
E-mail: *mmostoller@actonwater.com*

Report on Water Quality

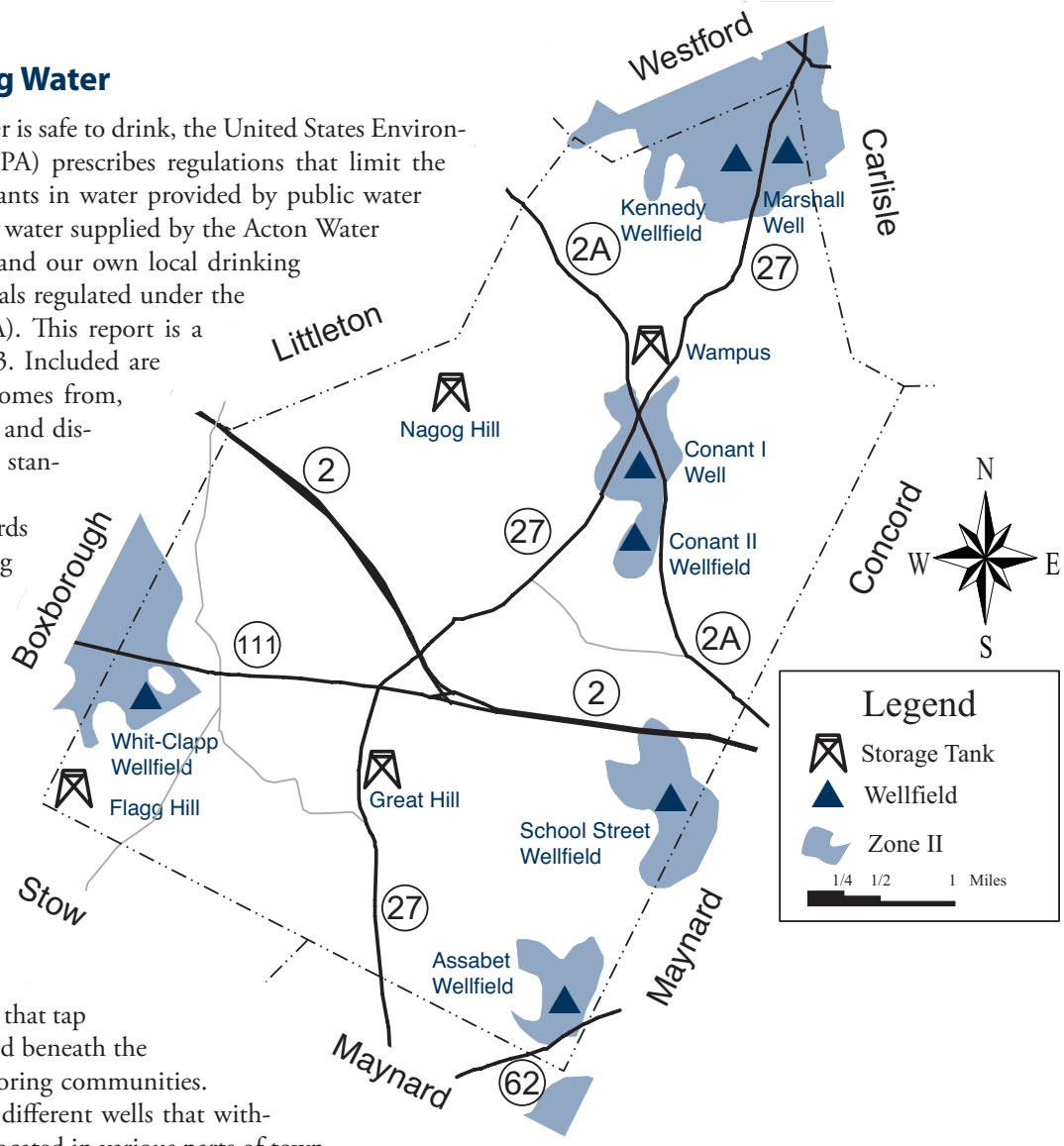
SUMMER 2014 PWS 2002000

Acton Water District

Testing for Your Drinking Water

In order to ensure that tap water is safe to drink, the United States Environmental Protection Agency (EPA) prescribes regulations that limit the amounts of certain contaminants in water provided by public water systems. In 2013, as in years past, water supplied by the Acton Water District (AWD) met EPA, state, and our own local drinking water health standards for chemicals regulated under the Safe Drinking Water Act (SDWA). This report is a snapshot of water quality in 2013. Included are details about where your water comes from, what it contains, how it is treated and distributed, and how it compares to standards set by the EPA.

The AWD vigilantly safeguards your water supplies by employing multiple barriers for protection, including source water protection, distribution system protection, ongoing monitoring, and treatment. Last year, we collected more than 650 samples and tested them for more than 100 different potential drinking water contaminants.



The Source of Your Drinking Water

Your water comes from wells that tap the water held in the ground beneath the town of Acton and neighboring communities. The Acton Water District has 22 different wells that withdraw water from seven wellfields located in various parts of town. Water from each well is pumped to treatment facilities located in each of the various wellfields, and then into the distribution system (a network of approximately 130 miles of water mains, four storage tanks, and more than 1,100 fire hydrants), where it blends together and is delivered to homes, businesses, schools, and other public users. The map on this page shows the various storage tanks, wellfields, and the critical protective radius (called Zone II) around each wellfield.

Protection for Your Drinking Water

The Acton Water District employs three important "barriers" to maintain the highest possible quality of drinking water:

- A protective area called Zone II surrounds each of Acton's wells. Land use activities that could adversely affect water quality are restricted within the Zone II area.
- Each of Acton's wells is treated in order to remove impurities and improve the taste of the water. Water treatment specifics are listed below.
- The system of pipes that delivers water to your home is protected by a program that works to minimize "cross connections" between potable (intended for human consumption) and non-potable water. An example of a cross connection is a point where a drinking water pipe might connect to a fire suppression system or to an outside irrigation system.

Water Quality Data Table

The data presented in the table below are from calendar year 2013 unless otherwise noted. Only compounds that were detected in the water delivered to customers are reported in this table. Because water from all wellfields is blended within the distribution system, these data represent the range of water quality in all wellfields.

Substance (units)	Range of Detects	Level Allowed (MCL)	Goal (MCLG)	Typical Source	Exceeds MCL?
Regulated Substances (MCL has been established					
Total Coliform	0–6 positive samples	< 2 samples positive/month	0	Naturally present in the environment	Yes
Trihalomethanes (ppb)	5.87–93.9	80	No MCLG	Formed when natural organic material present in the water reacts with chlorine added as a disinfectant	No
Haloacetic Acid (ppb)	0–4	60	No MCLG	Formed when natural organic material present in the water reacts with chlorine added as a disinfectant	No
Nitrate (ppm)	0.21–2.9	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits	No
Fluoride (ppm)	0–1.4	4	4	Water additive which promotes strong teeth	No
Perchlorate (ppb)	0.11–0.37	2	No MCLG	Rocket propellant, fireworks, munitions, flares, blasting agent	No
Turbidity (Nephelometric Turbidity Unit)	0–0.63	Maximum Day 1 NTU	95% of samples <0.3 NTU Monthly	A measure of the cloudiness of water. It is a good indicator of the effectiveness of our treatment processes.	No
Chlorine (ppm)	0.01–0.45 0.07: highest running annual average	4 (MRDL)	4 (MRDLG)	Water additive used to control microbes	No
Unregulated Substances (MCL has not been established)					
Iron (ppm)	0–1.1	No MCL	No MCLG	Erosion of natural deposits	Unregulated contaminants have no established MCL
Manganese (ppb)	0–32	No MCL	No MCLG	Erosion of natural deposits	
Sodium (ppm)	31–53.6	No MCL	No MCLG	Erosion of natural deposits, road salting	
Chloroform (ppb)	0–30	No MCL	No MCLG	Formed when natural organic material present in the water reacts with chlorine added as a disinfectant	
Chlorodibromomethane (ppb)	0–2	No MCL	No MCLG	Formed when natural organic material present in the water reacts with chlorine added as a disinfectant	
Bromodichloromethane (ppb)	0–11	No MCL	No MCLG	Formed when natural organic material present in the water reacts with chlorine added as a disinfectant	
Bromoform (ppb)	0–1	No MCL	No MCLG	Formed when natural organic material present in the water reacts with chlorine added as a disinfectant	
UCMR3 Results—May, August, November, December 2013					
Substance (units)	Range of Detects	Average		Typical Source	
1,4-dioxane (ppb)	0.099–0.411	0.268		Chemical solvent, lab reagent, stabilizer, adhesive, may be found in cosmetics, detergents, and shampoo.	
Chlorate (ppb)	50–170	92		Byproduct of drinking water disinefection	
Chromium (ppb)	0.21–1.0	0.37		Erosion of natural deposits	
Chromium-6 (ppb)	0.037–0.77	0.19		Erosion of natural deposits. Byproduct of industrial activties.	
Strontium (ppb)	87–270	184		Erosion of natural deposits.	
Vanadium (ppb)	0.29–0.94	0.69		Erosion of natural deposits.	
Cobalt (ppb)	1.4–1.6	1.5		Erosion of natural deposits.	
Lead and Copper (30 sites sampled during August/September, 2013. Next sampling during Summer, 2016)					
Substance (units)	90th percentile	# sites above Action Level	Action Level	Typical Source	Exceeds AL?
Lead (ppb)	0.01	1	15	Corrosion of household plumbing systems; Erosion of natural deposits	No
Copper (ppm)	1.1	3	1.3	Erosion of natural deposits; Leaching; Corrosion of household plumbing systems; from wood preservatives	No

For terms and abbreviations, see page 5.

Why Are Impurities in Your Drinking Water?

As water travels through the ground it dissolves naturally occurring minerals. It can also pick up substances resulting from animal or human activity. Contaminants that may be present in source water include:

- **microbiological** contaminants (such as viruses and bacteria) that may come from septic systems, agriculture, and wildlife
- **inorganic** contaminants (such as salts and metals) that may be naturally occurring or result from stormwater runoff, wastewater discharge, mining, or farming
- **pesticides and herbicides**, which may come from a variety of sources, such as agriculture, stormwater runoff, and residential uses
- **organic chemical** contaminants, which are byproducts of industrial processes, and can also come from gas stations, urban stormwater runoff, and septic systems
- **radioactive** contaminants, which can occur naturally or be the result of oil and gas production or mining activities

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some impurities. The presence of an impurity does not necessarily indicate that the water poses a health risk. The Acton Water District has compiled information on drinking water and health in its drinking water resource center. Please feel free to visit or call us for information, or call the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

Treatment for Your Water

To meet local, state, and federal requirements, and to improve taste and appearance, the Acton Water District treats all of its water before it is supplied to customers. The table below shows the treatment provided at each wellfield.

Treatment	Conant I Well	Conant II Wellfield	Marshall Wellfield	School Street Wellfield	Assabet Wellfield	Kennedy Wellfield	Clapp/Whitcomb Wellfield
Aeration *VOC removal*		♦	♦	♦	♦	♦	♦
Chlorination *disinfection*	♦	♦	♦	♦	♦	♦	♦
Fluoridation *tooth decay prevention*	♦	♦	♦	♦	♦	♦	♦
pH Adjustment *corrosion control*	♦		♦			♦	
Carbon Filtration *taste/color control*							♦
Membrane Filtration *mineral/color removal*			♦			♦	

TERMS AND ABBREVIATIONS

AL Action Level: The concentration of a contaminant, which, 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.

pCi/L: picoCuries per liter

ppm: part per million by volume

ppb: part per billion by volume

90th Percentile: the concentration of a substance that falls at the top ninety percent of all values for that substance.

Do You Want to Become More Involved?

The Board of Water Commissioners meetings are typically scheduled on the second and fourth Mondays of each month at 7:30 pm; all citizens of Acton are welcome to attend. If you wish to attend, please call us to confirm the next meeting date. The Acton Water District Annual Meeting is held on the third Wednesday of March. All interested persons are welcome to attend.

Discussion of Data Table Detections

TOTAL COLIFORM: Coliform bacteria are naturally present in the environment and are generally not harmful themselves. They are tested as indicators of the presence of other, potentially harmful, bacteria that may cause symptoms, including diarrhea, cramps, and nausea, and associated headaches and fatigue. During November 2013, more than one of our distribution samples showed the presence of coliform bacteria. More than one sample positive for total coliform is considered a monthly MCL violation for total coliform. During this time, the Acton Water District (AWD) increased the level of chlorination at the sites involved, inspected facilities, conducted immediate resamples, and notified customers of a temporary violation in a notice printed in the *The Beacon* newspaper and posted around town. Following this time period, resamples showed no coliform present, indicating that the problem had been abated.

GROUNDWATER UNDER THE INFLUENCE: The AWD is required by Administrative Consent Order to notify our customers of the status of the Christofferson Well. This source was deemed to be groundwater under the direct influence of surface water and therefore requiring additional treatment. Since this determination, the Christofferson Well has not been used as part of our source of supply. Ongoing efforts to construct a filtration plant in South Acton will resolve the water quality issues associated with this source and make it fully useable. We are currently required to have this facility fully operational by January 15, 2015.

SODIUM: Although sodium does not have a Maximum Contaminant Level, the Commonwealth of Massachusetts does have a guideline of 20 parts per million (ppm) for sensitive individuals, such as those on very salt-restricted diets. The AWD notifies the Acton Board of Health of all sodium results, and results of the most recent sodium tests are posted at various locations in town. Sodium levels in drinking water vary considerably from well to well and month to month. For the most accurate data on sodium levels at your home, an individual tap sample would be necessary.

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 AWD 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 (800-426-4791) or at *http://www.epa.gov/safewater/lead.*

MANGANESE: Manganese is a nutrient that is part of a healthful diet. Drinking water may naturally have manganese and, when concentrations are greater than 50 µg/L, the water may be discolored and taste bad. Over a lifetime, EPA recommends that people drink water with manganese levels of less than 300 µg/L; over the short term, EPA recommends that people limit their consumption of water with levels of more than 1,000 µg/L, primarily due to concerns about possible neurological effects. Children up to one year of age should not be given water with manganese concentrations greater than 300 µg/L, nor should formula for infants be made with that water for longer than 10 days.

1,4-DIOXANE: During 2013 the AWD collected samples for this compound in the raw and treated waters of the Assabet and School Street wells in addition to all of our treated water supplies. This sampling was conducted due to the presence of this compound at the WR Grace Superfund site in South Acton and as part of the UCMR 3 program. 1,4-dioxane is not a regulated contaminant, and the Commonwealth of Massachusetts has not established an MCL or approved a laboratory process for analyzing this compound. The AWD is following the potential regulation of this contaminant and the effect it may have on our water system. MassDEP established a new guideline in June 2011 of 0.3 ppb for this compound. The annual average for the samples collected by the AWD did not exceed this guideline in treated water delivered to our customers. EPA is requiring assessment monitoring nationwide between 2013 and 2015 to determine if an MCL or other regulatory action is appropriate.

VOLUNTARY MONITORING: In addition to the monitoring required by the Safe Drinking Water Act, the AWD voluntarily conducts hundreds of additional tests each year to ensure high-quality water. For more information on our voluntary monitoring, please contact us.

VULNERABILITY: Some people may be particularly vulnerable to impurities in drinking water. 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, and some elderly people and infants can be particularly at risk for infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Water Drinking Hotline (800-426-4791).

A hummingbird enjoys the water-efficient garden at the Acton Water District office

Landscaping Design Promotes Water Efficiency

Outdoor water efficiency starts with your landscape design. To help reduce outdoor water usage this summer, consider replacing lawn area with drought-tolerant plants. This makes yard work easier because, once established, the plants can handle heat and lack of water. Native species also do well because they require minimal attention. Some great native species include: American Beech (*Fagus grandifolia*), a large, moderately drought-tolerant tree; Paper Birch (*Betula papyrifera*), a tree with white, papery bark; Serviceberry (*Amalanchier canadensis*), a white-flowering shrub with a sweet, edible fruit; and Nannyberry (*Viburnum lentago*), a low-maintenance, large flowering shrub or small tree.

Some drought-tolerant plants for consideration include: Oakleaf Hydrangea (*Hydrangea quercifolia*), a shrub with white flowers and leaves that turn a brilliant red in the fall; Lilac (*Syringa*), whose flowers smell lovely and which, though not native, are very hardy trees and a great addition to any garden; Coneflower (*Echinacea*), which look like very colorful daisies with raised centers, and bloom from summer to fall; Eastern Red Cedar (*Juniperus virginiana*), a coniferous evergreen tree; American Hazelnut (*Corylus americana*), a hardy shrub that produces edible fruit; Black Chokecherry (*Aronia melanocarpa*), which requires initial water and care, but once established, is drought tolerant; and Gray Dogwood (*Cornus racemosa*), a low-maintenance shrub with delicate white flowers.

Our seasonal water use restrictions are in effect from May 1 to October 1 of each year.

These restrictions allow customers with even-numbered addresses to use water outdoors on Tuesday, Thursday, and Saturday. Odd-numbered addresses may use water outdoors on Wednesday, Friday, and Sunday. No lawn watering is allowed between the hours of 7am and 7pm, and no outdoor water use of any kind is allowed on Mondays. These restrictions apply to both new and established lawns. We encourage homeowners to plant new grass either early in the spring or in October. The outdoor water use restriction applies not only to automatic and manual irrigation, but also, to any outdoor water use. Examples include filling or topping off pools, car washing, power washing, and recreation.

Do you know about Cross Connections?

A cross connection is any actual or potential connection between a distribution pipe of potable water supplied by the public water system and any waste pipe, soil pipe, sewer, drain or other unapproved source. If not properly protected or eliminated, a cross connection can cause health problems and spread disease.

There are two methods by which contamination can enter the drinking water, backpressure and backsiphonage. Backpressure occurs when the pressure in the property exceeds the drinking water pressure. This can be caused by air conditioning units, boiler systems, and other pressure-building devices connected to the drinking water system. Backsiphonage occurs when the drinking water pressure drops off and the resulting vacuum sucks the water from the building. This can be caused routinely by a fire department's use of water due to a fire, water main breaks, and other heavy water demand.

Hose bibb vacuum breaker

Most cross connections are prevented by installing backflow devices. A hose bibb vacuum breaker, sold at any hardware store, prevents the typical garden hose cross connection. Backflow devices come in all different types to protect even the most dangerous liquids from being able to contaminate the drinking water. To our knowledge, there has never been a cross connection incident in Acton, but there have been several in the state of Massachusetts and even more nationally.

Everyone should be aware of, and do their part to prevent drinking water from becoming contaminated by, cross connections. By surveying all industrial, commercial, and institutional facilities for cross connections, the Acton Water District ensures that the water supplied—down to the last free-flowing tap in every home and office—is of the highest quality. All residential homes with irrigation systems are required to have backflow protection. Learn more about cross connections by contacting Bob Murch, AWD Cross Connection Coordinator, at 978-263-9107.

Water Words Notice
is published twice a year
for all customers of the
Acton Water District

District Manager
Chris Allen
Editor
Matthew Mostoller

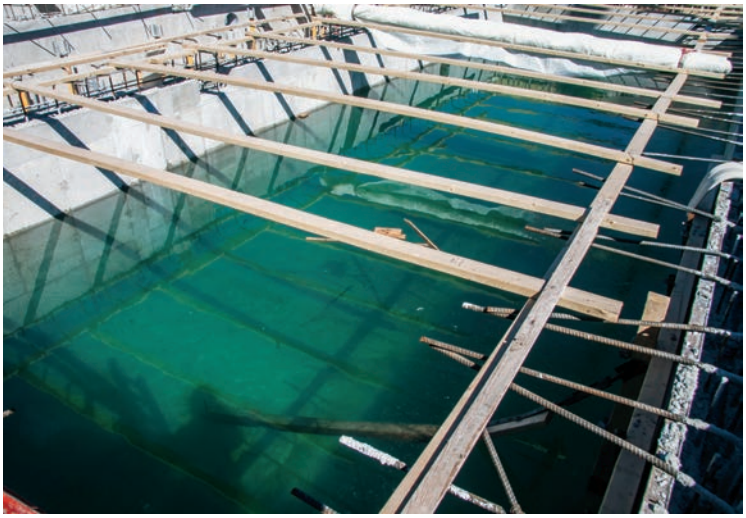
Commissioners
Leonard Phillips
Stephen Stuntz
Ronald Parenti

Design & Production
David Gerratt
NonProfitDesign.com

Printed on Recycled Paper

Acton Water District
Est. 1912

P.O. Box 953
Acton, MA 01720



What is it?

Please email your answers to *webgeek@ActonWater.com*. Winners (and the correct answer) will be posted in the next *Water Words Notice*. Customers with a correct answer, as determined by AWD staff, will receive a prize—in addition to the fame of having your name published in this space!

What was it?

Three customers—Thomas Beals, Jeff DeVeber, and James McDonough—correctly identified the photo as a partially excavated curb stop. These shut-off valves are typically located at the property line and allow us to shut off water to a building without going inside.