

Acton Water District

SUMMER 2012

Water Words Notice

Here we are, once again approaching the summer months. As usual, my mind turns to outdoor water use, peak demand and conservation. As Acton continues to grow, we try to develop new strategies to promote conservation. The days of taking for granted a resilient water supply system is over. Getting to developers and builders early in the process is of paramount priority. It is always best to get on top of things early, and establish a sustainable conservation strategy for new development. Of course, as existing customers, everyone must do their part. Adherence to our state mandated, calendar triggered outdoor water use plan is mandatory. And, we appreciate any conservation efforts that you implement in your daily use of our most precious natural resource, water.

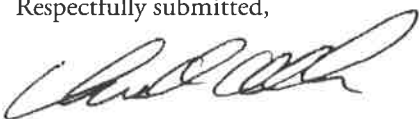
This is a remarkable year for us, we are 100 years old! Yes, the South & West Water Supply District, as it was initially called, and better known today as The Water Supply District of Acton, or Acton Water District was chartered by an act of the state legislature in 1912. And, even more remarkable, some parts of the system are original. Most recently, we held a day of celebration on Saturday, May 5th. The day consisted of a session with a panel of local scientists and engineers at the public library with the main topics of discussion being water supply, environmental impacts, and emerging technologies in water reuse. I would like to thank our panel, Andy Magee, Paul Mathisen, Peter Shanahan, Dennis Leblanc, Kim Groff, Steve Wolf, and our own Matt Mostoller for their very generous, informative participation in the session. The library session was followed up with an open house at our state-of-the-art membrane filtration plant in North Acton; where we had static and dynamic displays, lunch and tours of the facility. The day was a rousing success! Many thanks to all that attended.

We used our North Acton treatment plant as a centerpiece for our Centennial Celebration. This facility has been operating at a high level of integrity for three years now. We are in the process of piloting filtration technologies in South Acton for the impending construction of a filtration plant in that quadrant of town to filter raw water from the five sources located there. We have completed the 30-Day pilot run at the School Street site, and have now relocated the equipment to the Assabet site for another 30-Day pilot run. Our hope is to build one consolidated plant for all five sources. The primary function of the plant will be iron and manganese removal with other water treatment objectives being achieved to meet regulations. This is an unprecedented, challenging and expensive project. We are on schedule for this facility to be in service in fall/winter of 2014. Over time, I am confident the residents of South Acton will be pleased with the results.

I would like to take this opportunity to thank Paul McGovern for over 30 years of service to Acton. He worked both for Acton Police and for the Water District. Paul retired in April, and he is missed; Fair winds and following seas, Paul, as you sail off into retirement.

I would, also, like to wholeheartedly thank our staff. Their daily efforts keep our operation afloat. I would also like to thank the Board of Water Commissioners and Finance Committee for their wisdom and guidance.

Respectfully submitted,



Chris Allen
District Manager

Paul B. McGovern retired from the Water District on April 13, 2012 after 24 years of service to the water takers of Acton. Paul was hired as an operator in 1988 and later came to serve as our primary pump operator, overseeing the daily operation of the wells and conducting much of the routine water quality sampling. Prior to joining the Water District, Paul served as an Acton Police Officer for 13 years. Paul's family, the Water District staff, and many current and former Town employees helped send Paul off on his last day with a BBQ lunch.



Paul McGovern pauses for a photo a few days before his retirement.

Safeguarding the Water Supply at Home

What is a cross connection? A cross connection occurs whenever a potable drinking water line is directly or indirectly linked to non-potable water. Cross connections in the home could contaminate the drinking water not only in your home but in the neighborhood. One of the most common cross connections occurs from our use of a garden hose. A very simple example would be filling a pool or using a fertilizer sprayer that leaves residue on the hose and later contaminates the potable water coming from that hose.

There are two major methods by which contamination can enter the drinking water system, backpressure and back siphonage. 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 supply.

Back siphonage occurs when the drinking water pressure drops off and a vacuum sucks the water from the building. This can be caused by the authorized or unauthorized use of a hydrant, water main breaks, and other heavy water demands.

How can I prevent a cross connection? Most cross connections are prevented by installing a backflow device. 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. You can get more information on cross connections by contacting Bob Murch, Cross Connection Coordinator for the Acton Water District at 978-263-9107, researching online, and contacting the Massachusetts Department of Environmental Protection.

Brewster Conant Honored

In celebration of the Acton Water District's 100th Anniversary, an award was established to recognize active support of the Water District community and to preserve, protect, and promote the quality and quantity of drinking water for citizens. The inaugural recipient of the Distinguished Steward of Acton Water Award was Brewster Conant of Main Street. He was recognized at the May 5th Anniversary celebration held at the Acton Memorial Library. The District hopes this award prompts others to think about how they can be stewards of our natural resources.

At first glance, the most obvious recognition would be for the Conant family's donation of land to the District. First in

1956, 13.6 acres was donated for the Conant 1 well on Main Street. Almost 40 years later, in 1995, approximately 24.25 acres was donated for the Conant 2 well field off of Post Office Square. Upon further reflection, the District, and all Acton residents, benefit from the way in which he actively manages his own land in a manner that is mindful and protective of our Zone 2 recharge areas. This decision has provided a wonderful visual open space in the heart of Acton.

His work as a board member on the Acton Conservation Trust further demonstrates his commitment to protecting Acton's land and water resources. Although he has not served as an official member of the District's Finance Committee, he has supported and advised this group for many years. He also participates actively in the community on the Acton Memorial Library Foundation, the Historical Society, and on the Cemetery Committee.

The District Moderator, Dick O'Brien, was instrumental in developing the criteria for this award. He emphasized the way Mr. Conant has decided to live his life and serves as a model for other Acton residents to follow. From his involvement in the community, his awareness and support of environmental and conservation issues, and his relationship with the land he owns. It is increasingly rare to find a property owner who would consider his land valuable for the public good opposed to realizing the full development potential reflects on his priorities as a citizen.



Brewster Conant (right) receives his award from Water Commissioner Len Phillips (left).



This open space at the corner of Main and Brook Streets is an example of how the Conant Family has managed its property through the years.

Report on Water Quality

SUMMER 2012 PWS 2002000

Acton Water District

Testing for Your Drinking Water

In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. In 2011, as in years past, water supplied by the Acton Water District 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 2011. 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 Environmental Protection Agency.

The Acton Water District 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 over 100 different potential drinking water contaminants.

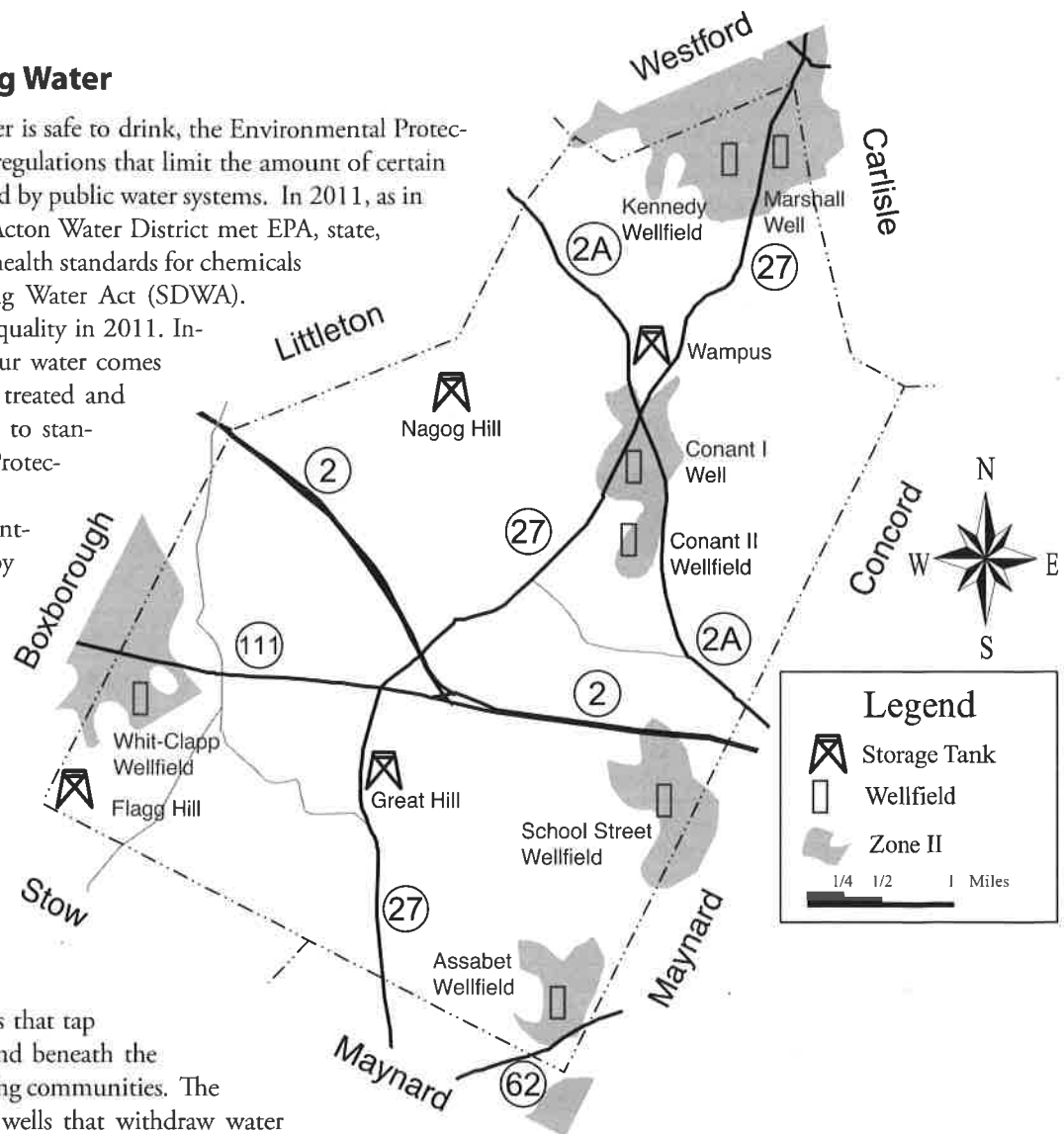
The Source of Your Drinking Water

Your water comes from wells that tap the water held in the ground beneath the town of Acton and neighboring communities. The District has twenty-two 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 ~120 miles of water mains, four storage tanks, and over 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.



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) may be naturally occurring or result from storm runoff, wastewater discharge, mining and farming.
- **Pesticides and herbicides** may come from a variety of sources such as agriculture, storm water runoff, and residential uses.
- **Organic chemical** contaminants are byproducts of industrial processes, 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.

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 our 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 our 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 <i>VOC removal</i>		•	•	•	•	•	•
Chlorination <i>disinfection</i>	•	•	•	•	•	•	•
Fluoridation <i>tooth decay prevention</i>	•	•	•	•	•	•	•
pH Adjustment <i>corrosion control</i>	•		•			•	
Carbon Filtration <i>taste/color control</i>							•
Membrane Filtration <i>mineral/color removal</i>			•			•	

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 Department of Environmental Protection (DEP) has completed its assessment on each of the Zone IIs for the Acton Water District's wells. A susceptibility ranking of "high" was assigned to each Zone II using the information compiled by the DEP. Copies of the SWAP report are available at the Acton Water District office or on our website, www.actonwater.com.

The Acton Water District 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 at the Acton Water District (978) 263-9107.

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

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

Water Quality Data Table

The data presented in the table below are from calendar year 2011 unless otherwise noted. Only compounds that were detected in the water delivered to our 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	0-4 positive samples	< 2 samples positive/month	0	Naturally present in the environment	Yes
E.coli	0-1 positive samples	0	0	Human and animal fecal waste	Yes
Trihalomethanes (ppb)	0-8.3 average: 6.2	80	No MCLG	Formed when natural organic material present in the water reacts with chlorine added as a disinfectant	No
Nitrate (ppm)	0.12-2.5	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits	No
Fluoride (ppm)	0.0-1.6	4	4	Water additive which promotes strong teeth	No
Perchlorate (ppb)	0-0.32	2	No MCLG	Rocket propellant, fireworks, munitions, flares, blasting agent	No
Chlorine (ppm)	0.01-0.75 0.09:highest running annual average	4 (MRDL)	4 (MRDLG)	Water additive used to control microbes	No
Unregulated Substances (MCL has not been established)					
Iron (ppm)	0.0-0.83	No MCL	No MCLG	Erosion of natural deposits	Unregulated contaminants have no established MCL
Manganese (ppm)	0.0-0.63	No MCL	No MCLG	Erosion of natural deposits	
Sodium (ppm)	28-39.1	No MCL	No MCLG	Erosion of natural deposits, road salting	
Chloroform (ppb)	0-9.6	No MCL	No MCLG	Formed when natural organic material present in the water reacts with chlorine added as a disinfectant	
Chlorodibromomethane (ppb)	0-7.7	No MCL	No MCLG	Formed when natural organic material present in the water reacts with chlorine added as a disinfectant	
Bromodichloromethane (ppb)	0-5.5	No MCL	No MCLG	Formed when natural organic material present in the water reacts with chlorine added as a disinfectant	
Bromoform (ppb)	0-2.7	No MCL	No MCLG	Formed when natural organic material present in the water reacts with chlorine added as a disinfectant	
Methyl Tertiary Butyl Ether (ppb)	0-0.64	No MCL	No MCLG	Fuel additive leaks and spills from gasoline storage tanks	
Lead & Copper (30 sites sampled during August & September, 2010. Next sampling during Summer 2013.)					
Substance (units)	90th percentile	# sites above Action Level	Action Level	Typical Source	Exceeds AL?
Lead (ppb)	10.00	1	15	Corrosion of household plumbing systems; Erosion of natural deposits	No
Copper (ppm)	1	2	1.3	Erosion of natural deposits; Leaching; Corrosion of household plumbing systems; from wood preservatives	No

TERMS AND ABBREVIATIONS

AL: Action Level: The concentration of a contaminant, which if exceeded, triggers treatment or other requirements which 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: 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.

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 which may cause symptoms including diarrhea, cramps and nausea and associated headaches and fatigue. During the months of June and August 2011, 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 each instance, the Water District increased the level of chlorination at the sites involved, conducted immediate resamples, and notified customers of a temporary violation in a notice printed in the *Beacon* newspaper and posted around town. Following each instance, resamples showed no coliform present, indicating that the problem had been abated.

GROUNDWATER RULE SPECIAL NOTICE: On June 7, 2011 a routine bacteria sample was collected in the raw water from the Whitcomb Well (RW-01G). On June 8, 2011 we were notified by our contract laboratory that this sample tested positive for E.coli. The treated water sample collected at the same time did not test positive for bacteria. MassDEP was notified immediately, additional bacteria samples were collected, and the well was taken out of service. None of the additional samples tested positive for E.coli and the well was inspected for any sanitary deficiencies. Tier 1 notification occurred on July 9, 2011 to alert customers to the potential for fecal coliform contamination in the drinking water. The cause of the original positive sample is believed to be from cross contamination of the sample during collection. The sample collection point has been updated to prevent similar occurrences from happening in the future. Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

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 Acton Water District notifies the Board of Health of all sodium results, and results of the most recent sodium tests are posted at: the Acton Public Health and Nursing Service offices; the Acton Water District Information Center and website; the Acton Public Library; and the Acton Senior Center. 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 Acton Water District 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>.

MANGANESE: Manganese is a nutrient that is part of a healthy 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 less than 300 µg/L and over the short term, EPA recommends that people limit their consumption of water with levels over 1,000 µg/L, primarily due to concerns about possible neurological effects. Children up to 1 year of age should not be given water with manganese concentrations over 300 µg/L, nor should formula for infants be made with that water for longer than 10 days.

1,4-DIOXANE: In September 2011 the Acton Water District collected samples for this compound in the raw and treated waters of the Assabet and School Street wells. This sampling was conducted due to the presence of this compound at the WR Grace Superfund site in South Acton. 1,4-dioxane is not a regulated contaminant, and the State of Massachusetts has not established an MCL or approved a laboratory process for analyzing this compound. The Water District is following the potential regulation of this contaminant and the effect it may have on our water system. The Massachusetts DEP established a new guideline in June 2011 of 0.3 ppb for this compound. Samples collected by the Water District did not exceed this guideline and ranged between 0.12 and 0.26 ppb. The United States 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 Acton Water District 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, some elderly and 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 (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).

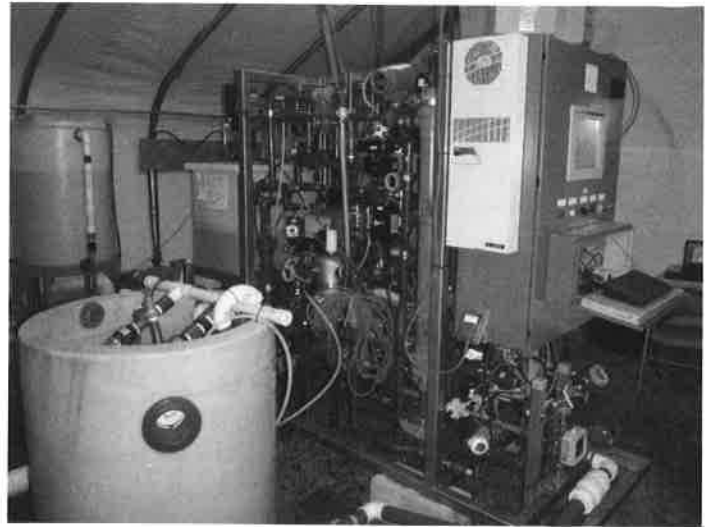
Do You Want to Become More Involved?

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

Same Water, Different Name

One of the hall marks of being a water supply operator is the ever evolving and increasing complexity of regulations. These regulations are designed to provide for safe drinking water, protect public health and safety, protect the employees assigned to treat and distribute your water, and to enhance and preserve our natural resources. Recently, the Water District had multiple wells that were designated as being under the influence of surface water. This requires us to treat them to the regulations associated with the Surface Water Treatment Rule (SWTR). In November 2010, the Christofferson Well (RW-04G) and in November 2011, the Kennedy and Marshall Wells (RW-09G through 13G) were determined to fall into this category. For the most part, this does not change the water being delivered to you, our customer. This designation determines what set of rules to follow and steers us towards certain treatment technologies that have a wider range of benefits. The District would have been making treatment upgrades to improve the aesthetic quality of the water regardless of these determinations.

In the case of the Christofferson Well, the historic mineral content of this well prevented regular use of this source. Additional treatment is required to remove the minerals from this source and also to provide additional microbial removal for the SWTR. In order to identify appropriate technologies, conduct pilot testing, design a facility, and ultimately construct it would take longer to complete than MassDEP allows. In response to this need for additional time, the District entered into an Administrative Consent Order (ACO) with MassDEP on October 3, 2011. This ACO is a legally binding agreement to construct additional treatment in compliance with the SWTR. Most importantly, it sets out timelines for the District to complete various aspects of the planning, construction, and ultimate operation of this facility. This ACO was modified in March 2012 to include treatment of the Assabet Wells for mineral removal. Piloting is underway as you read this newsletter. It is anticipated that construction will begin in 2013 and the facility will be completed in the fall of 2014.



Piloting of the treatment technologies in South Acton.

The Kennedy and Marshall Wells are both treated by our North Acton Water Treatment Plant (NAWTP) that was activated in 2009. During the design and construction of this facility, it was anticipated that these wells may need to be treated to SWTR standards in the future. MassDEP allows up to 18 months in order to complete any necessary upgrades to meet these standards. At the Water District annual meeting held this past March funding was approved to conduct the necessary engineering studies to prove that our existing treatment is capable of satisfactorily meeting SWTR requirements. In the interim, we are required to meet stringent disinfection requirements to provide the safest water possible for our customers. We anticipate full compliance with this regulation at the NAWTP by the early spring of 2013.

Seasonal Water Use Restrictions

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 early in the spring or wait until October. The outdoor water use restriction applies not only to automatic and manual irrigation, but to any outdoor water use. Examples include filling or topping off pools, car washing, power washing, and recreation.



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What was it?

We did not have any readers correctly identify the photo from our Winter 2011–2012 WaterWords. The photo was the interior of our Hungerford & Terry color monitor. This online analyzer detects the presence of color in the filtered water at the North Acton Water Treatment Plant. If the color rises, it could be an indicator that the potassium permanganate, used to oxidize the iron and manganese, is not being completely mixed and filtered. The photo was taken during routine cleaning and calibration of the instrument.

