Acton Water District

Water Words Notice

Spring 2001

Dear Customer:

We are often asked the question: "Does the Acton Water District have enough water to supply Acton's needs now, and into the future?" Given the recent release of the 2000 census data showing rapid growth in Acton, this is a timely topic.

The Acton Water District maintains five wellfields and two individual wells. When all of these sites are producing at their maximum safe yield, we can provide about 3.5 million gallons a day. Realistically, because of an ongoing preventive maintenance program, or unexpected mechanical problems, or simply because of a low ground water table, it is much more likely that we will be limited to between 2.1 and 2.8 million gallons a day. Additionally, the Massachusetts DEP sets an annual regulatory limit on our withdrawals.

Our *average* daily demand in 2000 was slightly less than 1.9 million gallons per day. This would seem to suggest that we have plenty of water. However, demand can more than double in early summer due to increased outdoor usage. The average above-ground lawn sprinkler uses between 3 and 5 gallons per minute. Individually, this doesn't amount to much. But, if you have 500 of them running at once (a number easily reached in Acton) then these devices *alone* are using more water than the wells can produce, and levels in the storage tanks will begin to drop. When we reach a demand of over 3 million gallons per day, we begin to draw on storage tanks to meet that demand. This can compromise satisfying fire flow requirements and pressure to residences, and is one reason why restricting outdoor usage is so important.

Our watering restrictions allow us to better manage demand during the critical months of May through September. It is essential that everyone not only comply with *all* outdoor water use restrictions, but also, to limit that usage to a minimum whenever possible. While large green lawns may be desirable to some, I think everyone would agree that we must place our basic domestic and fire flow needs above those of our desire to maintain green lawns.

Sincerely,

James L. Deming
District Manager

Practice Sustainable Landscaping!

As Acton continues to grow, we are quickly approaching the time when our environment cannot sustain the withdrawals we use during the warmer months. Lawn watering alone accounts for more than one-third of the water used during the growing season. Acton has limited groundwater resources. We are making an appeal to all customers to **practice sustainable landscaping:**

- Replace unused areas of lawn with mulched beds of native perennials, groundcovers, decks, or brick patios to save time, money, and water!
- Water only when needed (just as lawn begins to wilt) and mow no shorter than 2.5 inches to encourage deep roots and drought tolerance. Lawns properly "trained" in this way may never need supplemental watering, and more effectively keep out weeds.

Michelle Pruett in her beautiful water wise garden. Michelle and husband Brad reduced their lawn area by nearly 50% by planting mulched beds of drought-tolerant perennials.

Acton Water District Receives State Award Second Year in Row

On National Drinking Water Day, May 10, 2001, the Acton Water District was honored for its efforts to provide a safe, clean drinking water supply to its customers. The Acton Water District received a Massachusetts Public Water System Award, which annually recognizes community water suppliers for their outstanding performance in several key areas of operation. This award is co-sponsored by the Massachusetts Department of Environmental Protection, the Massachusetts Water Works Association and the Northeast Rural Water Association.

The award program recognizes outstanding performance by public water supplies in providing customers with clean, dependable drinking water and complying with the Safe Drinking Water Act. The 522 community water systems in Massachusetts are annually rated for: their compliance with drinking water regulations, their conservation efforts, their source protection and distribution programs, their contribution to the drinking water profession, and their administrative quality, including community outreach activities, timely submission of plans and reports, and certification and training of operators. The Acton Water District received the second highest score in the state.

In photo from left to right: James Deming, Acton Water District Manager, Lauren Liss, Commissioner, Department of Environmental Protection, Jane Ceraso, Acton Water District Environmental Manager, and William Shaughnessy, Massachusetts Water Works Association.

Wellhead Protection Project Launched

The Acton Water District was recently awarded a Wellhead Protection Project Grant from the Massachusetts DEP. This project will allow for a complete inventory of land uses within the Zone II (protective radius) area of each wellfield. This inventory will facilitate a better understanding of potential threats to water quality at each of the Acton Water District's wells. A large-scale base map will be developed which will show detailed land uses within the entire area of each Zone II. The Acton Water District's Zone II areas extend into Boxborough, Westford, Carlisle, and Concord. Woodard and Curran has been selected as the consultant to complete the work on the project. Work will begin in early June and conclude in early 2002.

How Hard Is Acton's Water?

We often receive questions about the hardness of Acton's water. Hardness is a measure of the calcium and magnesium salts in water. As the Water District has many wells, raw water hardness from each well varies somewhat, but an average around 50 mg/L could be used as a "ballpark". Water from our wells falls into the "slightly hard" category, which is the desirable range. Water that is too "soft" may be corrosive, and water that is too "hard" may cause scale to build up in household plumbing fixtures. Customers sometimes call to ask how many "grains" of hardness we have in our water. This unit of measurement may be used in manuals for dishwashers, fish tank filtering systems, etc. It is a measurement not commonly used in the U.S., but can easily be calculated from mg/L. Approximately 17 mg/L of hardness equals one grain per gallon. Thus, 50 mg/L hardness would be equivalent to approximately 3 grains/gallon. Customers should be reassured that they will not experience the common problems attributed to particularly "hard" or "soft" water.

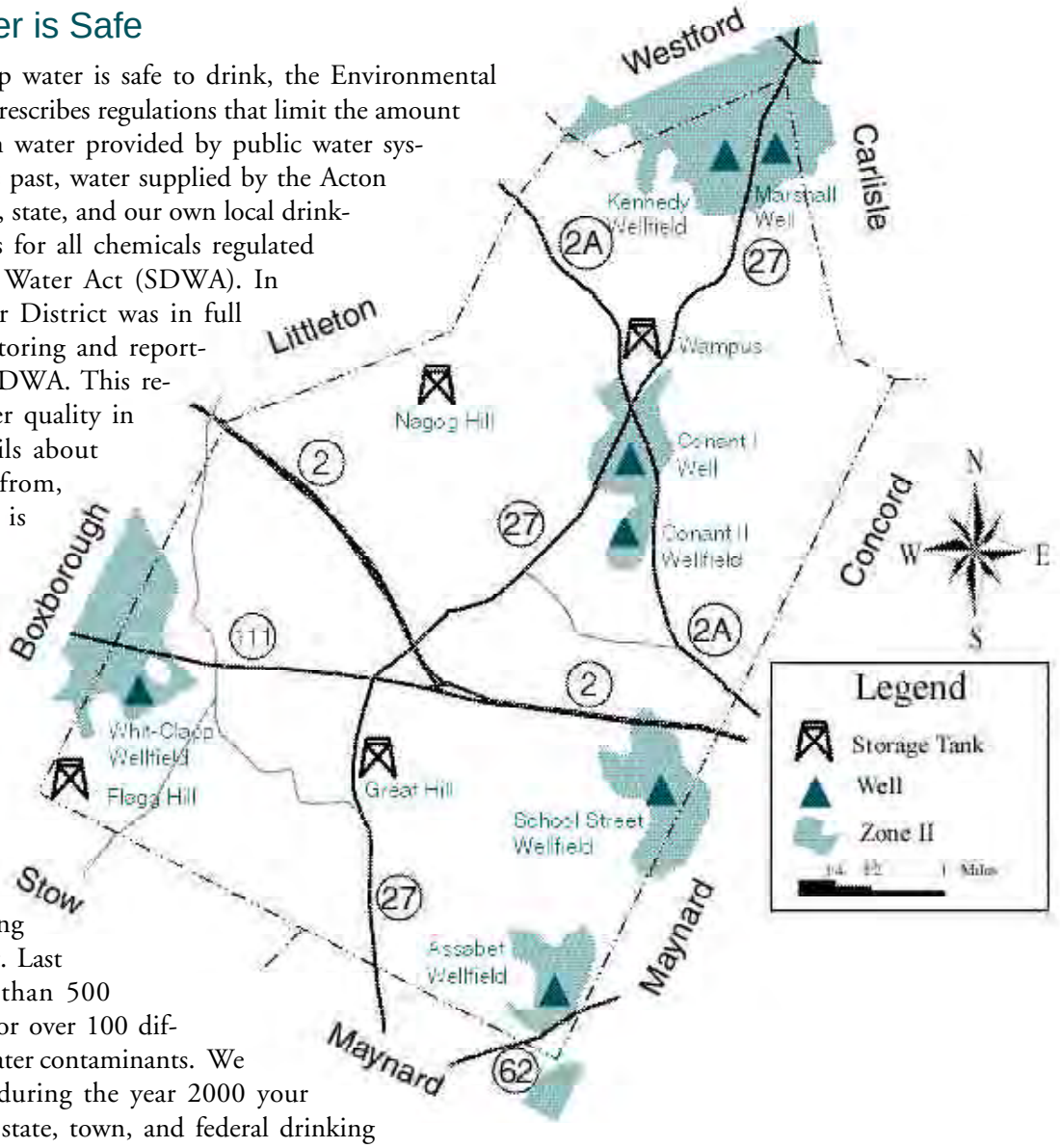
Report on Water Quality
Acton Water District

PWS ID (2002000)

Your Drinking Water is Safe

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 2000, as in years past, water supplied by the Acton Water District met all EPA, state, and our own local drinking water health standards for all chemicals regulated under the Safe Drinking Water Act (SDWA). In addition, the Acton Water District was in full compliance with all monitoring and reporting requirements of the SDWA. This report is a snapshot of water quality in 2000. 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 EPA.

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 500 samples and tested them for over 100 different potential drinking water contaminants. We are proud to report that during the year 2000 your water consistently met all state, town, and federal drinking water standards.



Map of Acton Water District Service Area

The Source of Your Water

Your water comes from wells that tap the groundwater held in the ground beneath the town of Acton. The District has five wellfields and two individual wells located in various parts of town. Water from each well is pumped to treatment facilities located at each of the various wellfields, and then into the distribution system (a network of 110 miles of water mains) where it blends together and is delivered to homes, businesses, schools, and other public users. The map below shows the various wellfields and the critical, protective radius (designated "Zone II") around each.

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 quality and taste of the water. See the section on water treatment 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 sprinkler 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 water from each well before it is supplied to our customers. The table below shows the treatment provided.

Treatment	Conant Well	Conant II Wellfield	Marshall Well	School Street Wellfield	Assabet Wellfield	Kennedy Wellfield	Clapp/Whitcomb Wellfield
Aeration *VOC removal*		♦		♦	♦	♦	♦
Aqua Mag *Fe and Mn sequestering*	♦	♦		♦	♦	♦	
Chlorination *disinfection*		♦		♦	♦	♦	♦
Fluoridation *tooth decay protection*	♦	♦	♦	♦	♦	♦	♦
pH Adjustment *corrosion control*	♦	♦	♦	♦	♦	♦	♦
Carbon Filtration *taste/color control*							♦

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. 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 (telephone: 800-426-4791).

Water Quality Data Table

The data presented in the table below are from calendar year 2000. Only compounds that were detected are reported. Because water from all wellfields is blended within the distribution system, these data represent the range of water quality in all wells.

Substance (units)	Range of Detects	Level Allowed (MCL)	Goal (MCLG)	Typical Source	Exceeds MCL?
Regulated Substances (MCL has been established)					
Total Trihalomethanes (ppb)	0 - 9 average: 4	100	No MCLG	Formed when natural organic material present in the water reacts with chlorine added as a disinfectant	No
Nitrate (ppm) (measured as Nitrogen)	0.1 - 4.0	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits	No
Barium (ppm)	0.006 - 0.2	2	2	Erosion of natural deposits; metal refineries and drilling wastes	No
Cadmium (ppm)	0.001	0.005	0.005	Erosion of natural deposits; industrial discharge	No
Fluoride (ppm)	0.5 - 1.2	4	4	Erosion of natural deposits, water treatment additive for dental health	No
Gross alpha (pCi/L)	0.54	15 pCi/L	No MCLG	Decay of natural deposits	No
Unregulated Substances (MCL has not been established)					
Bromodichloromethane (ppb)	1.1 - 1.5	No MCL	No MCLG	Formed when natural organic material present in the water reacts with chlorine added as a disinfectant	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.
Naphthalene (ppb)	4.9	No MCL	No MCLG	Moth balls	
MTBE (ppb)	3.1	No MCL	No MCLG	Gasoline additive	
Chloroform (ppb)	2.5 - 5.3	No MCL	No MCLG	Formed when natural organic material present in the water reacts with chlorine added as a disinfectant	
Chlorodibromomethane (ppb)	0.4	No MCL	No MCLG	Formed when natural organic material present in the water reacts with chlorine added as a disinfectant	
1,2,3 - Trichlorobenzene (ppb)	0.8	No MCL	No MCLG	Used in chemical manufacturing	
1,2,4 - Trimethylbenzene (ppb)	0.4	No MCL	No MCLG	Used in dyes and paints	
Sodium (ppm)	13.9 - 55.7	No MCL	No MCLG	Erosion of natural deposits, road salting	
Nickel (ppm)	0.054 - 0.176	No MCL	No MCLG	Erosion of natural deposits, industrial discharge	
Sulfate (ppm)	9.4 - 26.1	No MCL	No MCLG	Natural sources	

Lead and Copper (sampled in 1999)

Substance (units)	90th percentile	# sites above Action Level	Action Level	Typical Source	Exceeds AL?
Lead (ppb)	6	0	15	Corrosion of household plumbing systems; Erosion of natural deposits	No
Copper (ppm)	1.2	1	1.3	Erosion of natural deposits; Leaching; Corrosion of household plumbing systems; from wood preservatives	No

Terms and Abbreviations used above:

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; **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; **AL**: Action Level: The concentration of a contaminant, which if exceeded, triggers treatment or other requirements that a water system must follow; **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:

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; the Acton Public Library; the Acton Senior Center; Emerson Hospital; Concord Hillside Medical Office; and Emerson Health Center in Westford. 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.

MTBE: MTBE (methyl tertiary-butyl ether) is commonly used as a fuel additive to increase the octane rating of gasoline. Health effects (based upon animal studies) associated with MTBE include kidney problems and higher tumor incidence. Recent national surveys indicate that MTBE is being found with increasing prevalence in drinking water, most likely due to leaks in above and below ground petroleum storage tanks and pipelines. The Acton Water District has detected a very low level of MTBE – well below the EPA guideline – in the Assabet wellfield. Because treatment at the Assabet wells does not fully remove MTBE, we are planning modifications to the current treatment facility to more effectively remove MTBE.

Naphthalene: During the summer of 2000 the Water District detected low levels of naphthalene, 1,2,3-trichlorobenzene, and 1,2,4-trimethylbenzene in the Marshall Well (emergency source). Data on the human health effects of these chemicals are scarce. Naphthalene is most commonly used in mothballs, which was used for pest control inside the Marshall well house. The mothballs were promptly removed, and will not be used again.

Voluntary Monitoring: The Acton Water District voluntarily conducts dozens of additional tests each year to ensure high quality water. For more information on our voluntary monitoring, please contact us.

Do You Want to Become More Involved?

The Board of Water Commissioners meetings are scheduled on the second and fourth Monday of each month at 7:30 PM, except for the months of June, July, and August, during which one meeting per month is scheduled, 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. Minutes of the Commissioner's Meetings are posted on our Website: www.actonh2o.com.

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

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New Treasurer/Collector and Office Manager

Linda Larson, who has worked for the Acton Water District for fifteen years, retired in April 2001. Linda started working for the District in 1986 as Clerk and Bookkeeper. In 1989 she became the Assistant Treasurer/Collector, working closely with Stephen Peterson, Senior. When Mr. Peterson retired in 1990, Linda was appointed Treasurer/Collector. "I learned so much during my time with the District," says Linda, "especially as we computerized all of our financial records and constructed our new office building." Linda and Stephen Stuntz, long-time Water Commissioner, served as the general contractors during the construction of the District's new office building, a three year project. Linda also recalls the settlement with W.R. Grace over contamination of the Assabet wells. "It was nice to be here to see the check handed over," she says "the funds have been well managed and have allowed us to make major investments to protect the public water supply."

Mary Jo Bates, new Treasurer/Collector, Chip Orcutt, new Clerk, and Linda Larson

"What I will miss most," states Linda "is all the wonderful people I have worked with, both at the District and in the town." In her "retirement" Linda plans to move to Cape Cod and resume work with her husband Dennis, who owns an automotive auditing corporation. "I also plan to spend as much time as possible with my children and three grandchildren," smiles Linda. Linda's dedication and sense of humor will be missed by all !

Mary Jo Bates was sworn in as the District's new Treasurer Collector on April 17th, 2001. Mary Jo previously served as Regional Manager for a property management company based in Bridgewater, and before that spent nine years working in municipal finance for the town of Clinton. "I am very happy to be here," says Mary Jo "everyone is great, and it is so nice to be in one place every day!" Mary Jo lives in Clinton with her two children, Jessica and Jeffrey. We welcome her!

New Carbon at Clapp/Whitcomb Facility

Some customers who live in the West Acton area know this phenomenon all too well – during certain times of the year their water takes on the appearance of weak tea! The yellowish color that is occasionally present in water from the Clapp and Whitcomb wells in West Acton derives from natural materials within the aquifer. Iron and peat from ancient geological deposits that underlie much of the area around these wells can dissolve in the water and give it a slightly yellow appearance. Although there are no known health effects of drinking "colored" water, many customers object to the water's appearance.

Since 1999, the water from these wells has been treated to remove color. The water is pumped to a central carbon treatment building (the blue building you see on the south side of Route 111 as you head out of Acton into Boxborough.) There it passes through two large tanks of granular activated carbon, which does an excellent job of removing the color, particularly when the carbon is new. Over time the pores in the carbon become saturated, and its efficiency as a filter decreases. This May, both tanks were replaced with new carbon and the treated water is crystal clear. The Acton Water District will monitor both raw and finished water quality in an attempt to maximize the efficacy of the carbon filters and maintain clear water for our customers in West Acton.

Bill Yee of the Calgon Corporation replaces carbon in tanks at Clapp/Whitcomb treatment facility

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

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Thank you for following all outdoor watering restrictions

Effective May 1 - October 1 every year

- Even number addresses may use water outdoors: ***Tue., Thu., & Sat.***
- Odd number addresses may use water outdoors: ***Wed., Fri., & Sun.***
- No lawn watering between 7:00 AM and 7:00 PM (watering mid-day wastes water to evaporation)
- No outdoor use on Mondays to give storage tanks a chance to recover after weekend

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