Acton Water District

Water Words Notice

Fall 1999

Dear Customer:

This edition of Water Words is devoted to providing you with as much information as possible regarding the quality of your drinking water. Enclosed in this issue you will find a complete report on the quality of your drinking water for 1998. This new Annual Report on Water Quality will be issued by the Acton Water District every year, starting with this issue, which covers all water quality monitoring done in 1998. Starting in spring 2000, each spring issue of Water Words will contain the Annual Report on Water Quality for the previous calendar year. We hope that you find this report informative. Please let us know if there is any additional information that you would like to see included.

Other enhancements to our Consumer Education Program, planned for the year 2000, include a new Drinking Water Information Center, located at our office on 693 Mass. Avenue, the development of our own Web site, and a Drinking Water Education Program in the Acton Public Schools.

The officials and employees of the Acton Water District strive to provide you with safe, dependable, high quality water at a reasonable price. We are constantly seeking new sources of supply to meet the ever-increasing demands. Additionally, we continue to adapt to, and implement, new technologies in water treatment to ensure that you receive the safest, purest water possible. This past summer our new carbon filtration facility was put on line to remove color, which originates in natural sub-surface organic material in the areas immediately surrounding the Clapp and Whitcomb wells in West Acton.

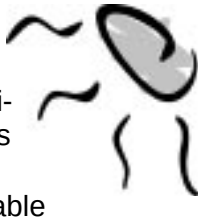
Our long-range plans call for the development of new sources, automation of our supply and treatment systems, increased storage capabilities, and improvements to our distribution network. As we move into the 21st century our promise to you is unchanged. For nearly 100 years we have used long-range planning, efficiency of operations, and a commitment to customer service to meet our stated goals. You can be confident of a continuation of that commitment.

Sincerely,

James Deming,
District Manager

The new carbon treatment facility at the Clapp and Whitcomb wells is used to remove color from the water.

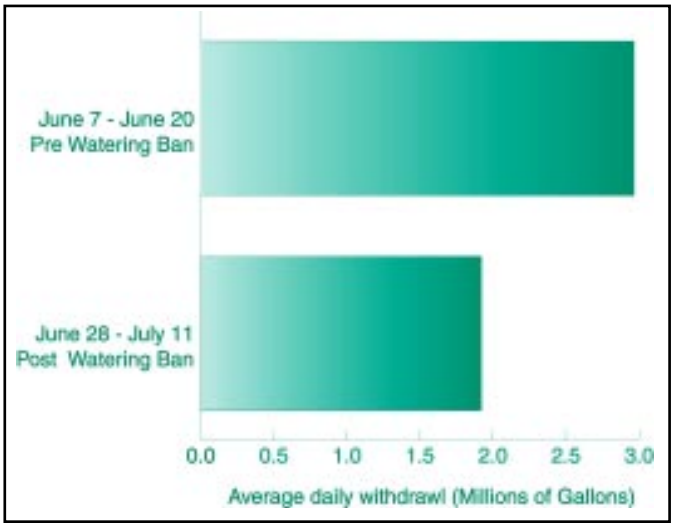
Drought of 1999



This past summer New England experienced one of the most severe droughts of the century. Very little rainfall in the spring (April and June had no measurable precipitation and May was well below average) coupled by a high demand for outdoor water depleted the Water District's well and storage tank levels. In mid-June the Water District placed a ban on all lawn watering in order to conserve supplies for the most critical residential uses. The drought continued throughout the summer, causing record low ground and surface water levels, drying up many water supplies, and creating water supply emergencies across many regions of the Eastern U.S.

Due to user's compliance with the lawn-watering ban, the Water District was able to keep all of its wells pumping throughout the summer. The Water District is pleased to report that, through your conservation efforts, water usage was reduced by more than one-third – over one million gallons per day! This allowed the District to maintain adequate storage tank levels and provide water for important residential usage as well as some outdoor water use limited to odd-even day watering of garden beds and any other non-lawn usage. We would like to thank everyone who helped to conserve water throughout this record dry period. Your efforts really did make a big difference!

This winter, the Water District will be re-evaluating our standing odd-even watering Bylaw in an attempt to develop a new Bylaw that balances water conservation with the water needs of the average lawn. More information will be available in upcoming newsletters.



Compliance with the lawn watering ban saved over one million gallons of water per day.

Water-Wise Lawn Care Tips

- Do not over water your lawn. Often we receive sufficient rainfall (one inch per week) to keep our lawns green *without* supplemental watering.
- Do not water in the middle of the day - more than half of the water may be lost to evaporation.
- Keep the cuttings on the lawn when you mow. They will help retain moisture and provide nutrients.
- Do not mow your lawn shorter than two inches. Taller lawns discourage weeds.
- Minimize the size of your lawn. Consider replacing unused lawn with attractive mulched beds of native perennials, or other unthirsty ground covers.

Coming Soon: Drinking Water Education Program

The school children of today will soon be tomorrow's water resource stewards. We strongly believe that teaching children to value and protect their drinking water is an important investment in the future, as well as an excellent way to send a message home to parents. The Acton Water District is developing an outreach and education program for children of all ages, to be offered free of charge to students and teachers in Acton's public schools. The program will provide:

- A menu of drinking water-related lessons and activities, to be provided to teachers for their own classroom use
- Classroom visits and field trips with water district staff
- Lesson plans that incorporate the Massachusetts Department of Education Science and Technology Curriculum Frameworks
- Consultation on integrating drinking water topics into science curriculum
- Lending library of educational videos and other resources
- Special activities each spring during Drinking Water Week

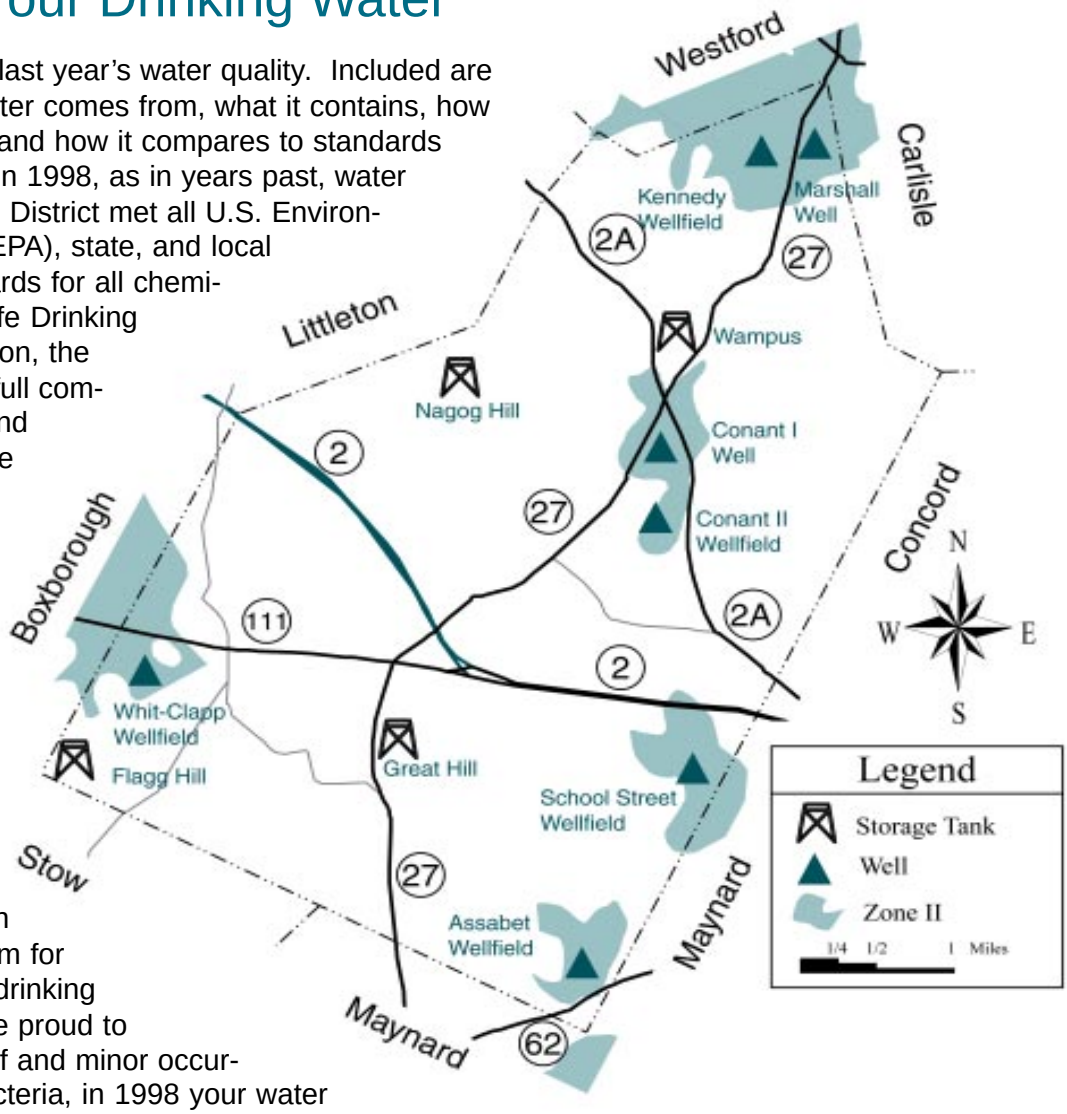
The education program will formally launch in September of 2000, with teacher collaboration and piloting of curriculum materials this upcoming spring. We welcome the participation of all interested teachers!

Report on Water Quality
Acton Water District

The Quality of Your Drinking Water

This report is a snapshot of last year's water quality. 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 regulatory agencies. In 1998, as in years past, water supplied by the Acton Water District met all U.S. Environmental Protection Agency (EPA), state, and 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.

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, other than a brief and minor occurrence of non-pathogenic bacteria, in 1998 your water consistently met all state, town and federal drinking water standards.



Map of Acton Water District Service Area

The Source of Your Drinking Water

Your water comes from wells that tap the water held in the ground beneath the town of Acton. The District has eleven different wells, which 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 110 miles of water mains) where it blends together and is delivered to homes, businesses, schools, and other public users. The map above shows the various 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. The dimensions of Zone II areas are established by determining the area of surrounding groundwater that could be drawn into the well under severe pumping conditions, according to Commonwealth of Massachusetts specifications. Land use activities that could adversely affect water quality are restricted within the Zone II area. Establishment of Zone II areas and control of land use activities within the Zone II area are an effective way to protect the quality of Acton’s groundwater supplies for the future.
- Each of Acton’s wells is treated in order to remove impurities and improve the 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 rigorous program that works to minimize “cross connections” between potable (intended for human consumption) and non-potable water, such as points where a drinking water pipe might connect to an outside irrigation hose into which water from fields or lawns, for example, could flow back into the potable water line. A backflow device that prevents non-potable water from accidentally entering the stream of potable water must protect each cross connection. The Acton Water District inspects all industrial, residential, commercial, and institutional facilities to ensure that all potential cross connections are identified and either eliminated, or protected by a soundly operating backflow prevention device.

Impurities in 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. 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 new Drinking Water Information 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 for public drinking water, and to improve taste and appearance, the Acton Water District treats the water from each wellfield before it is supplied to our customers. As noted in the table below, we treat your water to control corrosion, provide disinfection, add fluoride, remove volatile organic chemicals, and sequester iron and manganese.

We add potassium hydroxide to raise the pH of the water and reduce its corrosivity. Sodium hypochlorite is added for disinfection. Sodium fluoride is also added at each well to help prevent dental cavities. A polyphosphate treatment tradenamed Aqua Mag sequesters the iron and manganese to reduce discoloration. The water is also treated with aeration to help remove any volatile organic contaminants (VOCs). At our new Clapp/Whitcomb facility, the water is also run through a carbon filtration system to remove natural organic color.

	Wellfields						
Treatment	Conant Well	Conant II Wellfield	Marshall Well	School St. Wellfield	Assabet Wellfield	Kennedy Wellfield	Clapp/Whitcomb Wellfield
Aeration		♦		♦	♦	♦	♦
Aqua Mag	♦	♦		♦	♦	♦	♦
Chlorination		♦		♦	♦	♦	♦
Fluoridation	♦	♦	♦	♦	♦	♦	♦
pH Adjustment	♦		♦		♦	♦	♦
Color Removal							♦

Water Quality Data Table

The data presented in the table below are from calendar year 1998 testing as required by the Safe Drinking Water Act. 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 wellfields.

Substances detected in tests required by the SDWA						
Substance (units)	Highest level detected	Range of Detects	Level Allowed (MCL)	Goal (MCLG)	Typical Source	Meets MCL
Total Coliform	2 positive samples	0-2 positive samples	< 2 samples positive per month	0	Naturally present in the environment	Monthly MCL violated
Total Trihalomethanes (ppb)	7	0-7.0	100	No MCLG	Formed when natural organic material present in the water reacts with chlorine added as a disinfectant	Yes
Nitrate (measured as Nitrogen) (ppm)	3.6	0.22-3.6	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits	Yes
Fluoride (ppm)	1.35	0.82-1.35	4	4	Erosion of natural deposits, Water treatment additive for dental health	Yes
Bromodichloromethane (ppb)	2.7	0.7-2.7	No MCL	No MCLG	Formed when natural organic material present in the water reacts with chlorine added as a disinfectant	No MCL
Chlorodibromomethane (ppb)	1.2	1.2	No MCL	No MCLG	Formed when natural organic material present in the water reacts with chlorine added as a disinfectant	No MCL
Chloroform (ppb)	11	3.8-11	No MCL	No MCLG	Formed when natural organic material present in the water reacts with chlorine added as a disinfectant	No MCL
Sodium (ppm)	21	12.4-21	No MCL	No MCLG	Erosion of natural deposits, Road salting	No MCL
GrossAlpha (pCi/L)	1.5	1.5	15 pCi/L	No MCLG	Decay of natural deposits	Yes
Gross Beta (pCi/L)	3	3	4.0 millirem/yr	No MCLG	Decay of natural deposits	Yes
Lead and Copper	90th Percentile		Action Level (AL)		# sites above AL	Meets Standard
Lead (ppm)	0.004		0.015		0	Yes
Copper (ppm)	0.57		1.3		1	Yes

Terms and Abbreviations used above:

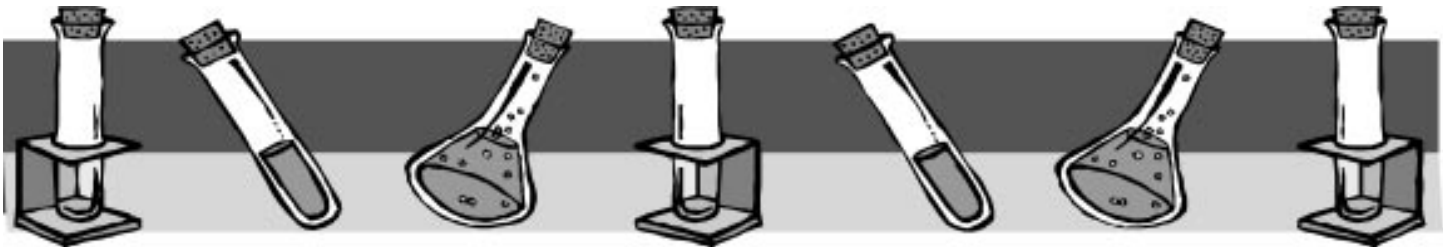
MCLG: Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
MCL: Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
AL: Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which 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.

Detected Impurities

Detection of 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. On June 16, 1998 two of the 29 sites tested detected total coliform. More than one sample positive for total coliform is considered a monthly MCL violation for total coliform. In the rare situation in which coliform is detected, the Water District increases the level of chlorination at the sites involved and conducts immediate resamples as required by law. Customers were notified of the temporary total coliform violation in a notice printed in the Beacon newspaper on July 2, 1998. Resamples collected on June 22, 1998 showed no coliform present, indicating that the problem had been abated.

Detection of sodium: Although sodium does not have a Maximum Contaminant Level, the Commonwealth of Massachusetts does have a guideline of 20 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 so that the Board of Health can make a determination as to whether further action is necessary. 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.

Voluntary Monitoring: In addition to the monitoring required by the Safe Drinking Water Act, 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 at any of the numbers listed below.



Vulnerability

Some people may be more vulnerable to impurities in drinking water than the general population. 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).

How can I become more involved?

The Board of Water Commissioners meetings are 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 encouraged to attend.

For more information, or if you have questions or comments on this report, please contact:

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Water-Wise Demonstration Garden

The Acton Water District invites you to visit our new water-wise garden, located in front of the District's office on 693 Massachusetts Avenue in West Acton. The garden is the Gold Badge project of Kathleen Niple, a Girl Scout with Acton Troop 2001. Kathleen designed the garden with water conservation in mind, using drought-resistant plants, organic mulches, and water-wise design principles. Kathleen worked with the Acton Garden Club, who provided consultation and donated plants for the garden, as did several Acton businesses. Several Brownie troops made brick stepping stones for the garden. We hope the garden encourages Acton residents to replace their water-thirsty lawns with attractive, conserving, and low-maintenance gardens. Please stop by the Water District's Information Center for instructions about how to plan and plant a water-wise garden in your yard.

Did You Know?

- Average winter water use in Acton is 1.7 million gallons per day, but summer use averages 2.2 million gallons per day. That half-million gallon increase per day is due primarily to lawn watering.
- A patch of lawn generally uses about four times more water than an equivalent-sized patch of a mulched flowerbed.
- Overwatering your lawn can lead to shallow rooted grass, lawn disease, and leaching of pollutants into groundwater.
- Lawns that go brown during a dry spell are undergoing a period of natural dormancy, and will green up when wetter weather returns.
- Established lawns do not need to be watered every other day.

Summer Intern Works with Water District

During the past summer we were fortunate to have Jen Hom, currently a senior at Acton/Boxboro Regional High School, as our intern. Jen worked on a number of tasks, including helping to write materials for and organize our new Drinking Water Information Center, helping update our water quality database and conducting a survey of customer concerns and knowledge of drinking water. Jen was also able to learn about water treatment techniques, well operation, and take a visit to the W.R. GRACE Superfund site.

More information on the results of the customer survey will be published in upcoming newsletters, but it is interesting to note that the largest majority (35 %) of respondents said that if they could ask one question about their drinking water, it would be about its quality and safety. Hopefully, this first annual Report on Water Quality will meet the needs of those customers in an informative and comprehensible format.

Acton Water District
P.O. Box 953
Acton, MA 01720

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

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In this Issue

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