

**2007 Annual Drinking Water Quality Report
for
Westford Water Department
Westford, Massachusetts
DEP PWS ID # 3330000**

This report is a snapshot of drinking water quality over the past year. Included are details about where your water comes from, what it contains, and how it compares to state and federal standards.

I. PUBLIC WATER SYSTEM INFORMATION

Superintendent: *Warren Sweetser*
Address: *60 Forge Village Road*
Westford, MA 01886
Contact Person: *Jessica Cajigas,*
Environmental Compliance Manager
Telephone #: *978-692-5529*
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Internet Address: *<http://www.westfordma.gov/water>*

Opportunities for Public Participation

Our office hours are Monday through Friday, 7am to 4pm. For emergencies after hours, please call the Police Dispatcher at 978-692-2161. If you would like to participate in discussions regarding your service or water quality issues, the Board of Water Commissioners meets at 60 Forge Village Road on the first and third Wednesday of each month at 5:30 pm, unless otherwise posted. If you need to request a meeting with the commissioners about a particular issue, please submit your request in writing to Robin Fullford, Water Department Business Manager, to have your topic added to the agenda.

II. YOUR DRINKING WATER SOURCE

Water System Management and Improvements

To ensure that we provide the highest quality water available, a Massachusetts-certified operator oversees the operations of our system. In addition, the Massachusetts Department of Environmental Protection (MassDEP) inspects our system periodically for its technical, financial, and managerial capacity to provide safe drinking water to you. In 2007, the Westford Water Department made the following improvements to our system: 5 new hydrants, 38 new services, and 10 new gates were installed; 0.4 mile of new water main was added; and 10 water main breaks were repaired. This brings the system to a total of 905 hydrants, 5,575 accounts, 125.0 miles of water main, and total storage capacity of 4.85 million gallons. A total of 602.77 million gallons of water was pumped in 2007.

Where Does My Drinking Water Come From?

Your water source is from groundwater supplied by the Stony Brook aquifer.

Source Name	DEP Source ID#	Location of Source
Forge Village Well Field	3330000-01G	Forge Village Road
Nutting Road Well	3330000-02G	Nutting Road
Depot Road Well	3330000-03G	Depot Road
Country Road Well	3330000-04G	Country Road
Forge Village II Well	3330000-05G	Forge Village Road
Howard Road Well Field	3330000-06G	Howard Road
Cote Well	3330000-07G	Beacon Street
Fletcher Well	3330000-08G	Concord Road

Is My Water Treated?

We make every effort to provide you with safe and fit drinking water. To improve the quality of the water delivered to you, we treat it to remove several contaminants.

- Disinfectant is added to protect you against microbial contaminants.
- The water is filtered to remove iron and manganese, particles, and organisms such as algae, parasites, and bacteria.
- The water is chemically treated to reduce lead and copper concentrations at your tap.
- Fluoride is added to aid in dental health and hygiene (0.97 ppm annual average in distribution system).
- The water is aerated to reduce radon concentrations, raise the pH and remove volatile organic contaminants should they be detected.
- Ultraviolet light is used as an additional guard to protect you against pathogens.

How Are These Sources Protected?

MassDEP has prepared a Source Water Assessment and Protection (SWAP) Report, which assesses the susceptibility of public water supplies to potential contamination. The key protection issues noted for Westford include the necessity for continued monitoring of roads and other non-water supply activities in Zone I areas and working with neighboring communities to protect the Zone IIs in the water supply protection area. A Zone I is defined as the protective radius required around a public water supply well or wellfield. For public water system wells with approved yields of 100,000 gallons per day or greater, the protective radius is 400 feet. Zone II means that area of an aquifer that contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated (180 days of pumping at approved yield, with no recharge from precipitation). Susceptibility ratings of moderate to high were assigned to the Zone II protection areas for the Town wells. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of any hydrogeologic barriers (i.e. clay or bedrock), which can prevent contaminant migration. The Water Department was commended for working with the Highway Department to ensure that highway runoff is directed away from Zone IIs, acquiring land to protect the wells within Zone IIs, and working with schools to improve management of athletic field runoff. Outreach efforts are ongoing to increase public understanding of the hydrologic cycle, how pesticides and other contaminants can influence water supplies, organic lawn care, and ways residents can help protect our drinking water resources.

Where Can I See The SWAP Report?

The complete SWAP report is available at the Westford Water Department and on the MassDEP website, www.mass.gov/dep/water/drinking/swapreps.htm. For more information, contact Jessica Cajigas at 978-399-2457.

III. SUBSTANCES FOUND IN DRINKING WATER

Sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals, and in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

Microbial contaminants, such as viruses and bacteria, may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife. *Inorganic contaminants*, such as salts and metals, can be naturally-occurring or result from urban storm water runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, and farming. *Pesticides and herbicides* may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses. *Organic chemical contaminants*, such as synthetic and volatile organic chemicals, are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems. *Radioactive contaminants* can be naturally occurring or the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, MassDEP and U.S. Environmental Protection Agency (EPA) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration and Massachusetts Department of Public Health regulations establish limits for contaminants in bottled water that must provide the same protection for public health. All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants 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 some 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 and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

IV. IMPORTANT DEFINITIONS

ppm = parts per million or milligrams per liter (mg/L)

ppb = parts per billion or micrograms per liter ($\mu\text{g/L}$)

pCi/L = picocuries per liter (a measure of radioactivity)

ND = not detected

Maximum Contaminant Level (MCL) – 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.

Maximum Contaminant Level Goal (MCLG) – The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Residual Disinfectant Level (MRDL) -- The highest level of a disinfectant (chlorine, chloramines, chlorine dioxide) allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG) -- The level of a drinking water disinfectant (chlorine, chloramines, chlorine dioxide) 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.

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

Action Level (AL) – The concentration of a contaminant, which if exceeded, triggers treatment or other requirements that a water system must follow.

90th Percentile – Out of every 10 homes sampled, 9 were at or below this level.

Massachusetts Office of Research and Standards Guideline (ORSG) – The concentration of a chemical in drinking water, at or below which, adverse health effects are unlikely to occur after chronic (lifetime) exposure. If exceeded, it serves as an indicator of the potential need for further action.

Unregulated Contaminants – Contaminants for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining their occurrence in drinking water and whether future regulation is warranted.

V. WATER QUALITY TESTING RESULTS

What Does This Data Represent?

The water quality information presented in the following tables is from testing in accordance with DEP regulations for 2007. Data shown were collected during the last calendar year unless otherwise noted.

Regulated Contaminants	Date(s) Collected	Highest Detect or *Highest Quarterly RAA	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
Inorganics							
Barium (ppm)	4-9-07, 4-10-07	0.02	0.011 – 0.02	2	2	No	Discharge from metal refineries or drilling wastes
Fluoride (ppm)	Monthly 4-9-07 4-10-07	1.1	0.8 – 1.1	4**	4	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (ppm)	4-9-07, 4-10-07	1.8	1.2 – 1.8	10	10	No	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
<p>* Highest RAA = highest running annual average of four consecutive quarters. Compliance is based on the quarterly RAAs. ** Fluoride also has a secondary contaminant level of 2 ppm. We treat the water with fluoride. Fluoride in drinking water at levels of approximately 1 ppm reduces the number of dental cavities in both children and adults.</p>							

Regulated Contaminants	Date(s) Collected	*Highest Quarterly RAA	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
Disinfection Contaminants							
Chlorine (ppm)	Monthly	0.79	0.32 – 1.31	4	4	No	Water additive used to control microbes
Haloacetic Acids (HAA5s) (ppb)	Quarterly	34.5	6.7 – 50.2	60	-----	No	Byproduct of drinking water disinfection
Total Trihalomethanes (TTHMs) (ppb)	Quarterly	66.4	11.9 – 84.2	80	-----	No	Byproduct of drinking water chlorination
* Highest RAA = highest running annual average of four consecutive quarters. Compliance is based on the quarterly RAAs.							

	Date(s) Collected	90 TH percentile	Action Level	MCLG	No. Sites Sampled	Sites Above Action Level	Possible Source of Contamination
Lead (ppb)	7-14-06 – 8-7-06	0.004	15	0	30	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	7-14-06 – 8-7-06	0.45	1.3	1.3	30	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

Turbidity	Treatment Technique	Lowest Monthly % of Samples	Highest Detected Daily Value	Violation (Y/N)	Possible Source of Contamination
Daily Compliance (NTU)	1	----	0.65	No	Soil runoff. Turbidity has no health effects but it can interfere with disinfection and provide a medium for bacterial growth and indicate the presence of disease-causing organisms.
Monthly Compliance*	0.3	98.3	----	No	
Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality.					
*Monthly turbidity compliance is related to a specific treatment technique. Our system filters the water so at least 95% of our samples each month must be below the turbidity limits specified in the regulations.					

Unregulated and Secondary Contaminants	Date(s) Collected	Result or Range Detected	Average Detected	SMCL	ORSG	Possible Source(s)
Chloroform (ppb)	4-9-07, 4-10-07	2-10	6.0	----	70	Trihalomethane; byproduct of drinking water chlorination
Bromoform (ppb)	4-9-07, 4-10-07	0.5-0.6	0.55	----	----	Trihalomethane; byproduct of drinking water chlorination
Bromodichloromethane (ppb)	4-9-07, 4-10-07	3-8	5.5	----	----	Trihalomethane; byproduct of drinking water chlorination
Chlorodibromomethane (ppb)	4-9-07, 4-10-07	5-5	5	----	----	Trihalomethane; byproduct of drinking water chlorination
Sodium (ppm)	3-1-07, 4-9-07, 4-10-07	41.2 – 53.6	47.85	----	20	Natural sources; runoff from use as salt on roadways; by-product of treatment process
Sulfate (ppm)	3-1-07, 4-9-07, 4-10-07	11.2 – 15.1	13.30	250	----	Natural sources

VI. COMPLIANCE WITH DRINKING WATER REGULATIONS

Does My Drinking Water Meet Current Health Standards?

We are committed to providing you with the best water quality available. We are proud to report that we had no violation of state and Federal water quality standards in 2007.

The Westford Water Department was honored in a ceremony at the State House in Boston as part of National Drinking Water Week on May 7th. The Department won a Public Water System Award from MassDEP which recognizes community water systems and nontransient-noncommunity (NTNC) water systems for their outstanding performance in 2007.



The top 5% of all Massachusetts Public Water Systems who scored the highest for their 2007 performance were awarded. This year there were 21 total winners split among NTNC, small community (<3,301 population), medium and large community, and consecutive systems. Westford was one of eight medium and large community systems that won this year's award.

Scores were tabulated on a point system based on the following criteria: 1. compliance with the drinking water regulations for all of calendar year 2007, 2. no enforcement actions for the past 5

years, 3. meeting Water Management Act standards for unaccounted for water, 4. registration with the Health and Homeland Alert Network, 5. utilizing eDEP to electronically submit water quality data, and 6. having a well run residential cross-connection control program.

The Westford Water Department is very proud of this accomplishment and strives to protect and supply safe and fit water to the residents of Westford with superior levels of compliance.

VII. EDUCATIONAL INFORMATION

Do I Need To Be Concerned About Certain Contaminants Detected In My Water?

Sodium- Sensitive individuals, such as those experiencing hypertension, kidney failure, or congestive heart failure, should be aware of the sodium levels where exposures are being carefully controlled.

Perchlorate- If present, perchlorate may cause adverse effects on the thyroid gland. Sensitive individuals, such as women who are pregnant or nursing, infants, children under 12, or those with hypothyroidism should be aware of perchlorate levels in water and food sources that could contain perchlorate. If you have concerns about exposure to perchlorate please consult your physician. Since operation of the treatment system at the Cote Well began in 2006, perchlorate has not been detected in any drinking water samples.

Lead- If present, elevated levels of lead can cause serious health problems, especially for pregnant women, infants, and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Westford Water Department is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

VIII. ADDITIONAL INFORMATION

Cross-Connection Control

A cross-connection program is required to prevent drinking water contamination from unapproved sources. A cross-connection is formed at any point where a drinking water line connects to equipment (boilers), systems containing chemicals (air conditioning systems, fire sprinkler systems, irrigation systems) or water sources of questionable quality. Contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (backpressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks, heavy water demand) causing contaminants to be sucked out from the equipment into the drinking water line (backsiphonage). The purpose of the program is to prevent back siphoning of non-potable water into the public drinking water distribution system. The installation of backflow prevention devices is recommended for all inside and outside hose connections. You can purchase devices at a hardware or plumbing supply store. Cross-connection and backflow information is available at the Water Department. A cross-connection survey is done at least once a year.

Iron & Manganese Removal (oxidation and filtration)

Iron and manganese are often present in groundwater at levels that can discolor the water, or cause it to take on unpleasant odors or tastes. Even though the water may still be safe to drink, it is preferable that the iron and manganese be removed. Iron and manganese are removed through a two-step process of oxidation and filtration. Oxidation is accomplished by adding chlorine and potassium permanganate to the water. This causes the iron and manganese to form tiny particles. Once this happens, the water passes through special filters consisting of material that is specifically designed to capture iron and manganese particles. Over time, filters start to clog and need to be cleaned using a high-flow backwash process.

Primary Disinfection with MIOX (Chlorine with filtration)

All reservoirs and some ground water sources contain numerous microorganisms, some of which can cause people to become sick. To eliminate disease-carrying organisms, it is necessary to disinfect the water. Disinfection does not sterilize the water; it removes harmful organisms. Sterilization is too costly and kills all microorganisms, even though most are not harmful. The Westford Water Department uses MIOX generated sodium hypochlorite as its primary disinfectant. MIOX destroys organisms by penetrating cell walls and reacting with enzymes. When combined with proper filtration, disinfection with MIOX has been proven effective at ensuring that water is free of harmful organisms and safe to drink. Primary disinfection with MIOX is supplemented with further disinfection using calcium hypochlorite.

Corrosion Control Through pH Adjustment

Many drinking water sources in New England are naturally corrosive (i.e. they have a pH of less than 7.0). So, the water they supply has a tendency to corrode and dissolve the metal piping it flows through. This not only damages pipes but can also add harmful metals, such as lead and copper, to the water. For this reason it is beneficial to add chemicals that make the water neutral or slightly alkaline. This is done by adding any one, or a combination of several, approved chemicals. The Westford Water Department adds potassium hydroxide to its water. This adjusts the water to a non-corrosive pH. Testing throughout the water system has shown that this treatment has been effective at reducing lead and copper concentrations.

Water Conservation and Protection

The Town has a voluntary even/odd water conservation policy in effect every year from May 1 through October 31. Homeowners with even-numbered addresses may water lawns on even numbered days of the month and those with odd-numbered addresses may water on odd numbered days. The Town has also adopted water resource protection overlay districts in the Zoning Bylaws to ensure an adequate quality and quantity of drinking water for the residents, institutions, and businesses, and to preserve and protect drinking water supplies.

You can play a role in conserving water and saving yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. Here are a few tips:

Many automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.

Turn off the tap when brushing your teeth.

Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day.

Check your toilets for leaks by putting a few drops of food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak.

Use your water meter to detect hidden leaks. Simply turn off all taps and water-using appliances. Then check the meter after 15 minutes. If it moved, you have a leak.

Purchase a rain barrel. The average homeowner uses approximately 40% of water for outdoor use. A one-inch rainfall on a 1,200 square foot roof will yield over 700 gallons of water.

Purchase WaterSense labeled appliances for your home. The EPA's WaterSense Program is a voluntary water efficiency program that seeks to protect the future of our nation's water supply by promoting water efficiency and enhancing the market for water-efficient products and services. For more information on the WaterSense program and available products visit their website at: www.epa.gov/watersense, or call: (866) WTR-SENS (987-7367).

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2007 Consumer Confidence Report
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