

**2010 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: *Robert Worthley*  
 Address: *60 Forge Village Road, Westford, MA 01886*  
 Contact Person: *Mark Warren, 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 5:00 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 Larry Panaro, 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 routine 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 2010, the Westford Water Department made the following improvements to our system: 16 new hydrants, 27 new services, and 40 new gates were installed; 1.72 miles of new water main was added; and 8 water main breaks were repaired. For 2010, this brings the system to a total of 1,012 hydrants, 5,321 accounts, 133.7 miles of water main, storage capacity of 4.85 million gallons, and a total of 551.88 million gallons of water pumped.

**Where Does My Drinking Water Come From?**

Your water source is from groundwater supplied by two major aquifers in the area, Stony Brook and Beaver Brook.

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 II Well	3330000-19G	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 pure 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 (1.01 ppm annual average in distribution system).
- The water is aerated to reduce radon amounts, raise the pH & remove volatile organic compounds should they be detected.
- Ultraviolet light is used as an additional guard to protect you against pathogens.
- The water from certain wells is filtered to remove perchlorate.

**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](http://www.mass.gov/dep/water/drinking/swapreps.htm). For more information, contact Robert Worthley at 978-692-5529.

### **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* include synthetic and volatile organic chemicals that 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 (µg/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 (i.e., 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 (i.e., 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 that, if exceeded, triggers treatment or other requirements which a water system must follow.

**90<sup>th</sup> 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 2010. Data shown were collected during the last calendar year unless otherwise noted.

Regulated Contaminants	Date(s) Collected	Highest Detect	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
<b>Inorganics</b>							
Barium (ppm)	4-1-08 <sup>1</sup>	0.009	ND – 0.009	2	2	No	Discharge of drilling wastes or from metal refineries; erosion of natural deposits
Fluoride (ppm)	Monthly	1.1	0.9 – 1.1	4*	4	No	Erosion of natural deposits; water additive which promotes strong teeth**; discharge from fertilizer and aluminum factories
Nitrate (ppm)	4-6-2010	2.4	1.4-2.4	10	10	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Perchlorate (ppb)	Quarterly	0.094	0 – 0.094	2	----	No	Rocket propellants, fireworks, munitions, flares, blasting agents
<b>Volatile Organics</b>							
Tetrachloroethylene (PCE) (ppb)	4-6-10	0.9	0-0.9	5	0	No	Discharge from factories and dry cleaners and asbestos cement lined pipes
* Fluoride also has a secondary contaminant level of 2 ppm.							
**We have treated the water with fluoride since 1994. Fluoride in drinking water at levels of approximately 1 ppm prevents tooth decay/cavities in both children and adults.							

Regulated Contaminants	Date(s) Collected	*Highest Quarterly RAA	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
<b>Disinfection Contaminants</b>							
Chlorine (ppm)	Monthly	0.78	0.12 – 1.3	4	4	No	Water additive used to control microbes
Haloacetic Acids (HAA5s) (ppb)	Quarterly	11.86	1.8-34.5	60	----	No	Byproduct of drinking water disinfection
Total Trihalomethanes (TTHMs) (ppb)	Quarterly	46.7	15.9-97.0	80	----	No	Byproduct of drinking water chlorination
* Highest RAA = highest running annual average of four consecutive quarters. Compliance is based on the quarterly RAAs.							

Lead & Copper	Date(s) Collected	90 <sup>TH</sup> percentile	Action Level	MCLG	No. Sites Sampled	Sites Above Action Level	Possible Source of Contamination
Lead (ppb)	7-9-09 – 9-10-09 <sup>1</sup>	0.005	15	0	30	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	7-9-09 – 9-10-09 <sup>1</sup>	0.29	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	----	0.41	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	99	----	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)	4-6-10	1.9-2.1	2.0	----	----	Trihalomethane; byproduct of drinking water chlorination
Bromoform (ppb)	4-6-10	1.8-2.3	2.05	----	----	Trihalomethane; byproduct of drinking water chlorination
Bromodichloromethane (ppb)	4-6-10	4.0-4.1	4.05	----	----	Trihalomethane; byproduct of drinking water chlorination
Chlorodibromomethane (ppb)	4-6-10	5.6-5.8	5.7	----	----	Trihalomethane; byproduct of drinking water chlorination
Sodium (ppm)	4-6-10	36.8-41.4	39.1	----	20	Natural sources; runoff from use as salt on roadways; by-product of treatment process
Sulfate (ppm)	4-6-10	10.4-13	11.7	250	----	Natural sources

<sup>1</sup>We monitor for some contaminants less than once per year, because the concentration for those contaminants are not expected to vary significantly from year to year. As a result, some of our data though representative is more than a year old. For those contaminants, the date of the last sample is shown in the table.

## 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 last year we had no violations pertaining to the quality or safety of your water.

## 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-** 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.

*Lead*- 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. 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 <http://www.epa.gov/safewater/lead>.

## **VIII. ADDITIONAL INFORMATION**

### **Cross-Connection Control**

A cross connection is a connection between a drinking water pipe and a polluted source. The pollution can come from your own home. For instance, you're going to spray fertilizer on your lawn. You hook up your hose to the sprayer containing fertilizer. If the water pressure drops (say because of fire hydrant use in town) when the hose is connected to the fertilizer, the fertilizer may be sucked back into the drinking water pipes through the hose. Using an attachment on your hose called a backflow prevention device can prevent this problem. The Water Department recommends the installation of backflow prevention devices, such as a low cost hose bib vacuum breaker, for all inside and outside hose connections. You can purchase this at a hardware store or plumbing supply store. This is a great way for you to help protect the water in your home as well as the drinking water system in your town.

### **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 Bylaws**

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. Drought conditions or excessive water usage may force the Town to institute mandatory water use restrictions. 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. Visit the Water Department website at [www.westfordma.gov/water](http://www.westfordma.gov/water) for water conservation tips.

**Westford Water Department**  
**2010 Consumer Confidence Report**  
60 Forge Village Road  
Westford, MA 01886

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**Hours of Operation:**

7am to 4pm Monday through Friday  
(except Holidays)

**Numbers at a Glance:**

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Business Manager (978) 399-2453  
Environmental Compliance Manager (978) 399-2457  
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Water Treatment Manager (978) 399-2455