

WATER QUALITY REPORT FOR 2011

PLEASE READ IMPORTANT INFORMATION FOLLOWS

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**2011 BOARD OF WATER COMMISSIONERS
Reidar Bomengen, Chairman
James Viera, & William Ricker**

**New Commissioner Nick Lawler replaced
15-year Commissioner William Ricker in May of 2012**

**FOR MORE INFORMATION PLEASE CALL
THE WATER DEPARTMENT
(978) 352 – 5750**

E-mail – gsmith@georgetownma.gov

Web Site: georgetownma.gov

Town Departments

Water Department

**Office Hours – Monday through Friday
8:30 to Noon & 12:30 to 4:00**

**For Emergencies after hours Call
Police Communications
(978) 352 – 5700**

The Georgetown Water Department believes that the best way to assure safe and reliable drinking water is to provide you with accurate facts. This Consumer Confidence Report will provide you with information about your water and things that you can do to save water and money. It also has information about the system and how we monitor the water to ensure the quality as it reaches you.

Where does my water come from?

Three wells supply all of Georgetown's water customers: the William Marshall Well, the Ronald I. Marshall (Duffy's Landing) Well and the Commissioners Well. They are all shallow (40 to 60 feet deep) gravel packed wells that draw from the Parker River aquifer. With the completion of the Commissioners Loop Project in 2006, Commissioners Well was connected to the treatment plant. Now the water from all three wells is pumped through the treatment plant to reduce the iron and manganese, adjust the pH and chlorinate the water before it enters the system. Water that is not used as it is pumped fills the three elevated storage tanks that pressurize the system

Is my drinking water safe?

YES! To protect your health, both the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP) require us to continually perform water quality testing. We test for pH, chlorination and turbidity continuously and iron & manganese daily as the water leaves the treatment plant. We test all three wells, the treatment plant and eight other points in the distribution system for the presence of coliform bacteria, pH and chlorine monthly. Lead and copper are tested at the three schools, plus twenty homes throughout the distribution system annually. We sample the wells for sixty volatile organic compounds (pesticides, industrial solvents, fuel components), twenty secondary compounds (including heavy metals, sodium and nitrate) and the distribution system for trihalomethanes and haloacetic acids (byproducts of chlorination) annually. Every three years the wells are analyzed for nitrite, fourteen inorganic compounds (including sodium, arsenic, mercury and cyanide) and synthetic organic compounds. Should we detect any of these compounds above safe drinking water standards, the public would be notified and steps taken to eliminate the problem by treating or removing the affected supply from service. (See table on page 5.)

The Georgetown Water Department is committed to providing its customers with excellent quality drinking water. We recently made some changes to the treatment process that have improved water quality and with assistance from Wright-Pierce Engineers, we added pH control to Marshall and Duffy's wells over the winter.

Sources of drinking water (both tap 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 from the presence of animals or human activity. Contaminants that may be present in source water include:

Microbial Contaminants – such as viruses and bacteria, which may come from sewage treatment systems, agricultural livestock or wildlife.

Inorganic Contaminants – such as salts and metals, which can occur naturally or as a result of storm water runoff, industrial or domestic discharges, oil and gas production, mining and farming or in the case of Sodium, from the water treatment process.

Pesticides and herbicides – which may come from a variety of sources such as agriculture, storm runoff or residential use.

Organic Chemicals – including synthetic and volatile organic chemicals that are by-products of industry and petroleum production. These can also come from gas station and roadway runoff or wastewater treatment systems.

Radioactive contaminants – which can occur naturally or be the result of petroleum production or mining operations.

In order to ensure that tap water is safe to drink, the Department of Environmental Protection (DEP) and U.S. Environmental Protection Agency (EPA) set regulations for the amount of certain contaminants allowed in water for public use. The Food and Drug Administration (FDA) and the Massachusetts Department of Public Health (DPH) establish limits on contaminants in bottled water to provide the same public health protection for the consumer. All drinking water, including bottled water, may reasonably be expected to contain small amounts of some contaminants. The presence of contaminants does not necessarily mean that the water poses a health risk.

Some people may be more vulnerable to drinking water contaminants than the general public, such as those with compromised immune systems or HIV/AIDS, or those undergoing chemotherapy or organ transplantation. If you or a family member falls into this category please contact the Water Department to be entered onto a list of Special Customers. These people should seek advice from their health care providers. More information about contaminants or waterborne pathogens and their potential health effects can be obtained by calling the EPA Safe Drinking Water Hotline (800) 426-4791 or the Centers for Disease Control on-line @ www.cdc.gov

Why is our water brown?

Iron and manganese are present in our groundwater at levels that can cause discoloration. Georgetown's groundwater, like many drinking water sources in New England, is slightly acidic (having a pH of less than 7.0). This dissolves iron and manganese from the soil as the water passes through it. This acidity can also dissolve copper pipes and lead solder joints in your house into the water. Copper and lead are toxic to humans. To prevent copper and lead from dissolving into your water, lime is added to raise the pH, which also causes the iron and manganese also come out of solution resulting in discoloration. Now that the Commissioners Loop is completed, water from all three wells passes through the treatment plant before distribution. The treatment plant on West Street is designed to filter out most of the iron and manganese from the water before it enters the distribution system. We remove about 100 tons of sludge from the treatment plant each year. We are modifying the treatment process and the flushing program to optimize the removal of the iron and manganese. All three of the water storage tanks were inspected and cleaned in the fall. There was very little iron & manganese sediment built up since the last cleaning in 2008. The Duffy's Landing Well was cleaned and the pump replaced in 2011 for more efficient pumping. Duffy's and Marshall Wells were reconstructed during 2011 with the addition of Potassium Hydroxide to achieve more efficient treatment and corrosion control. Filter run times have been reduced to minimize the iron and manganese entering the distribution system. Commissioners Well pump was also replaced in 2011 for more efficient pumping.

After pH adjustment and filtration, Georgetown's water is disinfected by adding chlorine before it enters the distribution system. All water sources contain numerous microorganisms, some of which can cause illness. We take water samples at twelve locations in the system every month to check for coliform bacteria and residual chlorine to ensure that the Georgetown water is free of harmful organisms and safe to drink.

At Commissioners Well we are able to raise the pH with potassium hydroxide, prior to treatment at the filtration plant, to achieve better treatment. The new system raises the pH of the water prior to treatment. It has helped us to achieve greater iron and manganese removal and improve the effectiveness of the chlorine. As a result, some of the staining and odor problems have diminished, except for a few areas where staining and odors still occurred in 2011. The Duffy's and Marshall rehabilitation now will make it possible to raise the pH from both of those wells.

My water smells bad

Objectionable odors have been cropping up for a number of years, especially with new hot water heaters set on the low energy setting. This can promote growth of some sulfur- and iron-reducing bacteria that cause odor. We are working on a town-wide solution to this problem. In the meantime, we have found that flushing out the hot water tank and then turning up the temperature to the VERY HOT setting for a couple of weeks can help. See our web site for an informative article from the American Water Works Association. Inline filters can also be a source of odors. Call us at the Water Department if you need further assistance.

Dankris Builders worked on modifications to the Marshall and Duffy's Landing wells that will be operational in 2012. These modifications included pH adjustment to further improve the treatment process and water quality. These improvements will allow us to reduce the amount of Sulfate being introduced into the water system from Commissioners Well.

How do we protect our water resource?

Citizens of Georgetown have had the foresight to protect their natural resources, including water, by purchasing over 200 acres of undeveloped land under the control of the Water Department and the Town's Conservation Commission. Most of this land lies along the Parker River and Lufkin Brook, from Bailey Lane at Rock Pond to Andover Street near the VFW. Georgetown has a Water Protection Bylaw to control the activities within the Zone II watershed area, as well as a bylaw for Water Use Restrictions during water emergencies. Emergency water supply is available from Groveland, Rowley and Byfield water systems.

Water Department personnel check on the land surrounding the wells from time to time to prevent activities that might adversely affect the underlying aquifers. The Water Department allows for passive recreational use of our land. However, **MOTORIZED VEHICLES ARE NOT PERMITTED** without authorization from the Department. When hiking or picnicking please take your trash and even a little extra back home with you, and report any dumping or other activities that might be detrimental to the groundwater. We have an arrangement with the US Department of the Interior to sample the groundwater every couple of years and test for 225 parameters and at concentrations that we could never afford to do, at no cost.

Over the years the Department has taken a number of steps to further safeguard the drinking water sources and supply. Daily inspection of the pumping stations and treatment facilities are required. We have an active backflow prevention program to assure that contaminants are not drawn back into the system. Licensed department employees are available within minutes on a twenty-four hour emergency basis to deal with emergencies. Regular maintenance programs for cleaning the storage tanks, flushing the distribution system, exercising the gate valves, and checking the system for leaks helps ensure that the distribution system is sound. The elevated tank by the golf course and the two concrete tanks by the fire tower were all cleaned and inspected in October.

Protecting the water in the distribution system

The Water Department cleans and disinfects the water before it enters the distribution system. To make sure it stays that way we have an active BACKFLOW prevention program. Each new building has a Backflow device installed at the service entrance and Fire Sprinkler service to prevent any water that may become contaminated, from getting back into the distribution system. Any type of machinery that is connected directly to the potable water system with a potential to allow contaminants back into the drinking water, (i.e. boilers, dishwasher soap injectors, swimming pools or manufacturing equipment) must have a suitable backflow preventer. Depending on the type of device, these are tested once or twice each year. All irrigation systems and hose connections are required to have a backflow device to prevent contaminants from the lawn from coming back into the building. Each Irrigation system should be checked seasonally for proper backflow prevention to ensure the safety of the occupants of the building. For your safety and the protection of the entire system, all irrigation systems require a Permit from the Water Department.

To have your Irrigation System checked this summer please call the Water Department, or stop by the office at 1 Moulton Street, Georgetown, to make an appointment.

High water bills – Before you call

The format of the water bill changed starting in July 2010, but the rates remained unchanged in 2011. The new format has your own water consumption history at the bottom. Use this history and the charts that have been sent to you, to see where your usage ranks on a per person basis. If you think your water bill is higher than it should be, here are some things to look for.

- 1) Check the meter reading on your meter, which has six digits. The reading on the meter should be higher than the one on your bill. If it is not, please call us.
- 2) Has your usage changed (i.e. more people at home, more bathing, new pool or irrigation system, etc.)?
- 3) Leaking toilets are often the culprits. The water in the tank should be about one inch below the top of the overflow pipe. If not, adjust the float. Put a little food coloring into the tank and watch to see if it seeps into the bowl without flushing. If so, the flapper valve may need to be replaced

Because inefficient water use drives up the cost of water supply for everyone, Georgetown's water rates increase with usage. Those who conserve pay at a lower rate than those who use a lot of water.

To keep the cost of water down we are retrofitting all of the wells with more efficient pumps, motors and controllers. We also purchase our necessary chemicals through a multi-town consortium to get the lowest prices possible. The Department also handles much of our own repairs and maintenance to trim costs.

DROP 10%

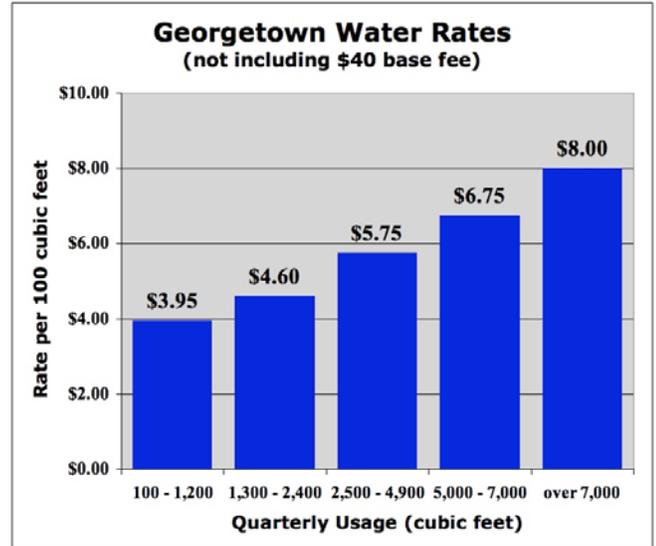
Georgetown Water Conservation

Up to 1,200 cubic feet (almost 9,000 gallons) of water for essential domestic purposes can be used quarterly for a very modest cost in Georgetown. However, the more water you use, the higher the rate, so it pays to conserve. Following are tips to help you “DROP 10%.”

Grow a beautiful “rain-only” lawn.

Grass normally goes dormant in the heat of late summer. Even though it may turn brown, grass can survive extended dry spells, especially if the roots are deep and the soil has enough organic content to retain moisture. Here are some tips for a beautiful “rain-only” lawn:

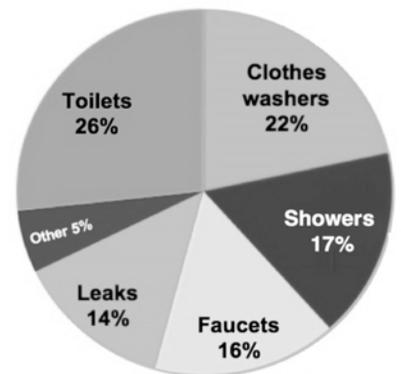
- Apply organic fertilizer in early spring and early fall.
- Get your soil tested. Apply lime to counteract acid rain.
- Cut the grass tall (3”) with a sharp mower blade.
- Leave grass clippings on the lawn to build up the organic content of the soil, retain moisture, and nourish beneficial earthworms.
- Avoid pesticides that kill beneficial earthworms.
- Re-seed bare spots in September with drought-tolerant grass seed.



Check out the “rain-only” demo plots in front of the Water Department. For more information, visit the Parker River Clean Water Association web site. Click “Make a Difference,” and then click “Conservation Through Waterless Lawn Care.”

Install water-efficient toilets, washing machines, showerheads, and faucet aerators that pay for themselves by reducing your water bill.

- **High Efficiency Toilets (HETs)** are powerful and save a lot of water. Visit <http://www.map-testing.com/> to look up the flushing power of over 1,600 toilet models. Some use as little as 0.8 gallons per flush! Take advantage of the \$200 MassDEP grant-funded rebates while they last.
- **Dual-flush toilet conversion kits** are inexpensive, and can greatly reduce water used for flushing liquid waste.
- **Water-efficient clothes washers** get clothes clean with less than half the water, and save energy too. Visit the EnergyStar web site to find clothes washers with a water factor of 5.0 or less.
- **Low-flow showerheads** save both water and energy. The flow of many modern low-flow showerheads feels surprisingly ample.
- **Water-saver faucet aerators** are inexpensive and easy to install. Install 0.5 gpm or 1.0 gpm aerators in the bathroom, and 1.5 gpm aerators in the kitchen.
- **Fix leaks.** Toilets, faucets and irrigation systems leaking 24 hours a day can waste enormous amounts of water, and lead to very costly water bills.



Typical Household Use

Call the Georgetown Water Department at 978-352-5750, or see the town web site to find out about rebates and other assistance to improve your water use efficiency, and lower your water bills.

WATER QUALITY REPORTING

DEFINITIONS YOU NEED TO KNOW

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 are set to allow for a margin of safety.

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 Residual Disinfectant Level Goal (MRDLG) – The level of drinking water disinfectant (chlorine, chloramines, chlorinedioxide) 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.

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

Action Level (AL) – The concentration of a contaminant, which if exceeded, triggers treatment or other action (typically flushing) required to eliminate the threat from a contaminant.

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

ppm – Parts Per Million, or milligrams per Liter (**mg/L**)

ppb - Parts Per Billion, or micrograms per Liter (**ug/L**)

pCi/L – Picocuries per Liter (a measure of radioactivity)

NTU – Nephelometric Turbidity Units (a measure of how cloudy the water is)

pH - Potential of Hydrogen Ion activity (a measure of how acid, pH below 7.0, or caustic ph above 7.0)

ND – Not Detected

BDL – Below Detectable Limits

N/A – Not Applicable

TEST RESULTS for CALENDAR YEAR 2011

Distribution System Coliform Bacteria Sampling – 165 bacteria samples were collected from the distribution system in 2011. Total Coliform was detected in ONE sample but not in the repeat samples. E-Coli and Total Coliform were detected in Marshall Well samples while it was off line, before cleaning. E-coli was **NOT** detected in any distribution samples during 2011

Volatile Organic Contaminants (VOC) – The treatment plant was sampled on July 19th for 56 compounds. None were detected near MCLs or ACLs

Sodium May 4th distribution samples averaged **14.3 mg/L** - at the Treatment Plant was **13.9**.

Lead & Copper (AL – Lead = 0.015 mg/L, Copper = 1.30 mg/L)

Samples were collected from 21 homes in June and August for lead and copper. The 90th Percentile Lead for June = 0.008, for August = 0.009 mg/L. The 90th Percentile Copper for June = 0.49, for August = 0.13mg/L. Samples were collected from the three schools on June 27th and September 13th – Penn Brook kitchen showed lead at 0.022 mg/L in the June sample. Running the tap 60 sec. reduced it to safe levels. Re-sampling on September 13th, showed lead at 0.014 mg/L.

Nitrate, Perchlorate & Conductivity – Sampled from the Treatment Plant Finished Water

Nitrate	MCL = 10 mg/L	Results May 4 at Treatment Plant = 0.06 mg/L
Nitrite	MCL = 1 mg/L	Results May 4 at Treatment Plant = ND
Perchlorate	MCL = 2.0 ug/L	Results July 119 at Treatment Plant = ND
Conductivity	umhos/cm	Results July 13 at Treatment Plant = 340

Total Trihalomethane (Chlorine byproduct) - MCL = 80 ug/L August 3rd at Erie-4 Result = 46.5 ug/L

Total Haloacetic Acids (Chlorine byproduct) - MCL = 60 ug/L Nov 17 at Erie-4 Result = 23.9 ug/L

Radium 226 & 228 – Combined MCL = 5.0 January 11 at Treatment Plant **Combined Radium = 0.7pCi/L**

Iron & Manganese and pH were sampled at the **Treatment plant, the Water office and all over Town throughout 2011 to monitor the effectiveness of our treatment and flushing program.**

	Sampled May 4 th	<u>Before Treatment</u>	<u>After Treatment</u>	<u>Water Office</u>	<u>Penn Brook School</u>
Iron	MCL = 0.3 mg/L	Result = 4.3 mg/l	0.09 mg/l	0.21 mg/L	0.05 mg/L
Manganese	MCL = 0.05 mg/L	Result = 0.96 mg/l	0.04 mg/l	0.033 mg/L	0.008 mg/L
pH	6.5 – 8.5	Result = 6.4	6.8	6.8	6.9

For complete list of test results see 2011 TEST RESULTS on the Water Department Web Site