

## Groton Water Department

# Annual Water Quality Report

Annual Report

Information on Service Provided and Water Delivered in 2012

May 2013

### Board of Commissioners

James L. Gmeiner, Chair  
Gary W. Hoglund, Vice Chair

Jessica Cajigas

### Staff

*Superintendent*  
Thomas D. Orcutt

*Business Manager*  
April R. Iannacone

*Senior Technician*  
George Brackett

*Senior Technician*  
Kevin Loughlin

### Contact Information

173 Main Street  
Groton, MA 01450

Phone: 978-448-1122  
Fax: 978-448-1123

[www.grotonwater.org](http://www.grotonwater.org)

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## Superintendent's Message

*As the Superintendent of the Groton Water Department (GWD), I am very pleased to provide you, our valued customer, the status of the quality of your drinking water delivered to your household in the calendar year 2012. Our dedicated staff and elected officials have worked tirelessly to provide you with the safest and most reliable source of potable drinking water. Your Water Quality Report contains information on the sources of your drinking water and how it compares to the state of Massachusetts Department of Environmental Protection (MADEP) and the federal (USEPA) standards. The GWD has met all of these regulatory requirements. I encourage you to take a few moments to read the report and become familiar with your drinking water quality. Additional information and data can be found on our web site at [www.grotonwater.org](http://www.grotonwater.org) or you may call our offices at 1-978-448-1122, Monday thru Friday.*

*Respectfully submitted,*



**Baddacook Pond Treatment Facility**

### Water Consumption and Water Conservation

The biggest challenge the Water Department will have in the months and years to come will be to balance the water supply needs and demands of our customers and those needs for our environment. New environmental regulations and policies in Massachusetts will limit the amounts of water we can withdraw and provide to you, our valued customer. State regulators are in the process of limiting water withdrawals back to 2005 withdrawal rates. This will lead to higher pricing in order to keep up with increased expenses, increases in wages and salaries and new debt. In 2005, the Groton Water Department embarked on a major capital improvements program that -

## Water Consumption and Water Conservation - continued

(continued from page 1) - included the replacement of nearly 30,000 linear feet of undersized water mains in order to improve fire flows to protect your home, a new water storage tank to increase water storage for additional fire flows and a new iron & manganese treatment facility for improved water quality. These improvements increased our operating expenses through increased debt payments for a 20 year period. At the time, new residential and commercial growth, as well as increased pumping, was anticipated to pay for those additional expenses. With a 15% to 20% roll back in pumping capacities to 2005 levels, water rates will need to increase in order to pay for these projects. In 2014, the Water Department normally would be expecting an additional increase in our pumping capacity under its water withdrawal permit in order to keep up with growth in the community. If there is a roll back of 15% to 20% in our water withdrawal permit, the Board of Water Commissioners will have a plan to address this reduction and water rates may need to be increased. In the mean time, water conservation will play an important part of our day to day operations. Outside water use or irrigation should only be done on your prescribed days. Adhering to the odd/even watering schedule is essential in order for the Water Department to meet its permit requirements on a daily basis and not waste it.

## Where Does My Drinking Water Come From?

Source Name	Source Type	Location of Source
Baddacook Well	Groundwater	On the south shore of Baddacook Pond
Whitney Well #1	Groundwater	On the east shore of Whitney Pond
Whitney Well #2	Groundwater	On the east shore of Whitney Pond

Presently, the water system has over 51.2 miles of water mains, 1,818 water accounts, 373 fire hydrants and three water supply wells: Baddacook Well, Whitney Well #1, and Whitney Well #2. The Whitney Well #2 is considered a redundant back-up well for the main Whitney Well #1. The system's original well at Baddacook Pond (constructed in 1897), still remains in active service today. Water is pumped from our sources to the Chestnut Hill Water Storage tank. This 1.0 million gallon storage tank, constructed in 2005, is at an elevation of 516 feet above sea level.

## Protecting Our Water Resources

The MADEP has prepared a Source Water Assessment Program (SWAP) Report for the water supply sources serving this water system. The SWAP Report assesses the susceptibility of public water supplies to contamination due to land uses and activities in our well recharge areas.

### What Is My System's Ranking?

A susceptibility ranking of **moderate** was assigned to our water supply system using the information collected during the assessment by the MADEP. In the report, MADEP recommends:

*That we constantly monitor and remove all non water-system related activities immediately around our wells; that we maintain a 400-foot radial buffer area around the wells (Zone I) free from pesticide use or storage, road salt, or fertilizers.*

*That we educate residents on ways they can help protect drinking water sources.*

*That we work with emergency response teams to ensure that they are aware of the storm water drainage in our well recharge area (Zone II) and that they cooperate when responding to spills or accidents.*

### Where Can I See The SWAP Report?

The complete SWAP Report is available at the Water Department Office and online at [www.grotonwater.org](http://www.grotonwater.org), under the "Helpful Links" section. For more information, please call us at 978-448-1122.

## 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, which may come from septic systems, agricultural livestock operations, and wildlife.

**Inorganic contaminants** - such as salts and metals, which can be naturally-occurring or result from stormwater runoff or domestic wastewater discharges, and farming.

**Pesticides and herbicides** - which may come from a variety of sources such as agriculture, stormwater runoff, and residential uses.

**Organic chemical contaminants** - including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and can also come from gas stations, stormwater runoff, and septic systems.

**Radioactive contaminants** - which can be naturally occurring or be the result of oil and gas production and mining activities.

To ensure that tap water is safe to drink, the MADEP and U.S. Environmental Protection Agency (USEPA) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and Massachusetts Department of Public Health (DPH) 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 water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (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 lowering the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

## Is My Water Treated?

Our water system makes every effort to provide you with safe and pure drinking water. To improve the quality of the water delivered to you, it is treated with sodium hypochlorite (chlorine) as a preventative disinfectant to guard against microbial contaminants that might enter the distribution system through breaks or leaks. We also treat the water with low levels of potassium hydroxide. This raises the pH of the water to a level that is not corrosive to copper pipes or lead solder joints in household plumbing, thus reducing lead and copper concentrations in your home drinking water (see page 6 for copper and lead information).

The quality of water in our system is constantly monitored by the GWD staff and by the MADEP to determine the effectiveness of existing water treatment and to determine if any additional treatment is required. In 2012, over 600 tests were conducted on approximately 300 samples collected at various points in our distribution system.

Water pumped from the Baddacook Pond Well has naturally occurring minerals (iron and manganese) removed through a greensand filtration process. Water pumped from the Whitney Wells #1 and #2 are not filtered through this process, because of their lower concentrations of these minerals.

**Fluoride is not added to your drinking water.**

## Important Definitions

**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.

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

**90<sup>th</sup> Percentile** - Out of every 10 homes sampled, 9 were at or below this level.

**ppm** = parts per million, or milligrams per liter (mg/l)    **pCi/l** = picocuries per liter (a measure of radioactivity)  
**ppb** = parts per billion, or micrograms per liter (ug/l)    **ND** = not detected

**Secondary Maximum Contaminant Level (SMCL)** – These standards are developed to protect the aesthetic qualities of drinking water and are not health based.

**Massachusetts Office of Research and Standards Guideline (ORSG)** – This is 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.

## Water Quality Testing Results and Drinking Water Sources & Treatment

### Does My Drinking Water Meet Current Health Standards?

We are pleased to report that last year (2012) your drinking water met all applicable health standards regulated by the MADEP and the USEPA. The Water Department received no drinking water violations or Notices of Noncompliance in 2012. The Groton Water Department also were granted waivers for arsenic and perchlorate at all of our active sources. Waivers were granted for IOC's and SOC's at both Whitney sources but not at Baddacook. A VOC waiver was granted at Whitney Well #2 on and at no other sources.

The Water Department utilizes three (3) ground water resources to supply you with potable drinking water.

Baddacook Pond Well	(constructed in 1897)	- capacity 250 gallons per minute
Whitney Pond Well #1	(constructed in 1989)	- capacity 750 gallons per minute
Whitney Pond Well #2	(constructed in 2001)	- capacity 400 gallons per minute
Shattuck Well	(permitted in 2011 - not constructed)	
Unkety Brook Well	(permitted in 2012 - not constructed)	

At the Baddacook Pond Treatment Facility, we have renovated the building and installed an Iron and Manganese removal system. In the Spring of 2013, we will be installing a new pump at the facility that will operate in a more cost effective manner and thereby save on our electricity costs. US EPA and the Mass DEP have established public health advisory levels for Manganese to protect against concerns of potential neurological effects.

## Bacteria Sampling Results

Routine monthly sampling conducted at nine different sampling locations in the water distribution during 2012 have **not** detected the presence of coliform bacteria in any of the test results.

*The water quality information presented in the following tables is from the most recent round of testing completed in accordance with MADEP and EPA regulations.*

## Regulated Contaminants Detected

Regulated Contaminant	Date(s) Collected	Highest Detect	Range Detected	MCL	MCLG	Violation (Y/N)	Possible Source(s) of Contamination
<b>Inorganic Contaminants</b>							
Barium (ppm)	5/21/12	0.011	0 - 0.011	2	2	N	Erosion of natural deposits
Nitrate (ppm)	5/21/12	0.72	0.17 - 0.72	10	10	N	Runoff from fertilizer use; Leaching from septic tanks; Sewage; Erosion of natural deposits
<b>Radioactive Contaminants</b>							
Gross Alpha (pCi/l)(minus uranium)	5/21/12	4.2	1.2 - 4.2	15	0	N	Erosion of Natural Deposits

Disinfection Byproducts and Chlorine	Highest Running Annual Average 2012	Range Detected	MCL	MRDL	Violation (Y/N)	Possible Source(s) of Contamination
Total Trihalomethanes (TTHMs) (ppb) (8/15/12)	16	8.7 - 24	80	--	N	Byproduct of drinking water chlorination
Total Haloacetic Acids (HAA5) (ppb) (8/15/12)	1	0 - 1.1	60	--	N	Byproduct of drinking water disinfection
Chlorine (ppm) (monthly)	0.13	0 - 0.38	--	4	N	Water additive used to control microbes

## Unregulated and Secondary Contaminants Detected

Unregulated contaminants are those for which there are no established drinking water standards. Monitoring of unregulated contaminants assists regulatory agencies in determining the occurrence of the contaminants in drinking water and helps to determine the need for future regulation.

Unregulated and Secondary Contaminants	Date(s) Collected	Range Detected	Average Detected	SMCL	ORSG	Possible Source(s)
<b>Inorganic Contaminants</b>						
Nickel (ppb)	5/21/12	0-51	17	--	100	Erosion of natural deposits
Manganese (ppb)	5/21/12	0 - 200	69	50	--	Erosion of natural deposits
Sodium (ppm)	5/21/12	7.3 - 17	12.6	--	20	Natural sources; Runoff from use of salt on roadways
Sulfate (ppm)	6/3/08	6.3—9.4	7.5	250	--	Natural Sources

## Lead and Copper Sampling Results

The purpose of lead and copper sampling is to protect public health by minimizing lead and copper in drinking water. Lead and copper are primarily introduced to drinking water through the corrosion of plumbing materials that contain lead and copper. By closely monitoring the pH of the drinking water we deliver to your home, we minimize this corrosion, thus lowering these levels. The staff of the Water Department monitors the pH continuously through our SCADA system and adjusts the pH accordingly.

The GWD has demonstrated optimal corrosion control in its drinking water system for three consecutive years and was granted a reduced monitoring schedule by MADEP for 2011. Comprehensive Lead and Copper sampling in the water distribution system will not occur until the spring/summer of 2014.

The table below summarizes results from the comprehensive 2011 lead and copper sampling round. Please note that lead results are reported in parts per billion and may have been incorrectly reported in our 2011 CCR.

	Date Collected	90 <sup>TH</sup> Percentile	Action Level	MCLG	# of Sites Sampled	# of Sites Above Action Level	Possible Source(s) of Contamination
Lead (ppb)	6/14/11	7	15	0	25	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	6/14/11	1.03	1.3	1.3	25	0	Corrosion of household plumbing systems; Erosion of natural deposits

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

**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. The GWD 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 (800-426-4791) or at <http://www.epa.gov/safewater/lead>.

**Copper:** Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor. **Flush your tap for 30 seconds to 2 minutes before using**

## Water Meters and Billing

In 2001, the GWD began replacing and upgrading all of its water meters in the system. The new meters will more accurately register the water consumed. The new system is referred to as an ARM - Automated Remote Meter Reading System. This system collects radio signals from your meter in the basement via battery operated signal to our vehicles. From the vehicle, the data is collected and stored and then downloaded to an office computer. From there the data is reviewed for accuracy prior to being processed for billing.

The opportunity to install the new meters and radio devices on a rolling systematic approach fits the department's budget from year to year without hiring outside contractors to do the installations. This is a big savings from year to year. However, the batteries in the radio devices themselves have a useful life of approximately ten years and replacement is inevitable. The GWD staff will notify you when it is necessary to replace the radio device. There is no charge to you for this service, but GWD staff will need access to your basement in order for us to replace the radio device on your water meter in your home.

## Important Information About Cross-Connections

### What is a Cross-Connection?

A cross-connection occurs whenever the drinking water supply is (or could) be in contact with a potential source of contamination. For example: plumbing or equipment allowing drinking water to come in contact with gases, solids, chemicals, stagnant water, or any non-potable liquid.

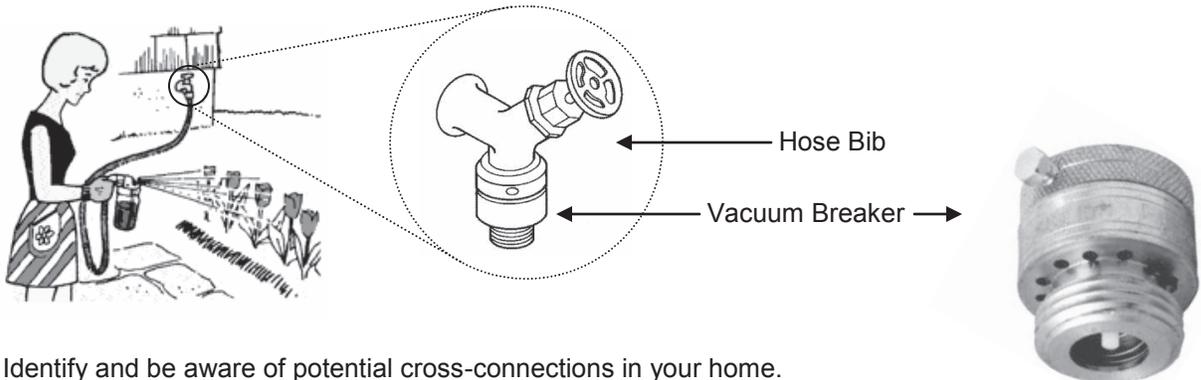
### What is a Backflow?

Backflow is the undesired reverse of water flow in the drinking water distribution lines. This backward flow of water can occur when the pressure created by a boiler/furnace is higher than the water distribution system pressure (backpressure). It also can occur when the water pressure in the distribution system drops due to water main breaks or heavy demand during fires, causing water to flow backward into the water distribution system (backsiphon).

### What can I do to prevent a Cross-Connection?

Without the proper protection, something as simple as a garden hose has the potential to contaminate the drinking water in your house. In fact, over half of cross-connection incidents involve unprotected garden hoses. Here are some simple steps you can take to prevent such hazards:

- Never submerge a hose in soapy water buckets, pools, tubs, sinks, drains, or chemicals.
- Never attach a hose to a garden sprayer without the proper backflow preventer (vacuum breaker).
- Purchase and install a hose bib vacuum breaker in all threaded water fixtures. These inexpensive devices are available at your local hardware stores.



- Identify and be aware of potential cross-connections in your home.
- Purchase appliances and equipment with a backflow preventer.

For further information, please contact the Groton Water Department at (978) 448-1122.

## Direct Debit Payment Service Available

We are pleased to announce that an automatic payment plan is available for our customers.

With your signed authorization form, the Water Department can directly debit your checking or savings account for the exact amount of your water/sewer bill each billing cycle. This will save you time and postage, and you will never need to worry about paying late fees.

Please contact the business office at 978-448-1122 to sign-up for Direct Debit, or download the sign-up form online at [www.grotonwater.org](http://www.grotonwater.org).

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Town Hall  
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**Annual  
Consumer Confidence Report  
Public Water Supply # 2115000**



## **Water Conservation Kits**

Water conservation plays an important role in our day to day lives (see related story on page 2 of this report). Reducing what you use every day helps a great deal in meeting our permitted water withdrawals. More importantly, fixing or replacing older toilets, shower heads and your kitchen sink aerator is also important in reducing your daily water use.

Water Conservation Kits and Water EcoKits can be purchased directly from Niagara Conservation. Simply go to [www.niagaraconservation.com](http://www.niagaraconservation.com) and place your order.

Groton Water Technicians can also help you determine if you have a leak, just call the office between the hours of 8:00 A.M. and 4:00 P.M. to set up an appointment.

## **Direct Debit Payment Service Available**

Save time and postage.  
(Details on page 7.)

If you have questions or concerns about any information presented in this report, please contact us.  
Visit our web site at [www.grotonwater.org](http://www.grotonwater.org) for more conservation information.