Groton Water Department

Annual Water Quality Report

Annual Report | Information on Service Provided and Water Delivered in 2011 | May 2012

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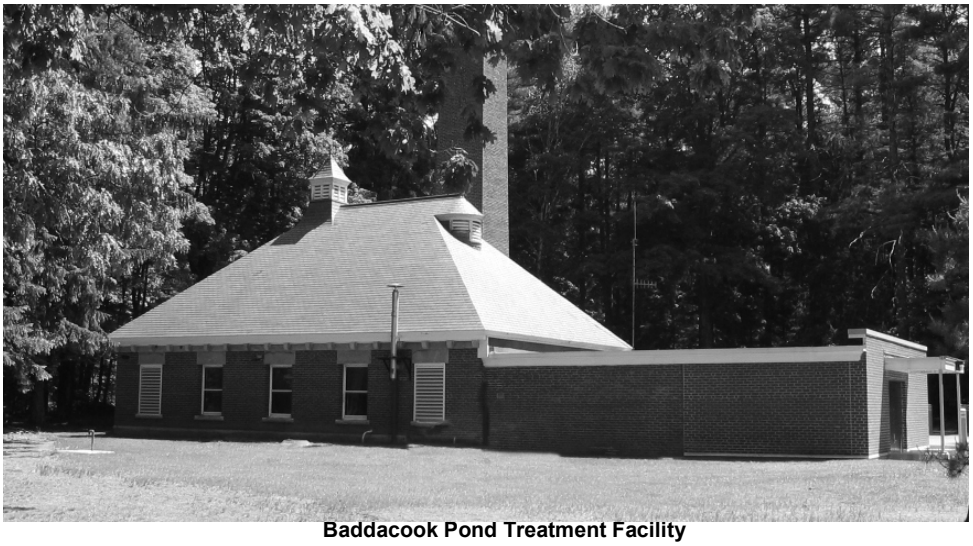
Superintendent's Message

As the Superintendent of the Groton Water Department (GWD), I am pleased to provide you, our valued customer, the status of the quality of your drinking water delivered to your household in calendar year 2011. 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 state Massachusetts Department of Environmental Protection (MADEP) and 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, www.grotonwater.org.

Respectfully submitted,

Thomas D. Orcutt



Baddacook Pond Treatment Facility

Groton Inn Fire

On the evening of August 4th, the entire Water Department staff was deployed to a fire at the Groton Inn at #128 Main Street . The result of the fire was a total loss of the Groton Inn due to the intense nature of the fire and the age of the structure. The role of the Water Department during this event was to supply as much water as possible to the structure as the system could provide - and we delivered!! The distribution system, rated in the top 10% in the entire nation by ISO, delivered in excess of 5,000 gallons per minute to this fire over the course of four hours.

Water Consumption

As you may recall, during the summer of 2010 and in 2011, the Groton Water Department issued voluntary water bans on all outside water use and lawn irrigation. The Water Department was able to meet the conditionals set forth in the water withdrawal permit from the MADEP. However, in light of a very low winter precipitation, the Board has reinstituted the Mandatory Water Ban for the upcoming growing season in 2012. The lack of snow fall, normally 42", is recharge to our aquifers, and without this, these aquifers could become stressed if the lack of precipitation continues into this spring and summer. The Water Conservation Program consists of odd/even watering based on your house number with specific hours for watering. The Water Department prohibits all outside watering by everyone on Mondays to afford for recovery time for the aquifers and the pumps in our wells. The Water Department will keep you informed if the status of the program changes at any time. By doing your part and carefully watering your lawn only when needed, we will continue to enjoy the odd/even program currently in place. Any change to the program will be noted on our web site - www.grotonwater.org, the Town of Groton's web site and in the Groton Herald.

Where Does My Drinking Water Come From?

Source Name	Source Type	Location of Source
Baddacook Well	Groundwater	On south shore of Baddacook Pond
Whitney Well #1	Groundwater	On east shore of Whitney Pond
Whitney Well #2	Groundwater	On 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 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. Water is pumped from our sources to the Chestnut Hill storage tank. This 1 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 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, 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 2011, over 800 tests were conducted on approximately 450 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. (See page 5 for levels of naturally occurring fluoride.)

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.

90th 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

Does My Drinking Water Meet Current Health Standards?

We are pleased to report that last year (2011) your drinking water met all applicable health standards regulated by the MADEP and the USEPA. However, the Water Department did violate one monitoring requirement for Perchlorate. Perchlorate is both naturally occurring and a man-made chemical that is used to produce rocket fuel, fireworks, flares and explosives that could have adverse health effects.

Due to the violation of the one monitoring requirement, the Water Department was issued a Notice of Non-Compliance (NON) in December of 2011 for not testing for Perchlorate in the 3rd Quarter of 2011. These tests were later conducted in the 4th Quarter of 2011. More importantly though, Perchlorate was **not** detected in the any of our sources in 2011. Tests for Perchlorate in 2008 were also non-detectable. Even though this was not an emergency, as our customer, you have a right to know what happened and how it was corrected by the Water Department. We are required to monitor your drinking water for specific contaminants on a regular basis. These results assure us that the drinking water we provide meets all applicable health standards.

In September of 2011, the MADEP conducted a Sanitary Survey of the Water Department's Facilities. The GWD received no violations. During the Sanitary Survey, we did receive a few minor deficiencies that were implemented and/or corrected immediately so as to more efficiently provide a high quality of drinking water to our customers.

Bacteria Sampling Results

Routine monthly sampling conducted at nine sampling points, during 2011 located throughout the distribution system have **not** detected the presence of coliform bacteria.

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
Inorganic Contaminants							
Barium (ppm)	**5/3/06**	**0.049**	**0.007 - 0.049**	**2**	**2**	**N**	Erosion of natural deposits
Fluoride (ppm)	**5/3/06**	**0.09**	**0.06 - 0.09**	**4***	**4**	**N**	Erosion of natural deposits
Nitrate (ppm)	**6/7/11**	**0.69**	**0 - 0.65**	**10**	**10**	**N**	Runoff from fertilizer use; Leaching from septic tanks; Sewage; Erosion of natural deposits
Radioactive Contaminants							
Gross Alpha (pCi/l)(minus uranium)	**3/12/04**	**3.1**	**0.8 - 3.1**	**15**	**0**	**N**	Erosion of Natural Deposits
Radium 226 & 228 (pCi/L)	**3/4/03**	**0.7**	**0.0 - 0.7**	**5**	**0**	**N**	Erosion of Natural Deposits

* Fluoride also has a secondary contaminant level (SMCL) of 2 ppm. (Groton Water Department does not add fluoride).

Disinfection Byproducts and Chlorine	Highest Running Annual Average 2011	Range Detected	MCL	MRDL	Violation (Y/N)	Possible Source(s) of Contamination
Total Trihalomethanes (TTHMs) (ppb)	**26**	**5 - 24**	**80**	**--**	**N**	Byproduct of drinking water chlorination
Total Haloacetic Acids (HAA5) (ppb)	**6**	**0 - 18**	**60**	**--**	**N**	Byproduct of drinking water disinfection
Chlorine (ppm)	**0.08**	**0 - 0.16**	**--**	**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)
Inorganic Contaminants						
Iron (ppm)	**6/7/11**	**0 - 1.0**	**—**	**0.30**	**--**	Erosion of natural deposits
Manganese (ppm)	**6/7/11**	**0 - 0.10**	**0.091**	**0.05**	**--**	Erosion of natural deposits
Sodium (ppm)	**6/2/09**	**8 - 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.

The table below summarizes results from the comprehensive 2011 lead and copper sampling round.

	Date Collected	90TH Percentile	Action Level	MCLG	# of Sites Sampled	# of Sites Above Action Level	Possible Source(s) of Contamination
Lead (ppb)	6/14/11	0.007	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 tap water**. Additional information is available from the Safe Drinking Water Hotline at 800-426-4791.

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 billed.

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 very 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 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.

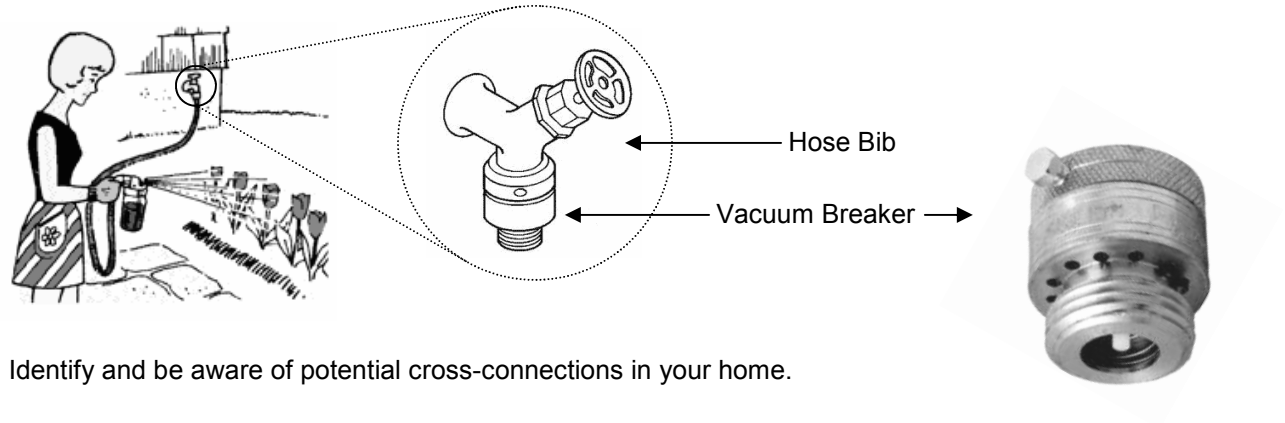
What is a Backflow?

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.

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Annual
Consumer Confidence Report
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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 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 for more conservation information.