ANNUAL

WATER QUALITY REPORT

Water testing performed in 2008

TOWN OF BURLINGTON, DPW,
WATER DEPT.

PWS ID#: 3048000

Meeting the Challenge

We are once again proud to present to you our annual water quality report. This edition covers all testing completed from January 1, 2008 through December 31, 2008. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal drinking water standards. We continually strive to adopt new and better methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please share with us your thoughts about the information in this report. After all, well-informed customers are our best allies.

Community Participation

The public is encouraged to participate and comment on any concerns they may have regarding the town's water system. In the Town of Burlington, the Board of Selectmen is made up of the Water and Sewer Commissioners. Board meetings are held on the first and third Monday of each month at 7:00 p.m., and all residents can address the board at these meetings during Citizens' Time. During July and August, meetings are held once a month and are posted in the newspaper.

What's Your Water Footprint?

You may have some understanding about your carbon footprint, but how much do you know about your water footprint? The water footprint of an individual, community, or business is defined as the total volume of freshwater that is used to produce the goods and services that are consumed by the individual or community or produced by the business. For example, 11 gallons of water are needed to irrigate and wash the fruit in one half-gallon container of orange juice. Thirty-seven gallons of water are used to grow, produce, package, and ship the beans in that morning cup of coffee. Two hundred and sixty-four gallons of water are required to produce one quart of milk, and 4,200 gallons of water are required to produce two pounds of beef.

According to the U.S. EPA, the average American uses about 100 gallons of water daily. In fact, in the developed world, one flush of a toilet uses as much water as the average person in the developing world allocates for an entire day's cooking, washing, cleaning, and drinking. The annual American per capita water footprint is about 8,000 cubic feet, twice the global per capita average. With water use increasing six-fold in the past century, our demands for freshwater are rapidly outstripping what the planet can replenish.

To check out your own water footprint, go to www.h2oconserve.org or visit www.waterfootprint.org to see how the water footprints of other nations compare.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.

Information on the Internet

The U.S. EPA Office of Water (www.epa.gov/watrhome) and the Centers for Disease Control and Prevention (www.cdc.gov) Web sites provide a substantial amount of information on many issues relating to water resources, water conservation, and public health. Also, the DEP has a Web site (www.mass.gov/dep) that provides complete and current information on water issues in Massachusetts, including valuable information about our watershed.

Source Water Assessment

The Department of Environmental Protection (DEP) has completed source water assessments for all drinking water sources across Massachusetts. The purpose of this Source Water Assessment Program (SWAP) was to determine the susceptibility of each drinking water source (well or surface water intake) to potential contaminant sources. The relative susceptibility rating for all our wells was high. The susceptibility rating for the Shawsheen River was also rated as high while the Mill Pond Reservoir was given a moderate rating. It is important to understand that these susceptibility ratings do not imply poor water quality but rather the system's potential to become contaminated within the assessment area.

The complete SWAP report is available at the Burlington Department of Public Works and online at www.mass.gov/dep/water/drinking/3048000.pdf. For more information, call Bill Keene at (781) 270-1648.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the Department of Environmental Protection (DEP) and the U.S. Environmental Protection Agency (U.S. EPA) prescribe regulations limiting the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and the Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The 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. Substances that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban 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 which may also come from gas stations, urban stormwater runoff, and septic systems;

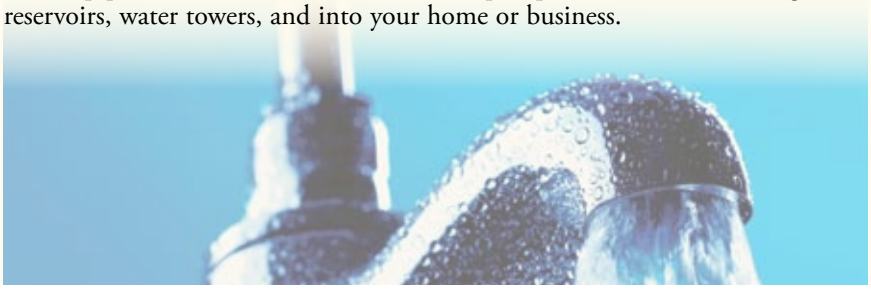
Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Water Treatment Process

The treatment process consists of a series of steps. First, raw water is drawn from our water source and sent to an aeration tank, which allows for oxidation of the high iron levels that are present in the water. The water then goes to a mixing tank where polyaluminumchloride and soda ash are added. The addition of these substances causes small particles to adhere to one another (called "floc") making them heavy enough to settle into a basin from which sediment is removed. Chlorine is then added for disinfection. At this point, the water is filtered through layers of fine coal and silicate sand. As smaller, suspended particles are removed, turbidity disappears and clear water emerges.

Chlorine is added again as a precaution against any bacteria that may still be present. (We carefully monitor the amount of chlorine, adding the smallest quantity necessary to protect the safety of your water without compromising taste.) Finally, soda ash (used to adjust the final pH and alkalinity), fluoride (used to prevent tooth decay), and a corrosion inhibitor (used to protect distribution system pipes) are added before the water is pumped to sanitized, underground reservoirs, water towers, and into your home or business.



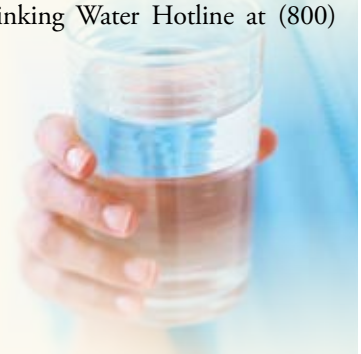
What's a Cross-connection?

Cross-connections that contaminate drinking water distribution lines are a major concern. 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. Cross-connection 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 and into the drinking water line (backsiphonage).

Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or when attached to a chemical sprayer for weed killing. Fertilizers, cesspools, or garden chemicals may contaminate garden hoses that are left lying on the ground. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continuously jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. We have surveyed all industrial, commercial, and institutional facilities in the service area to make sure that all potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test each backflow preventer to make sure that it is providing maximum protection.

For more information, review the Cross-Connection Control Manual on the U.S. EPA's Web site at www.epa.gov/safewater/crossconnection.html. You can also call the Safe Drinking Water Hotline at (800) 426-4791.



"WELL-INFORMED CUSTOMERS ARE OUR BEST ALLIES."

Questions?

For more information about this report, or for any questions relating to your drinking water, please call Bill Keene, Water Quality Manager, at (781) 270-1648.

Where Does My Water Come From?

The Town of Burlington has produced water for its residents since 1949. We have accomplished this by making major investments in the sources, distribution, storage, and treatment facilities needed to operate a sophisticated system.

Burlington's water system consists of three finished water storage tanks with a capacity of six million gallons, approximately 130 miles of distribution piping, one river diversion station with a pumping capacity of eight million gallons per day (MGD), one raw water storage reservoir with a capacity of 513 million gallons, one surface water treatment facility, one groundwater treatment facility, and several gravel-packed wells. These sources produced just under 1.2 billion gallons in 2008 with a daily average of 3.3 MGD and a maximum day of 7.1 million gallons. While the daily average has remained constant for the past several years, the major water consumer has changed from commercial users to residential users.

Groundwater Sources (Wells)

Groundwater sources are located in the Vine Brook Aquifer. Wells range in depth from 30 feet to 100 feet and have a maximum withdrawal volume of 250 to 1,000 gallons per minute. The wells are not under the influence of the surface water due to a confining layer of fine clay. The groundwater sources were not always treated prior to distribution, but since 2000, all groundwater at the Vine Brook facility is treated to remove iron, manganese, and volatile organic chemicals. This facility also adjusts the pH to prevent corrosion in the distribution system and a blend of polyphosphate is added to prevent metals found in household piping, such as lead and copper, from accumulating in the drinking water. A state-of-the-art chloramination system is used for disinfection and prevention of trihalomethane (THM) and haloacetic acid (HAA5) formation. Fluoride is added for good dental health.

Mill Pond Surface Water Plant

The Mill Pond Water Treatment Facility, which opened in April, 1973, is a Standard Physical Treatment Facility. Since December, 2006, the Mill Pond Facility has been undergoing a 7.5-million-dollar upgrade to meet current and future regulatory mandates. These upgrades include new intake prescreening to prevent foreign matter from reaching the plant. The treatment facility rapid mix and flocculation system is being upgraded to a two-stage operation for better total organic carbon (TOC) removal as mandated by the U.S. EPA. The treatment facility is also undergoing a complete filter upgrade including a state-of-the-art, filter-to-waste system. This system will help minimize particulate breakthroughs and help us meet current turbidity standards. The treatment system's supporting utilities will also be modernized; these include all electrical and chemical treatment systems. The treatment facility is also leaving room for UV contact chambers should new microorganism standards change in the future.

The Mill Pond Water Treatment Facility and Mill Pond Reservoir are located in the northeast corner of the town adjacent to the towns of Wilmington and Woburn. With a surface area of 64 acres, the Mill Pond Reservoir is an off-stream storage pond consisting of one main dam and two smaller dikes containing approximately 513 million gallons. Using a diversion station that is operated during high-flow stages, the reservoir receives water from the Shawsheen River, approximately six miles north.

If there are any questions regarding the facility, please contact Bill Keene, Water Quality-Production Manager, at (781) 270-1648.

Burlington's Storage and Distribution System

The Burlington water system consists of approximately 130 miles of piping ranging in size from 4 inches to 24 inches. The backbone of the system is a series of 16- to 24-inch transmission pipes that connect the three storage tanks and outer neighborhoods, preventing many problems due to water hydraulics. The town owns three covered and elevated storage tanks, each with a maximum elevation of 375 feet above mean sea level. The tanks' volume is six million gallons. These tanks help maintain water pressure, are used for fire protection, and hold reserve volumes in times of high demand. All three tanks are monitored 24 hours a day for elevation levels, which are recorded at the treatment facilities. This information allows production facilities to operate without over-pressurizing the distribution system.

Since the Town of Burlington ranges in elevation, water pressure varies from a low of approximately 55 psi to a high of 115 psi. It is recommended that all residents test for pressure, and if static pressure is 80 or above, a pressure-reducing valve is recommended. This device will save fixtures and hot water tanks from wear fatigue.

Water Treatment Facility Security

All water structures and facilities have some form of security ranging from fencing and lighting to complete intrusion alarm systems. It is requested that all residents be the eyes and ears of the system, and if any problems arise or if you see something suspicious, please call the authorities.

All water treatment facilities are continuously monitored for process and quality control. In the not-too-distant future, the facilities' Supervisory Control Data Acquisition System will be upgraded to help with the system control and to notify personnel of potential problems.

Lead and Drinking Water

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 your home's plumbing. We are 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 two minutes before using the 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 at (800) 426-4791 or at www.epa.gov/safewater/lead.

Cryptosporidium Monitoring

Cryptosporidium is a microbial parasite found in surface water throughout the United States. Although filtration removes *Cryptosporidium*, the most commonly used filtration methods cannot guarantee 100% removal. Monitoring of our source water indicates the presence of these organisms; however, tests of our finished drinking water do not show the presence of these organisms. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immunocompromised people are at greater risk of developing a life-threatening illness. We encourage immunocompromised individuals to consult their doctors regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water.

Tap vs. Bottled

Thanks in part to aggressive marketing, the bottled water industry has successfully convinced us all that water purchased in bottles is a healthier alternative to tap water. However, according to a four-year study conducted by the Natural Resources Defense Council (NRDC), bottled water is not necessarily cleaner or safer than most tap water. In fact, about 25% of bottled water is actually just bottled tap water (40% according to government estimates).

The U.S. Food and Drug Administration (FDA) is responsible for regulating bottled water, but these rules allow for less rigorous testing and purity standards than those required by the U.S. EPA for community tap water. For instance, the high mineral content of some bottled waters makes them unsuitable for babies and young children. Further, the FDA completely exempts bottled water that's packaged and sold within the same state, which accounts for about 70% of all bottled water sold in the United States.

People spend 10,000 times more per gallon for bottled water than they typically do for tap water. If you get your recommended eight glasses a day from bottled water, you could spend up to $1,400 annually. The same amount of tap water would cost about 49 cents. Even if you installed a filter device on your tap, your annual expenditure would be far less than what you'd pay for bottled water.

For a detailed discussion of the NRDC study results, check out their Web site at www.nrdc.org/water/drinking/bw/exesum.asp.

Water Conservation

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. It is not hard to conserve water. Here are a few tips:

- 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 from 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
- 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. Fix it and you save more than 30,000 gallons a year.
- Use your water meter to detect hidden leaks. Simply turn off all taps and appliances that use water. Then check the meter after 15 minutes. If it moved, you have a leak.

NON Notice

On September 8, 2008 The Town of Burlington was issued a notice of non-compliance (NON) for failure to report in writing that items reported in the sanitary survey were all addressed. The fact is that all items were addressed and verbally sent to the Northeast Regional Office. Since the NON notice was issued through the Boston office for this matter, a notice was issued. The items pointed out in the state survey were maintenance items and were all fully addressed at all stations and storage tanks.

Q&A

What's growing in my pet's water bowl?

Dog and cat owners often notice the appearance of black or pink growths in their pet's water bowl. These growths come from various types of mold in the air—not the water. Similar growths can also be found on showerheads and shower curtains. Wash your pet's water bowl frequently and be sure to have plenty of fresh water available at all times.

Is it safe to drink water from a garden hose?

Substances used in vinyl garden hoses to keep them flexible can get into the water as it passes through the hose. These chemicals are not good for you nor are they good for your pets. Allow the water to run for a short time in order to flush the hose before drinking or filling your pets' drinking containers. There are hoses made with "food-grade" plastic that will not contaminate the water. Check your local hardware store for this type of hose.

What makes water Hard?

If substantial amounts of either calcium or magnesium, both nontoxic minerals, are present in drinking water, the water is said to be hard. Hard water does not dissolve soap readily, so making lather for washing and cleaning is difficult. Conversely, water containing little calcium or magnesium is called soft water.

Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. Although all of the substances listed here are under the Maximum Contaminant Level (MCL), we feel it is important that you know exactly what was detected and how much of the substance was present in the water.

The state requires us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2008	2	2	0.022	0.017–0.022	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Fluoride (ppm)	2008	4	4	1.0	NA	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] (ppb)	2008	60	NA	13.1	NA	No	By-product of drinking water disinfection
Nitrate (ppm)	2008	10	10	0.49	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Nitrite (ppm)	2008	1	1	0.2	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2008	80	NA	13.0	NA	No	By-product of drinking water chlorination
Total Organic Carbon (ppm)	2008	TT	NA	2.4	1.91–2.74	No	Naturally present in the environment

Tap water samples were collected for lead and copper analyses from sample sites throughout the community.

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2008	1.3	1.3	0.1	0	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

UNREGULATED SUBSTANCES [1]

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH
Sulfate (ppm)	2008	14	NA

[1] Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist U.S. EPA in determining their occurrence in drinking water and whether future regulation is warranted.

Definitions

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

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

MCL (Maximum Contaminant Level): 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.

MCLG (Maximum Contaminant Level Goal): 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.

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

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant 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.

NA: Not applicable.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

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