



2012 Annual Drinking Water Quality Report
For
North Brookfield Water Department
 North Brookfield, Massachusetts
 MassDEP PWS ID # 2212000

Once again we are pleased to provide you with our annual water quality report for the past year. This report is designed to inform you about the quality water and services we deliver to you every day. Our goal is to provide you with a safe and dependable supply of drinking water that meets all state and federal drinking water standards.

As new challenges to drinking water safety emerge, we will be vigilant in maintaining our objective of providing quality drinking water.

PUBLIC WATER SYSTEM INFORMATION

Address:	14 Bell Road, North Brookfield, MA 01535	
Telephone #:	(508) 867-0207	Fax #: (508) 867-0224
E-mail:	nbwd@verizon.net	
Web Page:	http://www.northbrookfield.net/water_dept.htm	
Facebook:	North Brookfield Water	
Contact Person:	Stephen Jones, Superintendent	
Board of Water Commissioners:	Tim Nason, Chairman James Kularski John Thomasian	Plant Operator: Andrew Lashius Adm. Assistant: Shiela LeBlanc

OPPORTUNITIES FOR PUBLIC PARTICIPATION

Board of Water Commissioners Meetings: First Monday of Each Month at 6:00 pm in the Water Treatment Facility, 14 Bell Road, North Brookfield, MA. As posted with the Town Clerk.

Office Hours: Monday – Friday - 8:00am -2:00pm

YOUR DRINKING WATER SOURCE

Where Does My Drinking Water Come From?

Source Name	MassDEP Source ID#	Source Type	Location of Source
Horse (North) Pond	2212000-02S	Surface	Oakham Road, North Brookfield

The water from the Horse Pond Reservoir flows by gravity to the Raw Water Pump Station on Oakham Road. A coagulant is added to ensure particles in the water will stick together to form larger particles that can be filtered out. It is then pumped up to the water treatment plant on Bell Hill. At the treatment plant the water goes through an adsorption clarifier and then a mixed media filter that removes particles that are in the water. The water is then disinfected using chlorine while traveling through the clearwell. The water is then pumped to the 1.5 million gallon storage tank that is located beside the treatment plant. From the storage tank the water flows by gravity to all parts of the town. The amount of water pressure that you have depends on the elevation of your residence.

The North Brookfield water distribution system is interconnected with the East Brookfield water distribution. We used East Brookfield’s water to supply the residences in the Lake Lashaway area for six (6) hours on August 28, 2012 while we replaced a valve in the pressure regulator on the Old East Brookfield Road. This enabled us to supply these houses with uninterrupted water service during this time. East Brookfield’s water comes from the West Street Well. They can be reached by calling 508-867-6575.

2012 IN REVIEW

2012 saw the completion of the Horse Pond Dam repair and reconstruction. The backside of the dam was buttressed to add strength, the 36" low level gate valve was replaced and the spillway was reconstructed. The cost of the project came in on budget. The picture below shows Water Department Staff checking out the new walkway and weir board setup.



A Phase I Inspection was completed on the Doane Pond Dam. It was rated as being in "Fair" condition. We repaired and reshingled the roof on the gatehouse at this dam. Although Doane Pond is no longer used as a drinking water source, we still list it as an emergency water supply.

The Water Treatment Plant is now 12 years old which means that some of the equipment has become obsolete or failed altogether. We replaced all three continuous turbidimeters, the spectrophotometer, and the continuous chlorine analyzer in 2012.

SOURCE WATER ASSESSMENT PROGRAM

The Source Water Assessment and Protection (SWAP) program assesses the susceptibility of public water supplies.

What is my system's ranking?

A susceptibility ranking of **High** was assigned to this system using the information collected during the assessment by D.E.P.

Where Can I See The Swap Report?

The complete SWAP is available at the Water Department or online at www.mass.gov/dep/water/drinking/swapreps.htm. For more information please contact the Water Department at (508) 867-0207.

What are the Key Issues for Our Water Supply?

The overall ranking of susceptibility to contamination for the system is **High**, based on possible microbial contaminants from aquatic wildlife. Also noted is a Medium Threat from the septic tanks and the heating fuel storage at the residences in the watershed. The report commends the water system for taking an active role in promoting source protection measures in the Water Supply Protection Area.

2012 WATER QUALITY TESTING RESULTS

Microbiological Contaminants	Highest number positive in monthly routine samples	MCL	MCLG	Violation (Y/N)	Possible Source(s) of Contamination
Total coliform	0	1	0	N	Naturally present in the environment

Total Coliform: Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially harmful bacteria may be present.

	Date(s) Collected	90TH percentile	Action Level (AL)	MCLG	# of sites sampled	# of sites above Action Level	Exceeds AL? (Y/N)	Possible Source of Contamination
Lead (ppb)	06/16/10	0	15	0	20	0	N	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	06/16/10	.06	1.3	1.3	20	0	N	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

Lead & Copper compliance is based on the 90th percentile value, which is the highest level found in 18 out of every 20 homes sampled. This number is compared to the action level for each contaminant. It should be noted that although North Brookfield has made great strides in reducing the corrosion of lead into drinking water there is still the possibility that some homes may have elevated lead in water taken from the tap after it has gone unused for many hours. 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 North Brookfield Water Department is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components.

When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.ep.gov/safewater/lead>.

Regulated Contaminants	Date(s) Collected	Highest Result or Running Annual Average	Range	MCL	MCLG	Violation (Y/N)	Possible Source(s) of Contamination
Disinfectants and Disinfection By-Products							
Total Trihalomethanes (TTHMs) (ppb)	Quarterly	57	36.8-82.6	80	-	N	Byproduct of drinking water chlorination
Haloacetic Acids (HAA5) (ppb)	Quarterly	7	0 – 12.7	60	-	N	Byproduct of drinking water chlorination
Chlorine (ppm)	Monthly	0.34	0.02 – 1.03	4	4	N	Water additive used to control microbes
Volatile Organic Contaminants							
1,1,1-Trichloroethane (ppb)	04/11/12	1.15	1.15	200	200	N	Discharge from metal degreasing sites and other factories.

Some people who drink water containing Trichlorethane 1.1.1 in excess of the MCL over many years could experience problems with liver, nervous system and circulatory system.

Turbidity	Turbidity Limit	% of Measurements Below Limit	Highest Detected Daily Value	Violation	Possible Source of Contamination
Daily Compliance (NTU)	< .3 NTU in 95% of monthly measurements	99.7%	1.0	N	Soil Runoff

Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

Unregulated Contaminants	Date(s) Collected	Result or Range Detected	SMCL	ORSG	Possible Source of Contamination
Sodium (ppm)	04/18/12	8.4	-	20	Natural sources; by-product of treatment process; runoff from use as salt on roadways
Sulfate (ppm)	02/08/12	5.45	250	-	Natural sources
Bromodichloromethane (ppb)	1/1/12-12/31/12	1.9–3.44	-	-	By-product of drinking water chlorination
Chloroform (ppb)	1/1/12-12/31/12	7.96-28.6	-	-	By-product of drinking water chlorination
Chloromethane (ppb)	08/15/12	1.5	-	-	Discharge from industrial uses

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

Sodium-sensitive individuals, such as those experiencing hypertension, kidney failure, or congestive heart failure, should be aware of the levels of sodium in their drinking water where exposures are being carefully controlled.

Some people who drink water containing bromodichloromethane at high concentrations for many years could experience liver and kidney problems.

Some people who drink water containing chloroform at high concentrations for many years could experience liver and kidney problems and may have an increased risk of cancer.

Some people who drink water containing chloromethane at high concentrations for many years could experience dizziness and fatigue.

Monitoring Waivers: The North Brookfield Water Department has received monitoring waivers for the following contaminants: (IOC) Inorganic Chemicals, Arsenic and Perchlorate for 2011—2019.

The Mass DEP/DWP's determination in approving these waivers for our source was based on information that was previously submitted to them, the land use inventory, SWAP and other inventory records on file with their office.

SUBSTANCES FOUND IN TAP 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 sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

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

Pesticides and herbicides - which may come from a variety of sources such as agriculture, urban storm water 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, urban storm water runoff and septic systems.

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

In order to ensure that tap water is safe to drink, MassDEP and U.S. Environmental Protection Agency (EPA) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. 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 EPA's Safe Drinking Water Hotline at 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 at 800-426-4791.

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. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

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

Action Level (AL) – The concentration of a contaminant which, 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) NTU = Nephelometric Turbidity Units
ppb = parts per billion, or micrograms per liter (ug/l) pCi/l = picocuries per liter (a measure of radioactivity)

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.

CROSS CONNECTION AND BACKFLOW

The North Brookfield Water Department makes every effort to ensure that the water delivered to your home and business is clean, safe, and free of contamination. Our staff works very hard to protect the quality of the water delivered to our customers from the time the water is withdrawn from our surface water source, throughout the entire treatment and distribution system. But what happens when the water reaches your home or business? There is still a need to protect the water quality from contamination caused by a cross-connection.

What is a cross-connection?

A cross-connection occurs whenever the drinking water supply is or could be in contact with potential sources of pollution or contamination. Cross-connections exist in piping arrangements or equipment that allows the drinking water to come in contact with non-potable liquids, solids, or gases (hazardous to humans) in event of a backflow.

What is backflow?

Backflow is the undesired reverse of the water flow in the drinking water distribution lines. This backward flow of water can occur when the pressure created by equipment or a system, such as a boiler or air-conditioning, is higher than the water pressure inside the water distribution line (backpressure), or when the pressure in the distribution line drops due to routine occurrences such as water main breaks or heavy water demand causing the water to flow backward inside the water distribution system (backsiphonage). Backflow is a problem that many water consumers are unaware of. And every water customer has a responsibility to help prevent them.

What you can do to help prevent a cross-connection

Without the proper protection something as simple as a garden hose has the potential to contaminate or pollute the drinking water lines in your house. In fact, over half of the country's cross-connection incidents involve unprotected garden hoses. There are very simple steps that you, as a drinking water user, can take to prevent such hazards:

- **Never** submerge a hose in soapy water buckets, pet watering containers, pool, tubs, sinks, drains, or chemicals.
- **Never** attached a hose to a garden sprayer without the proper backflow preventer.
- Buy and install a hose bib vacuum breaker on every threaded water fixture. The installation can be as easy as attaching a garden hose to a spigot. This inexpensive device is available at most hardware stores and home-improvement centers.
- Identify and be aware of potential cross-connections to your water line.
- Buy appliances and equipment with a backflow preventer.
- Buy and install backflow prevention devices or assemblies for all high and moderate hazard connections.

If you are the owner or manager of a property that is being used as a commercial, industrial, or institutional facility you must have your property's plumbing system surveyed for cross-connection. If your property has NOT been surveyed for cross-connection, contact the North Brookfield Water Department to schedule a cross-connection survey.

The Massachusetts Drinking Water Regulations, 310 CMR 22.00, requires all public water systems to have an approved and fully implemented Cross-Connection Control Program (CCCP). The North Brookfield Water Department is working diligently to protect the public health of its drinking water customers from the hazards caused by unprotected cross-connections. We are doing this through the implementation of our cross-connection survey program, elimination or proper protection of all identified cross-connections, the registration of all cross-connections protected by reduced pressure backflow preventers (RPBPs) or double check valve assemblies (DCVAs), and the implementation of a testing program for all RPBPs and DCVAs.

There were ninety three (93) routine tests conducted on the backflow devices in North Brookfield during 2012. Three devices failed the testing. All three were repaired by the owners and successfully retested.

WATER CONSERVATION TIPS FOR RESIDENTS

Outdoors

- Skip lawn irrigation systems. Many people have installed underground automatic sprinkler systems and have found they use lots of water, increasing their water bill considerably. Is your lawn being green worth the increased cost?
- Maximize the use of natural vegetation and establish smaller lawns. For portions of your lot where a lawn and landscaping are desired, ask your local nursery for tips about plants and grasses with low water demand (such as creeping fescue). Consider planting more trees, shrubs, ground covers, and less grass. Shrubs and ground covers provide greenery for much of the year and usually demand less water. Use native plants in flower beds. Native plants have adapted to rainfall conditions in New England and often provide good wildlife habitat. Cluster plants that require extra care together to minimize time and save water.
- Plant in the fall when conditions are cooler and rainfall is more plentiful.
- When mowing your lawn, set the mower blades to 2-3 inches high. Longer grass shades the soil improving moisture retention, has more leaf surface to take in sunlight, allowing it to grow thicker and develop a deeper root system. This helps grass survive drought, tolerate insect damage and fend off disease.
- Apply mulch around shrubs and flower beds to reduce evaporation, promote plant growth and control weeds.
- Add compost or an organic matter to soil as necessary, to improve soil conditions and water retention.
- Collect rainfall for irrigation in a screened container (to prevent mosquito larvae growth).
- Always use a broom to clean walkways, driveways, decks and porches, rather than hosing off these areas.
- Winterize outdoor spigots when temperatures dip below freezing to prevent pipes from leaking or bursting.

In the Kitchen

- Only run the dishwasher when it's full.
- Only use the garbage disposal when necessary (composting is a great alternative).
- Install faucet aerators.

In the Bathroom

- Shorten your shower by a minute or two and you'll save up to 150 gallons per month.
- Turn off the water to brush your teeth.
- Repair leaky toilets. Add 12 drops of food coloring into the tank, and if color appears in the bowl one hour later, your toilet is leaking.
- Upgrade older toilets with water efficient models.
- Install faucet aerators and low-flow showerheads.

Laundry

- Run full loads of laundry.
- When doing laundry, match the water level to the size of the load.
- When purchasing a new washing machine, buy a water saving model that can be adjusted to the load size.
- Washing dark clothes in cold water saves both on water and energy while it helps your clothes to keep their colors.

Dear Water Consumer:

This is your **Annual Drinking Water Quality Report for 2012**. It contains important information about your water that is supplied by the Town North Brookfield.

Landlords: Please make this report available to your tenants.

Businesses: Please post this report where your employees and customers may read it.

Public Buildings: Please post this report where it may be read by people who may drink this water.

Additional copies of this year's report are available from the Water Department at 14 Bell Road or on the Town's website. Very limited supplies of previous years' reports are also available.

Our goal is to provide you with a continuous supply of quality drinking water. We welcome comments and suggestions you may have to help us reach and maintain that goal.

Respectfully,

Stephen G. Jones,

Water Superintendent

North Brookfield Water
Department
14 Bell Road
North Brookfield, MA 01535