



**2013 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:	<a href="http://www.northbrookfield.net/water_dept.htm">http://www.northbrookfield.net/water_dept.htm</a>		
Facebook:	North Brookfield Water		
Contact Person:	Stephen Jones, Superintendent		
Board of Water Commissioners:	Tim Nason, Chairman	Plant Operator:	Andrew Lashius
	James Kularski	Adm. Assistant:	Shiela LeBlanc
	John Thomasian		

**OPPORTUNITIES FOR PUBLIC PARTICIPATION**

**Board of Water Commissioners Meetings:** First Monday of each month at 6:00 pm in the Bell Hill 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 Bell Hill Water Treatment Plant. At the treatment plant the water goes through an upflow 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 system. East Brookfield's water comes from the West Street Well. They can be reached by calling 508-867-6575.

## 2013 IN REVIEW

During 2013 we conducted our bi-annual water leak detection survey. Outside contractor Water and Waste Pipe Testing surveyed all 28 miles of water main in town. They located five (5) service line leaks throughout town. All but one of these leaks have been repaired. Interesting to note that none of these leaks came to the surface. They were found by listening to the fire hydrants in town as all leaks make a distinctive noise

We began the process of mapping all gates valves and service line shut offs using a GPS device. The Massachusetts Rural Water Association (MRWA) has loaned us their GPS unit to begin this process and with the assistance of one of their circuit riders we have begun documenting these maps into a computer program. GPS is the future for water system mapping but it can be expensive. This way we are doing much of the work ourselves and the equipment is lent to us for free.

On December 18, 2013 we had a water main break in the 16" cast iron water main across from St. Joseph's Church on North Main Street. We received notification of this break at 5:00 pm on December 18<sup>th</sup> and had the water break repaired and began restoring water service to the 300 plus customers at approximately 9:30 AM on December 19<sup>th</sup>. This is another sign that the distribution system is getting old. We average 3 – 4 water main breaks each year, but they are usually on the 6" and 8" mains outside of the center of town so don't affect as many people as this one did.



The 16" cast iron pipe from North Main Street showing the hole that blew out.

## 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](http://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.

## 2013 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)	09/04/13	.0014	15	0	20	0	N	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	09/04/13	.12	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>.

Contaminants	Date(s) Collected	Highest Result or Running Annual Average	Range	MCL	MCLG	Violation (Y/N)	Possible Source(s) of Contamination
<b>Disinfectants and Disinfection By-Products</b>							
Total Trihalomethanes (TTHMs) (ppb)	Quarterly	50.2	33.7 - 87.5	80	-	N	Byproduct of drinking water chlorination
Haloacetic Acids (HAA5) (ppb)	Quarterly	23	2.2 - 23	60	-	N	Byproduct of drinking water chlorination
Chlorine (ppm)	Monthly	0.31	.02 - 0.64	4	4	N	Water additive used to control microbes
<b>Volatile Organic Contaminants</b>							
1,1,1-Trichloroethane (ppb)	04/11/12	1.15	1.15	200	200	N	Discharge from metal degreasing sites and other factories.

Chloromethane (ppb)	08/08/12	1.50	1.50	Unregulated	N	Discharge from industrial use.	
<b>Radioactive Contaminants</b>							
Combined radium	05/08/13	1.90	1.90	5 pCi/l	0	N	Erosion of natural deposits

EPA considers 50 pCi/L to be the level of concern.

Turbidity	TT	Lowest Monthly % of Samples	Highest Detected Daily Value	Violation (Y/N)	Possible Source of Contamination
Daily Compliance (NTU)	1	----	.15	N	Soil runoff
Monthly Compliance	0.3	100	----	N	

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. Monthly turbidity compliance is related to a specific treatment technique (TT). Our system filters the water so that at least 95% of our samples each month must be below the turbidity limits specified in the regulations.

Unregulated and Secondary Contaminants	Date(s) Collected	Range Detected	Average	SMCL	ORSG	Possible Source of Contamination
Sodium (ppm)	04/10/13	10	10	-	20	Natural sources; by-product of treatment process; runoff from use as salt on roadways
Sulfate (ppm)	02/13/13	6.47	6.47	250	-	Natural sources

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.

Unregulated means that USEPA has not set an MCL for this contaminant

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 disinfectant in drinking water (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.

**90<sup>th</sup> Percentile** – Represents the highest value found out of 90% of the samples taken in representative groups. If the 90<sup>th</sup> percentile is greater than action level, it will trigger a treatment or other requirements that a water system must follow.

**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.

**MassDEP** – Massachusetts Department of Environmental Protection

**ND or Non Detect** – A level at which there is an inability to detect an analyte because it is indistinguishable from background signal.

**N/A or Not Applicable** – Does not apply to this subject or in this scenario.

## **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 2013. Two devices failed the testing. One device was repaired by the owners and successfully retested. The other device was removed and the water line capped.

## **IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER**

### **DRINKING WATER NOTICE - MONITORING REQUIREMENTS NOT MET FOR: NORTH BROOKFIELD WATER DEPARTMENT #2212000**

We violated monitoring and reporting requirements of the drinking water regulations. Even though this was not an emergency, as our customers, you have a right to know what happened and what we are doing to correct this situation.

We are required to monitor your drinking water for specific man-made and naturally occurring contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets the health standards. During the monitoring period listed below we did not monitor for the contaminants listed below and therefore cannot be sure of the quality of our drinking water during that time.

**WHAT THIS MEANS:** There is nothing you need to do at this time.

The table below lists the contaminants we did not properly test for and report to the Department of Environmental Protection (DEP) during the required monitoring period.

<b>MONITORING PERIOD</b>	<b>CONTAMINANT GROUP</b>
10/1/2013 -12/31/2013	SYNTHETIC ORGANIC CONTAMINANTS

#### **STEPS WE ARE TAKING:**

**In response to monitoring and reporting violations of the Massachusetts Drinking Water Regulations, our system is taking the following corrective actions:**

1. We have collected and analyzed samples for the contaminants listed above and have submitted copies of sampling results to DEP. There were no contaminants detected. These samples were collected after the required monitoring period.
2. We are notifying our customers of the violation by providing this public notice to you as well as submitting a copy of this public notice to the DEP and North Brookfield Board of Health.
3. If our system has two or more monitoring and reporting violations within the last 12 months, we are required to submit a plan to the DEP detailing the specific actions that we will take to prevent further noncompliance.
4. We will continue to collect samples for all contaminants according to our most recent sampling schedule.
5. Other corrective action: We have established a procedure to ensure a double check each month on all samples being submitted for testing.

Please share this information with all people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools and business). You can do this by posting this notice in a public place or distributing copies by hand or mail.

**For more information or questions regarding this notice, please contact Stephen Jones, Water Superintendent at 508-867-0207.**

Dear Water Consumer:

This is your **Annual Drinking Water Quality Report for 2013**. 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