



# 2016 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:	rknbwd@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:	Richard Kennan, Superintendent		
Board of Water Commissioners:	James Kularski, Chairman	Plant Operator: Christopher Connolly	
	John Thomasian	Adm. Assistant: Kelly Valeri	
	Tim Nason		

#### OPPORTUNITIES FOR PUBLIC PARTICIPATION

**Board of Water Commissioners Meetings:** Held on the second 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 up flow 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.

## **2016 YEAR IN REVIEW**

We had 3 (three) water main breaks, one hydrant that was hit by a vehicle which we replaced and 5 (five) service leaks to homes that were repaired.

We flushed our mains in May and October. While flushing, we discovered one hydrant that needed to be replaced as the original hydrant could not be repaired.

A phase 1 inspection was conducted on the Doane Pond Dam which found the dam in fair condition. These Phase 1 inspections are conducted on a five year schedule.

There are 1286 services that supply water to approximately 3900 residents of North Brookfield, around 85% of the town's population.

Our treatment facility is in its 17th year of operation. While most things are in excellent condition some issues are arising such as the air compressor and some of the electronics in the SCADA system that run the plant. These electronics are no longer supported and are starting to see the end of their useful life. The air compressor, which is now located in the attic, will be re-located to a more user-friendly space in the treatment plant. We will be addressing these issues in the near future.

Our current staff consists of Richard Kennan, Superintendent; Chris Connolly, Operator; and Kelly Valeri, Administrative Assistant. Christopher Connolly, who was hired in 2015, became the new Operator. These men both attend classes each year to increase their knowledge of drinking water issues and to satisfy the requirements of the DEP needed to keep their licenses current. Kelly Valeri handles all the office duties and billing. She is responsible for recording and reporting to the DEP and other various boards. Kelly replaced Kristen Thacker as our Administrative Assistant this year and is a welcome addition to the department.

There is one other person we wish to mention who has worked for the Water Dept. for over a decade on a part-time basis. Joe "Artie" Flamand has assisted us since 2003 performing many duties that the full time staff do not have the time for. Although Joe works on a part-time basis, he supplies us with a full time commitment. Thank You Joe!

The Board of Water Commissioners would like to commend and thank our Water Department staff on a job well done.

The Water Department would like to thank all the other town departments for their help throughout the year as well.

This is Bell Hill Reservoir in August 1963. Bev Knight is at the top of the Tower!

### 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.

### 2016 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)	09/14/16	.002	15	0	20	0	N	Corrosion of household plumbing systems; Erosion of natural deposits

Copper (ppm)	09/14/16	.05	1.3	1.3	20	0	N	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
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**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	70.4	33 – 70	80	-	N	Byproduct of drinking water chlorination
Haloacetic Acids (HAA5) (ppb)	Quarterly	20.3	4.6-23	60	-	N	Byproduct of drinking water chlorination
Chlorine (ppm)	Monthly	.40	.04-1.59	4	4	N	Water additive used to control microbes
<b>Volatile Organic Contaminants</b>							
Bromodichloromethane (ppb)	05/17/16	2.1	2.1	Unregulated		N	Byproduct of drinking water chlorination
Chloroform (ppb)	05/17/16	24	24	Unregulated		N	Byproduct of drinking water chlorination
<b>Radioactive Contaminants</b>							

EPA considers 15 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
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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 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)	04/13/16	5.24	8.5	-	20	Natural sources; by-product of treatment process; runoff from use as salt on roadways
					-	

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 (ORSGL)** – 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 eighty six (86) routine tests conducted on the backflow devices in North Brookfield during 2015. Three devices failed the testing. Three devices were repaired by the owners and successfully retested. Ten devices were not tested due to non-occupancy with water shut off.

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

**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,

Richard Kennan, Water Superintendent

