Town of Billerica

Department of Public Works
Water Division PWS ID 3031000

Annual Water Quality Report
January 1, 2017–December 31, 2017

"Nothing is softer and more flexible than water, Yet nothing can resist it" –Lao Tzu

Town of Billerica

Department of Public Works
Water Division

WHO WE ARE AND HOW TO CONTACT US:

John McGovern, *Superintendent*
Gerard Garabedian, *Asstistant Superintendent*
John Sullivan, *Treatment Chemist*
Robert Boulé, *Backflow/Cross Connection*
Edward McLaughlin, *Distribution Supervisor*

270 Treble Cove Rd · West Billerica, MA 01862
Phone: 978-671-0957 · Fax: 978-215-2075

Town of Billerica Web Site: www.town.billerica.ma.us
[Select Public Works; Select Departments; Select Water Division]

DO YOU NEED TO REPORT A WATER EMERGENCY?

To report water main break, loss of water or pressure, illegal opening of a fire hydrant or a damaged fire hydrant please call **978-671-0957**. Our Treatment Facility is staffed 365 days a year, 24 hours a day.

OF SPECIAL NOTE:

The Water Division would like to wish **Michael Nelson** a happy and healthy retirement. Mike came onboard as our SCADA (Supervisory Control and Data Acquisition) Technician in 2008.

John Russo has joined the Water Division! John has replaced Michael Nelson as our SCADA (Supervisory Control and Data Acquisition) Technician. We are happy to have John as part of our team of Professionals at the Water Division.

made in the u.s.a.

Written and compiled by:
Carolyn Capodilupo
Design by: Christina Capobianco

This is the Billerica Water Division's Annual Water Quality Report.

While we are required to issue this report, we welcome the opportunity to communicate with our customers and provide updates on what is happening with your water! We have been issuing this report since 1999. Over the years there have been many changes in the drinking water field. In the earliest days Water Conservation was a new concept to most people. Today conserving water has become an everyday practice for most people. Throughout the World and here in the US there are many regions that have had deficits in their water supply, some very severe. We are proud of the efforts that have been made in our community to conserve water and protect our most precious resource. There is still much to do and more people to educate about conserving water and we look forward to the challenge.

There were 54 water main breaks in 2017. The annual average of breaks per year is 39 so we exceeded the average for 2017. Our leak detection program continued with 19 leaks found within the distribution system. There were two water main leaks, three service leaks and 14 hydrant leaks.

Within this report you will find important information regarding your drinking water. We do thousands of analysis annually and you will find tables inside that details what was detected in your water, where it came from and what if any health effects it can have on you.

Great effort is put into our Water Treatment and Water Distribution process and systems. It takes detailed planning to keep everything running smoothly by updating, repairing, or replacing components of our process. Many thanks go to our Superintendent John McGovern for his methodical overview and planning of our processes. Improvements made over the last year are noted as is ongoing work with our Leak Detection Program. We have added a Frequently Asked Question section to answer the many questions our customers have regarding their drinking water.

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 EPA's Safe Drinking Water Hotline 800-426-4791.

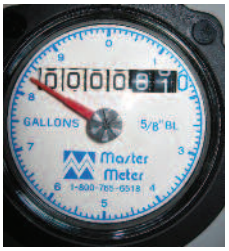
Important to Know

How to Read Your Water Meter

Learning to read your water meter can help you discover water leaks, monitor your water usage and double check your water bill.

Step 1: Locate Your Meter. Water meters are typically located in your basement.

Step 2: Read Your Water Meter



Your meter displays numbers similar to your car odometer. Read from left to right. You can compare the reading from your meter to the amount on your water bill. These numbers will differ due to when the meter was read and when the bill was issued.

There are two types of billing methods, one is an Actual reading which indicates that the meter was read and recorded. The second is an Estimated reading which is when the meter was not read and the water usage was estimated based on past recorded consumption. It is important to verify your reading so that any errors, such as under estimating usage can be corrected.

All Town of Billerica water meters measure water in cubic feet (one cubic foot equals about 7.5 gallons). Charges for the amount of water consumed are based on the number of units of 100 cubic feet (748.6 gallons) you use during a billing period. Your sewer bill (if you are connected to Town Sewer) is based on your water consumption as recorded on the water meter.

The water meter is just like a car odometer. The dials advance as the water passes through the meter. There is a red triangle on the face of the meter that moves whenever there is water usage. If the red triangle is moving and there is no water turned on, you may have a leak.

Step 3: Check for Leaks

Faucets and Showerheads: Dripping, trickling or oozing faucets and showerheads can waste from 75 to several hundred gallons of water a week depending on the size of the drip. Worn –out washers are the main cause of these leaks and a new one generally costs about 25 cents.

Faucets typically use 2 to 7 gallons per minute. Installing a low flow faucet aerator can reduce the flow by as much as 25% or up to a gallon and a half per minute. Be sure to remove your aerator periodically to remove particles that may have collected in the screen.

A Simple Test for Leaks: A leaky faucet is pretty obvious. But hidden leaks in the toilet, under the sink or behind a washing machine can waste a gigantic amount of water, and they could be damaging your floors or ceilings too. Take a reading of your water meter. Wait an hour, making sure no one uses any water at your home. Check the meter again. If the reading has changed, you have got at least one leak and you need to investigate.

Toilets: That trickling sound you hear in the bathroom could be a leaky toilet wasting 50 gallons of water a day or more. But sometimes it leaks silently. Try this:

Crush a dye tablet in its envelope and empty the contents into the toilet tank (you can also use food coloring for this, add a few drops into the toilet tank). Wait about 10 minutes and inspect the toilet bowl for signs of the dye/food coloring. If color is present your toilet is leaking.

If the dye has appeared in the toilet bowl, your flapper or flush valve may need to be replaced. Parts are inexpensive and fairly easy to replace.

Where Does Our Drinking Water Come From?

The Town of Billerica uses water from the Concord River to provide our drinking water, this is known as surface water. Our source ID # is 10186.

The Watershed above our point of intake is over 400 square miles and lies in all or part of 27 cities and towns. Within that watershed area there are several land use types that have been identified as potential sources of contamination in the source water.

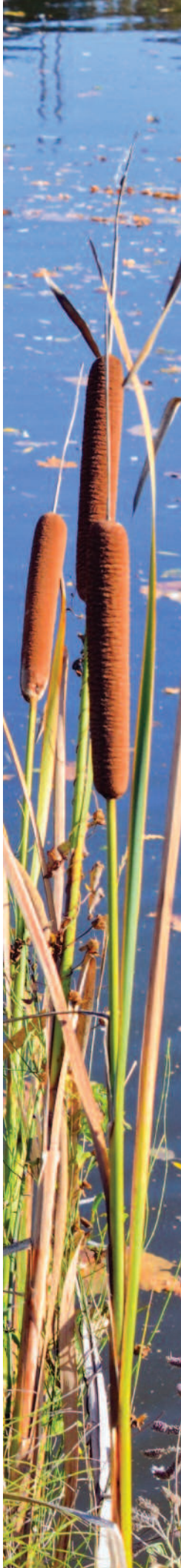
Agricultural Land Uses include: Fertilizer Storage or Use, Landscaping, Nurseries, and Pesticide Storage or Use.

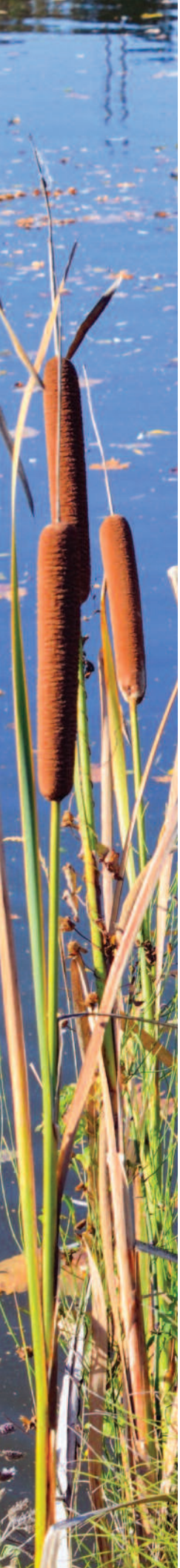
Commercial Land Uses include: Airports, Service Stations, Bus & Truck Terminals, Dry Cleaners, Medical Facilities, Printing Shops, and Research Laboratories.

Industrial Land Uses include: Electronic Manufacturers, Hazardous Materials Storage, and Machine/Metal Working Shops.

Residential Land Uses include: Fuel Storage, Lawn Care/Gardens, and Septic Systems.

Miscellaneous Land Uses include: Above Ground Storage Tanks, Oil or Hazardous Material Sites, Large, Small and Very Small Hazardous Waste Generators, Industrial Wastewater Treatment Facilities and Transportation Corridors.





Important to Know

How Do We Make the River or Source Water Safe to Drink?

Our water system makes every effort to provide you with safe drinking water. To improve the quality of the water delivered to you, we treat it to remove several contaminants.

- We add a disinfectant to protect you against microbial contaminants. Billerica uses Chloramines* to disinfect the water.
- We filter the water to remove small particles and organisms such as sediment, algae and bacteria.
- We chemically treat the water to optimize corrosion control which reduces lead and copper concentrations.
- We add ozone to the water to oxidize (reduce) the levels of iron and manganese.
- We add Fluoride to the water to improve oral health in children.

**For persons who have fish whether in a fish bowl or aquarium, Chloramines must be removed from the water to avoid fish kill. Please consult with your pet supplier for instructions on de-chlorinating the water.*

Source Water Assessment Report (SWAP)

What is SWAP? The Source Water Assessment and Protection Program (SWAP), established under the Federal Safe Drinking Water Act, require every state to:

Inventory land uses within the recharge areas of all public water supply sources; assess the susceptibility of drinking water sources to contamination from these land uses; and publicize the results to provide support for improved protection.

What is My System's Ranking?

A susceptibility ranking of high was assigned to this system using the information collected during the assessment by DEP. Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area. A source's susceptibility to contamination does not imply poor water quality.

The SWAP Report for Billerica is available at:
https://www.mass.gov/files/documents/2016/08/ue/3031000.pdf

Sources of Drinking Water Contamination

Sources of drinking water (both tap 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, can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, farming and mining.

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, storm water runoff and residential uses.

Organic Chemical Contaminants, include synthetic and volatile organic chemicals that 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.

What Problems Can Occur?

Actual events of drinking water contamination are rare, and typically do not occur at levels likely to pose health concerns. However, as development in our modern society increases, there are growing numbers of activities that can contaminate our drinking water. Improperly disposed-of chemicals, animals and human wastes, wastes injected underground. And naturally occurring substances have the potential to contaminate drinking water. Likewise, drinking water that is not properly treated or disinfected, or that travels through an improperly maintained distribution system, may also pose a health risk. Greater vigilance by you, your water supplier, and your government can help prevent such events in your water supply.

Important to Know

Distribution Updates, Upgrades and Improvements

There has been much talk in the news about failing infrastructure across the United States. A lot of work was done in the 1940's as part of the Works Project after World War II. Many communities are faced with the task of upgrading or replacing major components of their infrastructure.

With careful planning the Water Division has continued to collaborate with ongoing construction projects in town to make improvements to our water distribution system. In many cases this involved replacing or upgrading failing water mains or improving the hydraulic flow in the distribution system.

The following are improvements made in 2017.

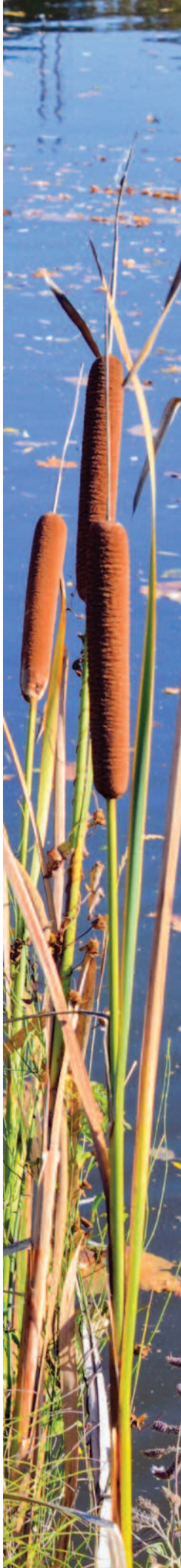
- As part of the Allen Road reconstruction project the water main from the northern intersection with Bennet Circle to a point just short of Boston Road was replaced with new eight inch ductile iron pipe. The total length of main replacement was 4,800 feet.

During the construction of sewer under Sewer Extension Contract 35 several mains were replaced or upgraded.

- ***Alton Street*** – the main on this street was transite pipe. The sewer contractor constructed a replacement main from the terminal hydrant to Baldwin Road. Our staff then cut in a tee with three gate valves and connected to the existing main on Baldwin Road. This installation was 466 feet of 8 inch pipe.
- ***Boynton Avenue*** – the main on this street was transite pipe. Our staff cut in a tee and gate valves on the 10 inch main in Andover Road and the sewer contractor then extended a replacement main down Boynton Avenue to the terminal hydrant. This installation was 510 feet of 8 inch ductile iron pipe.
- ***Celtic Avenue*** – The 6 inch main on this street was replaced with 600 feet of new 8 inch class 52 ductile iron main. The new main is fed from the 12 inch pipe on Pond Street and looped to the pipe on the easement from Stonehenge Circle.
- ***Kenrick Ave*** – the service lines and hydrant on Kenrick Avenue were moved to the existing 10 inch pipe. A 10 inch line gate installed to provide greater control over the flow along Andover Road.
- ***Marlyn Road*** – the six inch main was replaced with a new 10 inch ductile iron pipe from the existing 12 inch main on Pond Street to the beginning of the easement at the end of Marlyn Road. The length of this pipe is 1,740 feet.
- ***Pondover Road*** – this frequently failing 6 inch water main on this street was replaced with 2,045 feet of 8 inch ductile iron pipe. In the Pond Street intersection the tee for the old main was cut out and replaced with a 6 inch line gate. The new 8 inch main on Pondover Road was connected to the 12 inch main on Pond Street by means of a tee with three gate valves. Along with Pondover Road the water main on Rosa Circle was also replaced with 180 feet of 8 inch ductile pipe.
- ***Rangeway Road*** – The old 6 inch main from Boston Road to Chelmsford Road was replaced with 930 feet of new 6 inch ductile iron pipe by the contractor installing the sewer at the expense of the developer. During the reconstruction of the intersection of Chelmsford and Rangeway Roads, one hydrant on Rangeway Road was moved back from the roadway and our staff relocated four curb valves on Chelmsford Road to accommodate the widening of the road. The contractor relocated the five residential service lines to the 12 inch main.
- ***Salem Road*** – a part of the 8 inch main which had been installed in 1941 by the Works Project Administration was replace with 3,723 feet of new 12" ductile iron main from the stub on Floyd Street to the intersection with Broadleaf Street. The piping in the intersection of Salem Road and Pond Street were reworked; this will improve the flow to East Billerica.
- ***Sandberg Road*** – the 6 inch transite main on Sandberg Road was replaced with ductile iron piping. From the existing ten inch main on Andover Road to Tercentennial Drive 290 feet of 10 inch pipe was installed and from that intersection the replacement continued down Sandberg Road with 670 feet of 8 inch pipe to Arakelian Drive.
- ***Tercentennial Drive*** – after the main on Sandberg Road was replaced, 1,050 feet of 10 inch main was installed on Tercentennial Drive from Sandberg Road to Kenrick Avenue.

Several new mains were installed privately as part of new subdivisions.

- ***Hemlock Lane*** – 960 feet of 8 inch ductile iron pipe from Nashua Road to Fieldstone Lane.
- ***Fieldstone Lane*** – 1,750 feet of 10 inch ductile iron pipe from Nashua Road to Hemlock Lane.
- ***Amanda's Way*** – 310 feet of 8 inch ductile iron pipefrom Oak Street.
- ***Jaclyn's Way*** – 390 feet of ductile iron pipe from Oak Street.
- ***Connolly Road*** – in August our staff replaced pipe from the intersection of Irene Ave, towards Shelburne Avenue. This section of pipe has failed eleven times in 27 years. We believe this is due to the corrosive nature of the soil which is organic muck. In an effort to compensate for this soil class 54 ductile iron pipe was used; this has a thicker wall than class 52 which is the usual piping material used. A 3 mil plastic wrap was also used on this pipe to slow the corrosion of the new pipe.



Water Quality Summary | Public Water Supplier ID #3031000

The water quality information presented in these table(s) is from the most recent round of testing done in accordance with the regulations. All data shown with the exception of Radionuclides, Lead and Copper was collected from January 1, 2017 through December 31, 2017.

Regulated Contaminants

SUBSTANCE	MCL (MRDL)	MCLG (MRDLG)	HIGHEST AMOUNT DETECTED	RANGE DETECTED LOW—HIGH	TYPICAL SOURCE
Fluoride (ppm)	4*	4	0.8	0.6–0.8	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (ppm)	10	10	0.49	0.38–0.49	Runoff from fertilizer use; leaching from septic tanks, sewage, natural deposits
Nitrite (ppm)	1	1	0.013	ND–0.013	Runoff from fertilizer use; leaching from septic tanks, sewage, natural deposits
Barium (ppm)	2	2	0.033	NA	Discharge from drilling wastes; discharge from metal refineries; erosion of natural deposits
Perchlorate (ppb)	2	–	0.371	0.371	Rocket propellants, fireworks, munitions, flares, blasting agents.

** Fluoride also has a Secondary Maximum Contaminant Level (SMCL) of 2 ppm*

Radioactive Contaminants

RADIONUCLIDES*	MCL (MRDL)	RESULT	TYPICAL SOURCE
Gross Alpha pCi/l	15	3.02	Erosion of natural deposits
Radium 226 pCi/l	5	0.11	Erosion of natural deposits
Radium 228 pCi/l	5	-0.25	Erosion of natural deposits

**Testing for Radionuclides is on a 9 year cycle as past results show that the concentrations are not expected to vary significantly from cycle to cycle. Last sampled May 2014.*

TURBIDITY DAILY COMPLIANCE (NTU)	TT	LOWEST % OF SAMPLES	HIGHEST DETECTED DAILY VALUE	MONTHLY COMPLIANCE	TYPICAL SOURCE
1.0	1.0	100%	0.24	At least 95%	Soil Runoff

Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality.
Monthly Turbidity compliance is related to specific treatment techniques (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.

Disinfectants and Disinfection By-Products

SUBSTANCE	MCL	HIGHEST ANNUAL RUNNING AVERAGE	RANGE DETECTED LOW—HIGH	TYPICAL SOURCE
Total Trihalomethanes TTHMs (ppb)	80	46	12.2–48.7	By-product of drinking water disinfection
Haloacetic Acids HAA5s (ppb)	60	23	4.2–24.7	By-product of drinking water disinfection
Chlorine (ppb)	4	1.7	0.78–2.56	Water additive to control microbes
Bromate (ppb)	10	4.2	2.1–10	By-product of drinking water chlorination

Disinfection Byproducts. Disinfection of drinking water is one of the major public health advances of the 20th century. However, sometimes the disinfectants can react with naturally occurring materials in the water to form unintended byproducts, which may pose health risks. EPA recognizes the importance of removing microbial contaminants while simultaneously protecting the public from disinfection byproducts, and has developed regulations to limit the presence of these byproducts. For more information, see http://www.epa.gov/safewater/mdbp.html.

Total Organic Carbon	TT Annual Average % Removed = 69.5%	Naturally present in the environment

Most of the data presented in these tables is from testing done January 1 – December 31 2017. We monitor for some contaminants less than once per year, because the concentrations for those contaminants are not expected to vary significantly from year to year. For those contaminants the date of the last sample is shown in the table.

Unregulated Volatile Organics*

SUBSTANCE	ORSG	LOWEST DETECTED	HIGHEST DETECTED	TYPICAL SOURCE
Chloroform (ppb)	70	0.9	9.9	By-product of drinking water chlorination
Bromodichloromethane (ppb)	NA	2.8	15.1	By-product of drinking water chlorination
Dibromochloromethane (ppb)	NA	2.6	10.1	By-product of drinking water chlorination
Bromoform (ppb)	NA	ND	2.6	By-product of drinking water chlorination

Unregulated and Secondary Contaminants

**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 further regulation is warranted.*

SUBSTANCE	SMCL	ORSG	LOWEST DETECTED	HIGHEST DETECTED	TYPICAL SOURCE
Sulfate (ppm)	250	–	42	46	Runoff and leaching from nautral deposits; industrial wastes
Manganese* (ppb)	50	300*	19	39	Erosion of natural deposits
Aluminum (ppb)	NA	200	ND	60	Residue from water treatment process; erosion of natural deposits
Chloride (ppm)	NA	250	151	175	Runoff from road de-icing; leaching from natural deposits
Sodium** (ppm)	NA	20	75.4	108	Discharge from the use and improper storage of sodium containing de-icing compounds or in water softening agents
Total Dissolved Solids (TDS) (ppm)	500	–	320	448	Erosion of natural deposits

**EPA has established a lifetime health advisory (HA) value of 300ppb for manganese to protect against concerns of potential neurological effects, and a one-day and ten-day HA of 1000ppb for acute exposure.*
***Sodium-sensitive individuals such as those experiencing hypertension, kidney failure, or congestive heart failure, should be aware of the sodium levels where exposures are being carefully controlled. See more on this subject on page 11.*

Lead and Copper Study

SUBSTANCE	DATE(S) COLLECTED	90TH PERCENTILE	ACTION LEVEL	NUMBER OF SITES SAMPLED	NUMBER OF SITES ABOVE ACTION LEVEL	TYPICAL SOURCE
Lead (ppb)	6/2016	2	15	30	0	Corrosion of household plumbing; erosion of natural deposits.
Copper (ppb)	6/2016	20	1300	30	0	Corrosion of household plumbing

90th Percentile: Out of every 10 homes, 9 were at or below this level. This number is compared to the Action Level to determine lead and copper compliance.

DEFINITIONS AND NOTES:

ACTION LEVEL The concentration of a contaminant which if exceeded triggers treatment or other requirements that a water system must follow.

MCL Maximum Contaminant Level. MCLs are the highest level of a contaminant that is allowed in drinking water. MCL's are set as close to MCLG's 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. MCLG's allow for a margin of safety.

NA Not Applicable / **ND** Not Detected / **NTU** Nephelometric Turbidity Units

ORSG Massachusetts Office of Research and Standards Guidelines. 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.

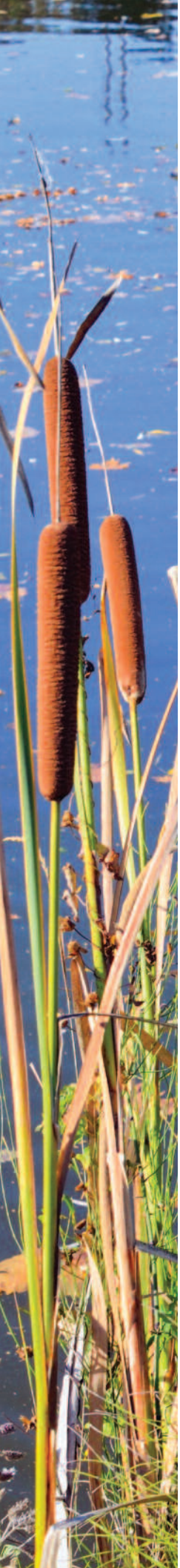
pCi/l picocuries per liter (a measure of radioactivity)

ppb parts per billion

ppm parts per million

SMCL Secondary Maximum Contaminant level. These standards are developed to protect the aesthetic qualities of drinking water and are not health based.

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



Important to Know

Water Treatment Facility

It is hard to believe the "New" Water Treatment Facility is over 11 years old! We moved in and began producing water from our new Facility in 2006. It has been a decade of adaptions and learning curves. While the technology was upgraded on a lot of systems the basic methods of treating drinking water remain the same.

Every part whether it be a chemical feed pump, online analyzer, high lift pump or any of a number of the moving parts of the treatment process all have an expected service life.

With proper scheduled maintenance of these parts we have kept the treatment process operating both efficiently and properly. However, after a decade of use we have begun the process of replacing and or upgrading many components of the various systems within the treatment process.

One of the constant repairs has been our Ozone System. We brought the existing system over to the new facility from the facility at 250 Boston Road.

Using Ozone to oxidize minerals such as Iron and Manganese has been an important component of the treatment process. Many longtime residents will recall prior to the implementation of the ozone system, the discoloration of the water during our high volume summer months. Using ozone to remove these minerals improved our water quality in a very beneficial way. In recent years this system has been requiring constant repairs and is in fact an obsolete system making the procurement of replacement parts difficult if not impossible.

In 2017 we repaired leaks in several locations within this system. A leak was repaired at the entrance to the pre-treatment building and inside the south basin in this building. Four major leaks in the stainless line that carries the ozone to the raw water line and the pretreatment building were repaired.

Our Treatment staff has done a remarkable job of keeping this system operating and we hope they will be able to continue this until the new system is funded, purchased and installed.

Other items that were attended to in 2017 include:

- One of the three pumps at the River Intake Station was removed to be replaced with a new pump and conveyance system.
- A new Highlift pump was purchased and replaced for pumping finished water into the distribution system. All the check valves after the Finished water pumps were repaired or replaced to prevent water hammer and to increase flow.
- The booster pump for the Fox Hill Road area was replaced. This pump is used to deliver water to a low pressure zone.
- We repaired and or replaced all three pumps for the back-wash waste system. This will allow the filters to work properly and produce high quality water.
- Treatment staff replaced several perimeter sump pumps inside and outside the Treatment facility.
- Several backflow devices within the treatment facility were replaced. These devices prevent contamination at several key locations.
- Some displacement pumps on the chemical feed system were replaced with peristaltic pumps to increase efficiency and reliability. These pumps were replaced to meet the operating needs of the individual chemicals and their characteristics.
- Our staff upgraded several types of instrumentation including Turbidimeters and online analyzers which are used for our compliance with State and Federal regulations.
- All five filter troughs were repaired and upgraded to stainless steel clamps due to the wear and tear of the backwash process.
- A total of 41 Variable Frequency Drives (VFDs) were installed at the Water Treatment Facility through an energy saving program from National Grid. These VFD's were installed on air handling motors and pumps resulting in a yearly savings of approximately $90,000.00 in electric costs. This program was fully funded by National Grid at no cost to the Town.
- A lighting upgrade program also offered by National Grid replaced a majority of the HID lighting and Fluorescent lighting both inside and outside of the Treatment Facility. This will again yield energy and cost savings on an annual basis.

Removing a highlift pump for replacement.

Important to Know

Billerica Water Division Backflow/Cross Connection Program

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 Town of Billerica Water Division Cross Connection Program was established and received official approval on August 31, 1989. By the mid 1990's the Town of Billerica completed the task of surveying all existing facilities.

Cross-Connection Control and Backflow Prevention

The Billerica Water Division makes every effort to ensure that the water delivered to your home and business is clean 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 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 the event of a backflow.

What is a 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 (back siphonage). 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:

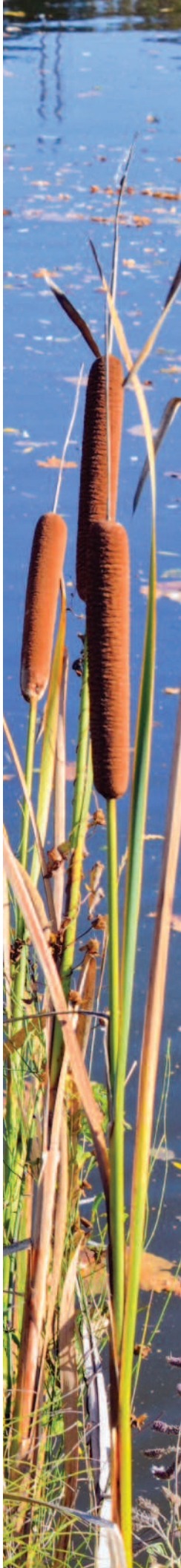
- Never submerge a hose in soapy water buckets, pet watering containers, pools, tubs, sinks, drains or chemicals.
- Never attach a hose to a garden sprayer without the proper backflow preventer.
- Buy and install a hose bib vacuum breaker on every threaded water fixture. The installation can be as easy 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.

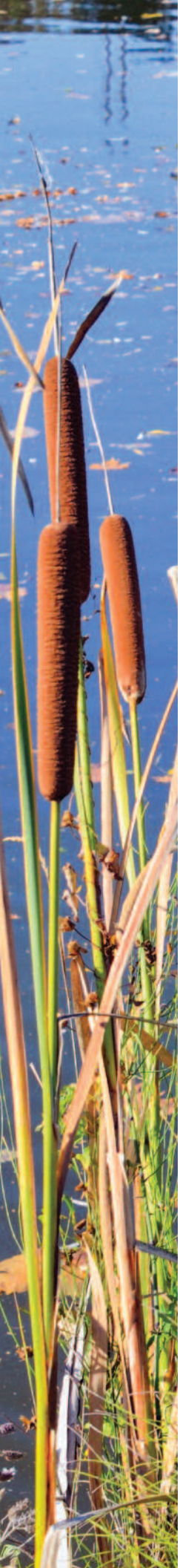
If you are the owner or manager of a property that is being used as a commercial, industrial, or institutional facility you must have your property's plumbing system surveyed for cross-connection. If your property HAS NOT been surveyed for cross-connection, contact Robert Boulé to schedule a cross-connection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

Residential Water System Pressure

The water tanks on Boston Road are called standpipes. These standpipes are used for storage as well as maintaining the water pressure in the system. In some areas of Billerica, this pressure may be as high as 120 pounds per square inch (psi). If this pressure presents a problem in your home, you may hire a plumber at your expense to install a pressure reducing valve after your water meter.

River Intake Station pump.





Lead and Copper

Over the past two years our nation has watched in horror as the tragedy of Flint Michigan became front page news. The contamination of drinking water for an entire city with lead due to a source water change and incorrect treatment was confirmed. People were unable to use the water in their homes for consumption, bathing and cooking. Delays in notifying residents of the contamination, the economics for families and low income residents to purchase drinking water led to many people consuming this contaminated water. Now the heartbreaking stories of children with lead poisoning are being reported. As drinking water professionals we were especially stunned by this situation and were left wondering how it even happened.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children.

Lead is a common metal found in the environment. Common sources of lead exposure are lead-based paint, household dust, soil, and some plumbing materials including many faucets. Lead can also be found in other household items such as pottery, makeup, toys and even food. Lead paint was outlawed in 1978, but dust from homes that still have lead paint is the most common source of exposure to lead. Therefore, make sure to wash your children's hands and toys often as they can come into contact with dirt and dust containing lead.

The water provided by the Billerica Water Division is lead free. However, lead can get into tap water through lead solder used in plumbing and some brass fixtures. Even though the use of lead solder was banned in the U.S. in 1986, it still may be present in older homes.

The Billerica Water Division is responsible for providing high quality drinking water, but cannot control the variety of 17 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.epa.gov/safewater/lead.

We would like to take this moment to reassure the residents and customers of Billerica Water that we have been proactive about Lead and Copper in the drinking water since 1992.

In November 1992 we conducted our first Lead and Copper Study which included 60 homes in Billerica and two schools that had to meet set criteria required by Massachusetts Department of Environmental Protection.

In August 1993 the Action Level for Lead was exceeded in our Study. This triggered a Public Notification and Education requirement. In 1994 a pilot study was conducted by an engineering firm and we began implementing a corrosion control program.

Lead and Copper Studies continued through the 1990's with 60 households and two schools per year along with Public Notification and Education. In 1999 our Lead and Copper Study was reduced to 30 households and two schools based on the successful results of these studies. Public Notification was no longer required. This was all due to the success of our corrosion control program reducing lead levels within people's homes. The 30 households and two school monitoring continued until 2002.

Our success with public education, our corrosion control program and lead reduction in plumbing fixtures allowed us to further reduce monitoring to 30 households and two schools every three years instead of annual monitoring. This reduced monitoring was because there was NO expectation that Lead and Copper results would exceed the Action Level.

Our most recent monitoring was in June 2016 and all results were below the Action Level.

Hydrants

If you have a fire hydrant along the frontage of your property and use a fence or shrubs as a visual screen there are a few things to be aware of:

- To safely and correctly operate a fire hydrant the operator must stand behind the hydrant and rotate a hydrant wrench on the top of the unit; for a firefighter in full gear this will require a minimum of three feet of clear space around the circumference of the hydrant.
- There should be three feet of clear space on both sides of the hydrant to allow the hoses to be positioned. The Town of Billerica has over two thousand fire hydrants! We all need to work together to keep these hydrants accessible and ready for use.
- It is important to remember that hydrants are emergency equipment and time lost removing vehicles parked in front of them, shoveling snow from around them or removing fences and shrub that hinders the use of them for firefighting can have catastrophic consequences.

Sodium in Drinking Water

The principal source of exposure to sodium is from the diet. The average American diet can contain anywhere from 2,000 mg/d (milligrams per day) to 24,000 mg/d (milligrams per day) depending on the amount of table salt added to foods.

Fruits, vegetables, and meats naturally contain sodium. Many foods such as dairy products and processed food products contain higher concentrations of sodium. The table listed shows some examples of sodium content in foods and beverages.

The average amount of Sodium detected in Billerica's drinking water was 88 mg/L. This calculates into 31.2 mg per 12 ounces. Below please find the Sodium content in a sampling of foods and beverages.

Serving size	Product	mg of Sodium
12 oz.	Billerica drinking water	31.2
12 oz.	Coffee	7
12 oz.	Regular soda	22
1 cup	lowfat 1% milk	124
1 cup	canned tomato juice	877
1 oz.	cheddar cheese	176
1 large	hard boiled egg	62
8 oz.	lowfat yogurt w/fruit	132
1 cup	canned pasta & meatballs	1,053
1 cup	corn flakes	298
1 cup	canned baked beans	1,008
1 TBSPN	peanut butter	75
3 oz.	extra lean ground beef	60
2 slices	bologna	578

Frequently Asked Questions

Why is my water white or milky looking?

Air bubbles present in the water can make it appear to be cloudy or milky white. There are several reasons this may occur. Water main break repairs can cause air to be trapped in the main and will escape through your tap. Cold temperatures are a common cause of this because cold water can hold more air than warm water. A simple test is to fill a clear glass with cold tap water and set it on the counter. The trapped air will release into the atmosphere and result in clear water within minutes.

Why is my water rusty looking or discolored?

Rusty water is most often the result of the levels of Iron and Manganese increasing. This is usually caused by disruptions in the distribution system such as water main breaks, fire hydrant activity, construction, and high volume water use such as in the beginning of warm weather seasons. Mechanical issues can also contribute to discolored water. We add Ozone to the water to remove these naturally occurring minerals. If there is a mechanical problem with this system it may result in increased mineral content. These issues usually resolve with use within the distribution system. The Water Division does have a detergent available at no cost to remove rust stains from laundry.

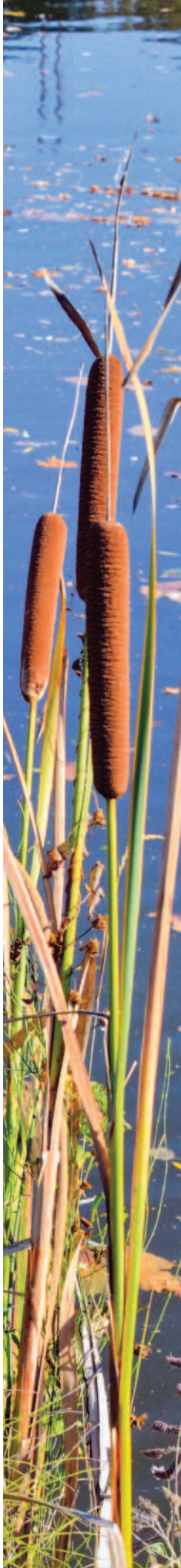
Why am I not notified when there is a water main break and my water gets shut off?

Notifications for water main breaks and scheduled disruptions that occur during normal business hours are conducted through the Code RED system. To register for Code RED notifications, you can register on the Billerica Fire Department's website: http://fire.billericaps.com/index.php/codered/. Please keep in mind that we have limited staff and they are focused on making the emergency repairs and restoring water service as promptly as possible.

How Safe Is My Drinking Water?

In order to ensure that tap water is safe to drink, the Department of Environmental Protection (MassDEP) and U.S. Environmental Protection Agency (EPA) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and Massachusetts Department of 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 1-800-426-4791.

Assistant Superintendent G. Garabedian calibrating online instrumentation.



TOWN OF BILLERICA
DEPARTMENT OF PUBLIC WORKS
WATER DIVISION
270 TREBLE COVE ROAD
BILLERICA, MA 01862

POSTAL CUSTOMER

Stormwater Management

What is Stormwater

Stormwater is the runoff water from rain and snowmelt and has been identified by the United States Environmental Protection Agency (EPA) as the number one contributor of pollution to our streams, ponds, wetlands, lakes, rivers, and oceans. Stormwater pollutants include litter, sand, bacteria, chemicals (such as fertilizer and herbicides from lawns), and oil and gas from cars.

Runoff from paved or impervious surfaces, such as roads, parking lots, driveways, and rooftops, can contribute large amounts of polluted stormwater. To prevent flooding, parking lots and streets are often lined with storm drains to quickly move stormwater off the pavement.

Due to the fact that storm drains have underground pipes that channel the stormwater directly to a nearby water body, whatever flows down a storm drain comes out in the closest wetland, stream, or pond, usually with little or no treatment.

Keep Your Family Healthy

Your drinking water comes from the Concord River. Clean water is also necessary for swimming, fishing, boating, and protecting wildlife. It is far less costly to prevent pollution to waterways than it is to clean them up after the fact. Keeping stormwater clean not only benefits our neighborhood and community, it benefits the entire network of water bodies and land that makes up our watershed.

With your help and support, we can make the difference in keeping stormwater clean. For more information about the Town of Billerica's Stormwater Management Program and tips for keeping our waters clean, please contact the Department of Public Works Engineering Division at 978-671-1300, or visit the Stormwater Management website at http://www.town.billerica.ma.us/214/Stormwater-Management.

Educational posters created by the Northern Middlesex Stormwater Collaborative. Website: http://www.nmstormwater.org/for-municipalities