

Presented By
Tyngsborough Water District



ANNUAL
**WATER
QUALITY
REPORT**

WATER TESTING PERFORMED IN 2016

We've Come a Long Way

Once again we are proud to present our annual water quality report covering the period between January 1 and December 31, 2016. In a matter of only a few decades, drinking water has become exponentially safer and more reliable than at any other point in human history. Our exceptional staff continues to work hard every day—at any hour—to deliver the highest quality drinking water without interruption. Although the challenges ahead are many, we feel that by relentlessly investing in customer outreach and education, system upgrades, and training, the payoff will be reliable, high-quality tap water delivered to you and your family.

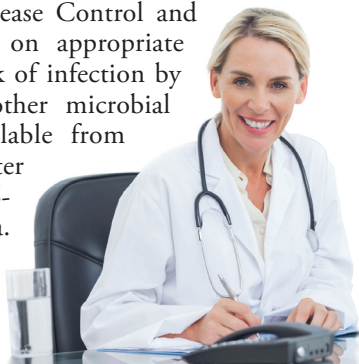
Where Does My Water Come From?

Our water is purchased from the following three places:

- The City of Lowell, water treatment facility, which treats and filters water from the Merrimack River.
- The Dracut Water Supply District, which furnishes water from the Frost Road well field in Tyngsborough.
- Pennichuck Water, a water treatment facility that treats and filters water from the Merrimack River and Pennichuck Brook.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.



Substances That Could Be in Water

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

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

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

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

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and which may also come from gas stations, urban stormwater runoff, and septic systems;

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

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

Lead in Home Plumbing

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. We are responsible for providing high-quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 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 www.epa.gov/lead.

Failure in Flint

The national news coverage of water conditions in Flint, Michigan, has created a great deal of confusion and consternation. The water there has been described as being corrosive; images of corroded batteries and warning labels on bottles of acids come to mind. But is corrosive water necessarily bad?

Corrosive water can be defined as a condition of water quality that will dissolve metals (iron, lead, copper, etc.) from metallic plumbing at an excessive rate. There are a few contributing factors but, generally speaking, corrosive water has a pH of less than 7; the lower the pH, the more acidic, or corrosive, the water becomes. (By this definition, many natural waterways throughout the country can be described as corrosive.) While all plumbing will be somewhat affected over time by the water it carries, corrosive water will damage plumbing much more rapidly than water with low corrosivity.

By itself, corrosive water is not a health concern; your morning glass of orange juice is considerably more corrosive than the typical lake or river. What is of concern is that exposure in drinking water to elevated levels of the dissolved metals increases adverse health risks. And there lies the problem.

Public water systems are required to maintain their water at optimal conditions to prevent it from reaching corrosive levels. Rest assured that we routinely monitor our water to make sure that what happened in Flint never happens here. For more information on how corrosivity impacts water quality, download this informative pamphlet: <http://goo.gl/KpTmXv>.



Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. We meet the 1st and 3rd Tuesdays of each month beginning at 7 p.m. at our office on 87 Progress Ave, Unit 2.

Source Water Assessments

A Source Water Assessment Plan (SWAP) is now available at our Pennichuck Water (PW) office. This plan is an assessment of the delineated area around our listed sources through which contaminants, if present, could migrate and reach our source water. It also includes an inventory of potential sources of contamination within the delineated area, and a determination of the water supply's susceptibility to contamination by the identified potential sources. If you would like to review the Source Water Assessment Plan, please feel free to call Gary Tetley at (800) 553-5191 or visit the DES Drinking Water Source Assessment website at <http://des.nh.gov/organization/divisions/water/dwgb/dwspp/dwsap.htm>.

A Source Water Assessment Plan (SWAP) For the Dracut Water Supply District is available at www.dracutwater.com. For more information, please visit the DEP website at <http://www.mass.gov/eea/docs/dep/water/drinking/swap/nero/3079000.pdf>.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Dale Thompson, Tyngsborough Water District Superintendent, at (978) 649-4577.

The Benefits of Fluoridation

Fluoride is a naturally occurring element in many water supplies in trace amounts. In our system the fluoride level is adjusted to an optimal level averaging one part per million (ppm) to improve oral health in children. At this level, it is safe, odorless, colorless, and tasteless. There are more than 3.9 million people in 140 Massachusetts water systems and 184 million people in the U.S. who receive the health and economic benefits of fluoridation.



Tip Top Tap

The most common signs that your faucet or sink is affecting the quality of your drinking water are discolored water, sink or faucet stains, a buildup of particles, unusual odors or tastes, and a reduced flow of water. The solutions to these problems may be in your hands.

Kitchen Sink and Drain

Hand washing, soap scum buildup, and the handling of raw meats and vegetables can contaminate your sink. Clogged drains can lead to unclean sinks and backed up water in which bacteria (i.e., pink and black-colored slime growth) can grow and contaminate the sink area and faucet, causing a rotten egg odor. Disinfect and clean the sink and drain area regularly. Also, flush regularly with hot water.

Faucets, Screens, and Aerators

Chemicals and bacteria can splash and accumulate on the faucet screen and aerator, which are located on the tip of faucets, and can collect particles like sediment and minerals resulting in a decreased flow from the faucet. Clean and disinfect the aerators or screens on a regular basis.

Check with your plumber if you find particles in the faucet screen as they could be pieces of plastic from the hot water heater dip tube. Faucet gaskets can break down and cause black, oily slime. If you find this slime, replace the faucet gasket with a higher-quality product. White scaling or hard deposits on faucets and shower heads may be caused by hard water or water with high levels of calcium carbonate. Clean these fixtures with vinegar or use water softening to reduce the calcium carbonate levels for the hot water system.

Water Filtration/Treatment Devices

A smell of rotten eggs can be a sign of bacteria on the filters or in the treatment system. The system can also become clogged over time so regular filter replacement is important (Remember to replace your refrigerator filter!)



What type of container is best for storing water?

Consumer Reports has consistently advised that glass or BPA-free plastics such as polyethylene are the safest choices. To be on the safe side, do not use any container with markings on the recycle symbol showing “7 PC” (code for BPA). You could also consider using stainless steel or aluminum with BPA-free liners.

How much emergency water should I keep?

Typically, 1 gallon per person per day is recommended. For a family of four, that would be 12 gallons for 3 days. Humans can survive without food for 1 month, but can only survive 1 week without water.

How long can I store drinking water?

The disinfectant in drinking water will eventually dissipate, even in a closed container. If that container housed bacteria prior to filling up with the tap water, the bacteria may continue to grow once the disinfectant has dissipated. Some experts believe that water could be stored up to six months before needing to be replaced. Refrigeration will help slow the bacterial growth.

Test Results

Our water is monitored for many different kinds of contaminants on a very strict sampling schedule. The information below represents only those substances that were detected; our goal is to keep all detects below their respective maximum allowed levels. The State recommends monitoring for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES

				Tyngsborough Water District		Pennichuck Water		Lowell Regional Water Utility		Dracut Water Supply District			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2016	2	2	NA	NA	0.0108	NA	NA	NA	NA	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2016	[4]	[4]	1.17	ND–1.17	NA	NA	NA	NA	NA	NA	No	Water additive used to control microbes
Chlorite (ppm)	2016	1	0.8	NA	NA	NA	NA	0.23	0.06–0.23	NA	NA	No	By-product of drinking water disinfection
Combined Radium (pCi/L)	2015	5	0	NA	NA	0.5	NA	NA	NA	NA	NA	No	Erosion of natural deposits
Fluoride (ppm)	2016	4	4	NA	NA	NA	NA	0.76	0.49–0.76	0.95	0.17–0.95	No	Water additive which promotes strong teeth
Gross Alpha (pCi/L)	2014	15	0	NA	NA	NA	NA	0.04	NA	NA	NA	No	Erosion of natural deposits
Haloacetic Acids [HAA] (ppb)	2016	60	NA	14	1.6–14	NA	NA	NA	NA	NA	NA	No	By-product of drinking water disinfection
Nitrate (ppm)	2016	10	10	NA	NA	NA	NA	0.20	NA	0.84	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Perchlorate (ppb)	2016	2	NA	NA	NA	NA	NA	NA	NA	0.17	NA	No	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks, and explosives.
Radium 228 (pCi/L)	2014	5	0	NA	NA	NA	NA	-0.2	NA	NA	NA	No	Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2016	80	NA	38	7.2–38	NA	NA	NA	NA	NA	NA	No	By-product of drinking water disinfection
Total Organic Carbon (ppm)	2016	TT	NA	NA	NA	1.0	ND–1.0	NA	NA	NA	NA	No	Naturally present in the environment
Turbidity ¹ (NTU)	2016	TT	NA	NA	NA	0.43	NA	NA	NA	NA	NA	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2016	TT = 95% of samples meet the limit	NA	NA	NA	97.8	NA	NA	NA	NA	NA	No	Soil runoff

SECONDARY SUBSTANCES (DRACUT WATER SUPPLY DISTRICT)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Manganese (ppb)	2016	50	NA	0.21	0.16–0.21	No	Leaching from natural deposits

UNREGULATED SUBSTANCES ²

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	Pennichuck Water		Lowell Regional Water Utility		Dracut Water Supply District		TYPICAL SOURCE
		AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	
Bromodichloromethane (ppb)	2016	NA	NA	4.2	ND–4.2	NA	NA	By-product of drinking water disinfection
Chloroform (ppb)	2016	NA	NA	13.3	ND–13.3	NA	NA	By-product of drinking water disinfection
Sodium (ppm)	2016	54.5	38.1–54.5	19.4	NA	25.1 ³	NA ³	Erosion of natural deposits and road salt
Sulfate (ppm)	2016	NA	NA	5.0	NA	8.9 ³	NA ³	Erosion of natural deposits

¹Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

²Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist U.S. EPA in determining their occurrence in drinking water and whether future regulation is warranted.

³Sampled in 2015.

Definitions

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

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

LRAA (Locational Running Annual Average): The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters. Amount Detected values for TTHMs and HAAs are reported as LRAAs.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

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

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA: Not applicable

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

pCi/L (picocuries per liter): A measure of radioactivity.

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

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

SMCL (Secondary Maximum Contaminant Level): SMCLs are established to regulate the aesthetics of drinking water like appearance, taste and odor.

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