ANNUAL WATER QUALITY REPORT

Reporting Year 2018

Presented By

TYNGSBOROUGH WATER DISTRICT
EST 1983

PWS ID#: 3301000

Our Mission Continues

We are once again pleased to present our annual water quality report covering all testing performed between January 1 and December 31, 2018. We continually strive to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please remember that we are always available should you ever have any questions or concerns about your water.

Where Does My Water Come From?

Our water is purchased from:

The City of Lowell water treatment facility, which treats and filters water from the Merrimack River.

Pennichuck Water treatment facility, which 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.

The Benefits of Fluoridation

Fluoride is a naturally occurring element in many water supplies in trace amounts. In our system fluoride is adjusted to an optimal level averaging 0.7 part per million (ppm) to improve oral health in children. At this level, it is safe, odorless, colorless, and tasteless. There are over 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.

Source Water Assessments

A Source Water Assessment Plan (SWAP) is now available for Pennichuck Water. 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 SWAP, please call (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 SWAP for Lowell Regional Water Utility is also available. A susceptibility ranking of high was assigned to this system using the information collected during the assessment by the Massachusetts DEP. For more information please call Steven Duchesne, Superintendent of Operations at (978) 674 – 1677.

Missed Monitoring

During the third quarter of 2018, we did not monitor for the presence of manganese or perchlorate in the public drinking water system. Upon being notified of this violation by the Massachusetts DEP, we immediately analyzed our water supply. Results of the analysis have been received and properly recorded as required by state and federal law. Manganese was detected at 0.008 mg/L (or 8 ppb), and perchlorate was below the analytical detection limit. We do not believe that missing this monitoring requirement had any impact on public health and safety. We have already taken the steps to ensure that adequate monitoring and reporting will be performed in the future so that this oversight will not be repeated.

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.

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) prescribe 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.

> We remain vigilant in delivering the best-quality drinking water

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.

Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. We meet the first and third Tuesday of each month at 7 p.m. at our office on 87 Progress Avenue, Unit 2.

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 we 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 at (800) 426-4791 or at www.epa.gov/safewater/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 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 therein 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.

Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule, and the water we deliver must meet specific health standards. Here, we only show those substances that were detected in our water (a complete list of all our analytical results is available upon request). Remember that detecting a substance does not mean the water is unsafe to drink; 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			
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	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2016	2	2	NA	NA	0.0108	ND–0.0108	NA	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2018	[4]	[4]	0.99	0.02–0.99	0.73	0.50–1.02	1.17	0.74–1.17	No	Water additive used to control microbes
Chlorite (ppm)	2018	1	0.8	NA	NA	NA	NA	0.41	0.08–0.41	No	By-product of drinking water disinfection
Combined Radium (pCi/L)	2015	5	0	NA	NA	0.5	ND–0.5	NA	NA	No	Erosion of natural deposits
Fluoride (ppm)	2018	4	4	NA	NA	NA	NA	0.75	0.61–0.76	No	Water additive which promotes strong teeth
Gross Alpha (pCi/L)	2014	15	0	NA	NA	NA	NA	0.04	NA	No	Erosion of natural deposits
Haloacetic Acids [HAA] (ppb)	2018	60	NA	21	2.8–21	15	6–24	13.0	ND–13.0	No	By-product of drinking water disinfection
Nitrate (ppm)	2017	10	10	NA	NA	NA	NA	0.45	ND–0.45	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Radium 228 (pCi/L)	2015	5	0	NA	NA	0.5	NA	-0.20[3]	(+-0.6)–-0.20[3]	No	Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2018	80	NA	68	25–68	39	28–72	43.8	ND–43.8	No	By-product of drinking water disinfection
Total Organic Carbon[1] (ppm)	2018	TT	NA	NA	NA	1.04	ND–1.4	NA	NA	No	Naturally present in the environment
Turbidity[2] (NTU)	2018	TT	NA	NA	NA	0.10	ND–0.10	0.52	0.02–0.52	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2018	TT = 95% of samples meet the limit	NA	NA	NA	100	NA	NA	NA	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2017	1.3	1.3	0.062	0/20	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2017	15	0	2.5	1/20	No	Corrosion of household plumbing systems; Erosion of natural deposits

SECONDARY SUBSTANCES

				Tyngsborough Water District		Lowell Regional Water Utility			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Manganese (ppb)	2018	50	NA	8	NA–0.008	NA	NA	No	Leaching from natural deposits
pH (Units)	2018	6.5–8.5	NA	NA	NA	8.2	7.6–8.2	No	Naturally occurring

UNREGULATED SUBSTANCES [4]

		Pennichuck Water		Lowell Regional Water Utility		
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Bromodichloromethane (ppb)	2018	NA	NA	3.1	ND–3.1	By-product of drinking water disinfection
Chloroform (ppb)	2018	NA	NA	17.7	ND–17.7	By-product of drinking water disinfection
Sodium (ppm)	2018	62.5	39.1–62.5	44.0	ND–44.0	Erosion of natural deposits; Road salt
Sulfate (ppm)	2018	NA	NA	4.0	NA–4.0	Erosion of natural deposits

[1] The value reported under Amount Detected for TOC is the lowest ratio of percentage of TOC actually removed to the percentage of TOC required to be removed. A value of greater than 1 indicates that the water system is in compliance with TOC removal requirements. A value of less than 1 indicates a violation of the TOC removal requirements.

[2] Turbidity 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.

[3] Sampled in 2014.

[4] Unregulated 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.

Definitions

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

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 the highest 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): These standards are developed to protect 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.