

# ANNUAL WATER QUALITY REPORT

Reporting Year 2021



*Presented By*  
**Tyngsborough Water District**

## 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, 2021. 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 all hours—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 City of Lowell, water treatment facility, which treats and filters water from the Merrimack River.

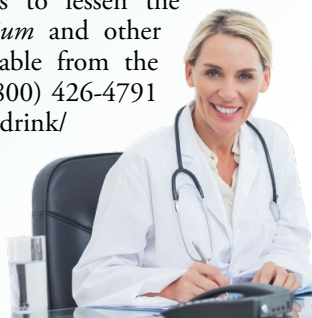
Pennichuck Water, water treatment facility, which treats and filters water from the Merrimack River and Pennichuck Brook.

### 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 online at: [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

### 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 online at: <http://water.epa.gov/drink/hotline>.



“When the well is dry, we know the worth of water.”

—Benjamin Franklin

### Source Water Assessment for Pennichuck Water

A Source Water Assessment Plan (SWAP) is now available at our office (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 Source Water Assessment Plan, please feel free to call (800) 553-5191 or visit the DES Drinking Water Source Assessment website at: [www.des.nh.gov/sites/g/files/ehbemt341/files/documents/nashua.pdf](http://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/nashua.pdf). Summary of Susceptibility Factors.

#### SUMMARY OF SUSCEPTIBILITY FACTORS

SOURCE NAME	DATE*	LOW MED HIGH
Harris Pond Reservoir	7/5/01*	6 - 3 - 2
Supply Pond/Springs	7/5/01*	6 - 3 - 2
Merrimack River	10/25/01*	2 - 4 - 5

### Source Water Assessment for Lowell Regional Water Utility

A source Water Assessment Plan is available at our office (Lowell Regional Water Utility). A susceptibility ranking of “high” was assigned to this system using the information collected during the assessment by the MADEP.

### 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 Tuesday of each month beginning at 7 p.m. at our office on 87 Progress Avenue, Unit two.

**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.

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.

## 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 0.7 parts 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.



## Cross-Connections

What is a cross-connection and what can I do about it? Please go to our webpage at: [tyngsboroughwater.org](http://tyngsboroughwater.org) to learn more.

## 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.

**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).

**ppt (parts per trillion):** One part substance per trillion parts water (or nanograms 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.



## 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)	2021	2	2	NA	NA	0.0078	NA–0.0078	NA	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2021	[4]	[4]	0.95	0.02–0.95	1.66	0.02–1.66	1.46	0.85–1.46	No	Water additive used to control microbes
Chlorite (ppm)	2021	1	0.8	NA	NA	NA	NA	0.78	0.14–0.78	No	By-product of drinking water disinfection
Combined Radium (pCi/L)	2015	5	0	NA	NA	0.5	NA–0.5	NA	NA	No	Erosion of natural deposits
Fluoride (ppm)	2021	4	4	NA	NA	NA	NA	0.76	0.62–0.76	No	Water additive which promotes strong teeth
Haloacetic Acids [HAAs]–Stage 2 (ppb)	2021	60	NA	18	4.7–18	15.0	7.0–15.0	18	4.4–31	No	By-product of drinking water disinfection
Nitrate (ppm)	2021	10	10	NA	NA	0.40	NA–0.40	0.296	0.03–0.296	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Perchlorate	2021	2	NA	0.16	NA	NA	NA	NA	NA	No	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks and explosives.
PFAS <sup>3</sup> (ppt)	2021	20	NA	11.8	NA	NA	NA	5.33	2.40–5.33	No	Discharges and emissions from industrial and manufacturing sources associated with the production or use of these PFAS, including production of moisture and oil-resistant coatings on fabrics and other materials. Additional sources include the use and disposal of products containing these PFAS, such as fire-fighting foams.
Radium 228 (pCi/L)	2014	5	0	NA	NA	NA	NA	-0.20	NA–0.20	No	Erosion of natural deposits
TTHMs [Total Trihalomethanes]–Stage 2 (ppb)	2021	80	NA	52	23–52	48.0	10.0–48.0	52	19–89	No	By-product of drinking water disinfection
Total Organic Carbon <sup>1</sup> (ppm)	2021	TT	NA	NA	NA	0.98	0.54–0.98	NA	NA	No	Naturally present in the environment
Turbidity <sup>2</sup> (NTU)	2021	TT	NA	NA	NA	0.90	NA	0.32	0.025–0.32	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2021	TT = 95% of samples meet the limit	NA	NA	NA	100 %	NA	100%	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
<b>Copper</b> (ppm)	2020	1.3	1.3	0.047	0/20	No	Corrosion of household plumbing systems; Erosion of natural deposits
<b>Lead</b> (ppb)	2020	15	0	2.3	0/20	No	Corrosion of household plumbing systems; Erosion of natural deposits

**SECONDARY SUBSTANCES**

		Tyngsborough Water District		Pennichuck Water		Lowell Regional Water Utility					
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
<b>Manganese</b> (ppb)	2021	50	NA	15	NA–15	32	NA–32	NA	NA	No	Leaching from natural deposits
<b>pH</b> (Units)	2021	6.5-8.5	NA	NA	NA	7.76	NA–7.76	8.1	7.7–8.1	No	Naturally occurring

**UNREGULATED SUBSTANCES<sup>4</sup>**

		Pennichuck Water		Lowell Regional Water Utility						
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE				
<b>Bromodichloromethane</b> (ppb)	2021	NA	NA	4.8	2.2–4.8	By-product of drinking water disinfection				
<b>Chloroform</b> (ppb)	2021	NA	NA	32.8	7.1–32.8	By-product of drinking water disinfection				
<b>Sodium</b> (ppm)	2021	40.1	NA–40.1	38.0	2.0–38.0	Erosion of natural deposits and road salt				
<b>Sulfate</b> (ppm)	2021	5	NA–5	8.0	2.0–8.0	Naturally occurring				

**OTHER UNREGULATED SUBSTANCES<sup>4</sup>**

		Tyngsborough Water District		Pennichuck Water		Lowell Regional Water Utility					
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE			
<b>MTBE</b> (ppb)	2021	NA	NA	NA	NA	0.5	ND–0.5	Gasoline Additive			
<b>Perfluorobutanesulfonic Acid (PFBS)<sup>5</sup></b> (ppt)	2021	1.87	NA	NA	NA	NA	NA	Discharge from industrial processes, wastewater treatment, residuals from firefighting foam, runoff/leachate from landfills and septic systems			
<b>Perfluorohexanoic Acid-PFHXA<sup>6</sup></b> (ppt)	2021	2.88	NA	NA	NA	NA	NA	Discharge from industrial processes, wastewater treatment, residuals from firefighting foam, runoff/leachate from landfills and septic systems			
<b>Perfluorononanoic Acid (PFNA)</b> (ppt)	2019	NA	NA	NA	NA	<2.0	NA–<2.0	Man-made chemical; used in products to make them stain, grease, heat and water resistant			
<b>perfluorooctanoic acid</b> (ppt)	2021	NA	NA	2.50 RAA	ND–6.12	NA	NA	Industrial processes, firefighting foam, landfills wastewater treatment and septic systems			

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

<sup>2</sup>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.

<sup>3</sup>For the PFAS 1ST quarter monitoring period our public water system (LOWELL) failed to analyze for all PFAS within the scope of the method required by 310 CMR22.07G(12)(b). Our system failed to collect confirmatory samples within the time frame required by 310 CMR22.07G(7)(c). Our system failed to report to MassDep its failure to monitor for contaminants and monitoring period as required by 310 CMR22.15(1).

<sup>4</sup>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.

<sup>5</sup>Results from So Mall Rd Station, Pennichuck Water Connection

<sup>6</sup>Results from So Mall Station, Pennichuck Water Connection