

ANNUAL WATER  
QUALITY  
REPORT

Reporting Year 2022

*Presented By*  
**Tyngsborough Water District**

## 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, 2022. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. 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.

## 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 two 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](http://www.epa.gov/safewater/lead).

## Where Does My Water Come From?

Tyngsborough's water is purchased from two sources: the City of Lowell's water treatment facility, which treats and filters water from the Merrimack River, and Pennichuck Water's 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>.

## What Are PFAS?

Per- and polyfluoroalkyl substances (PFAS) are a group of manufactured chemicals used worldwide since the 1950s to make fluoropolymer coatings and products that resist heat, oil, stains, grease, and water. During production and use, PFAS can migrate into the soil, water, and air. Most PFAS do not break down; they remain in the environment, ultimately finding their way into drinking water. Because of their widespread use and their persistence in the environment, PFAS are found all over the world at low levels. Some PFAS can build up in people and animals with repeated exposure over time.

The most commonly studied PFAS are perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS). PFOA and PFOS have been phased out of production and use in the United States, but other countries may still manufacture and use them.

Some products that may contain PFAS include:

- Some grease-resistant paper, fast food containers/wrappers, microwave popcorn bags, pizza boxes
- Nonstick cookware
- Stain-resistant coatings used on carpets, upholstery, and other fabrics
- Water-resistant clothing
- Personal care products (shampoo, dental floss) and cosmetics (nail polish, eye makeup)
- Cleaning products
- Paints, varnishes, and sealants

Even though recent efforts to remove PFAS have reduced the likelihood of exposure, some products may still contain them. If you have questions or concerns about products you use in your home, contact the Consumer Product Safety Commission at (800) 638-2772. For a more detailed discussion on PFAS, please visit <http://bit.ly/3Z5AMm8>.

## 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 7:00 p.m. at our office on 87 Progress Avenue, Unit 2.

## QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Daniel Duchesne, 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.

## Source Water Assessments

A Source Water Assessment Plan (SWAP) is now available at the Pennichuck Water 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 SWAP, please feel free to call (800) 553-5191 or visit the DES Drinking Water Source Assessment website at <https://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

A SWAP is available at the Lowell Regional Water Utility office by contacting Roger Hebert, Superintendent of Operations at 978-674-1677. A susceptibility ranking of high was assigned to this system using the information collected during the assessment by DEP.

## 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 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.

## 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

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	Tyngsborough Water District				Pennichuck Water		Lowell Regional Water Utility		VIOLATION	TYPICAL SOURCE
		MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH		
<b>Barium</b> (ppm)	2022	2	2	NA	NA	0.0076	NA–0.0076	NA	NA	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
<b>Chlorine</b> (ppm)	2022	[4]	[4]	0.99	0.04–0.99	1.13	0.02–1.13	1.13	0.4–1.13	No	Water additive used to control microbes
<b>Chlorite</b> (ppm)	2022	1	0.8	NA	NA	NA	NA	0.59	0.07–0.59	No	By-product of drinking water disinfection
<b>Combined Radium</b> (pCi/L)	2015	5	0	NA	NA	0.5	NA–0.5	NA	NA	No	Erosion of natural deposits
<b>Fluoride</b> (ppm)	2022	4	4	NA	NA	NA	NA	0.76	0.62–0.76	No	Water additive which promotes strong teeth
<b>Gross Alpha Particles</b> (pCi/L)	2022	NA	NA	NA	NA	NA	NA	0.01	NA	No	Erosion of natural deposits
<b>Haloacetic Acids [HAAs]– Stage 2</b> (ppb)	2022	60	NA	18	1.2–18	19.0	6.0–19.0	17	3.4–31	No	By-product of drinking water disinfection
<b>Nitrate</b> (ppm)	2022	10	10	NA	NA	0.55	NA–0.55	0.247	0.03–0.247	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
<b>Perchlorate</b> (ppb)	2022	2	NA	0.139	NA	NA	NA	ND	NA–0.53	No	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks, and explosives
<b>PFAS6</b> (ppt)	2022	20	NA	6.42	3.59–6.42	NA	NA	3.20	ND–3.20	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 firefighting foams
<b>Radium 228</b> (pCi/L)	2014	5	0	NA	NA	NA	NA	-0.20	NA–0.20	No	Erosion of natural deposits
<b>Total Organic Carbon</b> (removal ratio)	2022	TT <sup>1</sup>	NA	NA	NA	1.01	ND–1.01	NA	NA	No	Naturally present in the environment
<b>TTHMs [total trihalomethanes]–Stage 2</b> (ppb)	2022	80	NA	49	19–49	41	15–41	51	22–51	No	By-product of drinking water disinfection
<b>Turbidity</b> <sup>2</sup> (NTU)	2022	TT	NA	NA	NA	0.23	NA–0.23	0.174	0.024–0.174	No	Soil runoff
<b>Turbidity</b> (lowest monthly percent of samples meeting limit)	2022	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	Tyngsborough Water District				Pennichuck Water		Lowell Regional Water Utility		VIOLATION	TYPICAL SOURCE
		AL	MCLG	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/TOTAL SITES	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/TOTAL SITES	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/ TOTAL SITES		
Copper (ppm)	2020	1.3	1.3	0.047	0/20	NA	NA	NA	NA	No	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb)	2020	15	0	2.3	0/20	NA	NA	NA	NA	No	Corrosion of household plumbing systems; erosion of natural deposits

**SECONDARY SUBSTANCES**

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	Tyngsborough Water District				Pennichuck Water		Lowell Regional Water Utility		VIOLATION	TYPICAL SOURCE
		SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH		
Chloride (ppm)	2022	250	NA	NA	NA	74	NA	NA	NA	No	Runoff/leaching from natural deposits
Iron (ppb)	2022	300	NA	NA	NA	36	NA	NA	NA	No	Leaching from natural deposits; industrial wastes
Manganese (ppb)	2022	50	NA	NA	NA	15.7	NA-15.7	NA	NA	No	Leaching from natural deposits
pH (units)	2022	6.5-8.5	NA	NA	NA	7.57	NA	8.1	7.7-8.1	No	Naturally occurring
Zinc (ppm)	2022	5	NA	NA	NA	0.237	NA	NA	NA	No	Runoff/leaching from natural deposits; industrial wastes

**UNREGULATED SUBSTANCES<sup>3</sup>**

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	Tyngsborough Water District		Pennichuck Water		Lowell Regional Water Utility		TYPICAL SOURCE
		AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	
Bromodichloromethane (ppb)	2022	NA	NA	NA	NA	4.8	1.8-4.8	By-product of drinking water disinfection
Chloroform (ppb)	2022	NA	NA	NA	NA	53.9	7.6-53.9	By-product of drinking water disinfection
MTBE (ppb)	2022	NA	NA	NA	NA	0.5	ND-0.5	Gasoline additive
Nickel (ppm)	2022	NA	NA	0.0023	NA	NA	NA	Naturally occurring
Perfluorohexanoic Acid [PFHxA] (ppt)	2022	2.92 <sup>4</sup>	NA	NA	NA	NA	NA	Discharge from industrial processes; wastewater treatment; residuals from firefighting foam; runoff/leachate from landfills and septic systems
Perfluorooctanoic Acid [PFOA] (ppt)	2022	NA	NA	6.23 <sup>5</sup>	2.87-10.6	NA	NA	Industrial processes; firefighting foam; landfills; wastewater treatment; septic systems
Sodium (ppm)	2022	NA	NA	46.6	NA-46.6	41.0	NA-41.0	Erosion of natural deposits; road salt
Sulfate (ppm)	2022	NA	NA	6	NA-6	4.0	2.0-8.0	Naturally occurring

<sup>1</sup>The value reported under Amount Detected for TOC is the lowest ratio of percentage of TOC actually removed to 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.

<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>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>4</sup>Result from So. Mall Station Pennichuck Water connection.

<sup>5</sup>Running annual average.