

Annual
WATER
QUALITY
REPORT

Reporting Year 2013



Presented By
Tyngsborough Water District

PWS ID#: 3301000

There When You Need Us

We are once again proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2013. Over the years, we have dedicated ourselves to providing 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 water conservation, and community education while continuing to serve the needs of all our water users.

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

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 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.

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>.

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 Tuesdays of each month beginning at 7 pm at our office on 87 Progress Avenue, Unit Two.

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/safewater/lead.

Radon

Radon is a radioactive gas that you cannot see, taste, or smell. It is found throughout the U.S. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will in most cases be a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. You should pursue radon removal for your home if the level of radon in your air is 4 pCi/L or higher. There are simple ways to fix a radon problem that are not too costly. For additional information, call your state radon program or call U.S. EPA's Radon Hotline at (800) SOS-RADON.

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.
The Dracut Water Supply District, which furnishes water from the Frost Rd. well field in Tyngsborough.
Pennichuck Water water treatment facility, which treats and filters water from the Merrimack River & Pennichuck Brook.

Water Conservation

You can play a role in conserving water and saving yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water. Here are a few tips:

- Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.
- Turn off the tap when brushing your teeth.
- Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
- Check your toilets for leaks by putting a few drops of food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak. Fix it and you save more than 30,000 gallons a year.
- Use your water meter to detect hidden leaks. Simply turn off all taps and water using appliances. Then check the meter after 15 minutes. If it moved, you have a leak.

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.

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 Gary Tetley at (800) 553-5191 or visit the DES Drinking Water Source Assessment Web site at <http://des.nh.gov/organization/divisions/water/dwgb/dwspp/dwsap.htm>.

What Are PPCPs?

When cleaning out your medicine cabinet, what do you do with your expired pills? Many people flush them down the toilet or toss them into the trash. Although this seems convenient, these actions could threaten our water supply.

Recent studies are generating a growing concern over pharmaceuticals and personal care products (PPCPs) entering water supplies. PPCPs include human and veterinary drugs (prescription or over-the-counter) and consumer products, such as cosmetics, fragrances, lotions, sunscreens, and house cleaning products. From 2006 to 2010, the number of U.S. prescriptions increased 12 percent to a record 3.7 billion, while nonprescription drug purchases held steady around 3.3 billion. Many of these drugs and personal care products do not biodegrade and may persist in the environment for years.

The best and most cost-effective way to ensure safe water at the tap is to keep our source waters clean. Never flush unused medications down the toilet or sink. Instead, check to see if the pharmacy where you made your purchase accepts medications for disposal, or contact your local health department for information on proper disposal methods and drop-off locations. You can also go on the Web at <http://earth911.com/recycling/unwanted-or-expired-medications> to find more information about disposal locations in your area.

TipTopTap

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's screen as they could be pieces of plastic from the hot water heater's dip tube. Faucet gaskets can break down and cause black, oily slime. If you find this slime, replace the faucet's 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 filters!)

Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. The state requires us to monitor 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	MCL [MRDL]	MCLG [MRDLG]	Tyngsborough Water District		The City of Lowell		Dracut Water Supply District		VIOLATION	TYPICAL SOURCE
				AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH		
Chlorine (ppm)	2013	[4]	[4]	0.74	ND-0.74	NA	NA	NA	NA	No	Water additive used to control microbes
Chlorite (ppm)	2013	1	0.8	NA	NA	0.52	ND-0.52	NA	NA	No	By-product of drinking water disinfection
Fluoride (ppm)	2013	4	4	NA	NA	1.11	0.91-1.11	1.6	ND-1.6	No	Water additive which promotes strong teeth
Gross Alpha (pCi/L)	2013	15	0	NA	NA	0.5 (±1.1)	NA	0.7 ¹	ND-0.7 ¹	No	Erosion of natural deposits
Haloacetic Acids [HAA]-Stage 2 (ppb)	2013	60	NA	18.5	1.0-18.5	22.7	ND-22.7	15 ²	ND-15 ²	No	By-product of drinking water disinfection
Nitrate (ppm)	2013	10	10	NA	NA	0.25	ND-0.25	1.23	ND-1.23	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Radium 226 (pCi/L)	2011	5	0	NA	NA	NA	NA	0.2	ND-0.2	No	Erosion of natural deposits
Radium 228 (pCi/L)	2013	5	0	NA	NA	0.1 (±0.6)	NA	NA	NA	No	Erosion of natural deposits
TTHMs [Total Trihalomethanes]-Stage 2 (ppb)	2013	80	NA	54.2	13.1-54.2	69.8	ND-69.8	50.0 ²	ND-50.0 ²	No	By-product of drinking water disinfection
Turbidity ³ (NTU)	2013	TT	NA	NA	NA	0.17	0.08-0.17	NA	NA	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2013	TT=95% of samples <0.3 NTU	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% TILE)		SITES ABOVE AL/TOTAL SITES		VIOLATION	TYPICAL SOURCE		
Copper (ppm)	2011	1.3	1.3	0.141		0/20		No	Corrosion of household plumbing systems; Erosion of natural deposits		
SECONDARY SUBSTANCES											
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	The City of Lowell		Dracut Water Supply District		VIOLATION	TYPICAL SOURCE		
				AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH				
Manganese (ppb)	2013	50	NA	NA	NA	220	73-220	Yes ⁴	Leaching from natural deposits		
pH (Units)	2013	6.5-8.5	NA	8.0	7.7-8.0	NA	NA	No	Naturally occurring		
Sulfate (ppm)	2013	250	NA	NA	NA	15.6	ND-15.6	No	Runoff/leaching from natural deposits; Industrial wastes		

UNREGULATED SUBSTANCES ⁵

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	The City of Lowell		Dracut Water Supply District		TYPICAL SOURCE
		AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	
Bromodichloromethane (ppb)	2013	4.08	ND–4.08	NA	NA	By-product of drinking water chlorination
Chloroform (ppb)	2013	19.82	ND–19.82	NA	NA	By-product of drinking water chlorination
Sodium (ppm)	2013	25.9	ND–25.9	32.9 ⁶	ND–32.9 ⁶	Erosion of natural deposits; road salt and water treatment chemicals
Sulfate (ppm)	2013	5.0	ND–5.0	NA	NA	Mineral and nutrient

¹ Sample in 2011.

² Sampled in 2008.

³ 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.

⁴ Manganese is a naturally occurring mineral found in rocks, soil and groundwater, and surface water. Manganese is necessary for proper nutrition and is part of a healthy diet, but can have undesirable effects on certain sensitive populations at elevated concentrations. MADEP has set a health advisory limit for manganese at 300 ppb.

⁵ 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.

⁶ Sampled in 2012.

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.

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).

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