



ANNUAL
WATER
QUALITY
REPORT

WATER TESTING PERFORMED IN 2014



Presented By
Tyngsborough Water District

Our Mission Continues

We are proud to present once again our annual water quality report covering all testing performed between January 1 and December 31, 2014. Most notably, last year marked the 40th anniversary of the Safe Drinking Water Act (SDWA). This rule was created to protect public health by regulating the nation's drinking water supply. We celebrate this milestone as we continue to manage our water system with a mission to deliver the best-quality drinking water. By striving to meet the requirements of SDWA, we are ensuring a future of healthy, clean drinking water for years to come.

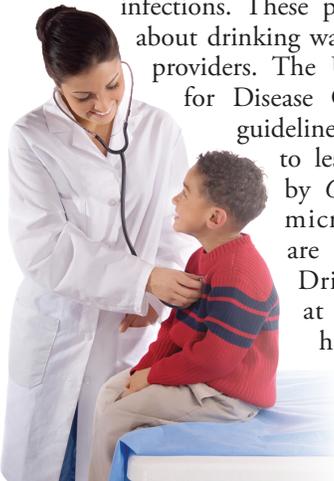
Please let us know if you ever have any questions or concerns about your water.

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 those with cancer undergoing chemotherapy, those 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) 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 that 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 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 1st and 3rd Tuesdays of each month beginning at 7 p.m. at our office on 87 Progress Ave, Unit Two.

Source Water Assessment for Pennichuck Water

A Source Water Assessment Plan (SWAP) is now available at our office (PW). 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://desnh.gov/organization/division/water/dwgb/dwspp/dwsap.htm>.

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 or at www.epa.gov/safewater/lead.

Benefits of Chlorination

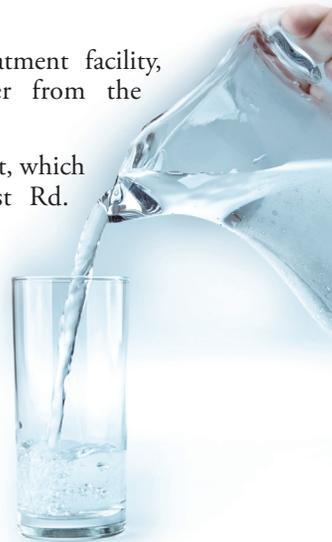
Disinfection, a chemical process used to control disease-causing microorganisms by killing or inactivating them, is unquestionably the most important step in drinking water treatment. By far the most common method of disinfection in North America is chlorination.

Before communities began routinely treating drinking water with chlorine (starting with Chicago and Jersey City in 1908), cholera, typhoid fever, dysentery, and hepatitis A killed thousands of U.S. residents annually. Drinking water chlorination and filtration have helped to virtually eliminate these diseases in the U.S. Significant strides in public health are directly linked to the adoption of drinking water chlorination. In fact, the filtration of drinking water plus the use of chlorine is probably the most significant public health advancement in the 20th century.

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. wellfield in Tyngsborough.
- The Pennichuck Water water treatment facility, which treats and filters water from the Merrimack River and Pennichuck Brook.



Missed Monitoring

During the summer of 2014, one sample for lead and copper was missed. We will take one sample during the 2015 sample schedule to correct the number of samples. We do not believe that missing this monitoring requirement had any impact on public health and safety. We have already taken 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.

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 tables below show only those contaminants that were detected in the water. The state requires us to monitor for certain substances less often 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 | | The City of Lowell | | Pennichuck Water | | 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) | 2013 | 2 | 2 | NA | NA | NA | NA | 0.0154 | ND–0.0154 | NA | NA | No | Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits |
| Chlorite (ppm) | 2014 | 1 | 0.8 | NA | NA | 0.67 | ND–0.67 | NA | NA | NA | NA | No | By-product of drinking water disinfection |
| Fluoride (ppm) | 2014 | 4 | 4 | NA | NA | 1.11 | 0.82–1.11 | NA | NA | 1.8 | NA | No | Water additive that promotes strong teeth |
| Gross Alpha Particles (pCi/L) | 2014 | 15 | 0 | NA | NA | 0.04 | ND–0.04 | NA | NA | 0.7 | ND–0.7 | No | Erosion of natural deposits |
| Haloacetic Acids [HAAs]–Stage 2 (ppb) | 2014 | 60 | NA | 14.9 | 1.8–14.9 | NA | NA | NA | NA | NA | NA | No | By-product of drinking water disinfection |
| Nitrate (ppm) | 2014 | 10 | 10 | NA | NA | 0.45 | ND–0.45 | NA | NA | 1.18 | ND–1.18 | No | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits |
| Perchlorate (ppb) | 2014 | 2 | NA | NA | NA | 0.24 | ND–0.24 | NA | NA | NA | NA | No | Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks, and explosives |
| Radium 226 (pCi/L) | 2014 | 5 | 0 | NA | NA | NA | NA | NA | NA | 0.2 | ND–0.2 | No | Erosion of natural deposits |
| Radium 228 (pCi/L) | 2014 | 5 | 0 | NA | NA | 0.20 | ND–0.20 | NA | NA | NA | NA | No | Erosion of natural deposits |
| TTHMs [Total Trihalomethanes]–Stage 2 (ppb) | 2014 | 80 | NA | 69.7 | 11.3–69.7 | NA | NA | NA | NA | NA | NA | No | By-product of drinking water disinfection |
| Total Coliform Bacteria (% positive samples) | 2014 | 5% of monthly samples are positive | 0 | 4.4 | NA | NA | NA | NA | NA | NA | NA | No | Naturally present in the environment |
| Total Organic Carbon (ppm) | 2014 | TT | NA | NA | NA | NA | NA | 1.8 | ND–1.8 | NA | NA | No | Naturally present in the environment |
| Turbidity' (NTU) | 2014 | TT | NA | NA | NA | 0.22 | 0.04–0.22 | 0.11 | ND–0.11 | NA | NA | No | Soil runoff |
| Turbidity (Lowest monthly percent of samples meeting limit) | 2014 | TT=95% of samples <0.3 NTU | NA | NA | NA | 100 | 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) | 2014 | 1.3 | 1.3 | 0.14 | | 0/23 | | No | Corrosion of household plumbing systems; Erosion of natural deposits | | | | |

SECONDARY SUBSTANCES

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | The City of Lowell | | Dracut Water Supply District | | EXCEEDANCE | TYPICAL SOURCE | | |
|--------------------------------|-----------------|--------------------|------|------------------------------|-------------------|------------|----------------|--------------------|--|
| | | SMCL | MCLG | AMOUNT DETECTED | RANGE LOW-HIGH | | | AMOUNT DETECTED | RANGE LOW-HIGH |
| Manganese ² (ppb) | 2014 | 50 | NA | NA | NA | 239 | 71–239 | Yes | Leaching from natural deposits |
| pH (Units) | 2014 | 6.5–8.5 | NA | 8.2 | 7.7–8.2 | NA | NA | No | Naturally occurring |
| Sulfate (ppm) | 2014 | 250 | NA | 5.0 | ND–5.0 | 15.8 | ND–15.8 | No | Runoff/leaching from natural deposits; Industrial wastes |

UNREGULATED SUBSTANCES³

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | The City of Lowell | | Pennichuck Water | | Dracut Water Supply District | | TYPICAL SOURCE |
|--------------------------------|-----------------|--------------------|-------------------|--------------------|-------------------|------------------------------|-------------------|--|
| | | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | |
| Bromodichloromethane (ppb) | 2014 | 5.6 | ND–5.6 | NA | NA | NA | NA | By-product of drinking water disinfection |
| Chloroform (ppb) | 2014 | 23.3 | ND–23.3 | NA | NA | NA | NA | By-product of drinking water disinfection |
| MTBE (ppb) | 2014 | <0.05 | ND–<0.05 | NA | NA | NA | NA | Gasoline additive |
| Sodium (ppm) | 2014 | 24.0 | ND–24.0 | 42 | ND–42 | 32.9 | ND–32.9 | Erosion of natural deposits; Road salt and water treatment chemicals |

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.

²Manganese is a naturally occurring mineral found in rocks, soil, groundwater, and surface water. Manganese is necessary for proper nutrition and is part of a healthy diet, but it can have undesirable effects on certain sensitive populations at elevated concentrations. MA DEP has set a health advisory limit for manganese at 300 ppb. (The exceedance occurred only in Dracut Water Supply District.)

³Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. The purpose of monitoring unregulated contaminants is to assist the U.S. EPA in determining their occurrence in drinking water and whether future regulation is warranted.

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 that 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).

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

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