ANNUAL WATER QUALITY REPORT

Reporting Year 2022

Presented By

City of Newburyport
DPS Water Division

PWS ID#: 3206000

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.

Where Does My Water Come From?

Our drinking water comes from both surface water and groundwater supplies. The surface supplies, which make up 80 percent of our water, are the Indian Hill Reservoir in West Newbury, the Artichoke Reservoirs in West Newbury and Newburyport, and Bartlett Spring Pond in Newburyport. Surface water is treated at the water treatment plant, where color, turbidity, and bacteria are removed through conventional filtration. The water is then treated for corrosion control, pH adjustment, disinfection, and fluoridation before delivery to our customers. Groundwater, which makes up 20 percent of our drinking water, is supplied by two gravel-packed wells (Well 1 and Well 2) located along Ferry Road in Newburyport.

> "Thousands have lived without love, not one without water."
>
> —W.H. Auden

Community Participation

You are invited to participate in our public forum and discuss any topics about your drinking water. We meet monthly at the DPS Water & Sewer Operations Building, located at 16C Perry Way (Industrial Park). For details, including virtual meeting information, visit www.cityofnewburyport.com.

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.

Source Water Assessment

DEP prepared a Source Water Assessment Program (SWAP) Report for the water supply sources serving this system. This report notes the key land uses within the water supply protection areas for each source and the potential contamination from these land uses. The watershed for our sources is primarily a mixture of residential, agricultural, and recreational use and forestland. The City of Newburyport has enacted a resource protection ordinance to protect our water supplies. Additionally, the city has developed a surface water supply protection plan to help monitor and preserve our surface water sources. Residents can help protect the water sources by being careful in the use and storage of hazardous materials such as paints, solvents, pesticides, and fertilizers.

The complete SWAP report is available at the Newburyport Water Treatment Plant, Newburyport Board of Health, or online at http://www.mass.gov/dep. For more information, contact Tom Cusick at (978) 465-4466.

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.

QUESTIONS? For more information about this report, or for any questions relating to your drinking water, please call Thomas D. Cusick Jr., Water Treatment Operations Superintendent, at (978) 465-4466.

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 Newburyport rain barrel program is back. Rain Barrels Can Help Conserve Water and Protect the Environment.

To find out more about the barrels and to participate in The Great American Rain Barrel Program, please visit: www.greatamericanrainbarrel.com/community/ and select Newburyport/West Newbury. Barrels are offered for $89. Barrels will be available for pick up on Thursday, June 29th 5:00-7:00pm at the Recycling Center, 23 Colby Farm Lane Newburyport, MA 01950 Deadline for purchase is June 18th, Midnight.

Water Treatment Process

In order to meet state and federal requirements for public drinking water, our water receives the following physical and chemical treatments before being supplied to our customers:

Surface Water

- Pretreatment chemicals are added to coagulate impurities, which are then settled out in large sedimentation tanks.
- Water is then filtered through two 40-inch-deep mixed-media filters to remove particles.
- Chlorine is added to disinfect water to prevent waterborne diseases.
- The pH of the water is raised to reduce acidity, helping to prevent internal plumbing corrosion.
- A corrosion inhibitor is used to minimize leaching of lead and copper from household plumbing into the tap water.
- Sodium fluoride is added to help prevent tooth decay.

Well Water

The well water does not require pretreatment chemicals for coagulation or filtration. It is, however, treated with chlorine, fluoride, and a corrosion inhibitor, and pH is adjusted.

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.

Where can I get more information?

Mass DEP Fact Sheet – Questions and Answers for Consumers (https://www.mass.gov/media/1854351)

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. Some maximum contaminant levels (MCLs) are calculated as an annual average; see footnotes for an explanation.

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	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2022	2	2	0.007	0.007–0.007	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2022	[4]	[4]	1.59	0.72–1.59	No	Water additive used to control microbes
Fluoride (ppm)	2022	4	4	1.1	ND–1.1	No	Water additive which promotes strong teeth
Haloacetic Acids [HAAs]–Stage 2 (ppb)	2022	60	NA	23	9.0–34	No	By-product of drinking water disinfection
Nitrate (ppm)	2022	10	10	1.93	0.274–1.93	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Perchlorate (ppb)	2022	2	NA	0.27	0.075–0.27	No	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks, and explosives
PFAS6 (ppt)	2022	20	NA	4.67	2.6–5.1	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.
Total Organic Carbon (removal ratio)	2022	TT[1]	NA	2.8	1.4–2.8	No	Naturally present in the environment
TTHMs [total trihalomethanes]–Stage 2 (ppb)	2022	80[2]	NA	49	25–84	No	By-product of drinking water disinfection
Turbidity[3] (NTU)	2022	TT	NA	0.12	0.02–0.12	No	Soil runoff
Turbidity (lowest monthly percent of samples meeting limit)	2022	TT = 95% of samples meet the limit	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
Copper (ppm)	2021	1.3	1.3	0.089	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2021	15	0	ND	0/30	No	Lead service lines; Corrosion of household plumbing systems, including fittings and fixtures; Erosion of natural deposits

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
pH (units)	2022	6.5-8.5	NA	7.9	7.2–7.9	No	Naturally occurring
Hardness, Total (ppm)	2022	250	NA	104	NA	No	Naturally occurring

UNREGULATED SUBSTANCES [4]

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Bromodichloromethane (ppb)	2022	6.1	ND–6.1	NA
Chlorodibromomethane (ppb)	2022	2.3	ND–2.3	NA
Chloroform (ppb)	2022	6.2	ND–6.2	NA
Sodium (ppm)	2022	45	43–45	Naturally occurring deposits; Road salt; Water treatment chemicals

OTHER UNREGULATED SUBSTANCES [4]

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Anatoxin-a (ppb)	2018	0.246	0.197–0.246	NA
Cylindrospermopsin (ppb)	2018	0.463	0.421–0.463	NA
HAA6Br (ppb)	2019	11.34	7.06–16.57	NA
HAA9 (ppb)	2019	34.13	19.90–59.44	NA
Manganese (ppb)	2019	13.8	7.31–25.8	NA

[1] 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.

[2] Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system and may have an increased risk of getting cancer.

[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] 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.

Testing for *Cryptosporidium*

Cryptosporidium is a microbial parasite found in surface water throughout the U.S. Although filtration removes *Cryptosporidium*, the most commonly used filtration methods cannot guarantee 100-percent removal. Our monitoring indicates the presence of these organisms in our source water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Symptoms of infection include nausea, diarrhea, and abdominal cramps.

Most healthy individuals are able to overcome the disease within a few weeks. However, immunocompromised people have more difficulty and are at greater risk of developing severe, life-threatening illness. Immunocompromised individuals are encouraged to consult their doctors regarding appropriate precautions to prevent infection. *Cryptosporidium* must be ingested to cause disease and may be passed through other means than drinking water.

U.S. EPA requires public water systems using surface water to conduct sampling for *Cryptosporidium* in source waters. This sampling is used to determine if additional treatment will be necessary to provide protection from microbials. Systems are placed in one of four categories (bins) based on their microbial results. The Newburyport Water Division has been placed in the lowest bin, meaning that no additional treatment is required.

Sampling conducted for a two-year period ending in March 2010 (48 total samples collected) showed the presence of a single *Cryptosporidium* oocyst per liter in one sample. All of the remaining samples were negative. These sample results are the reason for the placement of our water system in the lowest bin classification. The next sampling period began in October 2016. At that time we resumed Round 2 testing. The testing was conducted on a monthly basis for a two-year period ending in 2018, as required by U.S. EPA. There are no additional positive tests to report.

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.

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.