

ANNUAL WATER QUALITY REPORT

Reporting Year 2021



Presented By
**City of Newburyport
DPS Water Division**



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, new treatment technologies, system upgrades, and training, the payoff will be reliable, high-quality tap water delivered to you and your family.

Source Water Assessment

The DEP prepared a Source Water Assessment Program (SWAP) Report for the water supply sources serving this water 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 watersheds for our sources are 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 state.ma.us/dep. For more information, contact Tom Cusick at (978) 465-4466.

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 and virtual meeting information, check 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 water.epa.gov/drink/hotline.



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 the 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.

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

—Benjamin Franklin

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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 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.

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 for it to cause disease and may be passed through other means than drinking water.

The 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 based on their microbial results. The Newburyport Water Division has been placed in the lowest category, 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 the remaining samples were negative. These sample results are the reason for the placement of our water system in the lowest classification.

The next sampling period began in October 2016. At that time we commenced 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 were no additional positive tests to report.

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.

Newburyport 2022 Rain Barrell Program

Reasons Why You Should Buy a Rain Barrell

- Decreases your water bill by up to 40%.
- It is an alternate source of water during droughts.
- Rain water is a healthy, chlorine and chemical-free water source for plants and gardens.
- Improves residential storm management.
- Rain barrels slow pollution from runoff.
- Lower municipal water demands & save energy at treatment plants.

About The Great American Rain Barrel:

- 100% re-purposed, food grade, UV protected and BPA free barrels. Produced in Massachusetts.
- Most durable rain barrels on the market: 3/16" wall thickness.
- Will last for years when properly drained & stored for winter. Pay for themselves in one year.
- Screen filtered to keep mosquitoes out.
- Several rain barrels can be linked together — easy 5-minute setup
- Available Colors: Forest Green, Earth Brown, and Nantucket Grey. Also available unpainted.

How to Purchase Your Rain Barrel:

Rain Barrels are available for purchase by residents at the discounted price of \$79.00.

How to Order: <https://www.greatamericanrainbarrel.com/community/>, Select Town and State; **Pick-Up:** Thursday, June 30th 5:00-7:00pm Recycling Center, Colby Farm Lane - off Low Newburyport, MA 01950 Deadline:, June 21st, Midnight



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.

During the summer of 2021, our system did not provide notice of individual results from lead and copper tap water monitoring to persons served by the system at each sampling site, as required by 310 CMR 22.06B(6)(c), by the deadline. The failure to provide this consumer notification is a reporting violation. There is no health violation associated with this reporting oversight; the only corrective action required is to inform the public in this report.

REGULATED SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2021	2	2	0.033	0.009–0.033	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2021	[4]	[4]	2.08	0.21–2.08	No	Water additive used to control microbes
Fluoride (ppm)	2021	4	4	0.94	0.10–0.94	No	Water additive which promotes strong teeth
Haloacetic Acids [HAAs]–Stage 2 ¹ (ppb)	2021	60	NA	26	3.7–35	No	By-product of drinking water disinfection
Nitrate (ppm)	2021	10	10	1.05	0.329–1.05	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Perchlorate (ppb)	2021	2	NA	0.21	0.05–0.21	No	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks, and explosives
PFAS6 (ppt)	2021	20	NA	14.9	1.9–14.9	No	Discharges and emissions from production of moisture- and oil-resistant coatings on fabrics and other materials; Firefighting foams
Total Organic Carbon (ppm)	2021	TT ²	NA	3.5	1.6–3.5	No	Naturally present in the environment
TTHMs [total trihalomethanes]–Stage 2 ^{1,3} (ppb)	2021	80	NA	LRAA 65	56–81	No	By-product of drinking water disinfection
Turbidity ⁴ (NTU)	2021	TT	NA	0.16	0.02–0.16	No	Soil runoff
Turbidity (lowest monthly percent of samples meeting limit)	2021	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
Hardness, Total (ppm)	2021	250	NA	104	NA	No	Naturally occurring
pH (units)	2021	6.5–8.5	NA	8	7.2–8	No	Naturally occurring

UNREGULATED SUBSTANCES ⁵

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Bromodichloromethane (ppb)	2021	5.2	ND–5.2	By-product of drinking water disinfection
Chlorodibromomethane (ppb)	2021	1.2	ND–1.2	By-product of drinking water disinfection
Chloroform (ppb)	2021	8.6	ND–8.6	By-product of drinking water disinfection
Sodium (ppm)	2021	63	53–63	Naturally occurring deposits; Road salts; Water treatment chemicals

OTHER SUBSTANCES ⁵

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

¹The MCL for this contaminate is based on the Locational Running Annual Average, Amount Detected is the highest average reported for that year's LRAA. Range Low-High, includes ALL testing results for that year, therefore some testing results in the range can be higher than the actual MCL.

²The 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 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.

³Some 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.

⁴Turbidity 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.

⁵Unregulated 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.

Water Treatment Process

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

Surface Water

- Pretreatment chemicals are added to coagulate impurities, which settle 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, which helps prevent internal plumbing corrosion.
- A corrosion inhibitor is used to minimize the addition of lead and copper from household plumbing into 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.

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.