

CITY OF NORTHAMPTON DEPARTMENT OF PUBLIC WORKS WATER DIVISION

151 YEARS of SERVICE

1871 – 2022

- Incorporated 1871
- 22 Full Time Employees
- 28,000 +/- Customers
- 150 + Miles of Pipe
- 1400 + Fire Hydrants
- 5000+ Valves
- 3 Active Reservoirs
- 6.5 MGD Water Treatment Plant
- 2 Active Wells
- 1 Backup Reservoir
- 3900 +/- Acres of Watershed Land



Installation of new 36" Pressure Reducing Valve building



City of Northampton Department of Public Works Water Quality Report

For 2022

MASS DEP PWS ID #1214000

This annual report provides information on the quality of water delivered by the City of Northampton's Department of Public Works Water Division. The report describes where your water comes from, what it contains, and how it compares to DEP and EPA standards. Our system is routinely inspected by DEP for its technical, financial and managerial capacity to ensure safe drinking water.

The water quality of our system is monitored by the DPW's Water Division and DEP to ensure compliance with all regulatory requirements. Water quality data is also reviewed to determine if any additional treatment is required.

Please read this report carefully, and if you have any questions, call the DPW at (413) 587-1570. You may also email questions to dpwinfo@northamptonma.gov.



New water main installation on Damon Rd. at North King St.

HOW MUCH WATER DID NORTHAMPTON USE IN 2022?

In 2022, The City of Northampton supplied 935 million gallons of water to its customers. On average, the City supplied 2.55 million gallons of water each day. **The most water used in one day was 4.3 million gallons!** The design capacity of the Water Treatment Plant is 6.5 million gallons a day, which is more than enough to meet the City's peak demand.

The DPW encourages water conservation. Please visit our website <http://www.northamptonma.gov/770/Water> for water conservation tips and for information on how to get a free residential water conservation kit.

WATER RESTRICTION POLICY

The DPW has adopted a water use restriction policy to comply with DEP permit requirements. DEP requires that water use be restricted when average daily stream flow in the Mill River at the Clement Street Bridge gauge drops below 26.3 cubic feet per second for a 3 day period and/or when the State issues a drought advisory. The water use restriction can be lifted when the stream flow average meets or exceeds the minimum flow of 26.3 cubic feet per second for 7 consecutive days or when the advisory is lifted by the State. When a water use restriction is in place, there will be a ban on non-essential outdoor watering. The DPW will notify the public when a water use restriction is in place and will also provide specifics about the water use restriction.

WHO MAKES DECISIONS ABOUT OUR DRINKING WATER?

Daily operations are overseen by DPW Director Donna LaScalea, City Engineer David Veleta, Water Superintendent Keith Snape and Chief Water Treatment Plant Operator Ian Henderson.

The DPW Director makes recommendations to the Mayor regarding water rates, Water Division budgets and land acquisitions for water supply protection. If approved by the Mayor, those recommendations must be submitted to the City Council for final approval.

The City Council holds a public comment session at the beginning of every regular meeting and holds separate public hearings on budgets and rates. The time, date and location of these meetings is posted on the City's website at <https://www.northamptonma.gov/1120/City-Council> and is also posted in the City Clerk's Office at 210 Main Street in Northampton.

WHERE DOES NORTHAMPTON'S DRINKING WATER COME FROM? HOW IS IT TREATED?

In 2022, approximately 98.7% of Northampton's drinking water came from three surface water reservoirs: the Francis P. Ryan (O3s) and the West Whately Reservoirs, located in West Whately, and the Mountain Street Reservoir (O1s) located in Williamsburg, Whately and Hatfield. The remaining 1.3% came from our two groundwater wells in Florence (O1G and O2G).

To meet water quality standards for surface water supplies, we treat water from the reservoirs at the Water Treatment Plant located on Mountain Street in Williamsburg. Sediment, small particles and organisms such as algae and bacteria can cause taste and odor issues and may make water unhealthy to drink. To remove this material, it is necessary to treat the water and then pass it through two types of filtering units – an adsorption clarifier and a granular activated carbon filter.

When raw water from the reservoirs enters the Water Treatment Plant, a flocculent (aluminum sulfate) is added. Flocculent is a chemical that binds together small particles that are found in water to facilitate their removal. The water then goes through a clarifier where approximately 60% of the organic particles are removed. It is then filtered by granular activated carbon, which removes the remaining particles. Once filtered, sodium hypochlorite, a disinfectant, is added prior to it entering a 4 million gallon storage tank. As the water leaves the 4 million gallon storage tank, sodium carbonate is added for pH adjustment and corrosion control.

At the Corrosion Control Facility in Leeds, zinc orthophosphate, which is a corrosion inhibitor, is added to the water. It forms a protective coating inside the water distribution pipes. Testing conducted throughout the water system in 2021 showed that this treatment is effective at reducing lead and copper concentrations in drinking water.

All of the chemicals used by the DPW are approved by the one of the following organizations: National Sanitation Foundation or Underwriters Laboratory (UL), both accredited by the American National Standards Institute (ANSI). These chemicals also have to meet performance standards established by the American Water Works Association (AWWA).

HOW IS OUR DRINKING WATER PROTECTED?

In 2003, DEP completed a Source Water Assessment Program (SWAP) report. The SWAP Report assessed the potential for contamination of our water supplies. Northampton was ranked as having a moderate to low risk to our water supplies. The report reviewed both watershed lands and aquifer protection zones. It identified the largest threats to our water supply as residential fuel storage and some commercial uses.

If you are interested in the details of SWAP Report, more specific information can be obtained from DEP in Springfield or online at:

<https://www.mass.gov/lists/source-water-assessment-and-protection-swap-program-documents>

WHAT'S IN THE WATER WE DRINK?

Sources of drinking water (both tap 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 materials and in some cases, radioactive material. Water can also pick up substances resulting from the presence of animals or from human activity.

To ensure that tap water is safe to drink, DEP and EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Regulations set by the Food & Drug Administration (FDA) and the Massachusetts Department of Public Health (DPH) establish limits for contaminants in bottled water that 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 contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and their potential health effects can be obtained by calling:

Safe Drinking Water Hotline 1-800-426-4791

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, those with HIV/AIDS or other immune system disorders, and some elderly and infants can be particularly at risk for infections. These persons should seek advice about their drinking water from their healthcare providers. EPA/Center for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are also available from the Safe Drinking Water Hotline at: (1-800-426-4791)

2022 WATER TESTING INFORMATION

The DPW is committed to supplying water that complies with DEP and EPA standards. All data shown was collected during calendar year 2022 unless otherwise noted in the table. We are proud to report that last year your drinking water met all applicable health standards regulated by DEP and EPA. The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently.

CONTAMINANTS THAT MAY BE PRESENT IN DRINKING WATER SOURCES INCLUDE

Microbial Contaminants - Viruses and bacteria which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

Inorganic Contaminants - Salts and metals can be naturally occurring or result from storm water runoff, industrial or domestic wastewater discharges, oil and gas production, as well as mining and farming.

Pesticides and Herbicides - may come from a variety of sources such as agriculture, urban storm water runoff and residential uses.

Organic Chemical Contaminants - Synthetic and volatile organic chemicals which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.

Radioactive Contaminants - can be naturally occurring or can be the result of oil and gas production and mining activities.

CROSS CONNECTION CONTAMINATION

A cross connection may occur whenever contaminated or non-potable water flows backwards into a drinking water supply line. This may cause a dangerous situation if the water line is connected to a piece of equipment that contains a harmful liquid, such as a boiler, an air conditioning system, or a fire sprinkler system, and the pressure in the water line drops (due to a fire, a water main break, etc.). The drop in pressure can cause that harmful liquid to be drawn back into the drinking water supply. A cross contamination and back flow situation is not limited to commercial and industrial sites only, as an outside hose connection can cause a dangerous condition at your home. If a hose is used to spray fertilizers, pesticides or weed killers and the water pressure drops, the liquid you are spraying can be drawn back into the drinking water pipes.

To **prevent** a cross connection, **never submerge** hoses in buckets, pools, tubs or sinks and do not use spray attachments without a backflow prevention device installed on the faucet. These devices are inexpensive and are available at most hardware stores and home improvement centers. Just ask for a hose bib vacuum breaker. One should be installed on all threaded faucets around your home, both inside and out, or anywhere you may want to connect a hose. If you are the owner of an industrial, commercial, or institutional property, you **must** have your facility's plumbing surveyed for cross connections. This way you can help protect your employees and the public water supply from potential contamination. For more information please contact us at dpwinfo@northamptonma.gov

2022 WATER TESTING INFORMATION

SYNTHETIC ORGANIC AND INORGANIC SUBSTANCES								
Regulated Contaminant	Dates Collected	Highest Result or Highest Running Average Detected	Range Detected	MCL or MRL	MCLG or MRDLG	Violation? Y/N	Possible Sources of Contamination	
Nitrate (ppm)	11/09/2022	2.00	ND-2.00	10	10	NO	Runoff from fertilizer use; leaching from septic tank, sewage; erosion of natural deposits.	
Barium (ppb)	10/12/2022	296	ND-296	2000	2000	NO	Discharge or drilling wastes; discharge from metal refineries; erosion of natural deposits	
Chromium (ppb)	10/12/2022	1.1	ND-1.1	100	100	NO	Discharge from steel and pulp mills; Erosion of natural deposits	
PFAS6 (ppt)	Semiannual	2.21	ND-2.21	20	N/A	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 fire-fighting foams.	
LEAD AND COPPER TESTING								
Substance (Units)	Date Collected	90th percentile	AL	MCLG	# of sites sampled	# of sites above AL	Violation?	Major Sources
Lead (ppb)	Jul/Aug 2021	1.2	15	0	30	0	NO	Corrosion of household plumbing system; erosion of natural deposits
Copper (ppb)	Jul/Aug 2021	124	1300	1300	30	0	NO	Corrosion of household plumbing system; erosion of natural deposits, leaching from wood preservatives.
RADIONUCLIDES								
Contaminant	Date Collected	Highest Level Detect		MCL	MCLG	Violation?	Possible Source	
Gross Alpha Activity (pCi/L)	07/14/2015	2.13pci/l		15pci/l	0	NO	Erosion of natural deposits, naturally occurring.	
DISINFECTION BY-PRODUCTS								
Regulated Contaminant	Date(s) Collected	Highest Result or Highest Running Average Detected	Range Detected	MCL or MCLG	OSRG or MRDLG	Violation?	Possible Source(s) of Contamination	
Total Trihalomethanes (THMs) (ppb)	Quarterly	24.9	13.7-40.5	80	----	NO	By-product of drinking water disinfection	
Haloacetic Acids (HAA5's) (ppb)	Quarterly	19.8	9.4-29.8	60	----	NO	By-product of drinking water disinfection	
Chlorine (ppm) (free, total or combined)	Monthly	0.70	0.12 - 1.43	4	4	NO	Additive used to control microbes	
Bromodichloromethane (ppb)	8/3/2022	3.28	3.28	N/A	N/A	NO	Trihalomethane; by-product of drinking water chlorination.	
Chloroform (ppb)	8/3/2022	11.2	11.2	N/A	70 (OSRG)	NO	Trihalomethane; by-product of drinking water chlorination. (In non-chlorinated sources, chloroform may be naturally occurring.)	
TREATMENT TECHNIQUES								
Turbidity	TT	Compliance Results	Highest Detected Value		Violation?	Possible Source of Contamination		
Monthly Turbidity (95%) NTU Limit	0.3	100% Compliance	0.248 NTU		NO	Soil Runoff		
Max. Day Turbidity NTU Limit	1.0	100% Compliance	0.134 NTU		NO			
Monthly turbidity compliance is related to a specific treatment technique (TT). Our system filters the water so at least 95% of our samples each month must be below the turbidity limits specified in the regulations.								
UNREGULATED AND SECONDARY CONTAMINANTS								
Contaminants	Date Collected	Result or Range Detected	Average Detected		SMCL	ORSG	Possible Source	
Perfluorobutanesulfonic Acid (ppt)	Semiannual	ND-2.70	2.42		----	----	-----	
Sodium (ppm)	10/12/2022	6.02-17.9	10.8		----	20	Natural sources; runoff from use as salt on roadways; by-product	

TABLE ABBREVIATIONS AND DEFINITIONS:

Action Level (AL) – The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

BRL – Below Reporting Limit

Detected Level – This column represents an average of sample results collected during this calendar year. If only one sample was collected, there will not be a range listed in the adjacent column.

Maximum Contaminant Level (MCL) – The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs (see below) as feasible using the best available treatment technology.

Massachusetts Office of Research and Standards Guideline (ORSB) – This is the concentration of a chemical in drinking water, at or below which adverse health effects are unlikely to occur after chronic (lifetime) exposure. If exceeded, it serves as an indicator of the potential need for further action.

Minimum Reporting Level (MRL) -The minimum concentration that can be reported by a laboratory as a quantitated value for a method analyte in a sample following analysis.

Maximum Residual Disinfectant Level (MRDL) – The highest level of a disinfectant (chlorine, chloramines, chlorine dioxide) allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG) – The level of a drinking water disinfectant (chlorine, chloramines, chlorine dioxide) below which there is no known expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Maximum Contamination Level Goal (MCLG) – 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.

MGD – Million gallons per day

N/A – Not Applicable

N/D – Non-detectable with type of testing conducted

NTU – Nephelometric turbidity units

pCi/L: picocuries per liter (a measurement of radioactivity)

PFAS-Per- and polyfluoroalkyl substances

90th Percentile – Out of every 10 homes tested for lead and copper levels, 9 were at or below this level. We collected 30 samples, therefore the 90th percentile would be the 27th highest sample (30 x 0.9 =27).

ppb – Parts per billion or micrograms per liter (ug/L)

ppm – Parts per million, or milligrams per liter (mg/L)

ppt – Parts per trillion or nanograms per liter

Running Annual Average (RAA)- The average of four consecutive quarters of data.

Secondary Maximum Contaminant Level (SMCL) – These standards are developed to protect aesthetic qualities of drinking water and are not health based.

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

Turbidity – A measure of the cloudiness of the water. It is a good indicator of water quality. We measure turbidity in NTUs (Nephelometric Turbidity Units).

Unregulated Contaminants – Contaminants for which the EPA has not established drinking water standards. Some of these chemicals are unregulated because there is little toxicity information available for these compounds. The purpose of monitoring unregulated contaminants is to assist EPA in determining their occurrence in drinking water and whether further regulations are warranted.

COMPLIANCE WITH THE LEAD & COPPER RULE

Northampton treats the water to comply with lead and copper regulations. The treatment stabilizes pH and establishes a protective coating on the inside of water pipes. This treatment helps prevent lead and copper from entering your drinking water. In 2006, after many continuous years of testing, the DPW **remained in compliance** with the lead and copper rule and DEP reduced the monitoring requirements for lead and copper testing to once every three years. In 2021, lead and copper test results showed that Northampton **continues to remain in compliance** and will not have to test again until 2024. 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. The DPW is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been off 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 online at:

<http://www.epa.gov/safewater/lead>

LEAD AND COPPER IN SCHOOLS

In 2004, 2016, 2018, the Northampton DPW and the Northampton School Department conducted extensive testing of all public schools for lead and copper. All water fixtures were tested including bubblers, sinks and faucets. Any fixtures that were over the EPA limit were either replaced or removed from service.

WATERSHED PROTECTION UPDATE

Land uses near the reservoirs can have a significant effect on water quality and quantity in the reservoirs. Forestland, the optimal land use, naturally filters rainwater and slowly releases it to the reservoirs to ensure a sustained supply of high quality water. The goal of Northampton's watershed protection plan is to maintain healthy forests on land that the city owns, and to acquire additional land near the reservoirs in order to prevent conflicting land uses from affecting water quality. In total, DPW owns approximately 3900 acres of land associated with the drinking water reservoirs. This amount of ownership affords the City a high level of drinking water supply protection. The City also limits public access to watershed land and routinely monitors these areas for unwanted or illegal activity. The City manages forests in both the Mountain Street and Ryan-West Whately Reservoir watersheds according to a DCR-approved Forest Stewardship Plan. For more information on these efforts, please contact the Water Division or visit our Watershed Protection and Management webpage at:

<https://www.northamptonma.gov/1793/Protection-Management>.

STORMWATER

Northampton has many pipes and drains that move stormwater off City streets and parking lots that are separate from the sanitary sewer and drinking water pipe systems. This collected runoff from developed areas flows directly into the City's rivers, brooks, ponds, and wetlands. Stormwater runoff may collect oil, gas, pesticides, pet waste, salt and other contaminants that can be present in developed areas. The City's stormwater drainage system is designed to prevent flooding and does not clean or treat stormwater before it is discharged to the environment. Keeping stormwater as clean as possible is essential to protecting the environment and meeting federal regulations. If everyone does a little to prevent stormwater pollution it will help keep Northampton's rivers, ponds, brooks and wetlands from becoming polluted. For more information about stormwater and what you can do to help, please visit:

<http://www.northamptonma.gov/762/>