



**2021 Annual Water Quality Report
for the
NORTH CHELMSFORD WATER DISTRICT
DEP PWS ID # 3056002**

The North Chelmsford Water District is committed to providing residents with a safe reliable supply of high-quality drinking water. Our water is tested using sophisticated equipment and advanced procedures. North Chelmsford Water District meets state and federal standards. This annual “Consumer Confidence Report,” required by the Safe Drinking Water Act (SDWA), tells you where our water comes from, what our tests show about it, and many other things you should know about drinking water. North Chelmsford Water District’s drinking water meets or surpasses all federal and state drinking water standards.

This report is about your drinking water sources and quality; regulations that protect your health; programs that protect the quality of our water sources; and the treatment processes that assure our drinking water meets or surpasses all federal and state standards.

Location of the North Chelmsford Water District and hours of operation:

The Water District Office is located at 64 Washington Street, North Chelmsford, Mass. the office hours are 7:30 AM to 3:30 PM, Monday through Friday. A member of our maintenance staff is always on-call. After hours, the answering service takes messages and will page the on-call person for water emergencies.

Telephone number (978)251-3931

Fax number (978)251-1181

E-mail address northchelmsfordwater@outlook.com

Internet Address: www.northchelmsfordwater.com

Board of Water Commissioners:

A three-member Board of Water Commissioners, elected by the water takers of North Chelmsford, monitors the operations of the North Chelmsford Water District. Current members are Chairman, Bruce H. Clark, Chairman, David M. Irvine and Robert M. Leavitt, Clerk.

Water Commissioner Meetings:

Commissioners meet on the first Monday of each month at 4:00 PM at the Water District office. All meeting times and agendas are posted at the Chelmsford Town Hall. Those who wish to meet with the Commissioners are asked to put their request in writing and they will be added to the next agenda.

We encourage public interest and participation in our decisions affecting drinking water.

The North Chelmsford Water District received a Public Water System Award for Outstanding Performance and Achievement in the Medium and Large Community System Category in 2021.

Our Groundwater Drinking Sources

The North Chelmsford Water District receives their water from four groundwater gravel-packed wells and two Bed Rock Wells, known as the Bomil Well Field, withdrawing water from the Merrimack River Basin and recharging from Cold Spring Brook and Stony Brook.

Our two water storage tanks have 5.9 million gallons of combined capacity.

The annual amount of water supplied to our customers was 289.51 million gallons in 2021.

Source Water Assessment Program (SWAP)

The Source Water Program assesses the susceptibility of public water supplies to potential contamination due to land uses and activities within the recharge areas. Established under the Federal Safe Drinking Water Act the program requires every state to:

- Inventory land uses within the recharge areas of all public water supply sources.
- Assess the susceptibility of drinking water sources to contamination from land uses.
- Publicize the results to provide support for improved protection.

What is My System Ranking?

A susceptibility ranking of "high" was assigned to this system using the information collected during the assessment by the Department of Environmental Protection.

The North Chelmsford Water District continues to take an active role in promoting source water protection. The Water Treatment Facility has been in full operation since June 06, 2011. The facility is operating as designed and is removing Iron and Manganese to below the SMCL's. In 2018 we put the two Deep Bed Rock wells online with full approval, these two sources will improve the water quality and assure that we have sufficient water supply to meet our future needs. We continue to monitor and enforce the activities within the recharge area and report all violations to the proper authorities. We diligently continue to work with the Massachusetts Dept. of Environmental Protection, Massachusetts Highway Dept. and the Town of Chelmsford to reduce sodium levels and any other potential contaminations to our water supply.

Where can I see the SWAP Report?

The complete SWAP report is available at the North Chelmsford Water District, the Chelmsford Board of Health and online at www.mass.gov/dep/water/drinking/3056002.pdf for more information call Superintendent, Mr. Bruce J. Harper, Sr. at 978-251-3931.

Important Definitions

Action Level (AL) is the concentration of a contaminant, which, if exceeded, triggers treatment, or other requirement, which a water system must follow.

Maximum Contaminant Level (MCL) : 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.

Maximum Contaminant 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.

Secondary Maximum Contaminant Levels (SMCLs) These standards are developed to protect the aesthetic qualities of drinking water and are not health based.

ppm-Parts Per Million or mg/l-milligrams per Liter-One part substance per million parts water.

ppb-Parts Per Billion or Ug/l- micrograms per liter- one part substance per billion parts water.

Ppt-Parts Per Trillion or Ng/l- nanograms per liter- one part substance per trillion parts water.

pCi/L Pico Curies Per Liter– Pico Curies per liter is a measure of the radioactivity in water.

ND-Non-detected -----NT-Not Tested-----WTP-Water Treatment Plant

90th Percentile – Nine out of every ten houses tested are at or below the reported level.

EPA-Environmental Protection Agency

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

Maximum Residual Disinfectant Level (MRDL): 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.

Maximum Residual Disinfectant Level Goal (MRDLG): The levels of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the uses of disinfectants to control microbial contaminants.

The following table lists all the drinking water contaminants that we detected during the 2021 calendar year or during the most recent sampling period within the past five years. These were the only contaminants detected in all the monitoring required by the state. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in the table is from testing done from January 01, 2021 thru December 31, 2021. The state requires us to monitor for certain contaminants that are not expected to vary significantly from year to year. Some of the data, although representative of the water quality, is more than one year old.

2021 Water Quality Testing Results

Microbiological Contaminants: None Detected (ND) in 2020

Radioactive Substance Every Six Years/Every	Location	Unit		MCLG	Detect Level	Date Collected/Date Analyzed	Typical source of contaminant
Gross-Alpha Emitters Uranium	Water Treatment Plant	PCi/L UG/L		0 30	0.7+/-0 ND	03/10/2021 03/10/2021	Erosion of natural deposits Erosion of natural deposits
Radium 226 Radium-228 Radon	Water Treatment Plant	PCi/L PCi/L PCi/L		0 0 10,000	0.4+/-0 0.6+/-0 687	06/15/2021 09/05/2021 08/22/2021	Erosion of natural deposits Erosion of natural deposits Erosion of natural deposits
Inorganic Substances Annually	Date Tested	Unit	MCL		Detected Level	Range	Typical source of Contaminant
Nitrate	06/23/2021	ppm	10		0.84	0 to -0.	Runoff from fertilizer; leaching from septic tanks; sewage; erosion of natural deposits
Nitrite	06/23/2021	ppm	1.0		None Detected	None Detected	Runoff from fertilizer; leaching from septic tanks; sewage; erosion of natural deposits
SUBSTANCES Annually	Date Tested	Action Level	90th Percentile		# of sites found above the Action Level		Typical source of contaminant
Copper	09/16	1.3 ppm	0.207		0		Corrosion of household plumbing systems.
Lead	09/16	.015 ppm	0.002		0		Corrosion of household plumbing systems.
Synthetic Organic Contaminants Every Three Years	Date Tested	Unit	MCL		Detected Level	Violated/Non-Violated	Typical source of Contaminant Control of annual and perennial brush and vines rangeland and non-irrigated areas.
	06/24/21	ppb			Water Treatment NON DETECTED	Non-Violated	
Volatile Organic Compounds	Date Tested	Unit	MCL		Detected Level	Violated/Non-Violated	Typical source of contaminant
					Water Treatment		
Chloroform	09/07/2021	Ppb/ug	None		1.11	Non-Violated	By-product of drinking water chlorination
Bromodichloromethane	09/07/2021	Ppb/ug	None		0.89	Non-Violated	By-product of drinking water chlorination
Chlorodibromomethane	09/07/2021	Ppb/ug	None		2.04	Non-Violated	By-product of drinking water chlorination
Bromoform	09/07/2021	Ppb/ug	None		1.69	Non-Violated	By-product of drinking water chlorination
Methyl tert butyl ether, (MTBE)	09/07/2021	Ppb/ug	None		Non-Detect	Non-Violated	A fuel additive. the EPA has Issued a Drinking Water Advisory Range of 20,000 to 40,000 ppb
Regulated Contaminants	Date(s) Collected	* High Quarter RAA	Range Detected	MCL/ MCLG	MDL/ MCL	Violated/Non-Violated	Possible Source(s) of Contamination
PFAS6 (ppt) PFOS/PFOA PFHxS/PFN PFHpA/PFH	Collect Monthly at Point of Entry to Distribution		ND to 5 Ppt/Ng	20 Ppt/Ng	1.80	Non-Violated	Man-made chemicals. Used as surface products or water resistant, in fire industrial purposes, and pesticides fluoropolymers (such as Teflon), adhesives, and photographic films.
Chlorine (ppm)	Daily	0.25	0.15 to 0.31		4	Non-Violated	Water additive used to control microorganisms
Trihalomethanes (TTHM) (ppm)	Annual 08/04/2021	22.7	21.4 to 22.7	-----		Non-Violated	By-product of drinking water chlorination

Haloacetic acids (HAA5s)	Annual 08/04/20	2.69	1.99 2.69	-----	None	By-product of drinking water chlorination	
Perchlorate	Annual 09/07/20	Ug/l	MCL 2	Sample Location	Detected Level	Violated	Perchlorate is natural occurring anion commonly associated with the of ammonium, potassium, and sodium
				WTP	0.086	None	
Inorganic Compounds (regulated)	Date Tested Every Nine WAIVER	Unit	MCL	Sample Location		Violated	Typical source of contaminant
Arsenic	09/27/2021	ppm	0.01	WTP	ND	None	Erosion of natural deposits
Barium	09/27/2021	ppm	2	WTP	0.031	None	Erosion of natural deposits
Fluoride	09/27/2021	ppm	4	WTP	0.2	None	Erosion of natural deposits
Mercury	09/27/2021	ppm	0.00	WTP	ND	None	Erosion of natural deposits

Your drinking water meets EPA's standard for arsenic, EPA's standard balances the current Understanding of Removing Arsenic from drinking water. EPA continues to research the health effects of arsenic which is a m Concentrations and is linked to other health effects such as skin damage and circulatory problems.

Second Contaminant	Date Tested	Unit	SMC	MRL	Detected Level Water Treatment	Violated	Typical source of contamination
Calcium	09/23/2021	ppm	NON	0.2	58.9	None	Mineral and Nutrient
Magnesium	09/23/2021	ppm	NON	0.1	7.4	None	Mineral and Nutrient
Sulfate (So	09/23/2021	ppm	250	1	15.3	None	Mineral and Nutrient
Iron (Fe)	09/23/2021	ppm	0.3	0.00	ND	None	Naturally occurring element in so
Manganese	09/23/2021	ppm	0.05	0.00	ND	None	Naturally occurring element in so
Potassium (K)	09/23/2021	ppm	NON	0.1	25.1	None	Soft metal often linked up with ch
Alkalinity(Ca	09/23/2021	ppm	NON	1	67	None	The capacity of water to neutraliz

COMPLIANCE WITH DRINKING WATER REGULATIONS

The North Chelmsford Water District is in full Compliance with Ma DEP and the US EPA;

In order to assure that tap water is safe to drink, the U.S. Environmental Protection Agency (EPA) prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contamination in bottled water that must provide the same protection for public health. All drinking water, including bottle water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contamination does not necessarily indicate that water poses a health risk. More information about contamination and potential health effects can be obtained by calling the EPA's Drinking Hotline at 800-426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people who have HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice from their health care providers.

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 North Chelmsford Water District is 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 <http://www.epa.gov/safewater/lead>.

Sources of drinking water (both tap water and bottle water) include rivers, lakes streams, ponds, reservoirs, springs and wells. As water travels over the surface of land or through the ground, it dissolves naturally occurring minerals, and in some cases, radioactive material. It can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

Microbial Contaminants- such as viruses and bacteria, which may come from sewerage treatment plants, septic systems, agricultural livestock operations and wildlife.

Inorganic Contaminants- such as salts and metals, which can be naturally occurring or the results from urban storm water 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 agricultural, urban storm water runoff and residential uses.

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

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

PFAS-Per and Polyfluoroalkyl Substances- PFAS are a group of man-made chemicals that do not readily break down in either the environment or the human body and, therefore, can build up over time. There is human and experimental lab evidence that exposure to PFAS can lead to adverse human health effects. PFAS have been used in many consumer products, including firefighting foam, and in a number of industrial processes. The North Chelmsford Water District is testing monthly for PFAS in the Raw and Finished water and will be completing a study in 2020 to determine the Best Management Practice. The likely source of the PFAS has been discovered at 52 and 54 Richardson Road, the Town of Chelmsford, the North Chelmsford Water District and Massachusetts DEP are working together to come up with a plan to remediate the PFAS chemicals to below acceptable limits.

FREQUENTLY ASKED QUESTIONS (FAQS)

Is my water safe to drink?

North Chelmsford Water District meets or exceeds all governmental standards for drinking water.

What is Cross-Connection Control?

A cross-connection program is required to prevent drinking water contamination from unapproved sources. A cross-connection is formed at any point where a drinking water line connects to equipment, (boilers), systems containing chemicals (air conditioning systems, fire sprinkler systems, irrigation systems) or water sources of questionable quality. Contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (backpressure). Contamination can also occur when the pressure in the drinking line drops due to routine occurrences, (main breaks, heavy water demand) causing contaminants to be sucked out from the equipment into the drinking water line, (backsiphonage). The purpose of the program is to prevent backsiphoning of non-potable water into the public drinking water distribution system. The installation of backflow prevention devices is recommended for all inside and outside hose connections. You can purchase devices at a hardware or plumbing supply store. Cross-connection and backflow information is available at the Water District. A cross-connection survey on Municipal and Commercial accounts is done at least once a year.

Is the Water hard or soft?

The water is slightly hard. Hardness in drinking water is usually caused by the presence of calcium and magnesium ions. When present in substantial amounts, the water is said to be "hard" because making soap lather is hard (difficult). Cleaning with hard water, that is, water that contains more than 150 milligrams per liter of hardness is difficult. Our water contains 178 milligrams per liter of hardness in the year 2021.

What causes my water to occasionally have a brown or black color? Naturally occurring iron and manganese in the water build up on the insides of the pipes and sloughs off from time to time. When we flush water mains, high concentrations of these minerals are removed from the pipes and the water is very dark. If fire hydrants are opened, this too can stir up sediment in the system. Usually, if you let your water run, it will clear up. If discoloration persists, however, call us and we will make recommendations or make an appointment to check it out.

Sometimes my water looks cloudy. Is this harmful?

No. Cloudiness in drinking water is caused by tiny air bubbles in the water similar to the gas bubbles in carbonated soft drinks. After a while, the bubbles rise to the top and are gone.

How is our water treated?

The Ultra Water Filtration System treats your water to meet or exceed drinking water standards. The treatment process uses state of the art technology and uses the following process: Chlorine Dioxide, a strong oxidizer; Potassium Hydroxide is added as a pH adjuster for corrosion control; Poly Aluminum Chloride is added to aid in the filtration process; post chlorination for disinfection at a residual level

between 0.45 to 0.90 milligrams per liter. The treatment plant complies with all the previous compliance order(s) from the Massachusetts Department of Environmental Protection.

We do not add fluoride to the water supply.

Are we connected to other Municipal Water Supplies?

Yes, we have two emergency connections with the Chelmsford Water District and two emergency connections with the City of Lowell.

Summer Water Management Program

May 01, 2022 to October 15, 2022

LEVEL 1 GREEN 6:00 AM to 9:00 AM <u>OR</u> 6:00 PM to 9:00 PM	LEVEL 2 YELLOW 6:00 PM to 9:00 PM	LEVEL 3 (RED) No outside water use until further notice
Odd numbered addresses on odd numbered calendar days and even numbered addresses on even numbered days are allowed to use automatic sprinkler systems and non-automatic sprinkler systems during these times only. Watering with hand-held hoses and watering cans for small flower and vegetables garden allowed from 6AM to 9:00 PM on your designated day using the odd/even model.	Odd numbered addresses on odd numbered calendar days and even numbered addresses on even numbered days are allowed to use automatic sprinkler systems and non-automatic sprinkler systems during these times only. Watering with hand-held hoses and watering cans for small flower and vegetables gardens is allowed from 6:00 PM to 9:00 PM on your designated day using the odd/even model.	You can also find out which level is in effect for your Water District by calling our office: North Chelmsford Water District 978-251-3931 East Chelmsford Water District 978-453-0121 Chelmsford Water District 978-256-2931 or 978-256-2381
Levels in effect will be posted throughout the Districts and in the local media. The signs will show the level number in the following colors LEVEL 1-----GREEN LEVEL 2-----YELLOW LEVEL 3-----RED	Why Do We Need Levels? To ensure adequate pressure and fire protection, storage tanks must be $\frac{3}{4}$ full. If this amount cannot be replenished during non-watering times more restrictive hours must be established by going up a level.	Watch for water-wise tips for your landscaping needs in your bills and in the local media. Consult local nurseries and irrigation service providers for advice on water-wise landscaping maintenance. Our personnel are ready to address your concerns.

NOTE: All automatic lawn sprinklers systems require permitting from the North Chelmsford Water District and the Local Plumbing Inspector. All systems must have rain sensors, backflow prevention devices and be zoned properly with timers set according to the Level we are in.

Substance	Date Tested	Detected Level	Annual Quarterly Average
Sodium	Quarterly	88.2 to 96.4 ppm/mg/l	93.15 ppm/mg/l

THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
AND
THE DEPARTMENT OF PUBLIC HEALTH
SODIUM NOTICE FOR PUBLIC WATER SYSTEM

The principal source of exposure to sodium is the diet. The average American diet can contain anywhere from 2,000 mg/d to 24,000 mg/d depending on the amount of table salt added to food. Fruits, vegetables, and meats naturally contain sodium. Many foods such as dairy products and processed foods contain higher concentrations of sodium. For example, 2 slices of white bread could contain close to 300 mg of sodium, 1 frankfurter 400-800 mg and diet cola 20 mg of sodium. Sodium is often added during food preparation and at the table to food. Drinking water contributes a small fraction (less than 10%) to the overall sodium intake.

Sodium is a naturally occurring common element found in soil and water. It is necessary for the normal functioning of the human systems. Sodium is part of a complex physiological mechanism involved in regulating fluids in the human systems. The normally functioning kidney compensates for moderate changes in sodium intake by increasing or decreasing sodium and fluid excretion in the urine. Small

changes in the sodium intake do not adversely affect plasma sodium concentrations in the majority of the population. The natural mechanisms of fluid regulation maintain a relatively constant concentration of plasma sodium. Adequate daily total sodium intake has been estimated to range from 115 to 750 milligrams per day (mg/d) for infants, 325 to 2700 mg/d for children and 1100 to 3300 mg/d for adults.

Some people, however, have difficulty regulating fluid volume as a result of several diseases, including congestive heart failure, kidney disease and hypertension. Some individuals are genetically susceptible to hypertension, a condition that may be enhanced by elevated plasma sodium levels. Monitoring sodium intake in these individuals is important in the management of their particular malady.

The Department of Environmental Protection (DEP) is requiring all public water suppliers to notify the local Board of Health, the Massachusetts Department of Public Health and the Massachusetts Department of Environmental Protection of the detected concentrations of sodium in drinking water. Notification is required so that individuals who are on sodium restricted diets or who wish to monitor their sodium intake for other reasons will be able to take the amount of sodium in their water into account.

The guideline of 20 milligrams per liter, (Mg/l) or 20 Parts Per Million, (PPM) for sodium, when exceeded, does not require treatment of the water to reduce the levels to prevent adverse health effects on public health. Rather, the guideline represents a level of sodium in water that physicians and sodium sensitive individuals should be aware of in cases where sodium exposures are being carefully controlled.

We'll be happy to answer any questions about the North Chelmsford Water District and our water quality.

Please visit our Website at North Chelmsford Water District, you can pay your Water and Bond Bills get the latest News and Announcements, see the current Rules, Regulations and Rates, See the posted Water Meeting Agendas and Commissioners Water meeting minutes.

or

Call 978-251-3931, Fax 978-251-1181 or E-Mail us at northchelmsfordwater@outlook.com

Sincerely,
Bruce J. Harper, Sr.
Water Superintendent