

ANNUAL WATER QUALITY REPORT

Reporting Year 2023

**Presented By
Chelmsford Water District**





Our Mission Continues

We are pleased to share our Consumer Confidence Report encompassing tests conducted from January 1 to December 31, 2023. Throughout the years, our dedication has been unwavering in ensuring that our drinking water consistently adheres to both state and federal standards. Our ongoing commitment involves the incorporation of innovative methods to deliver the highest-quality drinking water to you. In the face of emerging challenges to drinking water safety, we maintain a vigilant approach to achieving the objectives of source water protection, water conservation, and community education, all while addressing the diverse needs of our water users. Please remember that we are readily available if you ever have any questions or concerns about the quality of your water.

Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. We meet each month at the Chelmsford Water District, 20 Watershed Lane. Please check www.chelmsfordwater.com for the date, official posting, and agenda.

Where Does My Water Come From?

Chelmsford Water District customers benefit from a robust water supply derived from 20 distinct sources. Our water sources include the Merrimack and Concord River basins, ensuring a reliable and ample water reserve. The distribution reservoirs within our system boast one of the largest capacities in the state - an impressive 15.3 million gallons of water. Collectively, our facilities contribute approximately one billion gallons of pristine drinking water annually.

The Riverneck Road Treatment Plant, operational since 2004, can treat up to three million gallons of water daily. Similarly, the Crooked Spring Treatment Plant, commissioned in spring 2007, can treat up to four million gallons per day. The Smith Street Treatment Plant underwent refurbishment and was reinstated in fall 2012, further enhancing our water treatment capabilities. We remain dedicated to ensuring the consistent delivery of high-quality water to meet the needs of our valued customers. To learn more about our watershed, visit How's My Waterway at www.epa.gov/waterdata/how-s-my-waterway.

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. Environmental Protection Agency (EPA)/Centers for Disease Control and Prevention (CDC) 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. 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.

QUESTIONS?

For more information about this report, or any questions relating to your drinking water, please contact Daniel Tringale, Environmental Compliance Manager, at (978) 256-2931 or visit www.chelmsfordwater.com.

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>.

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 www.epa.gov/safewater/lead.

How Is My Water Treated and Purified?

The Crooked Spring Treatment Plant handles water from nine wells across the district, including the four gravel-packed wells from Meadowbrook #3 pumping station that became operational in November 2007. The untreated water undergoes aeration in a tower to eliminate potential volatile organic compounds. Subsequently, the water undergoes greensand filtration, effectively removing elevated levels of iron and manganese before it is distributed. The plant adopts a sustainable approach by recycling backwash discharged water to a lagoon, where it ultimately contributes to the aquifer.

Raw water sourced from the remaining nine wells in the eastern district undergoes greensand filtration at the Riverneck Road Treatment Plant to address high iron and manganese levels. The prefiltration process includes an aeration tower to eliminate potential volatile organic compounds. The backwash water produced during treatment is stored in a 100,000-gallon underground facility on-site. This facility has the flexibility to either pump the backwash water to the nearby public sewer or recycle it back to the treatment plant.

The Smith Street Treatment Plant and Wells, inactive since 1999, were reinstated in 2012 with DEP approval. The district refurbished the two wells and upgraded the treatment system. Raw water enters the Smith Street Treatment Plant, where an aeration and membrane filtration system effectively removes iron and manganese. This plant, along with its wells, serves as a relief system during times of withdrawal stress and an emergency backup for both the Crooked Spring and Riverneck Road Treatment Plants.

All water from the Chelmsford Water District undergoes state-of-the-art treatment, incorporating disinfection, groundwater certification, and pH control.

Source Water Assessment

The Source Water Assessment and Protection (SWAP) program assesses the susceptibility of public water supplies to potential contamination due to land uses and activity 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 these land uses, and publicize the results to provide support for improved protection.

What Is My System's Ranking?

A susceptibility ranking of high was assigned to this system using the information collected during the assessment by DEP.

Where Can I See the SWAP Report?

The complete SWAP report is available at the Chelmsford Water District, the Chelmsford Board of Health, and <https://www.mass.gov/doc/northeast-region-source-water-assessment-protection-swap-program-reports/download>. For more information, call Daniel Tringale, Environmental Compliance Manager, at (978) 256-2931.

Test Results

Our water is monitored for many 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 detections 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.

We participated in the fifth stage of the U.S. EPA's Unregulated Contaminant Monitoring Rule (UCMR5) program by performing additional tests on our drinking water. UCMR5 sampling benefits the environment and public health by providing the U.S. EPA with data on the occurrence of contaminants suspected to be in drinking water to determine if it needs to introduce new regulatory standards to improve drinking water quality. Unregulated contaminant monitoring data are available to the public, so please feel free to contact us if you are interested in obtaining that information. If you would like more information on the U.S. EPA's Unregulated Contaminant Monitoring Rule, please call the Safe Drinking Water Hotline at (800) 426-4791.

REGULATED SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Alpha Emitters (pCi/L)	2023	15	0	2.9	2.9–2.9	No	Erosion of natural deposits
Chlorine (ppm)	2023	[4]	[4]	0.63	0.01–0.63	No	Water additive used to control microbes
Combined Radium (pCi/L)	2023	5	0	0.3	0.3–0.3	No	Erosion of natural deposits
Haloacetic Acids [HAAs]–Stage 2 (ppb)	2023	60	NA	43	ND–43	No	By-product of drinking water disinfection
Nitrate (ppm)	2023	10	10	1.04	0.68–1.04	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nitrite (ppm)	2023	1	1	<0.02	<0.02–0.02	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Perchlorate (ppb)	2023	2	NA	<1.0	<1.0–1.0	No	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks, and explosives
PFAS6 (ppt)	2023	20	NA	24	12.1–24	Yes	Discharges and emissions from industrial and manufacturing sources associated with the production or use of moisture- and oil-resistant coatings on fabrics and other materials; use and disposal of products containing these PFAS, such as firefighting foams
TTHMs [total trihalomethanes]–Stage 2 (ppb)	2023	80 ¹	NA	72.5	22–94	No	By-product of drinking water disinfection
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)	2023	1.3	1.3	0.198	0/30	No	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb)	2023	15	0	3	0/30	No	Lead service lines; corrosion of household plumbing systems, including fittings and fixtures; erosion of natural deposits

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.

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).

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.

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chloride (ppm)	2023	250	NA	166	155–177	No	Runoff/leaching from natural deposits
pH (units)	2023	6.5-8.5	NA	6.9	6.7–7.1	No	Naturally occurring
Sulfate (ppm)	2023	250	NA	14.45	11.9–17	No	Runoff/leaching from natural deposits; industrial wastes

UNREGULATED SUBSTANCES²

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Bromodichloromethane (ppb)	2023	14.5	7.2–24	Chlorination by-product
Chloroform (ppb)	2023	46.5	8.7–64	Chlorination by-product
Dibromochloromethane (ppb)	2023	3.75	2–7.8	Chlorination by-product
Perfluorobutanesulfonic Acid [PFBS] (ppt)	2023	3.1	2.1–3.9	Discharges and emissions from industrial and manufacturing sources associated with the production or use of moisture- and oil-resistant coatings on fabrics and other materials; use and disposal of products containing these PFAS, such as firefighting foams
Perfluorohexanoic Acid [PFHxA] (ppt)	2023	3.0	2.1–4.4	Discharges and emissions from industrial and manufacturing sources associated with the production or use of moisture- and oil-resistant coatings on fabrics and other materials; use and disposal of products containing these PFAS, such as firefighting foams
Sodium (ppm)	2023	85.24	32.7–103	Naturally occurring

¹ 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.

² 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.

What's a Cross-Connection?

Cross-connections that contaminate drinking water distribution lines are a major concern. 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. Cross-connection 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 water line drops due to fairly routine occurrences (main breaks, heavy water demand), causing contaminants to be sucked out from the equipment and into the drinking water line (backsiphonage).

Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools, or garden chemicals. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continuously jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. We have surveyed industrial, commercial, and institutional facilities in the service area to make sure that potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test backflow preventers to make sure that they provide maximum protection. For more information on backflow prevention, contact the Safe Drinking Water Hotline at (800) 426-4791.

Violation Information

During third quarter 2023, the Crooked Spring Water Treatment Plant recorded a result for six per- and polyfluoroalkyl substances (PFAS6) surpassing the DEP maximum contaminant level (MCL). It's important to note that this exceedance was isolated to the Crooked Spring plant; all other finished water from the district tested below the PFAS6 MCL. The finished water from the Crooked Spring plant returned to compliance in fourth quarter 2023 and remains below the MCL as of the date of this report.

The Chelmsford Water District is committed to developing PFAS treatment at the Crooked Spring plant as soon as possible and has submitted a pilot study to DEP to determine the best technology to do so in anticipation of potential future exceedances. The district has also submitted a short-term action plan to DEP. This proactive approach underscores the commitment to addressing water quality concerns promptly and efficiently.

Further information on PFAS6 and updates on the district's initiatives can be found at www.chelmsfordwater.com. Staying informed and adhering to guidelines provided by the water district are crucial to ensure the safety of the water supply for residents.

Some people who drink water containing these PFAS in excess of the MCL may experience certain adverse effects. These could include effects on the liver, blood, immune system, thyroid, and fetal development. These PFAS may also elevate the risk of certain cancers.