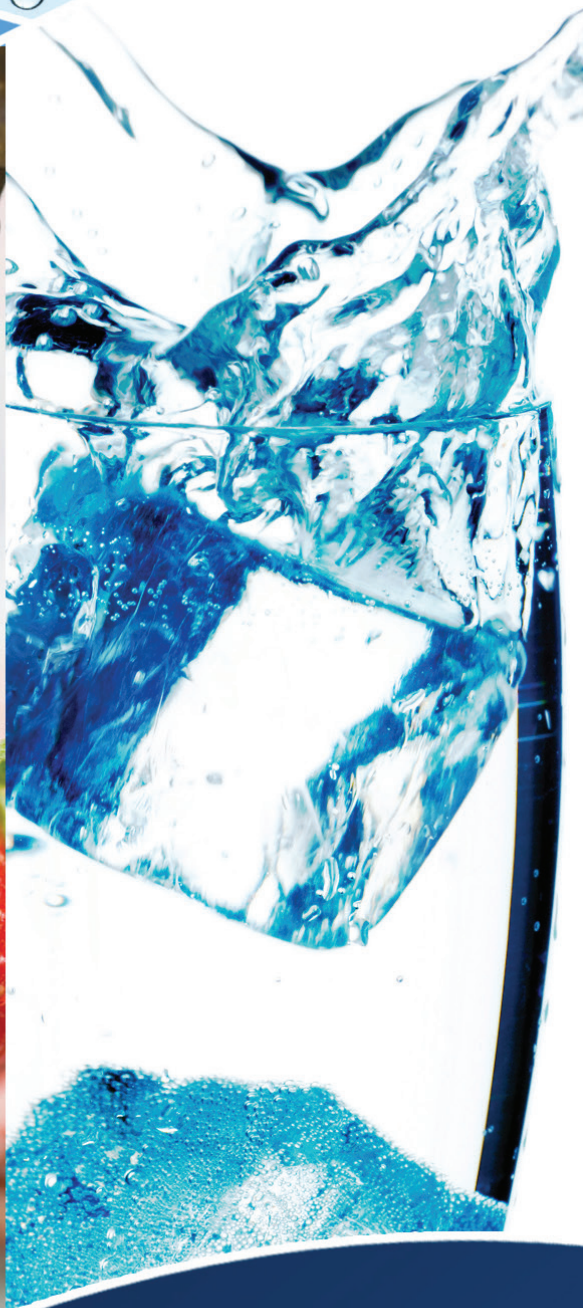


ANNUAL WATER QUALITY REPORT

WATER TESTING
PERFORMED
IN 2014



Presented By
Chelmsford Water District

PWS ID#: 3056000

Our Mission Continues

We are proud to present once again our annual water quality report covering all testing performed between January 1 and December 31, 2014. Most notably, last year marked the 40th anniversary of the Safe Drinking Water Act (SDWA). This rule was created to protect public health by regulating the nation's drinking water supply. We celebrate this milestone as we continue to manage our water system with a mission to deliver the best-quality drinking water. By striving to meet the requirements of SDWA, we are ensuring a future of healthy, clean drinking water for years to come.

Please let us know if you ever have any questions or concerns about your water.

To the Last Drop

The National Oceanic and Atmospheric Administration (NOAA) defines drought as a deficiency in precipitation over an extended period of time, usually a season or more, resulting in a water shortage causing adverse impacts on vegetation, animals, and/or people. Drought strikes in virtually all climate zones, from very wet to very dry.

There are primarily three types of drought:

- Meteorological Drought refers to the lack of precipitation, or the degree of dryness and the duration of the dry period.
- Agricultural Drought refers to the agricultural impact of drought, focusing on precipitation shortages, soil water deficits, and reduced ground water or reservoir levels needed for irrigation.
- Hydrological Drought pertains to drought that usually occurs following periods of extended precipitation shortfalls that can impact water supply (e.g., stream flow, reservoir and lake levels, ground water).

Drought is a temporary aberration from normal climatic conditions; thus it can vary significantly from one region to another. Although drought is normally occurring, human factors such as water demand can exacerbate the duration and impact that drought has on a region. By following simple water conservation measures, you can help significantly reduce the lasting effects of extended drought.

To learn more about water conservation efforts, check out the U.S. EPA's Water Conservation Tips for Residents at www.epa.gov/region1/eco/drinkwater/water_conservation_residents.html.

Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. We meet on the second Wednesday of each month beginning at 4 p.m. at the Chelmsford Water District, 20 Watershed Lane, Chelmsford, MA.

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 that 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.

Where Does My Water Come From?

The Chelmsford Water District customers are fortunate because we enjoy an abundant water supply from 19 sources. The Chelmsford Water District draws water from the Merrimack and Concord river basins. Our reservoirs hold one of the state's largest capacities, 15.3 million gallons of water. Combined, our facilities provide roughly 1 billion gallons of clean drinking water each year. The Riverneck Road Treatment Plant, which was placed in service at the end of 2004, treats 3 million gallons of water per day. The Crooked Spring Treatment Plant, placed in service in the Spring of 2007, treats 4 million gallons a day. The Smith Street Treatment Plant was refurbished and put back into services in the Fall of 2012. To learn more about our watershed, visit the U.S. EPA website at www.epa.gov/surf.

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 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 www.epa.gov/safewater/lead.

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, to assess the susceptibility of drinking water sources to contamination from these land uses, and to 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 the Massachusetts Department of Environmental Protection (DEP).

Where Can I See the SWAP Report?

The complete SWAP report is available at the Chelmsford Water District, at the Chelmsford Board of Health, and online at www.mass.gov/eea/docs/dep/water/drinking/swap/nero/3056000.pdf. For more information, call Superintendent Delaney at (978) 256-2931.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those with cancer undergoing chemotherapy, those 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>.



QUESTIONS?

For more information about this report, or any questions relating to your drinking water, please contact us at (978) 256-2381 or visit our Web site at www.chelmsfordwater.com.



Water Main Flushing

Distribution mains (pipes) convey water to homes, businesses, and hydrants in your neighborhood. The water entering distribution mains is of very high quality; however, water quality can deteriorate in areas of the distribution mains over time. Water main flushing is the process of cleaning the interior of water distribution mains by sending a rapid flow of water through the mains.

Flushing maintains water quality in several ways. For example, flushing removes sediments like iron and manganese. Although iron and manganese do not themselves pose health concerns, they can affect the taste, clarity, and color of the water. Additionally, sediments can shield microorganisms from the disinfecting power of chlorine, contributing to the growth of microorganisms within distribution mains. Flushing helps remove stale water and ensures the presence of fresh water with sufficient dissolved oxygen and disinfectant levels, and an acceptable taste and smell.

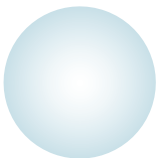
During flushing operations in your neighborhood, some short-term deterioration of water quality, though uncommon, is possible. You should avoid tap water for household uses at such times. If you do use the tap, allow your cold water to run for a few minutes at full velocity before use, and avoid using hot water, to prevent sediment accumulation in your hot water tank.

Please contact us if you have any questions or if you would like more information on our water main flushing schedule.


Ground Water Rule

On the following dates -- June 4th, July 9th, July 22nd, August 12th, September 9th, November 4th, and December 10th of 2014 -- the District was informed that at least one of our routine bacteria samples of our untreated source water collected on the associated sample dates June 3rd, July 8th, July 21st, August 11th, September 8th, November 3rd, and December 9th was positive for fecal contamination (*E. coli*). With the knowledge that the District's untreated water is vulnerable to this type of contamination and since the enacting of the Ground Water Rule, the Chelmsford Water District has ensured that its treated water through disinfection practices is and remains safe by being 4-log certified by state agencies as of February 24th, 2010. The District maintains this certification on a day-to-day basis and reports this status to the state monthly. Since the District is in compliance with the Ground Water Rule in respect to this certification, no other steps were or are required. The reporting of these positive results is for informational purposes only and a regulation requirement. At no time was the public health at risk.

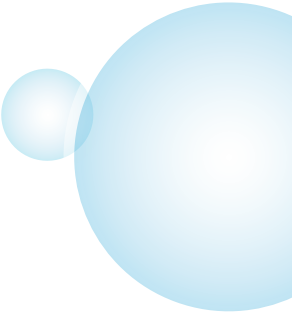

Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some elderly, and people with severely compromised immune systems.



Missed Reporting Requirement



In the month of December, we did collect and have analyzed the required samples for nitrate monitoring in the public drinking water source. However, the data was not reported within the required time frame, which caused a reporting violation. Upon being notified of this violation by the Environmental Protection Agency, the District immediately supplied the required data. Those results then having been received and properly recorded as required by state and federal law, we complied with all Public Notification requirements as of Dec 9th, 2014. As the monitoring was properly performed, there was no impact on public health and safety. We have already taken the steps to ensure that adequate monitoring and reporting will be performed in the future so that this oversight will not be repeated.



How Is My Water Treated and Purified?

The Crooked Spring Treatment Plant went online in the Spring of 2007. The water from nine of the District's wells is processed through this plant, including that from the four gravel-packed wells at Meadowbrook #3 pumping station that went on line in November of 2007. The raw water goes through an aeration tower, removing any potential volatile organic compounds. Then the water goes through a greensand filtration system, removing high levels of iron and manganese before the water enters the distribution system.

This plant recycles the backwash discharged water to a lagoon from which it then re-enters the earth and becomes part of the aquifer.

Raw water is drawn from the other eight wells in the eastern area of the district and is sent through the greensand filtration system at the Riverneck Road Treatment Plant to remove elevated levels of iron and manganese. In addition, the treatment plant treats the two wells on Canal Street that were out of service for many years because of poor water quality. The filtration process also incorporates an aeration tower to remove low levels of volatile organic compounds from the raw water. The backwash water generated from the treatment process is stored in an on-site, 100,000-gallon underground storage facility. The facility has the capability of pumping all of the backwash water to the nearby public sewer or recycling the water to the treatment plant.

The Smith Street Treatment Plant and Wells, after being unused since 1999, were re-opened in the Fall of 2012 with DEP approval. The District has refurbished the wells and retrofitted the treatment system over the past year. The raw water enters the Smith Street Treatment Plant which now is serviced by an aeration and membrane filtration system to remove iron and manganese. This plant and wells now allow for system relief during times of withdrawal stress and emergency back up for both the Crooked Spring and Riverneck Road Treatment Plants.

All of Chelmsford Water District's water is now processed and treated through state of the art treatment facilities.

Faced with deteriorating water quality and increasing peak demands for water during daytime hours, the Board of Water Commissioners has made and kept the commitment to our customers to provide treatment for all the districts wells.

Sampling Results

During the past year, we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The tables below show only those contaminants that were detected in the water. The state requires us to monitor for certain substances less often 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 3rd stage of the EPA's Unregulated Contaminant Monitoring Regulation (UCMR3) program by performing additional tests on our drinking water. UCMR3 benefits the environment and public health by providing the EPA with data on the occurrence of contaminants suspected to be in drinking water, in order to determine if the EPA needs to introduce new regulatory standards to improve drinking water quality.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chromium (ppb)	2014	100	100	0.20	0–0.20	No	Discharge from steel and pulp mills; Erosion of natural deposits
Haloacetic Acids [HAAs]–Stage 2 (ppb)	2014	60	NA	24.3	0–38.2	No	By-product of drinking water disinfection
Nitrate (ppm)	2014	10	10	1.6	0.12–1.6	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Perchlorate (ppb)	2014	2	NA	0.18	0.12–0.18	No	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks, and explosives
TTHMs [Total Trihalomethanes]–Stage 2 (ppb)	2014	80	NA	78.8	21.9–103	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% TILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2014	1.3	1.3	0.07	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2014	15	0	14	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chloride (ppm)	2014	250	NA	173	107–173	No	Runoff/leaching from natural deposits
Iron (ppb)	2014	300	NA	15	0–15	No	Leaching from natural deposits; Industrial wastes
Manganese (ppb)	2014	50	NA	28	0–28	No	Leaching from natural deposits

UNREGULATED SUBSTANCES ¹

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Bromodichloromethane (ppb)	2014	26.5	6.8–26.5	Chlorination by-product
Bromoform (ppb)	2014	1.99	0–1.99	Chlorination by-product
Chloroform (ppb)	2014	62.9	5.6–62.9	Chlorination by-product
Dibromomethane (ppb)	2014	13.6	2.1–13.6	Chlorination by-product
Sodium (ppm)	2014	72.5	52–72.5	Naturally occurring

UNREGULATED CONTAMINANT MONITORING REGULATION 3 (UCMR3)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
1,4-Dioxane (ppb)	2014	0.16	0–0.16	Cyclic aliphatic ether; Used as a solvent or solvent stabilizer in manufacture and processing of paper, cotton, textile products, automotive coolant, cosmetics, and shampoos
Chlorate (ppb)	2014	360	120–360	Agricultural defoliant or desiccant; Disinfection by-product
Cobalt (ppb)	2014	2.1	0–2.1	Naturally occurring element found in the Earth's crust and at low concentrations in seawater, and in some surface and groundwater; Cobaltous chloride was formerly used in medicine and as a germicide
Hexavalent Chromium (ppb)	2014	0.15	0.04–0.15	Naturally occurring element; Used in making steel and other alloys; Chromium-3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning, and wood preservation
Strontium (ppb)	2014	180	140–180	Naturally occurring element; Historically, commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions
Vanadium (ppb)	2014	0.20	0–0.20	Naturally occurring elemental metal; Used as vanadium pentoxide, which is a chemical intermediate and a catalyst

¹ Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. The purpose of monitoring unregulated contaminants is to assist the EPA in determining their occurrence in drinking water and whether future regulation is warranted.

Definitions

90th Percentile: Out of every 10 homes sampled, 9 were at or below this level.

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that 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

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).

SMCL (Secondary Maximum Contaminant Level): SMCLs are established to regulate the aesthetics of drinking water like taste and odor.