

Annual Water Quality Report - Reporting Year 2023

City of Cambridge Municipal Util. Comm.
410 Academy St
Cambridge, MD 21613

PWSID#: 0090002

Our Commitment

We are pleased to present to you this year's annual water quality report. This report is a snapshot of last year's water quality covering all testing performed between January 1 and December 31, 2023. Included are details about your source(s) of water, what it contains, and how it compares to standards set by regulatory agencies. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water and to providing you with this information because informed customers are our best allies.

For more information about this report, or for any questions relating to your drinking water, please call Ed Bramble, Municipal Utilities Superintendent, or James Hurley, Assistant Superintendent at 410-228-5440.

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 <http://water.epa.gov/drink/hotline>.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration 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, in some cases, radioactive material, and 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 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.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Where Does My Water Come From?

The City of Cambridge Municipal Utilities Commission customers are fortunate because we enjoy an abundant water supply from ten wells drawing from three different aquifers. We have six wells pumping from the Piney Point aquifer, two wells in the Magothy aquifer, and two wells withdrawing from the Patapsco (Raritan) aquifer.

Piney Point Formation

The Piney Point aquifer is used by eight of the nine community water systems in the area. The thickness of the Piney Point Formation is variable, and ranges from a few feet to about 160 feet. The formation consists of medium to coarse-grained, olive green to black slightly glauconitic sand with interbedded clayey layers. The top of the Piney Point Formation ranges about 340 feet below sea level at Cambridge. Transmissivity values in Cambridge range from 25,000 to 45,000 gallons per day (gpd) per foot. The Piney Point aquifer is overlain by the Chesapeake Group Formations that function as confining and leaky confining beds to this aquifer. The Piney Point aquifer does not outcrop at the ground surface, and therefore is not directly recharged by precipitation. Recharged is derived from lateral and vertical leakage through adjacent beds.

Magothy Formation

This formation consists of medium-to coarse-grained white yellow, and gray sands with irregular lenses of dark clay containing lignite. The thickness ranges from 30 to 139 feet. The top of the Magothy Formation is at about 900 feet below sea level in Cambridge. Transmissivity values at Cambridge are between 8,000 and 15,000 gpd per foot. The formation is overlain unconformably by the Matawan Formation that functions as a confining unit in Dorchester County.

Patapsco (Raritan) Formation

The Patapsco Formation consists of fine- to medium-grained greenish gray sand, with layers of mottled, tough clay. The sands occur in four beds ranging in thickness from 15 to 40 feet. The top of the Patapsco Formation ranges from about 1000 to 1500 feet below sea level in Dorchester County. Cambridge's wells have a transmissivity of over 16,000 gpd per foot. The Patapsco aquifer is overlain by multiple, younger aquifers and confining units of variable thickness. The outcrop area extends from Washington, DC, to Elkton, Maryland in a band of varying width. Between Washington and Baltimore, the outcrop area is between 10 and 20 miles wide.

To meet our daily demand, we are currently operating three or four of the wells with others in reserve. The wells pump water into ground storage tanks located at our four pumping stations. The stations are located on Stone Boundary Road, Nathans Avenue, Glasgow Street, and Brohawn Avenue. Water is pumped from our pumping stations into the distribution system, which consists of approximately 120 miles of pipe supported by our elevated storage tanks with a capacity of 1.5 million gallons. We provide our customers with 1.5 million to 4.5 million gallons of good, safe drinking water every day.

Source Water Assessment

A Source Water Assessment Plan (SWAP) is now available at our office. This plan is an assessment of the delineated area around our listed sources through which contaminants, if present, could migrate and reach our source water. It also includes an inventory of potential sources of contamination within the delineated area, and a determination of the water supply's susceptibility to contamination by the identified potential sources.

According to the Source Water Assessment Plan, our water system had a susceptibility rating of "not susceptible to contaminants originating at the land surface due to the protected nature of confining aquifers". If you would like to review the Source Water Assessment Plan, please feel free to contact our office during regular office hours.

Water Treatment Process

Due to the high quality well water utilized, the treatment process consists of just two steps. First, raw water is drawn from our wells and sent to an aeration tray, which allows for oxidation of the low iron levels that are present in the water. The water then goes to a holding tank. Chlorine is then added for disinfection. (We carefully monitor the amount of chlorine, adding the lowest quantity necessary to protect the safety of your water without compromising taste.) Finally the water is pumped from the pumpage facilities to sanitized water towers and into your home or business. Our certified water production operators monitor samples 365 days a year at different points in the system to ensure the quality of the water.

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 at (800) 426-4791 or at www.epa.gov/safewater/lead.

PFAS Monitoring Program

PFAS – or per- and polyfluoroalkyl substances – refers to a large group of more than 4,000 human-made chemicals that have been used since the 1940s in a range of products, including stain- and water-resistant fabrics and carpeting, cleaning products, paints, cookware, food packaging and fire-fighting foams. These uses of PFAS have led to PFAS entering our environment, where they have been measured by several states in soil, surface water, groundwater, and seafood. Some PFAS can last a long time in the environment and in the human body and can accumulate in the food chain.

Beginning in 2020, the Maryland Department of the Environment (MDE) initiated a PFAS monitoring program. Our water system was not tested for PFAS in 2022. EPA is expected to establish MCLs for PFOA and PFOS later this year (PFOA and PFOS are two of the most prevalent PFAS compounds). This would entail additional monitoring as well as certain actions for systems above the MCL. Additional information about PFAS can be found on the MDE website: mde.maryland.gov/PublicHealth/Pages/PFAS-Landing-Page.aspx.

(Editor Note: Add the following text as footnote for Beta/Photon Emitters):

The MCL for beta particles is 4 mrem/year. U.S. EPA considers 50 pCi/L to be the level of concern for beta particles.

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.

Regulated Substances

Substance (Unit of Measure)	Year Sampled	MCL [MRDL]	MCLG [MRDLG]	Amount Detected	Range Low- High	Violation	Typical Source
Arsenic (ppb)	2022	10	0	2.029	0 - 2.029	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2021	2	2	0.0166	0.0049 - 0.0166	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Beta/Photon Emitters (pCi/L)	2022	50	0	6	0 - 6	No	Decay of natural and man-made deposits
Chlorine (ppm)	2023	[4]	[4]	0.6	0.4 - 0.6	No	Water additive used to control microbes
Combined Radium (pCi/L)	2021	5	0	0.1	0 - 0.1	No	Erosion of natural deposits
Fluoride (ppm)	2021	4	4	1.2	0.6 - 1.2	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs] - Stage 2 (ppb)	2023	60	NA	3	0 - 7.9	No	By-product of drinking water disinfection
Nitrate (ppm)	2018	10	10	<.5	<.5 - <.5	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] - Stage 2 (ppb)	2023	80	NA	13	5.4 - 23.7	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	0.18	0/31	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2023	15	0	4.1	0/31	No	Corrosion of household plumbing systems;

Erosion of natural deposits

Unregulated Substances

Substance (Unit of Measure)	Year Sampled	Amount Detected	Range Low-High	Typical Source
Nickel (ppm)	2021	1.1	0 - 1.1	Nickel is a natural element of the earth's crust; therefore, small amounts are found in food, water, soil, and air
Sodium (ppm)	2021	139	59 - 139	Naturally occurring

Other Unregulated Substances

Substance (Unit of Measure)	Year Sampled	Amount Detected	Range Low-High	Typical Source
BromoChloroAcetic Acid (ppb)	2018	0.8	0.3 - 1.6	NA
BromoDiChloroAcetic Acid (ppb)	2018	0.47	<.5 - 1.1	NA
ChloroDiBromoAcetic Acid (ppb)	2018	0.35	ND - 0.7	NA
Chromium (ppb)	2021	2.1	0 - 2.1	NA
DiBromoAcetic Acid (ppb)	2018	0.3	<.3 - 0.6	NA
DiChloroAcetic Acid (ppb)	2018	1.4	0.7 - 2.2	NA
TriChloroAcetic Acid (ppb)	2018	1.2	<.5 - 3.0	NA
perfluorobutanesulfonic acid (ppb)	2018	2.8	0.8 - 3.7	NA
perfluorobutanoic acid (ppb)	2018	5.9	1.5 - 8.9	NA
perfluorodecanoic acid (ppb)	2018	3.9	0.4 - 12.6	NA

Table Definitions

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

pCi/L (picocuries per liter): A measure of radioactivity.

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.

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

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

90th %ile: The levels reported for lead and copper represent the 90th percentile of the total number of sites tested. The 90th percentile is equal to or greater than 90% of our lead and copper detections.

Level 1 Assessment: A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

Level 2 Assessment: A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.