ANNUAL WATER QUALITY REPORT

Reporting Year 2022

Presented By

THE CITY OF CAMBRIDGE

MARYLAND 1684

PWS ID#: 0090002

Our Mission Continues

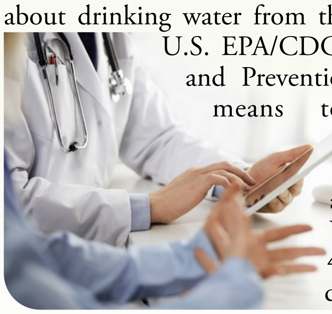
We are once again pleased to present our annual water quality report covering all testing performed between January 1 and December 31, 2022. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education, while continuing to serve the needs of all our water users. Please remember that we are always available should you ever have any questions or concerns about your 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 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 at www.epa.gov/safewater/lead.

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.



PFAS Monitoring Program

Per- and polyfluoroalkyl substances (PFAS) are a 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 firefighting foams. These uses 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 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. U.S. EPA is expected to establish maximum contaminant levels (MCLs) for perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) later this year. PFOA and PFOS are two of the most prevalent PFAS. 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: www.mde.maryland.gov/PublicHealth/Pages/PFAS-Landing-Page.aspx.

Questions?

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.

Where Does My Water Come From?

The City of Cambridge Municipal Utilities Commission customers are fortunate because we enjoy an abundant water supply from 10 wells withdrawing 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 is 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, which 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. Recharge 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, which 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 1,000 to 1,500 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, D.C., 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 at our four pumping stations 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 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

The susceptibility of the Cambridge water system is based on a review of the existing water quality data for the system, the presence of potential sources of contamination in the individual assessment areas, well integrity, and aquifer characteristics. It was determined that the Cambridge water supply is not susceptible to contaminants originating at the land surface due to the protected nature of confined aquifers. A copy of the Source Water Assessment is available at the Municipal Utilities Commission office, located at 410 Academy St. in Cambridge, MD.

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.

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	ND–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[1]	0	6	ND–6	No	Decay of natural and human-made deposits
Chlorine (ppm)	2022	[4]	[4]	0.6	0.4–0.6	No	Water additive used to control microbes
Combined Radium (pCi/L)	2021	5	0	0.1	ND–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)	2022	60	NA	4	ND–5.2	No	By-product of drinking water disinfection
Nitrate (ppm)	2018	10	10	<0.5	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [total trihalomethanes]–Stage 2[2] (ppb)	2021	80	NA	15	3.38–22.2	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)	2020	1.3	1.3	0.12	0/31	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2020	15	0	2.5	0/31	No	Corrosion of household plumbing systems; Erosion of natural deposits

[1] The MCL for beta particles is 4 millirems per year. U.S. EPA considers 50 pCi/L to be the level of concern for beta particles.

[2] 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.

Definitions

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.

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).

UNREGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Bromide (ppb)	2018	31.6	11.2–52.4	NA
Bromochloroacetic Acid (ppb)	2018	0.8	0.3–1.6	NA
Bromodichloroacetic Acid (ppb)	2018	0.47	<0.5–1.1	NA
Chlorodibromoacetic Acid (ppb)	2018	0.35	ND–0.7	NA
Chromium, Total (ppb)	2021	2.1	ND–2.1	NA
Dibromoacetic Acid (ppb)	2018	0.3	<0.3–0.6	NA
Dichloroacetic Acid (ppb)	2018	1.4	0.7–2.2	NA
HAA6Br (ppb)	2018	2.8	0.8–3.7	NA
HAA9 (ppb)	2018	5.9	1.5–8.9	NA
Manganese (ppb)	2018	3.9	0.4–12.6	NA
Total Organic Carbon [TOC] (ppb)	2018	0.6	ND–1.3	NA
Trichloroacetic Acid (ppb)	2018	1.2	<0.5–3.0	NA
Nickel (ppm)	2021	1.1	ND–1.1	Naturally occurring
Sodium (ppm)	2021	139	59–139	Naturally occurring