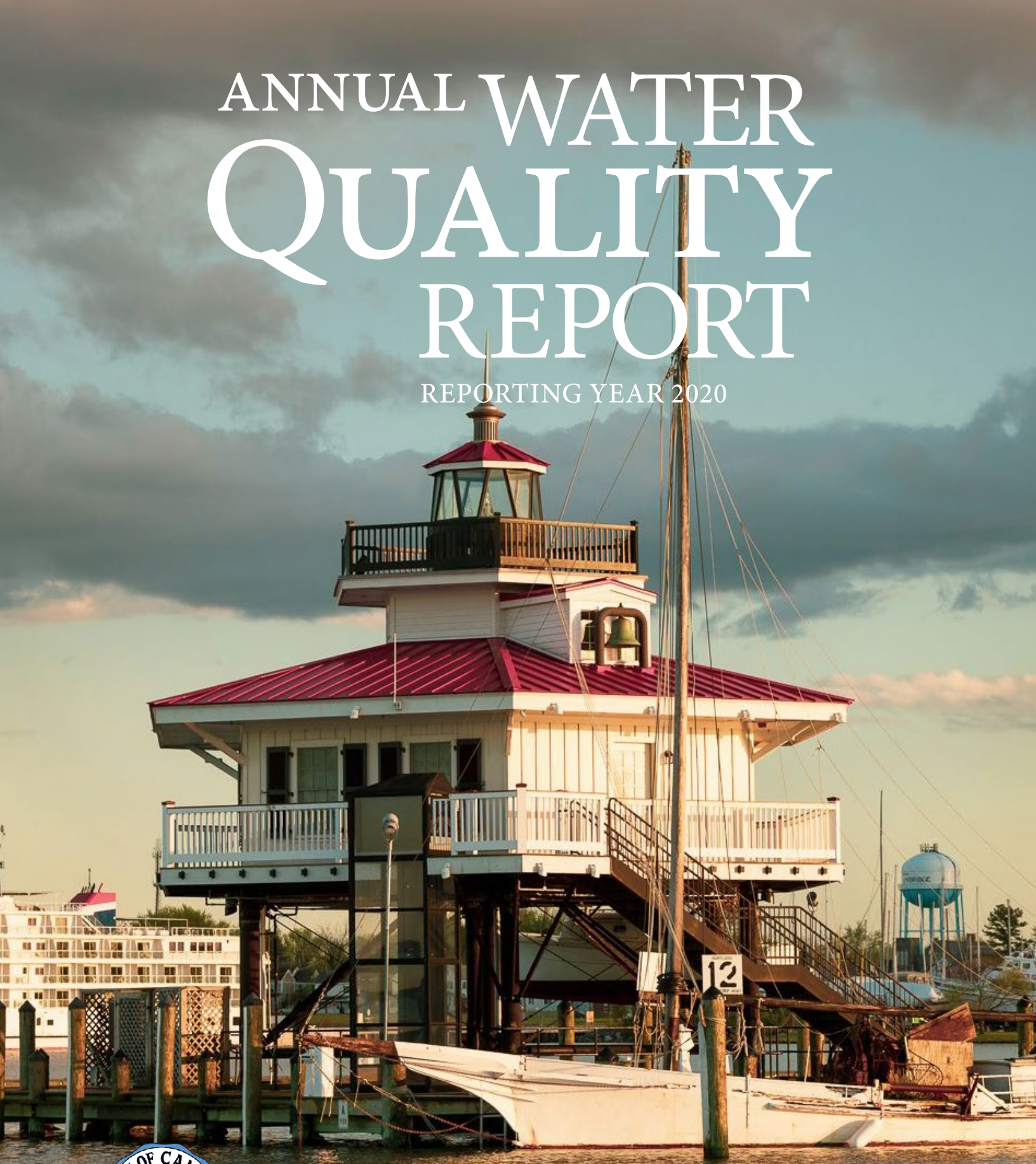
ANNUAL WATER QUALITY REPORT

REPORTING YEAR 2020



Presented By
City of Cambridge

PWS ID#: 0090002

Quality First

Once again, we are pleased to present our annual water quality report covering all testing performed between January 1 and December 31, 2020. As in years past, we are committed to delivering the best-quality drinking water possible. To that end, we remain vigilant in meeting the challenges of new regulations, source water protection, water conservation, and community outreach and education while continuing to serve the needs of all our water users. Thank you for allowing us the opportunity to serve you and your family.

We encourage you to share your thoughts with us on the information contained in this report. After all, well-informed customers are our best allies.

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 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.

> “We remain vigilant in delivering the best-quality drinking water”

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 that time. 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.

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 SWAP, 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 SWAP, please feel free to contact our office during regular office hours.

Community Participation

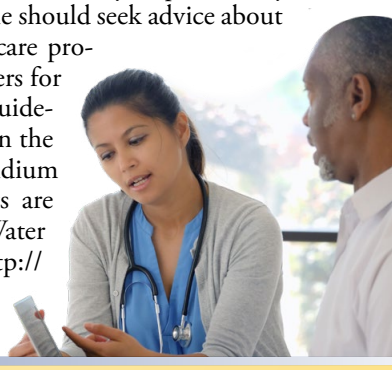
You are invited to participate in our public forum and voice your concerns about your drinking water. We meet the fourth Thursday of every other month at 5:30 p.m. in the Municipal Utilities Office, 410 Academy Street, Cambridge.

Water Treatment Process

Due to the high quality of the 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. The water then goes to a holding tank, where chlorine is 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 pumping 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.

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.



Questions?

For more information about this report, or for any questions relating to your drinking water, please call Jane Dorman, Water Resource Administrator, Kevin Johnson Sr., Superintendent, or Ed Bramble, Assistant Superintendent, (410) 228-5440.

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.

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.

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 in 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 for this aquifer. The Piney Point Aquifer does not outcrop at 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 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 90 miles of pipe supported by our elevated storage tanks with a capacity of 1.5 million gallons. We provide our customers with roughly 1.5 million gallons of good, safe drinking water every day.

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.

We participated in the fourth stage of the U.S. EPA's Unregulated Contaminant Monitoring Rule (UCMR4) program by performing additional tests on our drinking water. UCMR4 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 in order to determine if U.S. EPA 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
Arsenic (ppb)	2018	10	0	2.5	ND–2.5	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Beta/Photon Emitters (pCi/L)	2018	50[1]	0	6.7	5–6.7	No	Decay of natural and human-made deposits
Chlorine (ppm)	2020	[4]	[4]	0.5	0.4–0.6	No	Water additive used to control microbes
Fluoride (ppm)	2018	4	4	1	0.4–1	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs] (ppb)	2020	60	NA	4	1.2–6.4	No	By-product of drinking water disinfection
Nitrate (ppm)	2018	10	10	<0.5	<0.5–<0.5	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2020	80	NA	24	8.3–29.3	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

UNREGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Sodium (ppm)	2017	57	57–57	Naturally occurring

UNREGULATED CONTAMINANT MONITORING RULE - PART 4 (UCMR4)

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

[1] 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.

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).