

# ANNUAL WATER QUALITY REPORT

REPORTING YEAR 2020



***Presented By***  
**City of Manassas**



## 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.

## Source Water Assessment

Under provisions of the Safe Drinking Water Act, states are required to develop comprehensive Source Water Assessment Programs to identify the watersheds that supply public tap water, provide an inventory of contaminants present in the watershed, and assess susceptibility to contamination in the watershed. The Virginia Department of Health (VDH) conducted a Source Water Assessment of Lake Manassas in 2020 and found high susceptibility to contamination using the state's criteria in its approved Source Water Assessment Program. The VDH assessment report consists of maps showing the source water assessment area, an inventory of known land use activities of concern in Prince William County, and documentation of any known contamination in the last five years. The report is available by contacting the City's Water Compliance Officer at (703) 257-8477.

## Community Participation

You are invited to participate in our Utility Commission meetings and voice your concerns about your drinking water. The Utility Commission meets on the second Thursday of each month, at 5:30 p.m. at the City of Manassas Public Works Building. If you would like to attend or have any questions, please contact the Utility Department at (703) 257-8351.

## Where Does My Water Come From?

The City of Manassas has two reliable water supply sources. The primary source is the City of Manassas Water Treatment Plant, which draws water from Lake Manassas, an impoundment on Broad Run in Western Prince William County. The watershed for Lake Manassas covers approximately 74.5 square miles, with the reservoir covering over 880 acres. If needed during peak consumption periods or emergencies, water may be supplied from a second water source, the Prince William County Service Authority (PWCSA). Water from the PWCSA is treated at Fairfax Water's Northern Treatment Facility, the James J. Corbalis Plant, which withdraws water from the Potomac River. To learn more about our watershed, go to U.S. EPA's Search Your Watershed at [www.epa.gov/waterdata/how-my-waterway](http://www.epa.gov/waterdata/how-my-waterway).



## 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](http://www.epa.gov/safewater/lead).



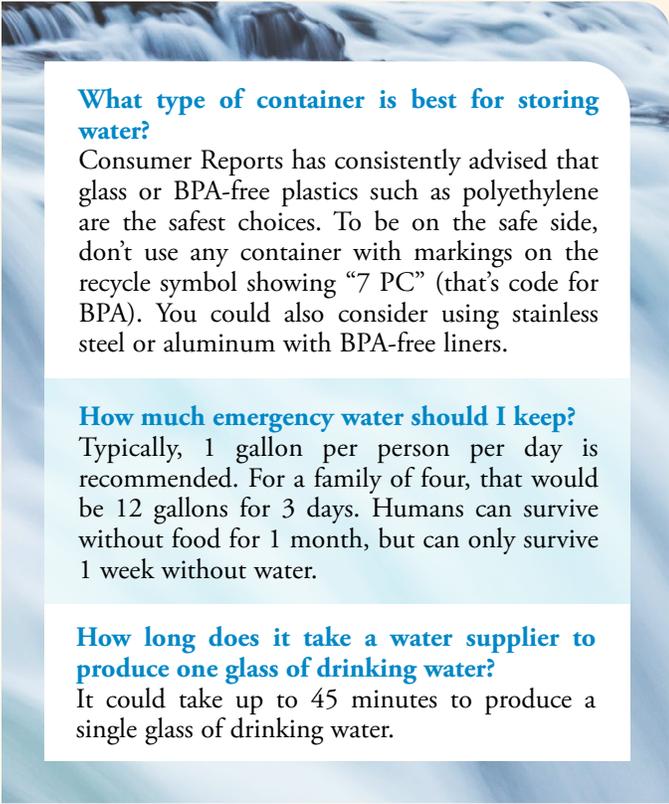
## Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as 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 for any questions relating to your drinking water, please call the City Compliance Officer at (703) 257-8477.



### What type of container is best for storing water?

Consumer Reports has consistently advised that glass or BPA-free plastics such as polyethylene are the safest choices. To be on the safe side, don't use any container with markings on the recycle symbol showing "7 PC" (that's code for BPA). You could also consider using stainless steel or aluminum with BPA-free liners.

### How much emergency water should I keep?

Typically, 1 gallon per person per day is recommended. For a family of four, that would be 12 gallons for 3 days. Humans can survive without food for 1 month, but can only survive 1 week without water.

### How long does it take a water supplier to produce one glass of drinking water?

It could take up to 45 minutes to produce a single glass of drinking water.

## 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 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, 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.

## Water Treatment Process

Licensed operators at the City's Water Treatment Plant use multiple processes to treat your water and remove contaminants to create clean, high-quality drinking water. First, raw water from Lake Manassas enters the water treatment plant, where pre-filtration chemicals are then added. These chemicals cause the particles contained in raw water to bind to one another, making them heavy enough to settle out and be removed. Next, water is filtered through multiple layers, and clear water emerges. After filtration, chlorine is added as a disinfectant. Chlorine is used to protect against any bacteria that may still be present and deter growth while the water flows through pipes and into your home. We carefully monitor the amount of chlorine, adding the lowest quantity necessary to safeguard your water without compromising taste. Following chlorination, ammonia is added to stabilize the chlorine, pH is adjusted, ortho-phosphate is added to prevent corrosion, and fluoride is added to promote healthy teeth. Treated finished drinking water is then pumped through the distribution system via underground piping to our customers.

## What Causes the Pink Stain on Bathroom Fixtures?

The reddish-pink color frequently noted in bathrooms on shower stalls, tubs, tile, toilets, sinks, toothbrush holders, and on pets' water bowls is caused by the growth of the bacterium *Serratia marcescens*. *Serratia* is commonly isolated from soil, water, plants, insects, and vertebrates (including humans). The bacteria can be introduced into the house through any of the above-mentioned sources. The bathroom provides a perfect environment (moist and warm) for bacteria to thrive.

The best solution to this problem is to continually clean and dry the involved surfaces to keep them free from bacteria. Chlorine-based compounds work best, but keep in mind that abrasive cleaners may scratch fixtures, making them more susceptible to bacterial growth. Chlorine bleach can be used periodically to disinfect the toilet and help to eliminate the occurrence of the pink residue. Keeping bathtubs and sinks wiped down using a solution that contains chlorine will also help to minimize its occurrence.

*Serratia* will not survive in chlorinated drinking water.

## Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule. Also, the water we deliver must meet specific health standards. Here, we show only 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 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 4th 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 EPA with data on the occurrence of contaminants suspected to be in drinking water to determine if the 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 the City's Compliance Officer 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
<b>Chlorine</b> (ppm)	2020	[4]	[4]	3.0	0.2–3.8	No	Water additive used to control microbes
<b>Fluoride</b> (ppm)	2020	4	4	0.40	0.38–0.52	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
<b>Haloacetic Acids [HAAs]</b> (ppb)	2020	60	NA	32	16–39	No	By-product of drinking water disinfection
<b>Nitrate–Nitrite Combined</b> (ppm)	2020	10	10	0.34	ND–0.34	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
<b>TTHMs [Total Trihalomethanes]</b> (ppb)	2020	80	NA	42	22–58	No	By-product of drinking water disinfection
<b>Total Coliform Bacteria</b> (% positive samples)	2020	TT	NA	2.2	NA	No	Naturally present in the environment
<b>Total Organic Carbon<sup>1</sup></b> (removal ratio)	2020	TT	NA	1.28	1.22–1.52	No	Naturally present in the environment
<b>Turbidity<sup>2</sup></b> (NTU)	2020	TT	NA	0.091	0.026–0.091	No	Soil runoff
<b>Turbidity</b> (Lowest monthly percent of samples meeting limit)	2020	TT = 95% of samples meet the limit	NA	100	NA	No	Soil runoff

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
<b>Copper</b> (ppm)	2018	1.3	1.3	0.13	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
<b>Lead</b> (ppb)	2018	15	0	0.41	0/30	No	Lead services lines; Corrosion of household plumbing systems including fittings and fixtures; Erosion of natural deposits

### UNREGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
<b>Sodium</b> (ppm)	2020	17.9	NA	Naturally occurring; Road salt; Water softeners
<b>Total Hardness</b> (ppm)	2020	43	NA	Measure of the amount of calcium and magnesium in the water. Hard water can cause mineral buildup in plumbing. Hardness contributes to the effectiveness of soaps and detergents.

## UNREGULATED CONTAMINANT MONITORING RULE - PART 4 (UCMR4)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
<b>HAA6Br</b> (ppb)	2020	4.9	4.0–5.9	By-product of drinking water disinfection
<b>HAA9</b> (ppb)	2020	29.7	18.4–41.7	By-product of drinking water disinfection
<b>Manganese</b> (ppb)	2020	0.2	ND–0.4	Naturally occurring element; used in steel production, fertilizer, batteries and fireworks; drinking water and wastewater treatment chemical; essential nutrient

<sup>1</sup>The value reported under Amount Detected for TOC is the lowest ratio between the percentage of TOC actually removed to the percentage of TOC required to be removed. A value of greater than 1 indicates that the water system is in compliance with TOC removal requirements. A value of less than 1 indicates a violation of the TOC removal requirements.

<sup>2</sup>Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

## 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 that, 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

**ND (Not detected):** Indicates that the substance was not found by laboratory analysis.

**NTU (Nephelometric Turbidity Units):** Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

**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).

**removal ratio:** A ratio between the percentage of a substance actually removed to the percentage of the substance required to be removed.

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

