Fairfax Water

2020 ANNUAL WATER QUALITY REPORT

Contents

"We are, all of us, water beings on a water planet. Water is life. Without it, all living things die. Our dependence on water is absolute; our psyches know this and signal us in myriad ways of water's elemental importance and significance. That is why we love the water and remember experiences associated with it.

"Of the earth's vast resources of water, only a small fraction is fresh and drinkable. A few people among the globe's billions have been charged with the task of ensuring everyone else has a reliable supply of safe water. Supplying potable water is an essential human activity, a great responsibility, and a vocation of distinction."

J.B. Mannion
1931 - 2009
Former Executive Director
American Water Works Association

This report contains very important information about your drinking water. Please translate it or speak with someone who understands it. If you are a landlord, please share a copy of this report with your tenants.

이 보고서에는 귀하가 거주하는 지역의 수질에 관한 중요한 정보가 들어 있습니다. 이것을 번역하거나 충분히 이해하시는 친구와 상의하십시오.

Bản báo cáo có ghi những chi tiết quan trọng về phẩm chất nước trong cộng đồng quý vị. Hãy nhờ người thông dịch, hoặc hỏi một người bạn biết rõ về vấn đề này.

El informe contiene información importante sobre la calidad del agua en su comunidad. Tradúzcalo o hable con alguién que lo entienda bien.

Letter From the Chairman

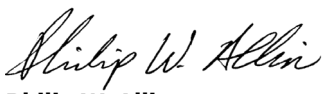
June 2020

My fellow Fairfax Water customers,

Once again, we are happy to report on the outstanding quality of your water with our 2020 Water Quality Report. The report is a service we are pleased to provide to you to ensure that you know the quality of the tap water you use every day. We believe our methods and outcomes should be as transparent and healthy as the water we deliver. This concept has been a primary goal for Fairfax Water from day one, and that will never change.

For Fairfax Water, 2020 has been a year of renewed commitment to serving water of exceptional quality to our customers. The COVID-19 pandemic shows all of us the life-sustaining importance of quality water and having a reliable source of drinking water. It shines a spotlight on two vital public health needs with regards to tap water: handwashing and the use of chlorine to disinfect water. Handwashing is one of the most effective steps you can take to prevent the spread of disease, and we know the importance of assuring that you have a reliable source of water to keep up this crucial practice. Disinfectants, like chlorine, are used to treat drinking water and are effective in inactivating the Coronavirus. Situations like the one we are experiencing in 2020 show the vast importance that chlorination and our other disinfection processes have on protecting public health.

The Board and employees of Fairfax Water all know the importance of the essential service that we provide. The consistently excellent quality of our water shows this fact. Our core mission and dedication to service is a tradition that we have passed down to new staff members over the years. This tradition is the enduring legacy of Fairfax Water, and we hope to keep doing great things for our community.



Philip W. Allin
Chairman of the Board
Fairfax Water

Letter From the General Manager

June 2020

Dear Fairfax Water customers,

I am delighted to report that the quality of your water is excellent. Fairfax Water prides itself on not just meeting but surpassing the drinking water standards set by both the Virginia Department of Health (VDH) and the Environmental Protection Agency (EPA). Accomplishing this feat each year is our goal and top priority. Once again, our dedicated employees have reached this goal. I have a great appreciation for their commitment to this task. I invite you to take the time to review this report and learn more about the quality of your drinking water.

So far, 2020 has proven to be very different from 2019. The COVID-19 pandemic has shifted all of us into a new normal. Fairfax Water delivers an essential service to the community, and our employees have continued to show their dedication and tenacity during the pandemic. During any crisis, it is our job to keep the water flowing while protecting the safety of our customers and employees. One thing that hasn't changed is that our operations and laboratory staff continue to test the water to ensure that it continues to meet and surpass water quality standards. This task is now more important than ever to our customers and employees.

Our employees are earnest, hard-working people, not unlike many other members of the community. They are some of the many essential employees who protect our community's health and maintain a much-needed sense of continuity in an uncertain time. I have tremendous respect for the effort they put into providing our customers with reliable, high-quality water.

As the situation with COVID–19 continues to evolve, know that we are at your service and will continue to stay focused on our mission.

Stay safe and thank you for your continued support!

Steven T. Edgemon

Steven T. Edgemon
General Manager
Fairfax Water

UNDERSTANDING YOUR WATER QUALITY

HOW IS MY WATER QUALITY?

Your water quality is excellent. As a Fairfax Water customer, you drink water that consistently surpasses all federal and state standards. Of the 182 compounds we tested for, very few were found in our drinking water. Those we found were in negligible amounts well below the EPA's maximum contaminant levels.

HOW IS THE WATER TESTED AND BY WHOM?

Fairfax Water's state-certified Water Quality Laboratory performs or manages the testing required by federal and state regulations. In addition to regulatory testing, many other analyses are performed to monitor the quality of Fairfax Water's raw water sources, water within the treatment process, and water within the distribution system. Water undergoing the treatment process is continuously monitored for pH, turbidity, coagulation efficiency, and disinfectant residuals using technologically advanced online monitoring systems. Chlorine, pH, and temperature testing are also performed at sample location sites throughout the system using portable instrumentation. The results for much of the 2019 testing are included in the tables on pages 13-24 of this report. For additional analytical reports, visit www.fairfaxwater.org or call 703-698-5600, TTY 711.

How Is Your Water Treated?

Fairfax Water provides water treated at four treatment plants. The James J. Corbalis Jr. and the Frederick P. Griffith Jr. treatment plants are owned and operated by Fairfax Water. The Dalecarlia and McMillan treatment plants, part of the Washington Aqueduct, are owned and operated by the U.S. Army Corps of Engineers. All four plants use advanced technologies and practices in drinking-water treatment, which is the process of cleaning raw water to make it safe for you to drink. When untreated water enters the treatment plant, coagulants are added to cause small particles to adhere to one another, become heavy, and settle in a sedimentation basin.

The water is then filtered through carbon and sand to remove remaining fine particles. It is disinfected with chlorine to kill harmful bacteria and viruses. A corrosion inhibitor is added to help prevent leaching of lead and copper that might be in household plumbing. Fluoride is added to protect teeth. Powdered activated carbon and potassium permanganate may also be added to the treatment process to remove taste or odor-causing compounds. In addition to these treatment steps, the Corbalis and Griffith plants use ozone to further reduce odors and organic material.

THE WATER TREATMENT PROCESS

Throughout this report, you will find many references to water in different stages of the treatment process.

Raw Water Source

Water in its natural state that feeds into our treatment plants.

Process

Water at various points during the treatment process.

Finished Water

Water leaving the treatment plant for distribution or storage.

Distribution

Treated water piped from our facilities to your home or business.

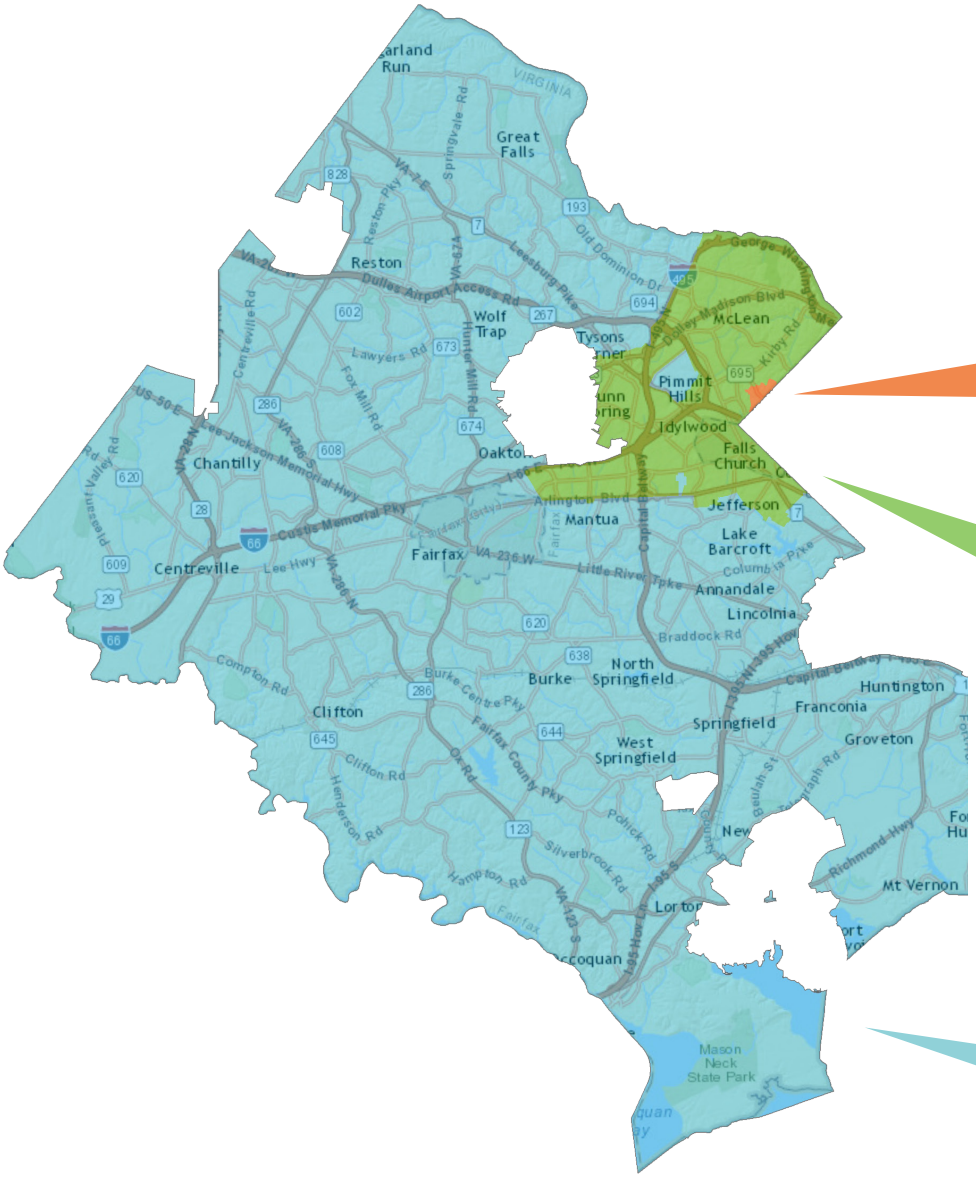
NOTE ABOUT MEETINGS OF THE FAIRFAX WATER BOARD

Fairfax Water's Board typically meets the first and third Thursday of each month at 6:30 p.m. in the boardroom of the Fairfax Water offices at 8570 Executive Park Avenue in Fairfax. Notices of public hearings and other opportunities for public participation are posted in the lobby and on the website at www.fairfaxwater.org. If you plan to attend a meeting or need more information, contact Fairfax Water at 703-289-6029, TTY 711, to confirm the date and time for the meeting.

FINDING YOUR WATER QUALITY

This water quality report provides information for all customers whose drinking water is provided by Fairfax Water. Our raw water comes from two sources and is treated at four treatment plants. You can use the map shown here to determine where your water comes from and what water quality data applies to your drinking water.

Note the color of the map in the area where you live. Use this color coding throughout the report to identify the information that relates to your drinking water. If you are still uncertain which service area is yours, or if you have additional questions, visit www.fairfaxwater.org or call 703-698-5800, TTY 711.



Customers in this service area receive water from the Potomac River that is treated at the Dalecarlia and McMillan water treatment plant, part of the Washington Aqueduct system, which is owned and operated by the U.S. Army Corps of Engineers. See report on page 21.

Customers in this service area receive water from the Potomac River that is treated at the Dalecarlia and McMillan water treatment plants, part of the Washington Aqueduct system, which is owned and operated by the U.S. Army Corps of Engineers. See report on page 17.

Customers in this service area receive water from the Potomac River and Occoquan Reservoir that is treated at the James J. Corbalis Jr. or Frederick P. Griffith Jr. treatment plants, which is owned and operated by Fairfax Water. See report on page 13.

This report covers metals, organics and contaminants as required by the U.S. Environmental Protection Agency. For information on additional measurements, please refer to the "additional data" links on each of the service area pages.

INFORMATION ABOUT SOURCE (RAW) WATER

SOURCES OF DRINKING WATER

The sources of all drinking water, both tap water and bottled water, include rivers, lakes, streams, ponds, reservoirs, springs, and groundwater. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material. It can also pick up substances resulting from the presence of animals or from human activity. Contaminants that could be present in source water include:

1. Microbial contaminants, such as viruses and bacteria that can come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
2. Inorganic contaminants, such as salts and metals, that can be naturally occurring or can result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
3. Pesticides and herbicides, which can come from a variety of sources, such as agriculture or residential uses and urban stormwater runoff.
4. Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production and also come from gas stations, urban stormwater runoff, septic systems, and decaying plants.
5. Radioactive contaminants that can be naturally occurring or can be the result of oil and gas production or mining activities.

SOURCES OF YOUR WATER

Fairfax Water draws raw water from two primary sources: the Potomac River and the Occoquan Reservoir, which is fed by the Occoquan River. The Corbalis, Dalecarlia and McMillan treatment plants treat water from the Potomac River. The Frederick P. Griffith Jr. Treatment Plant treats water from the Occoquan Reservoir. The four facilities that treat your water feed an interconnected distribution system.

SOURCE WATER ASSESSMENT AND PROTECTION

Under the provisions of the federal Safe Drinking Water Act, states are required to develop comprehensive source-water assessment programs that meet the following requirements:

- Identify watersheds that supply public tap water.
- Provide an inventory of contaminants present in the watershed.
- Assess susceptibility to contamination in the watershed.

Source-water assessments for the watersheds are conducted by the Virginia Department of Health. The assessment consists of maps of the evaluated watershed area, an inventory of known land-use activities, and documentation of any known source-water contamination within the last five years. Based on the criteria developed by the VDH, the Potomac River and the Occoquan Reservoir were determined to be of high susceptibility to contamination. This determination is consistent with the state's finding for other surface waters, such as rivers, lakes, and streams, throughout Virginia. A secure version of the assessment report is available by visiting our website at www.fairfaxwater.org or by calling Fairfax Water at 703-698-5600, TTY 711.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 800-426-4791, TTY 711. The EPA has also completed a source water assessment that can be found at bit.ly/3dAYMFH.

REDUCING EXPOSURE TO LEAD

Fairfax Water's distribution system does not contain lead pipe, as we have made an extensive effort to identify and replace any lead service connections in the older areas of our system. Depending on when it was constructed, your home's plumbing may contain lead. The level of lead in water can increase when the water stands in contact with lead-based plumbing. Keep reading for important information about safe lead levels and how to reduce your exposure to lead.

FAIRFAX WATER'S SOURCES

The EPA has established an action level for lead in water of 15 parts per billion (ppb). When lead testing is performed as required by the EPA, 90% of the samples must contain less than 15 ppb. This is usually referred to as the 90th percentile results being less than 15 ppb.

The action level was not designed to measure health risks from water represented by individual samples. Rather, it is a statistical trigger value that, if exceeded, could require more treatment, public education, and possibly lead-service-line replacement where such lines exist. Fairfax Water does not have any lead service lines in its system.

Fairfax Water has been testing for lead in accordance with the EPA's Lead and Copper Rule since 1992 and has consistently tested below the action level established in the rule. In the most recent tests performed as required by the EPA, all Fairfax Water samples were well below the action level of 15 ppb. The next EPA-required monitoring will be conducted in 2021 for the Arlington special service area and in 2020 for the remaining service areas.

WHERE DOES LEAD IN DRINKING WATER COME FROM?

The Potomac River and the Occoquan Reservoir (Fairfax Water's sources) do not contain lead. In 1986, lead was banned from use in pipe and solder in home construction. In older homes where lead is present in pipe and solder connections, it can dissolve into the water after the water sits for long periods. Some household plumbing components may contain a small amount of lead and can contribute to lead concentrations at the tap. Fairfax Water adds a phosphate-based corrosion inhibitor during the treatment process to slow this dissolution process. For more information on lead in your water, visit our website: www.fairfaxwater.org.

WHAT CAN I DO IN MY HOME TO REDUCE EXPOSURE TO LEAD IN MY WATER?

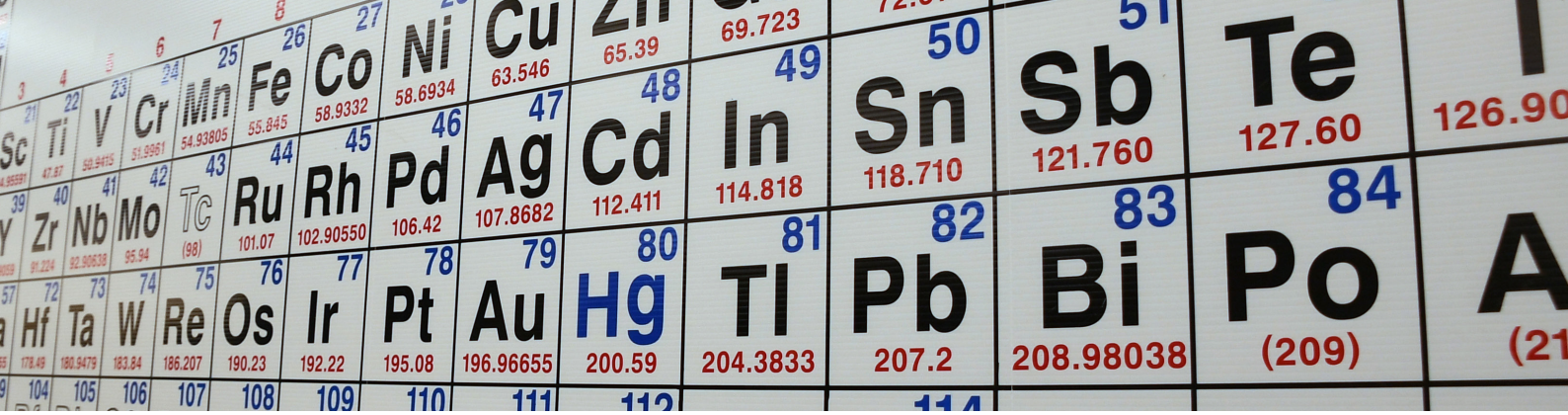
If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Fairfax Water is responsible for providing high-quality drinking water but cannot control the materials used in plumbing components in home construction.

If you are concerned about lead in your water, following these tips can help minimize the potential for lead exposure.

1. Use only fresh, cold water for cooking and making baby formula.
2. When your water has been sitting for several hours, flush your tap for 30 seconds to two minutes until the water becomes colder or until it reaches a steady temperature before using the water for drinking or cooking.
3. Do not boil water to remove lead. Boiling water will not reduce lead.
4. Some people choose to install a filter in their home. If you choose a water filter, follow these three rules:
   - Choose a filter designed for the specific filtration desired (chlorine, lead, *Cryptosporidium*, etc.).
   - Make sure the filter is approved by NSF International (www.nsf.org).
   - Maintain the filter as directed.
5. Test your water for lead. For information about lead-level testing, call the Fairfax Water Customer Service Department at 703-698-5800, TTY 711.
6. Regularly clean your faucet aerator. This removes particles from your household plumbing that could contain lead.
7. Consider buying low-lead fixtures. Look for fixtures with the lowest lead content. Visit www.nsf.org to learn more.

FOR MORE INFORMATION

In addition to the tips above, information about lead in drinking water, testing methods, and steps you can take to minimize exposure can be found at www.epa.gov/safewater/lead or by calling the Safe Drinking Water Hotline at 800-426-4791, TTY 711.



UNDERSTANDING WATER QUALITY TEST RESULTS

In general, drinking water standards are regulated by a maximum contaminant level (MCL) or a treatment technique (TT). For parameters with an MCL, the utility must sample at the required frequency, and results must be below the MCL. Depending on the parameter, the MCL could apply to individual results, an average of all results in a calendar year, or an average of all results in a calendar year for a specific site.

For parameters with a TT, the utility must sample at the required frequency and is required to take action (such as a change in treatment) if specified conditions are not met. Specified conditions vary per regulation. For instance, the TT for turbidity requires action to be taken if the percentage of filtered water turbidity results that are less than 0.3 Nephelometric Turbidity Units (NTU) falls below 95%. If this were to occur, the utility must perform corrective action until the specified conditions are met.

In the water quality test results on pages 13 - 24 and elsewhere in this report, you may find terms and abbreviations you are not familiar with. On the next page is a quick reference guide to help you better understand unfamiliar terms and abbreviations.

IMPORTANT INFORMATION FROM THE ENVIRONMENTAL PROTECTION AGENCY

Drinking Water and People With Weakened Immune Systems

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those with cancer who are undergoing chemotherapy, those who have undergone organ transplants, those with HIV/AIDS or other immune system disorders; some elderly; and infants can be particularly at risk from infections. If you are in this at-risk group, you should seek advice about drinking water from your health care provider. The EPA and the Centers for Disease Control guidelines on appropriate means to lessen the risk of infection from *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at 800-426-4791.

KEY TERMINOLOGY AND ABBREVIATIONS

90th percentile – Represents the highest value found out of 90% of the samples taken in a representative group. If the 90th percentile is greater than the action level, it will trigger a treatment or additional requirements that a water system must follow.

AL or action level – The concentration of a contaminant that, if exceeded, requires a water system to carry out an additional treatment or other action.

LRAA or locational running annual average – An ongoing annual average calculation of data at one specific location; not based on individual result.

MCL or 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 or 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 or maximum residual disinfectant level – The highest level of a disinfectant allowed in drinking water.

MRDLG or maximum residual disinfectant level goal – The level of a disinfectant in drinking water below which there is no known or expected risk to health.

N/A or not applicable – Does not apply to this subject or in this scenario.

ND or non-detect – A level at which there is an inability to detect an analyte because it is indistinguishable from the background signal.

NTU or nephelometric turbidity units – A measure of cloudiness or haziness of water.

pCi/L or picocuries per liter – Radioactivity concentration unit.

ppb or parts per billion – One ppb corresponds to one penny in $10,000,000.

ppm or parts per million – One ppm corresponds to one penny in $10,000.

QRAA or quarterly running annual average – An ongoing annual average calculation of data from the most recent four quarters.

TT or treatment technique – A required process intended to reduce the level of a contaminant in drinking water.

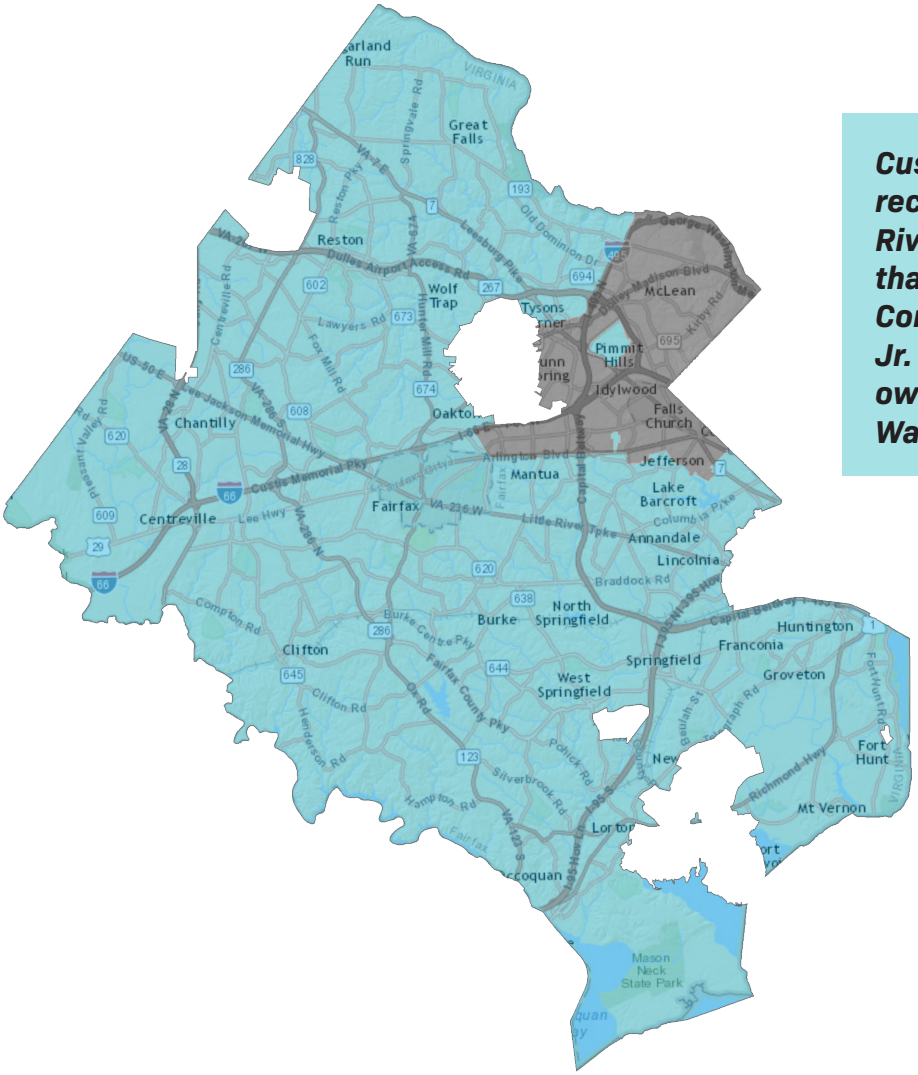
FAIRFAX WATER

2019 WATER QUALITY TABLES

FAIRFAX WATER CUSTOMERS IN THE LEGACY AND CITY OF FAIRFAX SERVICE AREAS

The Water Quality Laboratory at Fairfax Water monitors for more than 182 different parameters from alkalinity to zinc! Some of the monitoring is required for regulatory purposes, some for process and emerging technology, and even more for customer information. In 2019, some 53,134 data points were gathered from 15,521 samples of water for these 182 parameters. The tables on pages 14-16 show the results of the monitoring that is required by state and federal regulations. The monitoring was conducted for the Griffith and Corbalis water treatment plants between January 1 and December 31, 2019, unless otherwise noted.

For more water quality information, visit the Fairfax Water website at www.fairfaxwater.org/water-quality.



Customers in this service area receive water from the Potomac River and Occoquan Reservoir that is treated at the James J. Corbalis Jr. or Frederick P. Griffith Jr. treatment plants, which is owned and operated by Fairfax Water.

SERVICE AREA

SUMMARY OF FINISHED WATER CHARACTERISTICS

Components	Ideal Goal (EPA MCLG*)	Highest Level Allowed (EPA MCL*)	Range (Individual Results)	Violation	Common Sources in Drinking Water*
Barium (ppm)	2	2	ND - 0.049	No	Discharge of drilling wastes; discharge from metal refineries; erosion from natural deposits
Beta/photon particles (pCi/L) [1]	0	50	ND - 4.78	No	Decay of natural and man-made deposits
Radium 226/228 (pCi/L) [1]	0	5	ND - 0.19	No	Decay of natural and man-made deposits
Fluoride (ppm)	4	4	0.6 - 0.8	No	Water additive that promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories
Nitrate [as Nitrogen] (ppm)	10	10	0.62 - 1.68	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Uranium [1] (ppb)	0	30	ND - 0.09	No	Erosion of natural deposits

***Unless otherwise specified, MCLG and MCL apply to an individual result.**

[1] Results for beta/photon emitters, Radium 226/228, and uranium were below the minimum detection limits prescribed in the EPA Consumer Confidence Rule as stated in 40 CFR 141.151 (d) and are not required for CCR reporting; however, Fairfax Water follows laboratory convention for reporting radiological sample results to the laboratory detection limit.

	Treatment Technique (TT) [2]	Range (Monthly Ratio QRAA)	Violation	Common Sources in Drinking Water
Total Organic Carbon	Monthly ratio QRAA > 1	1.4 - 1.6	No	Naturally present in the environment

Total organic carbon has no health effects; however it does provide a medium for the formation of disinfection byproducts. These by-products include trihalomethanes and haloacetic acids.

[2] Compliance is based upon a quarterly running annual average (QRAA) of the monthly ratios of actual total organic carbon removal between the source water and the treated water in a calendar year (not based on an individual result).

Turbidity	Highest Level Allowed (EPA MCL*)	Highest Individual Result for Year	Violation	Common Sources in Drinking Water
	1 NTU	0.24	No	Soil runoff
	Treatment Technique (TT)	Lowest Monthly % of Samples Meeting ≤0.3 NTU Limit	Violation	Common Sources in Drinking Water
	Turbidity of filtered water must be ≤ 0.3 NTU in 95% or more samples	100%	No	Soil runoff

Turbidity levels are measured during the treatment process after the water has been filtered but before disinfection.

***Unless otherwise specified, MCL applies to an individual result.**

	Ideal Goal (EPA MCLG)	Highest Level Allowed (EPA MCL)[3]	Number of Positive *E.coli* samples this year	Violation	Assessment Required[3]	Common Sources in Drinking Water
E. coli	0	Repeat sample is *E.coli* positive **OR** Routine sample is *E.coli* positive followed by repeat sample that is total coliform positive **OR** System fails to take all required repeat samples following *E.coli* positive routine sample **OR** System fails to analyze for *E.coli* when any repeat sample tested positive for total coliform	Routine = 0 Repeat = 0	No	No	Human and animal fecal waste

***Unless otherwise specified, MCLG and MCL apply to an individual result.**

[3] If an *E. coli* MCL violation occurs, an assessment to determine the cause would be performed and corrective action taken.

Metals	Action Level [§]	90th Percentile Result [§]	Number of Sites Above Action Level [§]	Violation	Common Sources in Drinking Water
Copper (ppm) [4]	1.3	0.110	0	No	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) [4]	15	0.63	0	No	Corrosion of household plumbing systems; erosion of natural deposits

[§] Refer to definitions for full description of terms.

[4] As granted by the State, Fairfax Water is on reduced monitoring for these parameters based on historical results. The results above are taken from the most recent monitoring period in 2017.

SERVICE AREA

Fairfax Water's Frederick P. Griffith Jr. Water Treatment Plant

Disinfection Byproducts	Ideal Goal (EPA MCLG*)	Highest Level Allowed (EPA MCL*) [5]	Highest LRAA for All Sites	Range (Individual Results)	Violation	Common Sources in Drinking Water
Total Trihalomethanes (ppb)	0	LRAA = 80	62.7	7.0 - 104	No	Byproduct of drinking water disinfection
Haloacetic Acids (5) (ppb)	0	LRAA = 60	25.9	1.5 - 51.5	No	Byproduct of drinking water disinfection

*** Unless otherwise specified, MCLG and MCL apply to an individual result.**

[5] Compliance is based on site-specific locational running annual averages (LRAAs) (not based upon an individual result).

Total Chlorine (ppm)	Ideal Goal (EPA MRDLG)	Highest Level Allowed (EPA MRDL) [6]	Highest QRAA	Range (Individual Results)	Violation	Common Sources in Drinking Water
	4	ORAA = 4	2.8	1.0 - 4.0	No	Water additive used to control microbes

[6] Compliance is based on a quarterly running annual average (QRAA) of all the regulatory chlorine results in a calendar year (not based on an individual result).

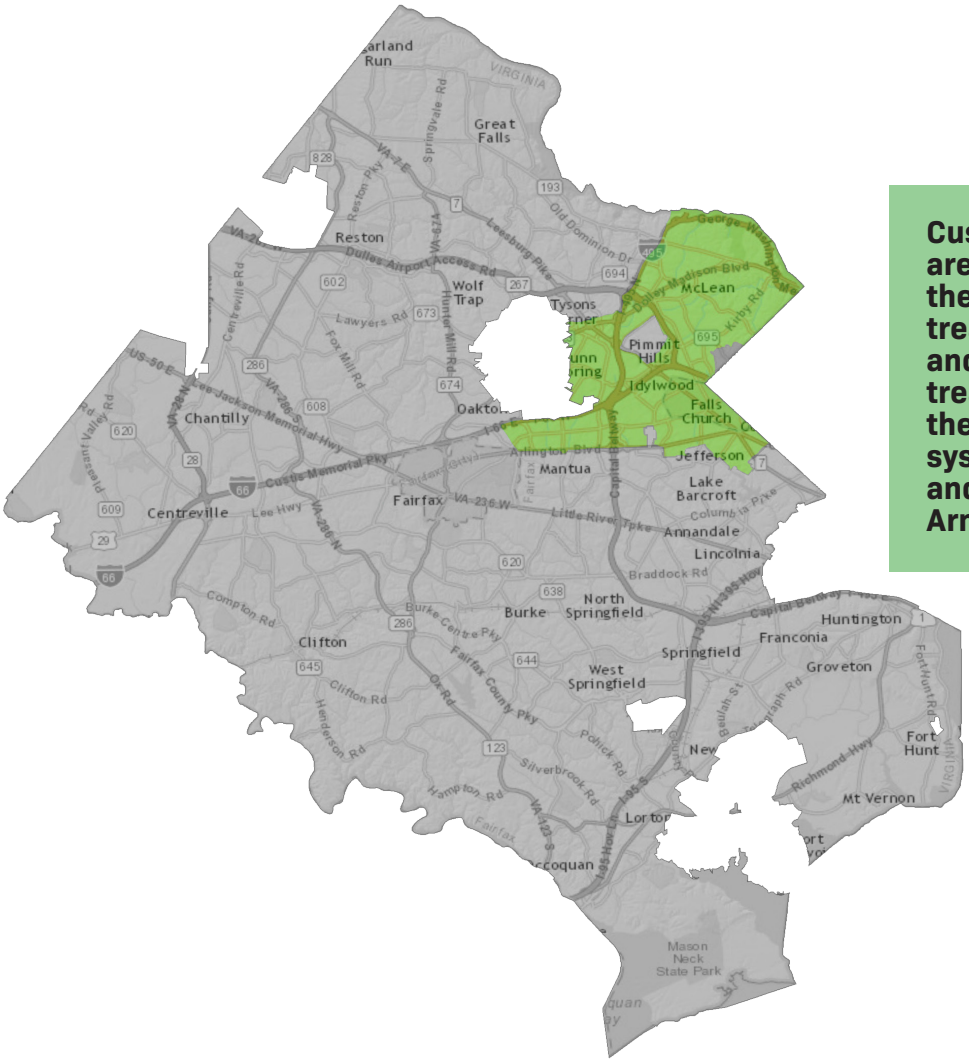
FALLS CHURCH

2019 WATER QUALITY TABLES

FAIRFAX WATER CUSTOMERS IN THE CITY OF FALLS CHURCH SERVICE AREA

Even though you are a Fairfax Water customer, your water is supplied by the Washington Aqueduct Division of the U.S. Army Corps of Engineers. The tables on pages 18-20 show the results of the monitoring that is performed by the Washington Aqueduct and Fairfax Water as required by state and federal regulations. Unless otherwise noted, the monitoring was conducted between January 1 and December 31, 2019.

For more information about your water quality, visit www.nab.usace.army.mil/Missions/Washington-Aqueduct/WaterQuality.



Customers in this service area receive water from the Potomac River that is treated at the McMillan and Dalecarlia water treatment plants, part of the Washington Aqueduct system, which is owned and operated by the U.S. Army Corps of Engineers.

SERVICE AREA

SUMMARY OF FINISHED WATER CHARACTERISTICS

Components	Ideal Goal (EPA MCLG*)	Highest Level Allowed (EPA MCL*)	Range (Individual Results)	Violation	Common Sources in Drinking Water
Arsenic (ppb)	0	10	ND - 0.3	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Atrazine [1] (ppb)	3	3	ND - 0.08	No	Runoff from herbicide used on row crops
Barium (ppm)	2	2	0.03 - 0.05	No	Discharge of drilling wastes; discharge from metal refineries; erosion from natural deposits
Beta/photon particles [1,2] (pCi/L)	0	50	ND - 3	No	Decay of natural and man-made deposits
Radium 226/228 [1] (pCi/L)	0	5	ND - 2	No	Decay of natural and man-made deposits
Fluoride (ppm)	4	4	0.6 - 0.8	No	Water additive that promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories
Nitrate [as Nitrogen] (ppm)	10	10	1 - 3	No	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Uranium [1] (ppb)	0	30	ND - 0.2	No	Erosion of natural deposits

***Unless otherwise specified, MCLG and MCL apply to an individual result.**

[1] Results for atrazine, beta/photon emitters, and uranium were below the minimum detection limits prescribed in the EPA Consumer Confidence Rule as stated in 40 CFR 141.151 (d) and are not required for CCR reporting; however, Fairfax Water follows laboratory convention for reporting radiological sample results to the laboratory detection limit.

[2] Triennial radionuclide monitoring was performed in 2017.

	Treatment Technique (TT) [3]	Range (QRAA of Monthly Ratio)	Violation	Common Sources in Drinking Water
Total Organic Carbon	Monthly Ratio QRAA >1	1.1 - 1.5	No	Naturally present in the environment

Total organic carbon has no health effects; however, it provides a medium for the formation of disinfection byproducts.

These byproducts include trihalomethanes and haloacetic acids.

[3] Compliance is based on a quarterly running annual average (QRAA) of the monthly ratios of actual total organic carbon removal between the source water and the treated water in a calendar year (not based on an individual result).

Turbidity	Highest Level Allowed (EPA MCL*)	Highest Individual Result for Year	Violation	Common Sources in Drinking Water
	1 NTU	0.06	No	Soil runoff
	Treatment Technique (TT)	Lowest Monthly % of Samples Meeting ≤0.3 NTU Limit	Violation	Common Sources in Drinking Water
	Turbidity of filtered water must be ≤0.3 NTU in 95% or more samples	100%	No	Soil runoff

Turbidity levels are measured during the treatment process after the water has been filtered but before disinfection.

***Unless otherwise specified, MCL applies to an individual result.**

	Ideal Goal (EPA MCLG)	Highest Level Allowed (EPA MCL*)	Number of Positive *E.coli* samples this year	Violation	Assessment Required [4]	Common Sources in Drinking Water
E. coli	0	Repeat sample is *E. coli* positive OR Routine sample is E. coli positive followed by Repeat sample that is Total Coliform positive OR System fails to take all required repeat samples following *E. coli* positive routine sample OR System fails to analyze for *E. coli* when any repeat sample tested positive for total coliform	Routine = 0 Repeat = 0	No	No	Human and animal fecal waste

[4] If an *E. coli* MCL violation occurs, an assessment to determine the cause would be performed and corrective action taken.

***Unless otherwise specified, MCL applies to an individual result.**

Metals	Action Level [§]	90th Percentile Result [§]	Number of Sites Above Action Level [§]	Violation	Common Sources in Drinking Water
Copper (ppm) [5]	1.3	0.110	0	No	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) [5]	15	0.63	0	No	Corrosion of household plumbing systems; erosion of natural deposits

§ Refer to definition on page 12 for full description of terms

[5] As granted by the State, Fairfax Water is on reduced monitoring for these parameters based upon historical results. The results above are taken from the most recent monitoring period in 2017.

SERVICE AREA

Washington Aqueduct's Dalecarlia Water Treatment Plant

Disinfection Byproducts	Ideal Goal (EPA MCLG*)	Highest Level Allowed (EPA MCL*) [6]	Highest LRAA for All Sites	Range (Individual Results)	Violation	Common Sources in Drinking Water
Total Trihalomethanes (ppb)	0	LRAA = 80	62.7	7.0 - 104	No	Byproduct of drinking water disinfection
Haloacetic Acids (5) (ppb)	0	LRAA = 60	25.9	1.5 - 51.5	No	Byproduct of drinking water disinfection

*Unless otherwise specified, MCLG and MCL apply to an individual result.

[6] Compliance is based upon site-specific locational running annual averages (LRAAs) (not based on an individual result).

Total Chlorine (ppm)	Ideal Goal (EPA MRDLG*)	Highest Level Allowed (EPA MRDL*) [7]	Highest QRAA	Range (Individual Results)	Violation	Common Sources in Drinking Water
	4	QRAA = 4	2.8	1.0 - 4.0	No	Water additive used to control microbes

*Unless otherwise specified, MCLG and MCL apply to an individual result.

[7] Compliance is based on a quarterly running annual average (QRAA) of all the regulatory chlorine results in a calendar year (not based on an individual result).

2019 WATER QUALITY TABLES

FAIRFAX WATER CUSTOMERS IN THE ARLINGTON SPECIAL SERVICE AREA

Even though you are a Fairfax Water customer, your water is supplied by the Washington Aqueduct Division of the U.S. Army Corps of Engineers. The tables on pages 21-24 show the results of the monitoring that is performed by the Washington Aqueduct and Fairfax Water as required by state and federal regulations. Unless otherwise noted, the monitoring was conducted between January 1 and December 31, 2019.

For more information about your water quality, visit www.nab.usace.army.mil/Missions/Washington-Aqueduct/WaterQuality.

SUMMARY OF FINISHED WATER CHARACTERISTICS

Components	Ideal Goal (EPA MCLG*)	Highest Level Allowed (EPA MCL*)	Range (Individual Results)	Violation	Common Sources in Drinking Water
Arsenic (ppb)	0	10	ND - 0.3	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium (ppm)	2	2	0.03 - 0.05	No	Discharge of drilling wastes; discharge from metal refineries; erosion from natural deposits
Beta/photon particles [1,2] pCi/L	0	50	ND - 3	No	Decay of natural and man-made deposits
Radium 226/228[2] pCi/L	0	5	ND - 2	No	Decay of natural and man-made deposits
Fluoride (ppm)	4	4	0.6 - 0.8	No	Water additive that promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories
Nitrate [as Nitrogen] (ppm)	10	10	1 - 3	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Uranium (ppb) [1]	0	30	ND - 0.2	No	Herbicide runoff

***Unless otherwise specified, MCLG and MCL apply to an individual result.**

[1] Results for beta/photon emitters, radium 226/228, and uranium were below the minimum detection limits prescribed in the EPA Consumer Confidence Rule as stated in 40 CFR 141.151 (d) and are not required for CCR reporting; however, Fairfax Water follows laboratory convention for reporting radiological sample results to the laboratory detection limit.

[2] Triennial radionuclide monitoring was performed in 2017.

SERVICE AREA

Customers in this service area receive water from the Potomac River that is treated at the Dalecarlia and McMillan water treatment plant, part of the Washington Aqueduct system, which is owned and operated by the U.S. Army Corps of Engineers.

	Treatment Technique (TT) [2]	Range (QRAA of Monthly Ratio)	Violation	Common Sources in Drinking Water
Total Organic Carbon	Monthly Ratio QRAA >1	1.1 - 1.4	No	Naturally present in the environment

Total organic carbon has no health effects; however, it provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes and haloacetic acids.

[2] Compliance is based upon a quarterly running annual average (QRAA) of the monthly ratios of actual total organic carbon removal between the source water and the treated water in a calendar year (not based on an individual result).

	Highest Level Allowed (EPA MCL*)	Highest Individual Result for Year	Violation	Common Sources in Drinking Water
Turbidity	1 NTU	0.06	No	Soil runoff
	Treatment Technique (TT)	Lowest Monthly % of Samples Meeting ≤0.3 NTU Limit	Violation	Common Sources in Drinking Water
	Turbidity of filtered water must be ≤0.3 NTU in 95% or more samples	100%	No	Soil runoff

***Unless otherwise specified, MCL applies to an individual result.**

Turbidity levels are measured during the treatment process after the water has been filtered, but before disinfection.

Metals	Action Level [§]	90th Percentile Result [§]	Number of Sites Above Action Level [§]	Violation	Common Sources in Drinking Water
Copper (ppm) [3]	1.3	0.021	0	No	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) [3]	15	0.27	0	No	Corrosion of household plumbing systems; erosion of natural deposits

[§] Refer to definitions on page 12 for full description of terms

[3] As granted by the state, Fairfax Water is on reduced monitoring for these parameters based upon historical results. The results above are taken from the most recent monitoring period in 2018.

	Ideal Goal (EPA MCLG*)	Highest Level Allowed (EPA MCL*) [4]	Highest QRAA	Range (Individual Results)	Violation	Common Sources in Drinking Water
Total Chlorine (ppm)	4	QRAA = 4	2.6	2.0 - 3.2	No	Water additive used to control microbes

***Unless otherwise specified, MRDLG and MRDL apply to an individual result.**

[4] Compliance is based on a quarterly running annual average (QRAA) of all the regulatory chlorine results in a calendar year (not based on an individual result).

Potomac River

SERVICE AREA

	Ideal Goal (EPA MCLG)	Highest Level Allowed (EPA MCL)*	Number of Positive *E.coli* samples this year	Violation	Assessment Required [5]	Common Sources in Drinking Water
E. coli	0	Repeat sample is *E. coli* positive OR Routine sample is *E. coli* positive followed by repeat sample that is total coliform positive OR System fails to take all required repeat samples following *E. coli* positive routine sample OR System fails to analyze for *E. coli* when any repeat sample tested positive for total coliform	Routine = 0 Repeat = 0	No	No	Human and animal fecal waste

[5] If an *E. coli* MCL violation occurs, an assessment to determine the cause would be performed and corrective action taken.

***Unless otherwise specified, MCLG and MCL apply to an individual result.**

Disinfection Byproducts	Ideal Goal (EPA MCLG*)	Highest Level Allowed (EPA MCL*) [6]	Highest LRAA for all sites	Range (Individual Results)	Violation	Common Sources in Drinking Water
Total Trihalomethanes (ppb)	0	LRAA = 80	42.3	23.2 - 58.8	No	Byproduct of drinking water dis-infection
Haloacetic Acids (5) (ppb)	0	LRAA = 60	29.1	17.3 - 38.4	No	Byproduct of drinking water disinfection

***Unless otherwise specified, MCLG and MCL apply to an individual result.**

[6] Compliance is based upon site-specific locational running annual averages (LRAAs) (not based upon an individual result).

2019 *Cryptosporidium* Monitoring Statement

Cryptosporidium is a microbial pathogen sometimes found in surface water throughout the United States. Although filtration removes *Cryptosporidium*, the most commonly used filtration methods cannot guarantee 100% removal. Fairfax Water consistently maintains its filtration process in accordance with regulatory guidelines to maximize removal efficiency. Our monitoring indicates the occasional presence of these organisms in the source water. Current test methods do not allow us to determine whether the organisms are dead or if they are capable of causing disease.

Ingestion of *Cryptosporidium* may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immunocompromised people, infants, small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immunocompromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection.

Cryptosporidium must be ingested in order to cause disease. It may be spread through means other than drinking water, such as other people, animals, water, swimming pools, fresh food, soils, and any surface that has not been sanitized after exposure to feces.

Fairfax Water has completed monitoring the Potomac River and Occoquan Reservoir for compliance with Round 2 of the EPA Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR Round 2). The EPA created this rule to provide for increased protection against microbial pathogens, such as *Cryptosporidium*, in public water systems that use surface water sources. Fairfax Water's LT2ESWTR Round 2 monitoring program began in April 2015 and involved the collection of one sample from water

treatment plant sources each month for a period of two years. Monitoring for compliance with the LT2ESWTR Round 2 was completed in March 2017.

Under the LT2ESWTR Round 2, the average *Cryptosporidium* concentration determines whether additional treatment measures are needed. A *Cryptosporidium* concentration of 0.075 oocysts/liter triggers additional water treatment measures. Fairfax Water's raw water *Cryptosporidium* concentrations were below this threshold. Results for LT2ESWTR Round 2 monitoring for the period of 2015-2017 are as follows:

LEGACY AND CITY OF FAIRFAX SERVICE AREAS

Source (Before Treatment)	Mean *Cryptosporidium* concentration (oocysts/Liter)	Final Bin Assignment Under LT2ESWTR Round 2
Potomac River	0.000	Bin 1 (no additional treatment needed)
Occoquan Reservoir	0.007	Bin 1 (no additional treatment needed)

CITY OF FALLS CHURCH AND ARLINGTON SPECIAL SERVICE AREAS

Cryptosporidium was monitored in the source water monthly in 2019. *Cryptosporidium* oocysts were detected in three samples collected at the Great Falls intakes in February, June, and December 2019 with concentrations ranging from 0.095 to 0.279 oocysts/L. Based on the system-specific requirements, no additional treatment measures were required at the Washington Aqueduct water treatment plants.

2019 UNREGULATED CONTAMINANT MONITORING RULE (UCMR 4) DATA

The 1996 amendments to the Safe Drinking Water Act require that once every five years, the U.S. EPA issues a new list of no more than 30 unregulated contaminants to be monitored by public water systems. The Unregulated Contaminant Monitoring Rule (UCMR) provides the EPA and other interested parties with scientifically valid data on the occurrence of contaminants in drinking water. This national survey is one of the primary sources of information on occurrence and levels of exposure that the agency uses to develop regulatory decisions for contaminants in the public drinking water supply.

The "Revisions to the Unregulated Contaminant Monitoring Rule (UCMR 4) for Public Water Systems and Announcement of Public Meeting" was published in the Federal Register on December 20, 2016 (81 FR 92666). UCMR 4 monitoring began in 2018 and will conclude in 2020. The full scope of the monitoring includes monitoring for a total of 30 chemical contaminants: 10 cyanotoxins (nine cyanotoxins and one cyanotoxin group) and 20 additional contaminants (two metals, eight pesticides plus one pesticide manufacturing byproduct, three brominated haloacetic acid disinfection byproducts groups, three alcohols, and three semivolatile organic chemicals).

WHAT ARE THE ENVIRONMENTAL AND PUBLIC HEALTH BENEFITS?

The UCMR program provides the EPA and other interested parties with nationally representative data on the occurrence of particular contaminants in drinking water, the number of people potentially being exposed, and an estimate of the levels of that exposure. In accordance with the Safe Drinking Water Act, the EPA will consider the occurrence data from UCMR 4 and other sources, along with the peer-reviewed health effects assessments, to support a regulatory determination on whether to initiate the process to develop a national primary drinking water regulation.

For more information on UCMR 4, visit EPA's UCMR web page (www.epa.gov/dwucmr) or call the Safe Drinking Water Hotline at 800-426-4791.

UNREGULATED COMPONENTS DETECTED IN 2019 UCMR 4 MONITORING

Components (ppb)	Average	Minimum	Maximum	Use or Environmental Source
Manganese	1.07	0.49	2.10	Naturally occurring element; commercially available in combination with other elements and minerals; used in steel production, fertilizer, batteries, and fireworks; drinking water and wastewater treatment chemical; essential nutrient

Potomac River

Facts About PFAS

What are perfluoroalkyl substances and where do they come from?

Perfluoroalkyl substances (PFAS) are a class of over 3,000 chemicals that have been in use for more than 50 years. Teflon is an example of a common PFAS. They can be found in industrial and home products and were designed to resist heat, grease, stains, and friction.

When it comes to PFAS, protecting drinking water sources is a priority. Fairfax Water continues to stress the importance of source water protection and its role in keeping drinking water supplies safe.

Has Fairfax Water tested its water for PFAS?

Yes. No PFAS have been detected in Fairfax Water's drinking water. Local agencies have been testing the Potomac River for PFAS since 2013. All results were non-detect. In Fairfax Water's most recent sampling, six different PFAS were analyzed, and no PFAS were detected.

Is there a regulation for PFAS?

There is currently no established federal water quality regulation for any type of PFAS. In May 2016, The EPA established health advisory levels at 70 ppt for perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). Both chemicals are types of PFAS.

The EPA's health advisory states that if water sampling results confirm that drinking water contains PFOA and PFOS at individual or combined concentrations greater than 70 parts per trillion, water systems should quickly undertake additional sampling to assess the level, scope, and localized source of contamination to inform next steps.

Where can I learn more about PFAS?

- American Water Works Association (AWWA): www.drinktap.org/Water-Info/Whats-in-My-Water/Per-and-Polyfluoroalkyl-Substances
- Centers For Disease Control (CDC): www.cdc.gov/biomonitoring/PFAS_FactSheet.html
- Environmental Protection Agency (EPA): www.epa.gov/pfas

Be Winter Salt Smart:
Learn How to Protect Our Source Water

What's the problem?

In the winter, salt keeps us safe while we are on the move, but it also leads to higher levels of salt in the region's drinking water supply, including the Potomac River and Occoquan Reservoir. Learn more and be winter salt smart!

What is winter salt?

Winter salt is rock salt (sodium chloride) or ice melt (a blend of sodium chloride, magnesium chloride and other salt). These materials are used in the winter to prevent icing of sidewalks, parking lots and roadways.

What are the benefits of winter salt use?

- Causes fewer incidents of slip and fall injuries.
- Reduces number of vehicle crashes.
- Enables businesses, government sand social services to continue with minimal interruption.

What are the downsides of its use?

- Salt on impervious surfaces (sidewalks, parking lots, roads, etc.) is eventually washed into storm drains, creeks, and rivers. This results in higher concentrations of salt in the region's drinking water sources: Potomac River and Occoquan Reservoir.
- Corrosion to vehicles and infrastructure (roads, bridges, sidewalks, parking lots).
- Increases the salinity in streams and groundwater, impacting freshwater fish and other aquatic life.

What are Fairfax Water and other agencies doing to address this problem?

The Virginia Salt Management Strategy (SaMS) was established by a diverse group of stakeholders (including Fairfax Water) and coordinated by the Virginia Department of Environmental Quality (VDEQ).

SaMS will provide recommendations for improving winter practices through efficient and effective use of salt while maintaining the same levels of safety. The strategy will also offer ways to raise awareness of these impacts, show how individuals and organizations can participate, and provide guidance for monitoring and research to support action on SaMS recommendations.

In addition to SaMS, Fairfax Water will continue to monitor source water quality and work closely with the county and other agencies to analyze trends and explore solutions.

What can I do to help?

- Shovel early. Remove snow from pavements before it turns to ice. Use salt only after snow has been cleared and only in areas needed for safety.
- Use less. More salt does not mean more melting. A 12-ounce coffee mug of salt should be enough for a 20-foot driveway or about 10 sidewalk squares.
- Spread evenly. Try not to distribute in clumps.
- Watch the temps. When it is colder than 15°F, do not apply winter salt. It will not work. In those cases, consider building traction with alternatives like sand or native bird seed.

ADDITIONAL RESOURCES

Fairfax Water Services

www.fairfaxwater.org

Questions about water service:

703-698-5800

After hours/hmergencies:

703-698-5613

To report a water main break:

www.fwnotifications.org/public

watermainbreak@fairfaxwater.org

703-698-5613

Questions about billing:

703-698-5800

All other Fairfax Water departments:

703-698-5600

If you have comments or suggestions about this report, please contact us at:

pr@fairfaxwater.org

703-698-5600

Sewer Services

Fairfax County	City of Falls Church	City of Fairfax
Department of Public Works	Department of Public Works	Department of Public Works
703-324-5033	703-248-5350, TTY 711	703-385-7810
www.fairfaxcounty.gov/publicworks	www.fallschurchva.gov/155/Public-Works	www.fairfaxva.gov/government/public-works

Dig with C.A.R.E.

Call before you dig! 800-552-7001 or 811

va811.com