

# WATER QUALITY REPORT

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East System (6153600)

# A MESSAGE FROM THE GENERAL MANAGER

Dear Customer,

It is impossible to reflect on the past year without acknowledging the impact that the COVID-19 Pandemic has had on our community and the challenges we have all faced. Even during these unprecedented times, you can remain confident in the quality of the water you receive as a Prince William County Service Authority customer.

As you will see in this year's Water Quality Report, the Service Authority once again met all federal and state water quality requirements for calendar year 2021, the most recent regulatory period. This high standard is in keeping with our mission to be a nationally acclaimed leader in providing clean water and excellent customer service through sustainable, innovative business practices, community partnerships and environmental stewardship.

This annual Water Quality Report, which is required by the National Primary Drinking Water Regulations and the Virginia Waterworks Regulations, provides valuable insight into the source and characteristics of your drinking water.

Be assured, the Service Authority remains committed to providing reliable, quality water and exceptional service to all of our customers throughout Prince William County.

Sincerely,



Calvin D. Farr, Jr.  
General Manager/CEO



## THE SOURCE OF YOUR DRINKING WATER

Your water is withdrawn from the Occoquan Reservoir, which is protected and monitored by Fairfax Water in addition to federal, state and local authorities. Your drinking water undergoes advanced treatment processes at Fairfax Water's Frederick P. Griffith, Jr. Water Treatment Plant.

The Occoquan Reservoir supplies 15 million gallons of water a day to Service Authority customers in eastern Prince William County. The 2,100-acre lake also serves as a recreational area that welcomes small boats and fishing.

Fairfax Water has the ability to direct treated water from the Potomac River to eastern areas of Fairfax and Prince William counties, increasing overall system reliability during natural disasters or other emergencies. The Service Authority routinely tests the quality of the water at multiple points throughout the distribution system.

# SOURCE WATER ASSESSMENT SUMMARY

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** the watersheds that supply public tap water.

**Provide** a list of contaminants present in the watershed.

**Assess** susceptibility to contamination in the watershed.

Fairfax Water conducted the source water assessment for the Occoquan Reservoir. 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 state, the Occoquan Reservoir was determined to be highly susceptible to contamination. This determination is consistent with the state's findings of other surface waters (rivers, lakes and streams) throughout the Commonwealth of Virginia.

The Service Authority is committed to protecting its drinking water sources. If you observe illegal dumping of waste, motor oil and other potential contaminants, report it immediately to our Regulatory Affairs Office (contact information below). Please keep the safety of your water supply in mind when applying fertilizers, herbicides and pesticides to your lawn or when disposing of chemicals. For more information about the sources of your water or a copy of the Source Water Assessment, contact the Regulatory Affairs Office at (703) 331-4162 or [water\\_quality@pwcsa.org](mailto:water_quality@pwcsa.org).

The Service Authority also administers Designated Hydrant Withdrawal and Cross-Connection Control programs to protect the water distribution system from contamination. The Service Authority closely supervises its infrastructure and operations in order to provide reliable water service to its customers throughout Prince William County.

# CRYPTOSPORIDIUM INFORMATION

Cryptosporidium is a microbial pathogen sometimes found in surface waters throughout the United States. The Service Authority purchases water from Fairfax Water and the City of Manassas, which consistently maintain their filtration processes in accordance with regulatory guidelines to maximize removal efficiency and reduce any risk of infection by this organism.

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 a life-threatening illness. The Service Authority encourages immunocompromised individuals to consult their doctor regarding appropriate precautions to avoid infection.

Cryptosporidium infections 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.

The Environmental Protection Agency (EPA) created the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) to increase protection against microbial pathogens, such as Cryptosporidium. Under that rule, the average Cryptosporidium concentration that determines whether additional treatment measures are needed is 0.075 oocysts per liter.

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.

**Cryptosporidium concentrations were below the EPA action level of 0.075 oocysts per liter.**



## SPECIAL PRECAUTIONS

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons, such as people with cancer undergoing chemotherapy, individuals who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, senior citizens and infants can be particularly at risk from infections. These individuals should seek advice about drinking water from their health care providers. EPA guidelines about reducing the risk of infection by microbial contaminants can be obtained by calling the EPA Safe Drinking Water Hotline at (800) 426-4791.



## LEAD IN DRINKING WATER

Elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water comes primarily from materials and components associated with service lines and premise plumbing, which is all plumbing located within the property line with a direct connection to the drinking water supply system. The Service Authority is responsible for providing high-quality drinking water but cannot control the variety of materials used in premise plumbing components.

When water has been sitting in pipes for several hours, you can minimize the potential for lead exposure by flushing your tap with cold water 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 EPA Safe Drinking Water Hotline at (800) 426-4791 or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

# CONTAMINANTS THAT MAY BE PRESENT IN SOURCE WATER

The sources of tap water include rivers, lakes, streams, ponds, reservoirs, and groundwater. As water moves through the ground, it dissolves naturally occurring minerals and, in some cases, synthetic materials. Contaminants can also come from the presence of animal or human activity.

Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems.

In order to ensure that tap water is safe to drink, the EPA prescribes regulations for public water systems. Please note that drinking water may contain small amounts of contaminants that do not indicate a health risk. More information about contaminants and potential health effects is available at [www.epa.gov](http://www.epa.gov) or call (800) 426-4791.





ivers, springs and wells. As water travels over the surface of the land or  
me cases, radioactive material, and can pick up substances resulting

Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff and residential uses.

Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

ns that limit the amounts of certain contaminants in water provided by public  
some contaminants. The presence of these contaminants does not necessarily  
health effects can be obtained by calling the EPA Safe Drinking Water Hotline at



## Regulated Substances: East System (6153600)

SUBSTANCE (UNITS)	MCLG*	MCL	AVERAGE	MINIMUM
Barium (ppm)	2	2	0.025	ND
Beta Photon Emitters (pCi/L) Data obtained in 2019	0	50	2.63	2.63
Fluoride (ppm)	4	4	0.69	0.64
Nitrate [as Nitrogen] (ppm)	10	10	0.92	0.57
SUBSTANCE (UNITS)	MRDLG	MRDL	HIGHEST QUARTERLY RUNNING ANNUAL AVERAGE	MINIMUM
Chlorine (ppm)	4	4	2.9	0.6
SUBSTANCE (UNITS)	MCLG	MCL	HIGHEST QUARTERLY RUNNING ANNUAL AVERAGE	MINIMUM
Haloacetic Acids [HAAs] (ppb)	N/A	60	27.2	1.0
Total Trihalomethanes [TTHMs] (ppb)	N/A	80	43.8	3.30
SUBSTANCE (UNITS)	MCLG	AL	90TH PERCENTILE RESULT	SITES ABOVE AL
Copper (ppm)	1.3	1.3	0.15	0
Lead (ppb)	0	15	ND	0

Lead and copper samples were collected in 2020. Lead and copper testing is conducted every 3 years in accordance with the Virginia Waterworks Regulations.

SUBSTANCE (UNITS)	MCLG	MCL	QUARTERLY RUNNING ANNUAL AVERAGE RATIO	MINIMUM
Total Organic Carbon (removal ratio)	N/A	TT	1.6	1.1

The Quarterly Running Annual Average (QRAA) is the monthly ratio of actual Total Organic Carbon removal versus required Total Organic Carbon removal between source water and treated water. The QRAA must be greater than or equal to 1.0 to meet Virginia Department of Health regulatory requirements.

SUBSTANCE (UNITS)	MCLG	MCL	ANNUAL AVERAGE TURBIDITY	HIGHEST SINGLE MEASUREMENT
Turbidity (NTU)	N/A	TT	0.03	0.11

Nephelometric Turbidity Units (NTU) must be less than or equal to 0.3 in at least 95% of the samples in any month and must never exceed 1.0.

## Unregulated Substances: East System (6153600)

SUBSTANCE (UNITS)	MCLG	MCL	AVERAGE	MINIMUM
Sodium (ppm)	N/A	N/A	34.1	23.3

MAXIMUM	VIOLATION	TYPICAL SOURCE
0.039	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
2.63	No	Decay of natural and manmade deposits.
0.78	No	Added to drinking water to promote strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories.
1.29	No	Runoff of fertilizers; leaching of septic tanks or sewage; erosion of natural deposits.

MAXIMUM	VIOLATION	TYPICAL SOURCE
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4.1	No	Disinfectant added to drinking water to control bacteria and microbes.
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MAXIMUM	VIOLATION	TYPICAL SOURCE
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34.9	No	Byproduct of drinking water disinfection.
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50.3	No	Byproduct of drinking water disinfection.
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MAXIMUM	VIOLATION	TYPICAL SOURCE
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N/A	No	Corrosion of household plumbing.
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N/A	No	Corrosion of household plumbing.
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MAXIMUM	VIOLATION	TYPICAL SOURCE
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2	No	Naturally present in the environment.
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Total Organic Carbon has no health effects. However, it provides a medium for the formation of disinfection byproducts such as trihalomethanes and haloacetic acids. Compliance with the treatment technique reduces the formation of disinfection byproducts.

LOWEST MONTHLY % SAMPLES MEETING THE TREATMENT TECHNIQUE TURBIDITY LIMIT	VIOLATION	TYPICAL SOURCE
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100%	No	Erosion of cleared and excavated land.
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**Microbiological Testing:** No E. coli was detected in the water system during calendar year 2021.

MAXIMUM	VIOLATION	TYPICAL SOURCE
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44.2	No	Runoff of road deicing chemicals; erosion of natural deposits.
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\* All abbreviations defined in the Glossary on Page 12.

# FACTS ABOUT POLY- AND PERFLUOROALKYL SUBSTANCES (PFAS)

Perfluoroalkyl and polyfluoroalkyl substances (PFAS) are a class of more than 6,000 man-made chemicals used in manufacturing a wide variety of industrial and household products designed to resist heat, water, oil and stains. Commonly used products manufactured with PFAS include non-stick cookware, food packaging, personal care products and water-resistant apparel.

Currently, there are no federal or state water quality regulations for any PFAS chemicals. However, the EPA established a lifetime health advisory level of 70 parts per trillion (ppt) for combined concentrations of Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) in drinking water. PFOA and PFOS are the most extensively produced and studied PFAS substances.

The Service Authority is monitoring further guidance from the EPA and the Virginia Department of Health, and we will take necessary actions to meet future federal and state drinking water regulations for PFAS.

To learn more and view the Service Authority's most recent PFAS results, visit [www.pwcsa.org/pfas-drinking-water-faq](http://www.pwcsa.org/pfas-drinking-water-faq).

### **90th Percentile Result**

Result from a set of lead and copper samples that is used to determine if the water system will be required to implement additional actions. Action is only required should the 90th Percentile sample be higher than the Action Level listed for either copper or lead.

### **Action Level (AL)**

The concentration of a contaminant that, if exceeded, triggers treatment or other requirements by the water supplier.

### **Maximum Contaminant Level Goal (MCLG)**

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.

### **Maximum Contaminant Level (MCL)**

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.

### **Maximum Residual Disinfectant Level Goal (MRDLG)**

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.

### **Maximum Residual Disinfectant Level (MRDL)**

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. Compliance with the MRDL is based on the highest Quarterly Running Annual Average.

### **N/A**

Not applicable.

### **ND**

Not detected at testing limit.

### **Nephelometric Turbidity Units (NTU)**

Measurement of the cloudiness of water.

### **Picocuries Per Liter (pCi/L)**

Measurement of radioactivity.

### **Parts Per Billion (ppb)**

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

### **Parts Per Million (ppm)**

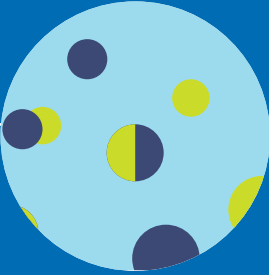
One part substance per million parts of water (or milligrams per liter).

### **Treatment Technique (TT)**

Required process intended to reduce the level of a contaminant in drinking water.

# WATER TREATMENT PROCESS

Before your drinking water reaches your tap, it goes through a six-step treatment process that ensures it is clean. In addition, Service Authority continually monitors the quality of the water provided to you.



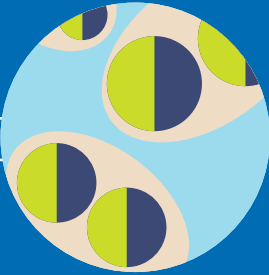
## COAGULATION

After water is withdrawn from the river or lake, a substance is added to cause particles to bind to each other in liquid.



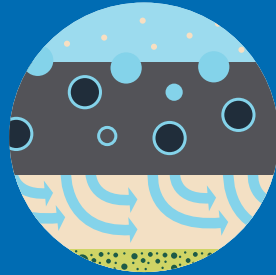
## CHLORINATION

Chlorine is added as a secondary disinfectant to ensure the water stays fresh all the way to the tap.



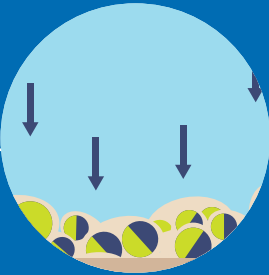
## FLOCCULATION

Particles in the water clump together and form clusters called flocs.



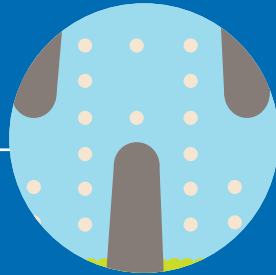
## FILTRATION

The water is filtered using granular activated carbon to remove any remaining particles.



## SEDIMENTATION

The clusters sink as they get bigger and heavier.



## OZONATION

Ozone is bubbled into the water as a primary disinfectant to destroy bacteria and other microorganisms and improve taste.

LEARN MORE ABOUT

# YOUR WATER

For more information about your drinking water, please contact the Service Authority's Regulatory Affairs Office at (703) 331-4162 or at [water\\_quality@pwcsa.org](mailto:water_quality@pwcsa.org).

The Service Authority's Board of Directors meets on the second Thursday of each month in the Board Room of the Raymond Spittle Building, 4 County Complex Court in Woodbridge, Virginia. The date, time and agenda for each upcoming Board Meeting is available at [www.pwcsa.org](http://www.pwcsa.org). For more information, please call (703) 335-7900.

*Este informe contiene información muy importante sobre su agua potable. Para ver este reporte en español, visite el sitio web en [www.pwcsa.org/water-quality/calidad-de-agua](http://www.pwcsa.org/water-quality/calidad-de-agua).*

## EAST WATER SYSTEM



# WATER QUALITY REPORT

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P.O. Box 2266  
Woodbridge, VA 22195  
[www.pwcsa.org](http://www.pwcsa.org)