

WATER

QUALITY REPORT

2016



A Message from the Director of Environmental Services and Water Reclamation

Dear Valued Customer,

The Prince William County Service Authority (PWCSA) is pleased to present our annual Water Quality Report. The Report provides the results of water quality testing performed during calendar year 2015 or the most recent regulatory period. This report is a requirement of the Federal National Primary Drinking Water Regulations and the Virginia Water Works Regulations. The quality of the water PWCSA provided to you met all federal and state water quality requirements.

We are committed to providing high quality water and reliable service to you and all our customers throughout Prince William County.

Sincerely,

A handwritten signature in black ink that reads "Evelyn Mahieu". The script is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Evelyn Mahieu, Ph.D.

*Director, Environmental Services
and Water Reclamation Division*

What is the source of my drinking water?

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

The Occoquan Reservoir supplies nearly 15 million gallons of water a day to PWCSA customers in eastern Prince William County. The 1,500-acre lake also serves as a recreational area that welcomes small boats and fishing.

Fairfax Water has the ability to transfer treated water from the Potomac River to eastern areas of Fairfax and Prince William Counties, increasing overall system reliability during hurricanes, droughts or other emergencies. PWCSA tests the quality of the water at multiple points throughout the distribution system.

Source Water Assessment Summary

The Virginia Department of Health completed a Source Water Assessment of the Occoquan Reservoir in 2002. The Assessment consists of maps of the watershed area that was evaluated, an inventory of known land use activities and documentation of any potential source of water contamination within the previous five-year study period. Based on the criteria developed by the state, the 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.

PWCSA has an ongoing commitment to protecting its drinking water sources. Please report illegal dumping of waste motor oil and other potential contaminants immediately to the PWCSA Environmental Services and Water Reclamation Division (contact information below). Please keep the safety of your water supply in mind when applying fertilizers, herbicides and pesticides to your lawn and disposing of chemicals. If you would like more information about the sources of your water or a copy of the Source Water Assessment, please contact John DeRosa, Regulatory Affairs Officer, at **(703) 335-7976** or at **derosa@pwcsa.org**.

PWCSA also has Designated Hydrant Withdrawal and Cross Connection Control programs to safeguard against contamination in the water distribution system. PWCSA believes close supervision of its infrastructure and operations as well as environmental protection are vital to providing safe and reliable services to customers throughout Prince William County.





Cryptosporidium Information

Cryptosporidium is a microbial pathogen sometimes found in surface waters throughout the United States. PWCSA purchases water from Fairfax Water, which consistently maintains its filtration process 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 and small children, and the elderly are at greater risk of developing life-threatening illness. PWCSA 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 to provide for increased 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/Liter. Cryptosporidium was not detected in the Occoquan Reservoir water prior to treatment, and, therefore, no additional treatment of your water supply is currently required.

Source (before treatment)	Average Cryptosporidium concentration (oocysts/L)
Occoquan Reservoir	0.00



Do I need to take 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, people who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA guidelines on appropriate means to lessen the risk of infection by microbial contaminants can be obtained by calling the EPA Safe Drinking Water Hotline at **1-800-426-4791**.

Biological Testing: The Service Authority collects samples throughout the distribution system every month. In August 2015, two sample results indicated the presence of total coliform. In December 2015, one sample result indicated the presence of total coliform. As required by the Virginia Department of Health Waterworks Regulations, Service Authority staff re-sampled at the positive sites and sites upstream and downstream of the original samples. No bacteria were detected in the second sampling. The presence of bacteria in samples may be caused by local distribution system conditions, sample contamination or laboratory error.

Lead in Drinking Water

If present, 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 home plumbing. PWCSA is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When water has been sitting in pipes 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 EPA Safe Drinking Water Hotline at **1-800-426-4791** or at **<http://www.epa.gov/safewater/lead>**.



What is in my drinking water?

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 and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants 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 and wildlife.

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

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.

RADIOACTIVE CONTAMINANTS, which can be naturally-occurring or be the result of oil and gas production and mining activities.

ORGANIC CHEMICAL CONTAMINANTS, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems.

PLEASE NOTE
that drinking 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.

In order to ensure that tap water is safe to drink, the EPA prescribes regulations that limit 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.

More information about contaminants and potential health effects can be obtained by calling the EPA Safe Drinking Water Hotline at **1-800-426-4791**.

REGULATED SUBSTANCES 2015: EAST SYSTEM 6153600

SUBSTANCE (UNITS)	MCLG	MCL	AVERAGE	MINIMUM
Barium (ppm)	2	2	ND	ND
Beta/photon emitters (pCi/L)	0	50	3.71	3.71
Fluoride (ppm)	4.0	4.0	0.6	ND
Total coliform bacteria	0	5%	N/A	0.0%
Nitrate (ppm)	10	10	0.98	0.52
Nitrite (ppm)	1	1	ND	ND
Radium 226 (pCi/L)	0	5	0.691	0.691
SUBSTANCE (UNITS)	MRDLG	MRDL	HIGHEST QUARTERLY RUNNING ANNUAL AVERAGE	MINIMUM
Chlorine (ppm)	4.0	4.0	2.6	0.2
SUBSTANCE (UNITS)	MCLG	MCL	HIGHEST QUARTERLY RUNNING ANNUAL AVERAGE	MINIMUM
Haloacetic Acids [HAAs] (ppb)	N/A	60	23.6	2.7
Total Trihalomethanes [TTHMs] (ppb)	N/A	80	28.5	1.0
SUBSTANCE (UNITS)	MCLG	AL	90TH PERCENTILE DETECTION	SITES ABOVE AL
Copper (ppm)	1.3	1.3	0.16	0
Lead (ppb)	0	15	2.0	1
Lead and copper samples were collected in 2014.				
SUBSTANCE (UNITS)	MCLG	TREATMENT TECHNIQUE	QUARTERLY RUNNING ANNUAL AVERAGE RATIO	MINIMUM
Total Organic Carbon (removal ratio)	N/A	>1	1.4	1.1
Total organic carbon has no health effects. However, it provides a medium for the formation of disinfection byproducts such as trihalomethanes and haloacetic acids.				
SUBSTANCE (UNITS)	MCLG	TREATMENT TECHNIQUE	ANNUAL AVERAGE TURBIDITY	HIGHEST SINGLE MEASUREMENT
Turbidity (NTU)	N/A	0.3	0.02	0.12
Turbidity must be less than or equal to 0.3 NTU in at least 95% of the samples in any month and at no time can turbidity exceed 1 NTU.				

MAXIMUM	VIOLATION	TYPICAL SOURCE
0.036	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
3.71	No	Decay of natural and man-made deposits.
0.8	No	Water additive that promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories.
1.6%	No	Naturally present in the environment. All repeat samples were absent for Total Coliform.
1.59	No	Fertilizer runoff; leaching of septic tanks or sewage; erosion of natural deposits.
0.02	No	Fertilizer runoff; leaching of septic tanks or sewage; erosion of natural deposits.
0.691	No	Decay of natural and man-made deposits.
MAXIMUM	VIOLATION	TYPICAL SOURCE
4.4	No	Water additive used to control bacteria and microbes.
MAXIMUM	VIOLATION	TYPICAL SOURCE
51.3	No	Byproduct of drinking water disinfection.
47.8	No	Byproduct of drinking water disinfection.
MAXIMUM	VIOLATION	TYPICAL SOURCE
N/A	No	Corrosion of household plumbing.
N/A	No	Corrosion of household plumbing.
Lead and copper monitoring takes place every 3 years in accordance with Virginia Waterworks Regulations.		
MAXIMUM	VIOLATION	TYPICAL SOURCE
1.6	No	Naturally present in the environment.
Compliance with the treatment technique reduces the formation of disinfection byproducts. To be in compliance, the Quarterly Running Annual Average must be >1.		
LOWEST MONTHLY % SAMPLES MEETING THE TREATMENT TECHNIQUE TURBIDITY LIMIT	VIOLATION	TYPICAL SOURCE
100%	No	Soil runoff.

Table Definitions

AL (Action Level): The concentration of a contaminant that, if exceeded, triggers treatment or other requirements by the water supplier.

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.

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.

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.

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

N/A: Not applicable; **ND:** Not detected at testing limit.

NTU (Nephelometric Turbidity Units): Measurement of the clarity of water.

pCi/L (picocuries per liter): Measurement of radioactivity.

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

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

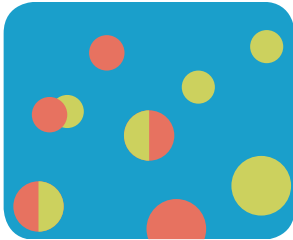
Treatment Technique: Required process intended to reduce the level of a contaminant in drinking water.

>: Greater than.

Your Water is Treated Right

Before water is delivered to you, it goes through a six-step treatment process that ensures it is clean.

In addition, PWCSA continually monitors the water that is delivered to you to ensure that it is of the highest possible quality.



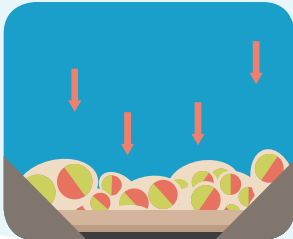
COAGULATION

A chemical is added to the water, causing small particles to adhere to one another, or coagulate.



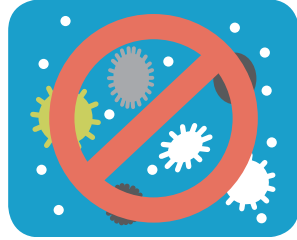
FLOCCULATION

As the particles coagulate, they create larger particles called floc that become heavier and heavier.



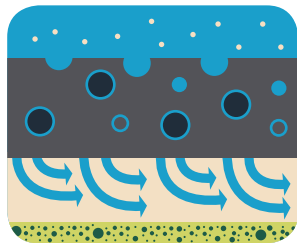
SEDIMENTATION

The heavy floc settles to the bottom and is cleared away.



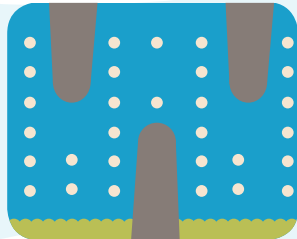
SECONDARY DISINFECTION

As a final step, chlorine is added to ensure a safe product is delivered to your home.



FILTRATION

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



OZONATION

Ozone (a gas) is added to destroy bacteria and other microorganisms and to improve taste.

An Aquatic Adventure

Where does water go when it leaves your home?

The Prince William County Service Authority's "From Source to Tap and Back Again" educational exhibit at the Durward E. Grubbs Jr. Environmental Center answers that question and much more.

Situated next to the state-of-the-art laboratory on the campus of the H.L. Mooney Advanced Water Reclamation Facility in Woodbridge, the exhibit details the life cycle of treated water and wastewater as well as PWCSA's critical role in keeping waterways healthy. The Mooney Facility discharges cleaned wastewater into Neabsco Creek, which is a tributary of the Potomac River and part of the Chesapeake Bay Watershed.

With informative and interactive displays, the exhibit educates visitors about the many ways that PWCSA helps to protect the health of its customers and the environment every day.

The Grubbs Environmental Center was named in honor of Durward E. Grubbs, Jr., a founding member of PWCSA's Board of Directors. Grubbs spent 27 years on the Board, serving as chairman on multiple occasions.

The exhibit is free and open to the public for self-guided tours Monday through Friday from 9:00 a.m. to 12:00 p.m.





Learn More About Your Water

For more information about your drinking water, please contact John DeRosa, Regulatory Affairs Officer, at **(703) 335-7976** or at **derosa@pwcsa.org**. Regular monthly meetings of the PWCSA Board of Directors are held on the second Thursday of each month at 7:30 p.m. in the Board Room at PWCSA headquarters, 4 County Complex Court, Woodbridge, Virginia, 22192, adjacent to the County Stadium Complex and McCoart Building. Public hearings are advertised in newspapers of local circulation. 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: www.pwcsa.org/water-quality/calidad-del-agua



(703) 335-7950 | water_quality@pwcsa.org
P.O. Box 2266 | Woodbridge, VA 22195-2266
www.pwcsa.org