



Water Quality Report

FY 2018



100
years without a
drinking water
quality violation.

A Message From the General Manager



Dear WSSC Customer,

The men and women of WSSC go to work every day focused on delivering the essential: safe, clean water. As your neighbor, we've proudly served Montgomery and Prince George's County residents for more than 100 years.

Our work protects public health and provides fire protection, so you can focus on your family and community.

Our commitment to safe, clean water is why I can proudly say that 2018 not only marked our 100th year of service, but also our 100th consecutive year of producing and delivering water that has never had a single drinking water quality violation.

How do we do it?

Experts in our water quality division are focused on meeting all state and federal regulatory requirements. Skilled scientists at our Consolidated Laboratory conduct more than 500,000 water quality tests each year to ensure we maintain this unparalleled level of excellence.

But don't just take it from me. The proof is in this report.

We take great pride in delivering safe, seamless and satisfying water services to you and we never take for granted the importance of what we do. Thank you for the opportunity to deliver to you the one essential we cannot live without.

Sincerely,

Carla A. Reid
General Manager/ CEO

Important Health Information from the Environmental Protection Agency (EPA)

Drinking water, including bottled water, may contain small amounts of some contaminants, but that doesn't necessarily mean the water poses a health risk.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons, such as those with cancer undergoing chemotherapy, persons 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/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791) or at epa.gov/safewater.

Learn More About Your Drinking Water



Get updated information about WSSC's water quality, our service delivery system, previous years' reports and videos and Spanish translation. Visit wsscwater.com/waterquality. For questions about your drinking water, call our Consolidated Lab at 301-206-7575.



Please check our website's events page throughout the year, for a variety of project- and policy-related public hearings and workshops.



WSSC provides speakers for schools, homeowner associations and service groups. Call 301-206-8100 to request a speaker.

An Informational Statement from EPA on Lead

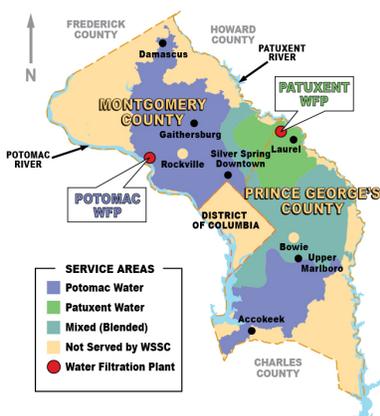
If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. WSSC is responsible for providing high quality drinking water, but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

When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to two minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (800-426-4791) or at epa.gov/safewater/lead.

WSSC completed its latest triennial Lead and Copper Rule tap sampling in 2017. Ninety percent of the homes we tested had lead levels less than 1.05 ppb, barely above the analytical reporting limit of 1 ppb and well below the 15 ppb level which the EPA considers unacceptable. Information about WSSC lead prevention methods can be found at wsscwater.com/lead.

Where Does My Water Come From?

The Patuxent and Potomac rivers are the sources of all the water we filter and process. The Patuxent Plant produces approximately 40 million gallons per day (MGD) and the Potomac Plant produces 123 MGD. The map shows the approximate service areas of both plants.



Starting at the Source

In 2002 and 2004, WSSC conducted source water assessments in cooperation with the Maryland Department of the Environment (MDE), evaluating the vulnerability of our two drinking water sources (Potomac and Patuxent) to contamination.



The reports are available for public review at the main branches of the Montgomery and Prince George's County libraries, or by contacting MDE at 410-537-3714.

Source water from rivers and reservoirs generally picks up contaminants before it reaches water treatment plants. As water travels over the land surface or through the ground on its way to the water body, it dissolves naturally occurring minerals and vegetation/organic matter. It also can pick up pesticides, herbicides and other synthetic/volatile organic chemicals from agricultural land, golf courses, or residential and urban lands. Radioactive contaminants can be naturally occurring or the result of mining activities. Sewage treatment plants and septic systems, as well as animal waste from pets, agricultural livestock and wildlife, may be sources of microbial contaminants. The salts and byproducts from winter road treatments may also be present in source water.

Potential sources of contamination in the Potomac River watershed include runoff from urban and agricultural land uses, and potential spills from highways and petroleum pipelines. Contaminants of particular concern include natural organic matter and disinfection byproduct (DBP) precursors, pathogenic microorganisms (*Cryptosporidium*, *Giardia*, fecal coliform), taste and odor-causing compounds, ammonia, manganese, sodium and chloride from winter salt application, sediment/turbidity and algae.

Potential sources of contamination in the Patuxent Reservoirs Watershed include transportation, agriculture, onsite septic systems, developed areas, and minor permitted discharges. Phosphorus runoff from urban/suburban and agricultural land uses is the primary contaminant of concern for this watershed. Sediment/turbidity, DBP precursors, iron, manganese, sodium and chloride from winter salt application, and pathogenic microorganisms are also concerns.

WSSC works with local agencies to protect the Potomac and Patuxent drinking water supplies, playing key roles in the Potomac River Basin Drinking Water Source Protection Partnership and the Patuxent Reservoirs Watershed Protection Group. Partnering with customers and neighbors is crucial to our efforts. If you are interested in learning more about how you can protect your drinking water supplies, please contact us at 301-206-8100.

Water Quality Data

DETECTED REGULATED CONTAMINANTS

SUBSTANCE	UNITS	PATUXENT TAP		POTOMAC TAP		MCL (or TT)	MCLG	VIOLA- TION?	MAJOR SOURCE IN DRINKING WATER
		LEVEL FOUND*	RANGE	LEVEL FOUND*	RANGE				
METALS									
Barium	mg/L	0.03	0.02-0.03	0.03	0.02-0.04	2	2	NO	Discharge of drilling wastes & metal refineries; erosion of natural deposits
INORGANIC CONTAMINANTS									
Fluoride	mg/L	0.5	0.4 - 0.6	0.7	0.6 - 0.9	4	4	NO	Water additive which promotes strong teeth; erosion of natural deposits
Nitrate	mg/L	1.4	0.9-1.8	1.7	1.2 - 2.5	10	10	NO	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
MICROBIAL CONTAMINANTS									
Turbidity	NTU	0.03	0.02-0.09 ¹	0.02	0.01 - 0.13 ¹	TT=1 NTU	n/a	NO	Soil runoff
Residual chlorine	% <0.3 NTU	100%	n/a	100%	n/a	TT=95% min	n/a	NO	Water additive used to control microbes Human and animal fecal waste
Viruses	mg/L	met TT requirements		met TT requirements		TT>=0.2	n/a	NO	
	n/a	met TT requirements		met TT requirements		TT=99.99% removal	0	NO	
<i>Giardia lamblia</i>	n/a	met TT requirements		met TT requirements		TT=99.9% removal	0	NO	Human and animal fecal waste
<i>Cryptosporidium</i>	n/a	met TT requirements		met TT requirements		TT=99% removal	0	NO	Human and animal fecal waste
DISINFECTION BYPRODUCT (DBP) PRECURSOR									
Total Organic Carbon	n/a	met TT requirements		met TT requirements		TT	n/a	NO	Naturally present in the environment
RADIOACTIVE CONTAMINANTS									
Gross Beta	pCi/L	<4	<4 - 4.7	<4	<4 - 6.5	50 ²	0	NO	Decay of natural and man-made deposits
Radium 228	pCi/L	n/d	n/d	<1	n/d-1.1	5 ²	0 ³	NO	Erosion of natural deposits

SUBSTANCE	UNITS	CUSTOMER TAP ⁴				AL	MCLG	VIOLA- TION?	MAJOR SOURCE IN DRINKING WATER
		90th PERCENTILE ⁵	# of SITES ABOVE AL						
METALS									
Copper	mg/L	0.10	0 of 55 sites			1.3	1.3	NO	Corrosion of household plumbing systems
Lead	µg/L	1.1	1 of 55 sites			15	0	NO	Corrosion of household plumbing systems

SUBSTANCE	UNITS	DISTRIBUTION SYSTEM				MCL or TT or MRD	MCLG or MRDLG	VIOLA- TION?	MAJOR SOURCE IN DRINKING WATER
		LEVEL FOUND *	RANGE						
BACTERIOLOGICAL CONTAMINANTS									
Total Coliform	% Positive per month	0.22	0 - 0.88			TT	0	NO	Naturally present in the environment
No. of <i>E. coli</i> Positive Samples	Count	0	0 - 0			0 ¹²	0	NO	Human and animal fecal waste

DISINFECTANT & DBPs									
Residual Chlorine	mg/L	1.3 ⁶	0.03 - 5.5 ⁷			4.0 ⁸	4.0 ⁸	NO	Water additive used to control microbes
Haloacetic Acids (HAA5)	µg/L	53 ⁹	19 - 72			60 ¹⁰	n/a	NO	Byproduct of drinking water chlorination
Total Trihalomethanes (TTHMs)	µg/L	66 ⁹	20 - 94			80 ¹⁰	n/a	NO	Byproduct of drinking water chlorination

DETECTED UNREGULATED CONTAMINANTS

SUBSTANCE	UNITS	PATUXENT TAP		POTOMAC TAP		MCL or TT	MCLG	VIOLA- TION?	MAJOR SOURCE IN DRINKING WATER
		LEVEL FOUND*	RANGE	LEVEL FOUND*	RANGE				
METALS									
Manganese ¹¹	µg/L	29 ¹³	0.5 - 110 ¹³	15	4.4-26	n/a	n/a	n/a	Erosion of natural deposits
Sodium	mg/L	14	10 - 20	16	10-32	n/a	n/a	n/a	
DBPS									
HAA5 ¹¹	µg/L	40	15 - 74			n/a	n/a	n/a	Byproduct of drinking water chlorination
HAA6Br ¹¹	µg/L	11	5.9 - 15			n/a	n/a	n/a	Byproduct of drinking water chlorination
HAA9 ¹¹	µg/L	50	23 - 87			n/a	n/a	n/a	Byproduct of drinking water chlorination

Terms Defined

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 and are non-enforceable public health goals.

TT - Treatment Technique. A required process intended to reduce the level of a contaminant in drinking water.

AL - Action level. The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

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 contamination.

Turbidity - A measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our treatment process.

NTU - Nephelometric Turbidity Unit

mg/L - Milligrams per liter, equal to parts per million (ppm). The equivalent of one minute in two years or one penny in \$10,000.

µg/L - Micrograms per liter, equal to parts per billion (ppb). The equivalent of one minute in 2,000 years or one penny in \$10 million

ng/L - Nanograms per liter, equal to parts per trillion (ppt). The equivalent of one minute in two million years or one penny in \$10 billion.

pCi/L - Picocuries per liter (a measure of radiation)

n/d - Not detected

n/a - Not applicable

= Equals

< Less than

* Based on yearly average except as noted.

1. Filtered water, maximum of measurements taken every 15 minutes.

2. EPA considers 50 pCi/L to be the level of concern for beta particles.

3. The MCL and MCLG apply to combined Radium 226 and 228.

4. Most recent sampling, between June and September 2017.

5. If more than 10 percent of sites exceed the action level, system is required to take additional steps to control corrosiveness of their water.

6. Highest running annual average (RAA).

7. All samples deemed to have detectable disinfectant residual.

8. Maximum residual disinfectant level (MRDL), the highest level of a disinfectant allowed in drinking water; based on a running annual average (RAA).

9. Highest locational running annual average (LRAA).

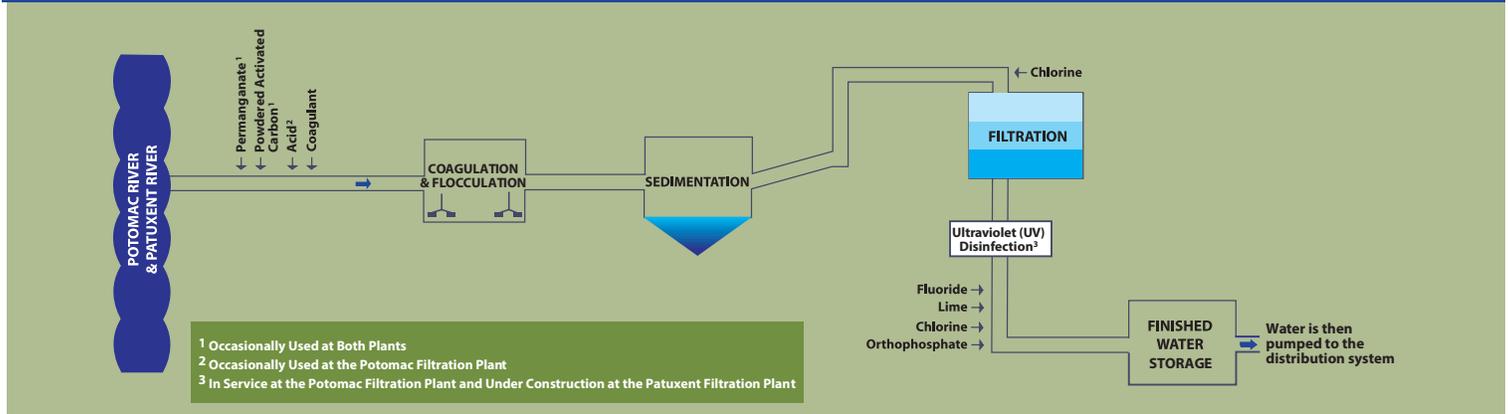
10. Maximum contaminant level based on LRAA.

11. Unregulated contaminants were monitored according to State of Maryland legislation requiring WSSC to continue latest cycle of UCMR. Federally required UCMR3 monitoring ended in 2014.

12. Routine and repeat samples are total coliform positive and either *E. coli* positive or system fails to take repeat samples following *E. coli* positive routine sample or system fails to analyze total coliform positive repeat sample for *E. coli*.

13. WSSC believes a sampling bottle error led to a result that does not represent treated drinking water but instead reflects untreated source water.

WSSC Drinking Water Filtration Process



Water is Treated to EPA Standards

To ensure that tap water is safe to drink, the EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. As stewards entrusted to provide safe drinking water to our customers, WSSC produces water to meet or exceed EPA standards.

WSSC drinking water undergoes extensive purification and treatment after it arrives at the plant and before it is sent to the distribution system for delivery to half a million homes and businesses. Our water filtration process includes: coagulation and flocculation (to make small particles and microorganisms in the raw source water adhere to each other); sedimentation (to remove most of those particles and microorganisms); filtration (to remove nearly all the remaining particles and microorganisms); UV treatment (as precautionary barrier for pathogens); chlorination (for disinfection); lime addition (to minimize the potential for dissolving lead solder used in older homes); and fluoridation (to prevent tooth decay). Orthophosphate is also added to help minimize lead corrosion and copper pipe pinhole leaks in home plumbing.

Information on *Cryptosporidium* Health Effects and WSSC Treatment

Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water. 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, immuno-compromised adults, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection.

WSSC concluded monitoring of *Cryptosporidium* for a two-year period (March 2015 through February 2017) as required by the EPA. The results indicate that our Potomac and Patuxent sources are not affected by *Cryptosporidium*. While our existing treatment processes meet EPA requirements for addressing concerns about *Cryptosporidium*, as an extra precaution, we have installed UV disinfection at both the Potomac and Patuxent plants to provide an extra barrier of protection against *Cryptosporidium*.

Notice of Availability of Unregulated Contaminant Monitoring Data

As part of the EPA's fourth Unregulated Contaminants Monitoring Rule (UCMR4) program, WSSC collected and analyzed four sets of quarterly drinking water samples starting in March 2018. In addition to these quarterly samples, WSSC collected bi-monthly cyanotoxin samples between July 2018 and October 2018. HAA5, HAA6br, and HAA9 make up a group of contaminants known as disinfection byproducts and are only tested in the distribution system. All remaining contaminants, such as manganese and cyanotoxins, are only monitored from the treated drinking water produced at each water filtration plant. Only four of the 30 tested contaminants were detected in 2018 and all detections were at low levels (parts per billion range). The detected contaminants are listed in this report.

The EPA has not established maximum contaminant levels for these unregulated contaminants, and the human health effects of these contaminants at the levels they were found is unclear. If you are interested in learning more about the results, please contact us at 301-206-7575 or visit wsscwater.com/ucmr4. More information on UCMR4 is also available on the EPA's website: epa.gov/dwucmr/fourth-unregulated-contaminant-monitoring-rule.