



2014 Water Quality Report



Dear WSSC Customer:

At WSSC we have one primary mission—providing our customers in Prince George's and Montgomery counties the safest and most reliable drinking water possible, while returning clean water to our environment. I am proud to say that for 96 years and counting, we have delivered on that promise. Once again we can say *WSSC has never had a drinking water violation!*

In carrying out this mission, we only have one chance to get the job done correctly. As you will see in this year's report, we once again have accomplished this mission by meeting and even going beyond federal standards for water cleanliness. Our hard-working and dedicated employees ensure the delivery of safe, clean water directly to your tap.

Though this report comes out once a year, I can assure you that maintaining these high standards is a year-round effort. The source water taken from the Potomac and Patuxent rivers is treated and sent through our distribution system and then tested more than 500,000 times each year by a highly skilled team of scientists in our consolidated laboratory. The results from these tests allow WSSC to make any adjustments to our operation or treatment process in order to maintain the cleanliness and safety of your water.

We also play a vital role as environmental stewards of the region's watersheds and waterways. Moving to electronic delivery of this report has reduced the number of printed copies from 450,000 to just 2,500 — saving trees and money. You can find it online at www.wsscwater.com/wqr. For those who desire a mailed hard copy, contact our Communications Office by calling (301) 206-8100 or emailing communications@wsscwater.com.

In addition, WSSC is always looking for ways to reduce our carbon footprint. WSSC uses wind, solar and other forms of alternative energy, saving our ratepayers money and reducing carbon dioxide emissions. Our Go Green e-billing service is saving trees by reducing paper use and helping you save valuable time. To sign up for Go Green, visit our website, www.wsscwater.com, and click on the Pay Your Bill link.

As we approach our 100th anniversary, we will maintain our focus on our customers and continuing success delivering the best and safest water each and every day. Because, this is WSSC, *where water matters*.

Sincerely,
Jerry N. Johnson, *General Manager/CEO*

Important Health Information from the U.S. EPA

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 mean that 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 cancer patients undergoing chemotherapy, those who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, and some elderly and infants, can be particularly at risk for infections. These people should seek advice from their health care providers about drinking water.

EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the EPA's Safe Drinking Water Hotline (1-800-426-4791) or EPA's website at www.epa.gov/safewater. More information about contaminants and potential health effects also can be obtained from the EPA hotline or website.

For More Information



WSSC provides updated information about water quality and other aspects of the service delivery system on our website, www.wsscwater.com, or customers can call WSSC's testing laboratory at 301-206-7575 for more information. A Spanish translation, previous years' reports, and videos providing additional information are also available at www.wsscwater.com/waterquality.

The public is invited to a variety of project- and policy-related public hearings and informational workshops throughout the year. Commission meetings are generally held on the third Wednesday of every month, starting at 10:00 a.m. Public hearings on our proposed Capital Improvements Program usually take place in September. Public hearings on the proposed Operating Budget are usually held in early February. Please check our [Events Calendar](#) on the home page of our website as the time approaches.

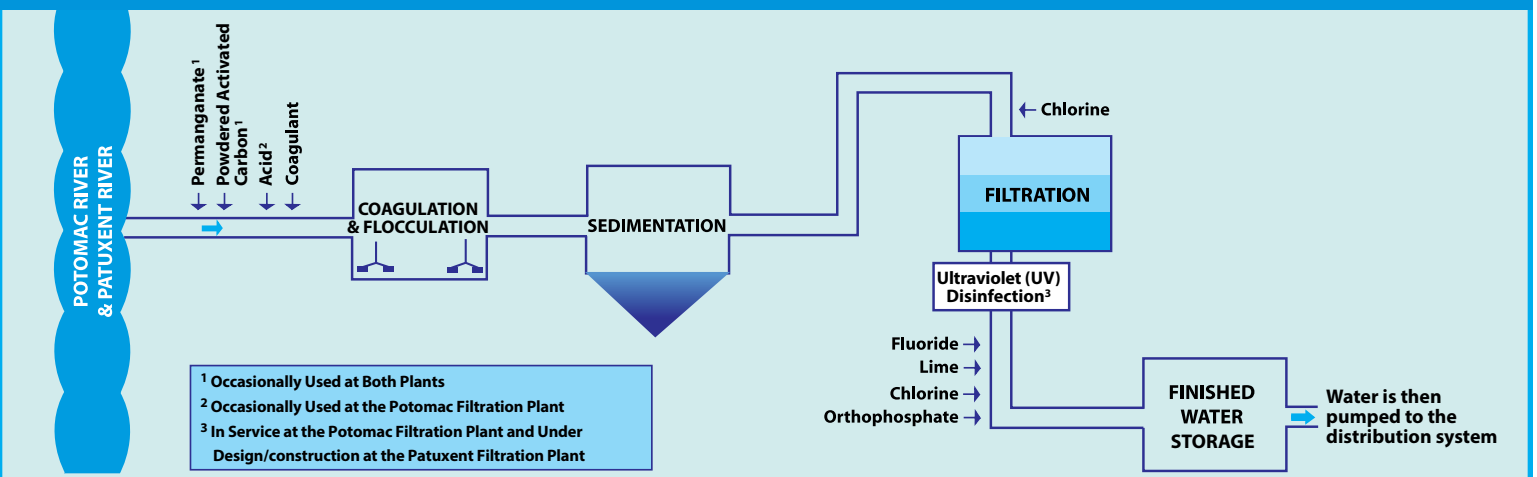
WSSC provides speakers and tours for schools, homeowner associations and service groups. Also every April we organize numerous public events as a month-long celebration of Earth Day. To request a speaker, a tour, or to obtain times and locations of the public hearings and events, please visit our [website](#) or call 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 | | | | | | | | | |
| Arsenic | µg/L | n/d | n/d - <2 | n/d | n/d - <2 | 10 | 0 | NO | Erosion of natural deposits; runoff from orchards |
| Barium | mg/L | 0.025 | 0.019 - 0.029 | 0.033 | 0.019 - 0.047 | 2 | 2 | NO | Discharge of drilling wastes & metal refineries; erosion of natural deposits |
| Total Chromium | µg/L | <2 | n/d - <2 | <2 | n/d - 2 | 100 | 100 | NO | Discharge from steel & pulp mills; erosion of natural deposits |
| Selenium | µg/L | n/d | n/d - <2 | <2 | n/d - <2 | 50 | 50 | NO | Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines |
| INORGANIC CONTAMINANTS | | | | | | | | | |
| Fluoride | mg/L | 0.66 | 0.39 - 0.80 | 0.68 | 0.60 - 0.79 | 4 | 4 | NO | Water additive which promotes strong teeth; erosion of natural deposits |
| Nitrate | mg/L | 1.2 | 0.6 - 1.9 | 1.8 | 1.2 - 3.1 | 10 | 10 | NO | Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits |
| Nitrite | mg/L | n/d | n/d - <0.05 | n/d | n/d - <0.05 | 1 | 1 | NO | Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits |
| MICROBIAL CONTAMINANTS | | | | | | | | | |
| Turbidity | NTU | 0.03 | 0.02-0.13 ¹ | 0.04 | 0.01 - 0.21 ¹ | TT=1 NTU | n/a | NO | Soil runoff |
| | % <0.3 NTU | 100% | n/a | 100% | n/a | TT=95% min | n/a | NO | |
| Residual chlorine | mg/L | met TT requirements | | met TT requirements | | TT>=0.2 | n/a | NO | Water additive used to control microbes |
| Viruses | n/a | met TT requirements | | met TT requirements | | TT=99.99% removal | 0 | NO | Human and animal fecal waste |
| <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 |
| PESTICIDES & SYNTHETIC ORGANIC CONTAMINANTS | | | | | | | | | |
| Atrazine | µg/L | <1 | n/d - 1.7 | n/d | n/d - <1 | 3 | 3 | NO | Runoff from herbicide used on row crops |
| Dalapon | µg/L | n/d | n/d - <1 | n/d | n/d - <1 | 200 | 200 | NO | Runoff from herbicide used on rights of way |
| Simazine | µg/L | <1 | n/d - 1.2 | n/d | n/d - n/d | 4 | 0 | NO | Herbicide runoff |
| RADIOACTIVE CONTAMINANTS | | | | | | | | | |
| Gross Alpha | pCi/L | <2 | <2 - <2 | <2 | <2 - <2 | 15 | 0 | NO | Erosion of natural deposits |
| Gross Beta | pCi/L | 4.4 | <4 - 5.4 | <4 | <4 - <4 | 50 ² | 0 | NO | Decay of natural and man-made deposits |
| Radium 228 | pCi/L | <1 | <1 - <1 | <1 | <1 - 1 | 5 ³ | 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 | 0.0874 | | 0 samples | | 1.3 | 1.3 | NO | Corrosion of household plumbing systems |
| Lead | µg/L | 1.17 | | 0 samples | | 15 | 0 | NO | Corrosion of household plumbing systems |
| SUBSTANCE | UNITS | DISTRIBUTION SYSTEM | | | | MCL (or MRDL) | MCLG (or MRDLG) | VIOLA-TION? | MAJOR SOURCE IN DRINKING WATER |
| | | LEVEL FOUND * | | RANGE | | | | | |
| BACTERIOLOGICAL CONTAMINANTS | | | | | | | | | |
| Total Coliform | % Positive per month | 0.31 | | 0 - 0.80 | | 5 | 0 | NO | Naturally present in the environment |
| No. of <i>E. coli</i> Positive Samples | Count | 0 | | 0 - 0 | | 0 | 0 | NO | Human and animal fecal waste |
| DISINFECTANT & DBPs | | | | | | | | | |
| Residual Chlorine | mg/L | 1.28 ⁶ | | n/d ⁷ - 7.67 ⁸ | | 4 ⁹ | 4 ⁹ | NO | Water additive used to control microbes |
| Haloacetic Acids (HAA5) | µg/L | 42.7 ¹⁰ | | 8.8 - 69.6 | | 60 ¹¹ | n/a | NO | By-product of drinking water chlorination |
| Total Trihalomethanes (TTHMs) | µg/L | 61.2 ¹⁰ | | 11.1 - 117 | | 80 ¹¹ | n/a | NO | By-product of drinking water chlorination |

WSSC Drinking Water Treatment Process



Water Quality Data (cont'd)

DETECTED UNREGULATED CONTAMINANTS

| SUBSTANCE | UNITS | PATUXENT TAP | | POTOMAC TAP | | MCL | MCLG | VIOLA-TION? | MAJOR SOURCE IN DRINKING WATER |
|-----------------------------------|-------|---------------------|-------------|---------------|---------------|-----|------|-------------|--------------------------------|
| | | LEVEL FOUND* | RANGE | LEVEL FOUND* | RANGE | | | | |
| METALS | | | | | | | | | |
| Hexavalent Chromium ¹² | µg/L | <0.03 | n/d - 0.054 | 0.118 | 0.096 - 0.140 | n/a | n/a | n/a | |
| Strontium ¹² | µg/L | 62 | 60 - 63 | 120 | 120 - 120 | n/a | n/a | n/a | |
| Vanadium ¹² | µg/L | n/d | n/d - n/d | <0.2 | n/d - 0.25 | n/a | n/a | n/a | |
| INORGANIC CONTAMINANTS | | | | | | | | | |
| Chlorate ¹² | µg/L | n/d | n/d - n/d | 22 | n/d - 44 | n/a | n/a | n/a | |
| Sodium | mg/L | 15.1 | 11.0 - 26.0 | 25.3 | 10.0 - 120 | n/a | n/a | n/a | |
| SUBSTANCE | UNITS | DISTRIBUTION SYSTEM | | | | MCL | MCLG | VIOLA-TION? | MAJOR SOURCE IN DRINKING WATER |
| | | LEVEL FOUND * | | RANGE | | | | | |
| METALS | | | | | | | | | |
| Hexavalent Chromium ¹² | µg/L | 0.121 | | 0.075 - 0.170 | | n/a | n/a | n/a | |
| Strontium ¹² | µg/L | 94 | | 76 - 110 | | n/a | n/a | n/a | |
| Vanadium ¹² | µg/L | <0.2 | | n/d - 0.23 | | n/a | n/a | n/a | |
| INORGANIC CONTAMINANTS | | | | | | | | | |
| Chlorate ¹¹ | µg/L | <20 | | n/d - 25 | | n/a | n/a | n/a | |

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.

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 2 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 2,000,000 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 2014.
5. If more than 10% 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. This data is considered an outlier. The chlorine dose at the plant tap during this time was 2.6 – 3.7 mg/L, and residual chlorine levels at nearby locations were 0.89 – 1.42 mg/L
9. Maximum residual disinfectant level (MRDL), the highest level of a disinfectant allowed in drinking water; based on a running annual average (RAA).
10. Highest locational running annual average (LRAA)
11. Maximum contaminant level based on LRAA
12. Unregulated contaminants were monitored in accordance with third cycle of EPA's Unregulated Contaminant Monitoring Rule (UCMR3). For full results and explanations, go to www.wsscwater.com/ucmr3

Water is treated to EPA standards

To ensure that tap water is safe to drink, 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 treats our water to meet or go beyond U.S. 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 treatment 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); 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 copper pipe pinhole leaks in home plumbing.

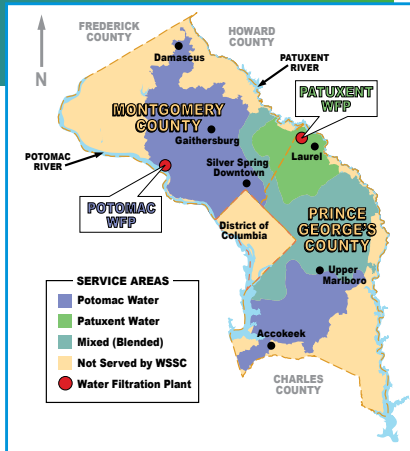
Information on *Cryptosporidium* Health Effects and WSSC Treatment

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. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised adults, infants and small children, and some 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 conducted monitoring of *Cryptosporidium* for a two-year period (October 2006 through September 2008) as required by the EPA. The results indicated that our Potomac source water is minimally affected by *Cryptosporidium*, and the Patuxent source is not affected at all. While our existing treatment processes meet new EPA requirements for addressing concerns about *Cryptosporidium*, as an extra precaution, we have installed UV disinfection at the Potomac Plant to provide an extra barrier of protection against *Cryptosporidium*. The UV disinfection upgrade at our Patuxent Plant is underway.

Where Does My Water Come From?

The Patuxent and Potomac Rivers are the sources of all the water we filter and process. The source water treated at the Patuxent Water Filtration Plant (WFP) comes from two reservoirs—Triadelphia and T. Howard Duckett (also known as Rocky Gorge)—and is pumped to the plant. The Potomac WFP draws water directly from the Potomac River. The map shows the approximate service areas of both plants. As indicated, some areas receive blended water, processed at both the Patuxent and Potomac WFPs.



Is My Water Hard or Soft?

Hard water contains more dissolved calcium and magnesium. Potomac water tends to be hard (typically averaging about 120–130 milligrams per liter). Patuxent water is soft (typically averaging about 60–65 milligrams per liter).

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 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

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, sediment/turbidity and algae.

Potential sources of contamination in the Patuxent Reservoirs watershed include highway spills, petroleum pipelines, 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, 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 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.

Notice of Availability of Unregulated Contaminant Monitoring Data

WSSC participated in the EPA's third round of the Unregulated Contaminant Monitoring Rule (UCMR3). Approximately 6,000 utilities nationwide monitored the unregulated contaminants for a year to help the EPA determine the occurrence of these contaminants in drinking water and whether or not they need to be regulated for protection of public health. As part of the UCMR3 program, WSSC collected and analyzed quarterly samples between July 2013 and April 2014. Samples were collected from two locations in each sampling event—tap water from both the Potomac and Patuxent WFPs. Metals and inorganics samples were also collected at two points in the distribution system.

The detected contaminants from two quarters (January 2014 and April 2014) of the UCMR3 sampling are listed in this report. Only 4 of the 28 tested contaminants were detected during this period, and all detections were at low levels (parts per billion range). The EPA has not established maximum contaminant levels (MCL) 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 www.wsscwater.com/ucmr3. More information on UCMR3 is also available at the EPA's website (<http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/ucmr3/>).



Washington Suburban Sanitary Commission

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