

POWHATAN COUNTY WATER AND WASTEWATER SYSTEM 2016 Consumer Confidence Report

Powhatan County is pleased to present this year's Consumer Confidence Report as required by the Safe Drinking Water Act (SDWA). This report is designed to provide details about where your water comes from, what it contains, and how it compares to standards set by the regulatory agencies. We are committed to providing you with information because informed customers are our best allies.

Source water assessment And its availability

The source of water for the Powhatan County water system (Flat Rock system) is the James River. Water is drawn out of the river by the City of Richmond's Department of Public Works, from there, it is treated and sold to Chesterfield County who sells the water to Powhatan County. Powhatan has a contract with Chesterfield County to purchase up to 0.572 million gallons per day (MGD). In 2016, Powhatan County's average daily usage was 0.187 MGD.



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In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems.

DO I NEED TO TAKE SPECIAL PRECAUTIONS ?

Some people may be more vulnerable than the general population to contaminants in drinking water. Immunocompromised persons such as persons 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)



Why are there contaminant in my drinking water?

Drinking water, including bottled water, may reasonably be expected to contain at least a small amount 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 Environmental Protection Agency's (EPA) Safe Drinking Water hotline (800-426-4791).

Sources of Water and Contaminants

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 (such as iron), and in some cases can dissolve radioactive material. Water can also pick up contaminants from the presence of animals or human activity.

Types of contaminants that may be present in drinking water sources include;

- Microbial Contaminants, such as viruses and bacteria from sewage treatment plants, septic systems, agricultural operations and wildlife
- Inorganic contaminants, such as salts and metals (both naturally occurring and from surface runoff, industrial, oil and gas, mining, or farming

- Herbicides/pesticides, which may come from a variety of sources such as, agricultural, urban runoff or residential uses.
- Organic contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial and petroleum processes and can also come from gas stations, urban storm water runoff and septic systems.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

RESULTS OF CRYPTOSPORIDIUM MONITORING

Cryptosporidium is a microbial pathogen found in surface water throughout the United States. Although filtration can remove some cryptosporidium, most commonly used filtration methods cannot guarantee 100 percent removal. Our monitoring indicates the presence of these organisms in our source and/or finished water. Current test methods do not allow us to determine if 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 are at a 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 to cause disease, and it may be spread through means other than drinking water. The City of Richmond collected 24 samples during 2016 and found an average of 6.1 Oocysts/100L. This is less than the Action Level of 7.5 Oocysts/100L.

DESCRIPTION OF THE TREATMENT PROCESS

Your water is treated by filtration and disinfection. Filtration removes particles suspended in the source water. Particles typically include clays and silts, natural organic matter, iron and manganese, and microorganisms. Your water is also treated by disinfection. Disinfection involves the addition of chlorine or other disinfectants to kill bacteria and other microorganisms (viruses, cysts, etc.) that may be in the water. Disinfection is considered to be one of the major public health advances of the 20th century.

CROSS CONNECTION CONTROL

A cross connection is an unprotected or improper connection to a public water distribution system that may cause contamination or pollution to enter the system. We are responsible for enforcing cross-connection control regulations and insuring that no contaminants can, under any flow conditions, enter the distribution system. If you have any of the devices listed below please contact us so that we can discuss the issue, and if needed, survey your connection and assist you in isolating it if necessary;

- Boiler/Radiant heater (water heaters not included)
- Underground lawn sprinkler system
- Pool or hot tub
- Additional source(s) of water on the property
- Decorative pond
- Watering trough

LEAD INFORMATION

If present, elevated levels of lead can cause serious health problems, especially for pregnant women or young children. Lead in drinking water is primarily from material and components associated with service lines and home plumbing. Flat Rock Water System 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 lead exposure by flushing your tap for 30 seconds to 2 minutes before using water from drinking or cooking. If you are concerned about the 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 are available from the Safe Drinking Water hotline or at <http://www.epa.gov/safewater/lead>.

Water Quality Data Table

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of contaminants in water provided by public water systems. The table below lists all of the drinking water contaminants that we detected during the calendar year of this report. Although many more contaminants were tested, only those substances listed below were found in your water. All sources of drinking water contain some naturally occurring contaminants. At low levels, these substances are generally not harmful in our drinking water. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health. A few naturally occurring minerals may actually improve the taste of drinking water and have nutritional value at low levels. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. As such, some of our data, though representative, may be more than one year old. In this table you will find terms and abbreviations that might not be familiar to you. To help you better understand these terms, we have provided the definitions after the table.

The following unregulated substances are monitored in your water. The below results were from samples collected in 2016.

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Your Water	Violation	Typical Source
Aluminum (ppm)			<0.05	NA	Erosion of natural deposits, addition of water treatment substances
Manganese (ppm)			<0.01	NA	Naturally present in the environment
Nickel (ppm)			<0.01	NA	Corrosion of household plumbing
Sodium (ppm)			16.8	NA	Naturally present in environment, addition of water treatment substances
Sulfate (ppm)			37.1	NA	Naturally present in the environment; addition of water treatment substances
Alkalinity (ppm)			46.8	NA	
Chloride (ppm)			14.6	NA	
Hardness (ppm)			68	NA	
pH (acidity) (SU)			6.4	NA	
Total Dissolved Solids (ppm)			154	NA	

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Your Water	Range		Sample Date	Violation	Typical Source
				Low	High			
The following substances are regulated								
(There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants)								
Alpha Emitters (pCi/L)	0	15	ND	NA	NA	2013	No	Erosion of natural deposits
Combined Radium (pCi/L)	0	5	ND	NA	NA	2013	No	Erosion of natural deposits
Chloramines (mg/L)	4	4	1.73	0.3	2.5	2016	No	Water additive used to control microbes
Haloacetic Acids (HAA5) (ppb)	NA	60	31	NA	NA	2016	No	By-product of drinking water chlorination
TTHMs [Total Trihalomethanes] (ppb)	NA	80	45	NA	NA	2016	No	By-product of drinking water disinfection
Total Organic Carbon (% Removal)	NA	TT	1.5	1.2	2.5	2016	No	Naturally present in the environment
Inorganic Contaminants								
Fluoride (ppm)	4	4	0.84	NA	NA	2016	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate [measured as Nitrogen] (ppm)	NA	10	<0.05	NA	NA	2016	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Barium (ppm)	2	NA	0.029	NA	NA	2016	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion from natural deposits.
Microbiological Contaminants								
Total Coliform (positive samples/month)	0	More than one positive sample per month	0	NA	NA	2016	No	Naturally present in the environment
Turbidity (NTU)	NA	<1.0	.33 100%			2016	No	Soil runoff
100% of the samples were below the TT value of .3. A value less than 95% constitutes a TT violation. The highest single measurement was .21. Any measurement in excess of 1 is a violation unless otherwise approved by the state.								
Contaminants	MCLG	AL	Your Water	Sample Date	# Samples Exceeding AL	Exceeds AL	Typical Source	
Inorganic Contaminants								
Copper - action level at consumer taps (ppm)	1.3	1.3	.15	2014	0	No	Corrosion of household plumbing systems; Erosion of natural deposits	
Inorganic Contaminants								
Lead - action level at consumer taps (ppb)	0	15	2.5	2014	0	No	Corrosion of household plumbing systems; Erosion of natural deposits	

Unit Descriptions	
Term	Definition
ppm	ppm: parts per million, or milligrams per liter (mg/L)
ppb	ppb: parts per billion, or micrograms per liter (µg/L)
mg/L	mg/L: Number of milligrams of substance in one liter of water
pCi/L	pCi/L: picocuries per liter (a measure of radioactivity)
NTU	NTU: Nephelometric Turbidity Units. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.
positive samples/month	positive samples/month: Number of samples taken monthly that were found to be positive
NA	NA: not applicable
ND	ND: Not detected
NR	NR: Monitoring not required, but recommended.

Important Drinking Water Definitions	
Term	Definition
MCLG	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	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.
TT	TT: Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
AL	AL: Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Variances and Exemptions	Variances and Exemptions: State or EPA permission not to meet an MCL or a treatment technique under certain conditions.
MRDLG	MRDLG: Maximum residual disinfection 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	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.
MNR	MNR: Monitored Not Regulated
MPL	MPL: State Assigned Maximum Permissible Level