City of Petersburg
2019 Water Quality Report

City of Petersburg
Department of Public Works and Utilities
103 W. Tabb Street
Petersburg, VA 23803

Public Water System ID (PWSID): VA3730750

About this Report

The City of Petersburg is pleased to present this year's Annual Water Quality Report (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 regulatory agencies. This report is a snapshot of last year's water quality. We are committed to providing you with information because informed customers are our best allies.

Our objective is to provide our customers with a safe and dependable supply of drinking water. The quality of our drinking water must meet the strict state and federal requirements administered by the Virginia Department of Health (VDH). If you have questions about this report, wish to receive a paper copy of this report, or have any other questions or concerns related to your drinking water, please contact Andrew J. Barnes, P.E., General Manager of Utilities, at 804-733-2356 or abarnes@petersburg-va.org.

How can I get involved?

City Ordinances and Code Revisions related to utilities are handled by the City Council. The City Council typically meets the first and third Tuesday of each month, except for August and during the winter holidays. A detailed schedule of meetings and the associated agendas may be found on the City's website. Information for the City's wholesale water supplier, Appomattox River Water Authority (ARWA) may be found at www.ARWAVA.org.

Do I need to take special precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised 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 Water Drinking Hotline (800-426-4791).

Where does my water come from?

The water provided to you by the City of Petersburg is wholly surface water (no groundwater), purchased from the Appomattox River Water Authority (ARWA). ARWA obtains source water from Lake Chesdin, a man-made reservoir formed by damming the Appomattox River at the George F. Brasfield Dam in Chesterfield County. Within the watershed there are numerous animal feedlots and farms, but none discharge substantial contaminants into Lake Chesdin. The nearest upstream wastewater treatment plant is the Farmville Wastewater Treatment Plant. It is located more than 40 miles upstream and does not warrant concern for pollution.

Source water assessment and its availability

The Virginia Dept. of Health conducted a source water assessment of ARWA's system during 2002. Lake Chesdin (Appomattox River) was determined to be of high susceptibility to contamination using criteria developed by the State in its EPA-approved Source Water Assessment Program. The assessment report consists of maps showing the source water assessment area, an inventory of known land use activities of concern, and documentation of any known contamination within the last five years from date of assessment. The report is available by contacting Robert B. Wilson, P.E., ARWA at (804)-590-1145.

Why are there contaminants in my drinking water?

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 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). 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:
microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming; pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses; 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 stormwater runoff, and septic systems; and radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities. 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. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Description of Water Treatment Process

Your water is treated in a "treatment train" (a series of processes applied in a sequence) that includes coagulation, flocculation, sedimentation, filtration, and disinfection. Coagulation removes dirt and other particles suspended in the source water by adding chemicals (coagulants) to form tiny sticky particles called "floc," which attract the dirt particles. Flocculation (the formation of larger flocs from smaller flocs) is achieved using gentle, constant mixing. The heavy particles settle naturally out of the water in a sedimentation basin. The clear water then moves to the filtration process where the water passes through sand, gravel, charcoal or other filters that remove even smaller particles. A small amount of chlorine or other disinfection method is used to kill bacteria and other microorganisms (viruses, cysts, etc.) that may be in the water before water is stored and distributed to homes and businesses in the community.

Results of Cryptosporidium monitoring

Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Although filtration removes cryptosporidium, the most commonly-used filtration methods cannot guarantee 100 percent removal. Our monitoring indicates the presence of these organisms in our source water 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, immuno-compromised people 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. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water.

The source water supplying Petersburg’s potable water distribution system was tested for cryptosporidium between 2015 and 2017. This testing was in compliance with the requirements of the Long Term 2 Enhanced Surface Treatment Rule, or LT2. Test results showed that the City’s water source had a high reading of 0.19 oocysts/L with a maximum 12 month average of 0.039 oocysts/L. The levels detected were below the LT2 designated limit of 0.075 oocyst per liter. No additional treatment was needed based on the results, as dictated by LT2.

Additional Information for 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. City of Petersburg 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 http://www.epa.gov/safewater/lead.

Water Quality Data Tables

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 below the table.

PETERSBURG DISTRIBUTION SYSTEM RESULTS

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Detect In Your Water	Range		Sample Date	Violation	Typical Source
				Low	High			
Disinfectants & Disinfection By-Products								
(There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants)								
Chloramine (as Cl2) (mg/L)	4	4	2.63	0.4	4.5	2019	No	Water additive used to control microbes
Chlorite (ppm)	1	1	0.2	ND	0.24	2019	No	By-product of drinking water disinfection
Haloacetic Acids (HAA5) (ppb)	NA	60	36	3.4	15	2019	No	By-product of drinking water chlorination
TTHMs [Total Trihalomethanes] (ppb)	NA	80	45	11	41	2019	No	By-product of drinking water disinfection
Microbiological Contaminants								
E. coli (RTCR) - in the distribution system	0	*	0	NA	NA	2019	No	Human and animal fecal waste
Total Coliform (RTCR)	N/A	TT	N/A	NA	NA	2019	No	Naturally present in the environment

Inorganic Contaminants

Contaminants	MCLG	AL	Your Water	# Samples Exceeding AL	Sample Date	Exceeds AL	Typical Source
Copper - action level at consumer taps (ppm)	1.3	1.3	0.151	0	2019	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead - action level at consumer taps (ppb)	0	15	0.009	0	2019	No	Corrosion of household plumbing systems; Erosion of natural deposits

*Routine and repeat samples are total coliform positive and either is 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.

ARWA TREATMENT PLANT RESULTS (Entry Point)

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Detected In Your Water	Range		Sample Date	Violation	Typical Source
				Low	High			
Disinfectants & Disinfection By-Products								
(There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants)								
Chlorine Dioxide (as Clo2)(ppb)	800	800	<100	<100	140	2019	No	Water additive used to control microbes
Microbial Contaminants								
Turbidity (% Samples)	NA	95% of monthly samples meeting limit of 0.3	100	NA	NA	2019	No	Soil runoff
Turbidity (NTU)	NA	TT	NA	0.04	0.12	2019	No	Soil runoff
Total Organic Carbon (Removal Ratio)	NA	TT	1.44	1.27	1.64	2019	No	Naturally present in the environment
Radioactive Contaminants								
Alpha emitters (pCi/L)	0	15	<0.6	NA	NA	2014	No	Erosion of natural deposits
Beta/photon emitters (pCi/L)	0	50	4.9	NA	NA	2014	No	Decay of natural and man-made deposits. The EPA considers 50 pCi/L to be the level of concern for Beta particles.
Radium (combined 226/228) (pCi/L)	0	5	<0.6	NA	NA	2014	No	Erosion of natural deposits
Inorganic Contaminants								
Barium (ppm)	2	2	0.019	NA	NA	2019	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Fluoride (ppm)	4	4	0.68	<0.1	0.87	2019	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and
Nitrate + Nitrite (ppm)	10	10	0.14	NA	NA	2019	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

Unregulated Contaminants (Detected at AWRA Treatment Plant)

Contaminants	Your Water	Explanation and Comment
Bromodichloromethane (ppb)	5.0 ppb	By-product of drinking water disinfection
Chloroform (ppb)	11 ppb	By-Product of drinking water disinfection
Dibromochloromethane (ppb)	1.1 ppb	By-product of drinking water disinfection
MTBE (ppb)	<5 ppb	Gasoline Additive
Sulfate (ppm)	21.2 ppm	Naturally Present in the environment
Sodium (ppm)	19.2 ppm	Naturally Present in the environment

Unregulated Contaminant Monitoring Rule – Part 4 (UCMR4—2019)

The 1996 Safe Drinking Water Act (SDWA) amendments require the EPA once every five years to issue a new Unregulated Contaminant Monitoring Rule (UCMR) list of no more than 30 unregulated contaminants to be monitored by public water systems. This is the first step in the EPA's process to determine what new contaminants may need to be regulated.

Through the UCMR, public water systems provide the EPA with scientifically valid data about the presence of these contaminants in drinking water. This data allows the EPA to determine if the population being exposed, quantify the level of exposure, and assess the impact of these unregulated contaminants on the environment and public health. This data is one of several primary sources of occurrence and exposure information used by the EPA to develop regulatory decisions for emerging contaminants.

The fourth round of UCMR (UCMR4) requires public water systems like Petersburg to monitor for chemical contaminants in 2018 and 2019. The table below shows the unregulated contaminants that were found in 2019 at levels that are detectable.

Name / Units	Reported Level	Range		Potential Source
		Low	High	
HAA5 (ppb)	15.52	8.04	25.83	By-product of drinking water disinfection
HAA6Br (ppb)	2.636	1.74	3.55	By-product of drinking water disinfection
HAA9 (ppb)	18.042	10.48	29.38	By-product of drinking water disinfection
Manganese (ppb)	7.36	5	9.56	Naturally occurring element

Definitions and Units

Unit Descriptions	
Term	**Definition**
ug/L	ug/L : Number of micrograms of substance in one liter of water
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: Percent of samples taken monthly that were positive
NA	NA: not applicable
ND	ND: Not detected
NR	NR: Monitoring not required, but recommended.
positive samples	positive samples/yr: The number of positive samples taken that year

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

Cross Connection Control and Backflow Prevention

The purpose of this survey is to determine whether a cross-connection may exist at your home or business. 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 that is necessary.

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

Water Conservation Tips

Did you know that the average U.S. household uses approximately 400 gallons of water per day or 100 gallons per person per day? Luckily, there are many low-cost and no-cost ways to conserve water. Small changes can make a big difference - try one today and soon it will become second nature.

- Take short showers - a 5 minute shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.
- Shut off water while brushing your teeth, washing your hair and shaving and save up to 500 gallons a month.
- Use a water-efficient showerhead. They're inexpensive, easy to install, and can save you up to 750 gallons a month.
- Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.
- Water plants only when necessary.
- Fix leaky toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month.
- Adjust sprinklers so only your lawn is watered. Apply water only as fast as the soil can absorb it and during the cooler parts of the day to reduce evaporation.
- Teach your kids about water conservation to ensure a future generation that uses water wisely. Make it a family effort to reduce next month's water bill!

Visit www.epa.gov/watersense for more information.

Source Water Protection Tips

Protection of drinking water is everyone's responsibility. You can help protect your community's drinking water source in several ways:
Eliminate excess use of lawn and garden fertilizers and pesticides - they contain hazardous chemicals that can reach your drinking water source.

- Pick up after your pets.
- If you have your own septic system, properly maintain your system to reduce leaching to water sources or consider connecting to a public water system.
- Dispose of chemicals properly; take used motor oil to a recycling center.
- Volunteer in your community. Find a watershed or wellhead protection organization in your community and volunteer to help. If there are no active groups, consider starting one. Use EPA's Adopt Your Watershed to locate groups in your community, or visit the Watershed Information Network's How to Start a Watershed Team.
- Organize a storm drain stenciling project with your local government or water supplier. Stencil a message next to the street drain reminding people "Dump No Waste - Drains to River" or "Protect Your Water." Produce and distribute a flyer for households to remind residents that storm drains dump directly into your local water body.

Additional Information

- For more general information about drinking water:
  - Visit the U.S. Environmental Protection Agency's Web site at: www.epa.gov/safewater
  - Virginia Department of Health (Drinking Water) at: https://www.vdh.virginia.gov/drinking-water/
  - Petersburg Utilities at: https://www.petersburgva.gov/300/Public-Utilities

For more information please contact:

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