

# Central



2017

## Annual Water Quality Report for Central Water System PWSID No. VA 3095490

### Continuing Our Commitment

119 Tewning Rd.  
Williamsburg, Virginia 23188-2639  
[jcsa@jamescitycountyva.gov](mailto:jcsa@jamescitycountyva.gov)  
[jamescitycountyva.gov/jcsa](http://jamescitycountyva.gov/jcsa)



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### Yes! Your water is safe to drink!

The James City Service Authority (JCSA) provides safe water to enhance and sustain the County residential and business community. The JCSA manages the County's Central Water System as well as eight independent community water systems. Our goal is to furnish you with the best possible water at the lowest possible cost. We continually surpass all State and Federal health and safety standards. As our customers, we are pleased to provide you with this annual water quality report for calendar year 2017.

As part of the James City County government, the JCSA was created to acquire, construct, operate, and maintain an integrated water system in designated areas of the County. The JCSA is governed by a Board of Directors which holds hearings on budget and other financial matters, approves contracts, and approves changes to Regulations Governing Utility Service. The Board of Directors' meets on the second Tuesday of each month at 5:00 p.m. in the Building F Board Room, James City County Government Center, 101 Mounts Bay Road. These meetings are televised live on JCC TV's Channel 48, the local government access channel, or available on demand at [jamescitycountyva.gov](http://jamescitycountyva.gov). Upcoming meeting agendas may be requested online or by calling 757-229-7421.

## Water System Improvements

In 2017, 2.6 miles of pipe lines from new development were added with 139 potential connections and 434 new customers added to the system. The JCSA performed and continues to do normal operations and maintenance on the system.

The JCSA received a renewed Department of Environmental Quality (DEQ) Groundwater Withdrawal Permit for the Central System in February 2017, which is valid through February 6, 2027, and is continuing to focus on the evaluation of options for future water supply sources.

## Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised 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. Call the Safe Drinking Water Hotline (800-426-4791) for guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other micro-biological contaminants.

## Where Does My Water Come From?

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up substances resulting from the presence of animals or from human activity. Substances (referred to as contaminants) in source water may come from septic systems, discharges from domestic or industrial wastewater treatment facilities, agricultural and farming activities, urban storm water runoff, residential uses, and many other types of activities. Water from surface sources is treated to make it drinkable while groundwater may or may not have any treatment.

The Central Water System consists of the Five Forks Water Treatment Facility (FFWTF), seven water production facilities located throughout the County, two elevated water storage facilities and two booster pump facilities. Emergency generators are in place to ensure an uninterrupted supply of water. Each water production facility has storage tanks, booster pumps, distribution system and appurtenances. The majority of the system wells pump water from the Potomac Aquifers. Five wells that take water from the Upper and Middle Potomac Aquifer are at a depth of 300-836 feet. The FFWTF takes water from the Middle and Lower Potomac Aquifers that range in depth from 800-1200 feet. There are wells that take water from the Chickahominy-Piney Point Aquifer ranging in depth of 250-300 feet. During 2017 the well system produced an average of 5.01 million gallons per

day (mgd) for 21,933 residential and business connections. The current Commonwealth of Virginia Department of Health operation permit is for a capacity of 9.973 mgd.

## Source Water Assessment

The Commonwealth of Virginia Department of Health conducted a Source Water Assessment of the Central System in 2001. Some wells were determined to be of high susceptibility to contamination using the criteria developed by the state in its approved Source Water Assessment Program. The assessment report consists of maps showing the source Water Assessment area, an inventory of known Land Use Activities and Potential Sources of contamination, susceptibility Explanation Chart, and Definitions of Key Terms. To obtain a copy of the *Source Water Assessment Report*, call 757-259-5416. JCSA is requesting the Health Department to conduct an updated Source Water Assessment due to changes in conditions and the need to update the assessments.

## Water Treatment Process

The JCSA is fortunate to already have high quality water coming from all aquifers. While the water is safe, we provide a disinfectant in accordance with Federal regulations before the water enters the distribution system for consumption. At the FFWTF, a different treatment process known as reverse osmosis (R.O.) is utilized. This process removes salts from the water before additional finished water chemical adjustments are made for pH and corrosion. Once the chemistry of the water has been adjusted and tested, the finished water is distributed to the system. The Central Water System disinfection process includes the injection of a liquid Sodium Hypochlorite solution at seven water production facilities and the FFWTF. These eight injection sites provide sufficient disinfection for the entire system. Chlorine residual tests are routinely taken to ensure the water system is thoroughly disinfected.

## Contaminants that Could Be in Water

All drinking water, including bottled water, may contain small or trace amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

In order 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. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

# Central



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; 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; pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses; organic chemical and contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, 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.

## Additional Health Information

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. The JCSA 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 or until it becomes cold or reaches a steady temperature 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 at [epa.gov/safewater/lead](http://epa.gov/safewater/lead).

The James City Service Authority completed the last Lead and Copper sampling in August 2015. The 90th percentile value for lead was 1.9 ppb (parts per billion) and for copper was 0.151 ppm (parts per million). This is significantly lower than the EPA Action Level limit of 15 ppb for lead and 1.3 ppm for copper. There was one lead level exceedance above the EPA Action Level limit of 15 ppb. A repeat sample at the same location resulted in a lead level of 1 ppb, well below the EPA Action Level limit. The action levels are established by EPA to trigger a system to take corrective actions to reduce levels if the action levels are reached or exceeded. Many areas that experience high lead levels are the result of lead service lines in the presence of corrosive water. The James City Service Authority does not have any lead service lines in our system. We also feed a corrosion inhibitor to protect the system from potential corrosive properties of the water. We continue to provide educational material and monitor water quality to ensure we provide a safe and reliable water service.

## Unregulated Contaminants

In February and August of 2015 the JCSA participated in the third phase of the EPA's required monitoring program. The purpose of the UCMR 3 (Unregulated Contaminant Monitoring Rule) is to provide data to the EPA for decisions concerning whether or not to regulate these contaminants in the future. The following table shows the results of the UCMR3:

UCMR3 Unregulated Contaminants Units = ug/L (ppb)	Result	Range
Chromium	<0.20	<0.20
Cobalt	<1.00	<1.00
Molybdenum	2.62	1.00-5.30
Strontium	91.60	9.80-160
Vanadium	<0.20	<0.20
Chromium, Hexavalent	<0.03	<0.03
Chlorate	655.00	150-1,700
1,4-Dioxane	<0.07	<0.07
Bromochloromethane	<0.06	<0.06
Bromomethane	<0.20	<0.20
1,3-Butadiene	<0.10	<0.10
Chlorodifluoromethane	<0.08	<0.08
Chloromethane	<0.20	<0.20
1,1-Dichloroethane	<0.03	<0.03
1,2,3-Trichloropropane	<0.03	<0.03
Perfluorobutanesulfonic acid (PFBS)	<0.09	<0.09
Perfluoroheptanoic acid (PFHpA)	<0.01	<0.01
Perfluorohexanesulfonic acid (PFHxS)	<0.03	<0.03
Perfluorononanoic acid (PFNA)	<0.02	<0.02
Perfluorooctane sulfonate (PFOS)	<0.04	<0.04
Perfluorooctanoic acid (PFOA)	<0.02	<0.02

## Naturally Occurring Bacteria

In 2017, 732 routine bacteriological and chlorine residual samples were taken from the distribution system. All but three samples were negative (absent) for both total and fecal Coliform. Three samples were positive for total Coliform. Two of the repeat samples were negative. One of the repeat samples was positive for total Coliform; however, the subsequent repeat sample was negative.

## Sampling Results

The JCSA tests for more than 100 contaminants to make sure the water you drink is safe. We are pleased to report that for calendar year 2017, the water delivered to your homes and businesses complied with all State and Federal requirements. The following table only lists those regulated contaminants that had some level of detection. All results are below allowed levels, which means our drinking water is safe to drink and poses no health risk. Not listed are many of the other contaminants for which we tested that were not detected.

The Commonwealth allows us to monitor for some contaminants less than once per year, because the concentrations of these contaminants do not change frequently. Some of our data, though accurate, is more than one year old.

## Regulated Contaminants – Finished Water

Contaminant (units)	Violation	Range	Level Detected	MCL	MCLG	Date of Sample	Potential Source of Contaminant
Combined Radium (pCi/l)	No	ND-1	1	5	0	2013-2017	Erosion of natural deposits
Gross Beta (pCi/l)	No	4.4-8.0	8.0	50*	0	2013-2017	Decay of natural and man-made deposits
Flouride (ppm)	No	0.45-1.88	1.88	4	4	2016-2017	Erosion of natural deposits
Arsenic (ppb)	No	ND-3	3	10	0	2016-2017	Erosion of natural deposits
Barium (ppm)	No	ND-0.011	0.011	2	2	2016-2017	Erosion of natural deposits

*\*The MCL for Beta particles is 4 mrem/year, but EPA considers 50 pCi/l to be the level of concern.*

## Regulated Contaminants – Distribution System

Contaminant (units)	Violation	Range	Level Detected	MCL	MCLG	Date of Sample	Potential Source of Contaminant
Total Trihalomethanes (ppb)	No	4.3-26	18.0*	80	NA	2017	Byproduct of drinking water chlorination
Haloacetic Acids (5) (ppb)	No	ND-2.3	1.2	60	NA	2017	Byproduct of drinking water chlorination

*\*Highest annual average of any sampling point.*

## Regulated Contaminants – Lead and Copper in the Distribution System

Contaminant (units)	Violation	90th Percentile Value	Action Level	MCLG	Number of Samples Above Action Level	Date of Sample	Potential Source of Contaminant
Lead (ppb)	No	1.9	15	0	1	8/3-8/10/15	Corrosion of household plumbing systems, erosion of natural deposits
Copper (ppm)	No	0.15	1.3	1.3	0	8/3-8/10/15	Corrosion of household plumbing systems, erosion of natural deposits, leaching from wood preservatives

## Disinfectants in the Distribution System

Disinfectant (units)	Violation	Range	Level Detected (annual average)	MDRL	MRDLG	Date of Sample	Potential Source of Contaminant
Free Chlorine (ppm)	No	1.02-2.19	1.57	4	4	2017 monthly	Water chlorination

## Table Definitions

**AL** (Action Level): the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

**MCL** (Maximum Contaminant Level): The highest level of 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.

**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.

**ppm** (one part per million): the equivalent of a single penny in \$10,000.

**ppb** (one part per billion): the equivalent of a single penny in \$10,000,000.

**pCi/l** (picocuries per liter): a measure of radioactivity.

**ND** (No Detects): lab analysis indicates that the contaminant is not present.

**NA**: Not Applicable.

## Questions

For more information about this report, or for any questions relating to your drinking water:

**General Manager**  
757-229-7421

**Customer Service**  
757-253-6800

**Emergency,  
normal hours**  
7 a.m. - 3:30 p.m.  
757-229-7421

**Emergency,  
after hours**  
757-566-0112

**Special Information Hotline** **Water Conservation**  
757-259-4911 757-259-5416

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