

FORT MONROE

2018 Consumer Confidence Report of Tap Water for Fort Monroe, VA PWSID #3650150

INTRODUCTION

This annual water quality report or “Consumer Confidence Report” is developed and distributed by Veolia and the Fort Monroe Authority as required by the Safe Drinking Water Act. Virginia Department of Health, Office of Drinking Water in Richmond reviewed and approved this annual water quality report. This report explains where your water comes from, what analytical testing shows about it, and other things you should know about your drinking water. Fort Monroe’s goal is to provide you with a safe and dependable supply of drinking water, and we want you to understand the efforts we make to protect your water supply. Drinking water quality must meet state and federal requirements administered by the Virginia Department of Health (VDH). The water is produced by Newport News Waterworks (NNWW) and is treated and tested by state-of-the-art equipment and techniques and meets or exceeds state and federal standards for water quality.

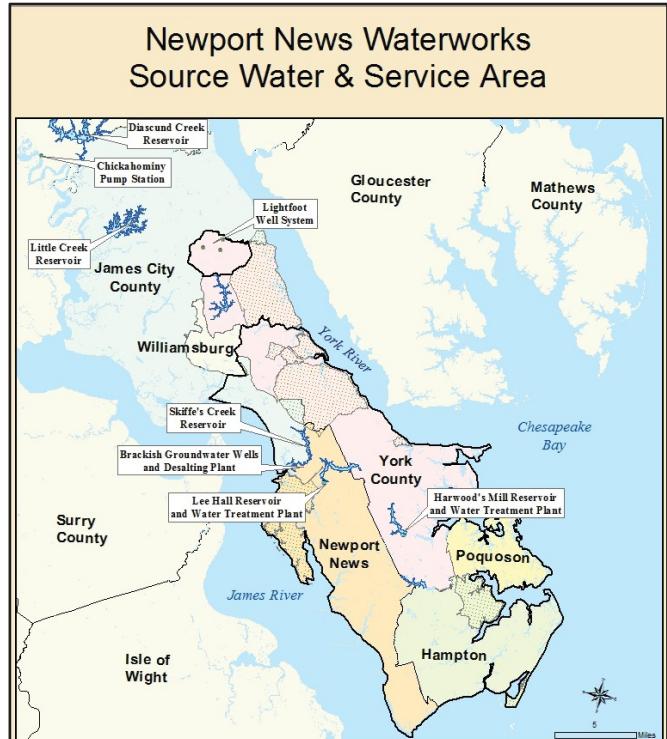
SOURCE WATER ASSESSMENT

The Virginia Department of Health (VDH) updated its Source Water Assessment of Waterworks’ surface water sources in 2018. The report consists of maps showing the source water assessment area, an inventory of known land use activities, potential sources of contamination, a susceptibility explanation chart and definitions of key terms. Using the criteria developed by the state in its approved Source Water Assessment Program, Waterworks’ surface water sources are rated as relatively high in susceptibility to contamination (which is one reason why water treatment is so important), while our deep groundwater wells are rated as low in susceptibility. The Source Water Assessment is available from Waterworks by calling Customer Service at **(757) 926-1000**.

NEWPORT NEWS WATERWORKS SOURCE WATER

During 2018, the drinking water at Fort Monroe was purchased from Newport News Waterworks (NNWW). The primary source of your drinking water is surface water from Chickahominy River. When water is available, it is pumped from the river above Walkers Dam and transferred through pipes to NNWW’s reservoirs for storage. NNWW owns and operates five reservoirs and two treatment plants at Lee Hall and Harwood’s Mill.

Very small amounts of treated brackish (slightly salty) groundwater from deep wells in the Lee Hall area provide a second source of water. The two source waters are treated separately, then blended together before being distributed to the service area.



WATER TREATMENT

Untreated water is pumped from the reservoirs to the treatment plants, where it passes through screens, before aluminum sulfate (alum) and polymer are added. These chemicals cause tiny particles in the water to cling together (coagulation), making the particles easier to remove. After the water is clarified, ozone (disinfection) is added to kill micro-organisms such as bacteria and viruses. The water is then sent through filters to remove any remaining particles (filtration). Lime is added to adjust the pH, fluoride is added to prevent tooth decay, and zinc orthophosphate is added to control corrosion inside the pipes. Finally, the secondary disinfectant chloramines are added to maintain disinfection through the pipe system while the water travels to your home or business.

The brackish groundwater is pumped to the desalination plant located at our Lee Hall facility. Using a process called reverse osmosis, water is forced by high pressure through membranes that can remove the salt and other contaminants to produce very high quality water. The water is blended with treated surface water from the two treatment plants and then sent out to our customers.

GENERAL INFORMATION

Generally speaking, 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 radioactive material and can pick up substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

Microbial Contaminants: Such as viruses and bacteria, this may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Pesticides & Herbicides Contaminants: May come from a variety of sources such as agriculture, stormwater runoff, and residential uses.

Radioactive Contaminants: Can be naturally occurring or be the result of oil and gas production and mining activities.

Organic Chemical Contaminants: Also including synthetic and volatile organics, are by-products of industrial processes and petroleum production, and may also come from gas stations, urban stormwater runoff, and septic systems.

Inorganic Contaminants: Such as salts and metals, which can be naturally occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

WATER QUALITY TESTING

To ensure tap water is safe to drink, U.S. Environmental Protection Agency (EPA) regulations limit the amount of certain contaminants in water provided by public water systems. (The U.S. Food and Drug Administration is responsible for setting these limits on bottled water.) The water quality information listed here is based upon tests conducted in 2018 by NNWW. Samples of finished water were taken at regular intervals from specific locations (the treatment plants, residences, and businesses) across the Waterworks service area.

Every regulated substance Newport News Waterworks detected in the water, even in the smallest amounts, is listed in **Table 1** below. Every regulated substance Fort Monroe detected in its water distribution system is listed in **Table 4 on Page 3**. The tables contain the name of each substance, the highest level allowed by regulation (MCL), the ideal goals for public health (MCLG), the amount detected, the usual sources of such contamination, and whether or not Waterworks meets the set regulation. For help understanding the tables, please see the key terms in the right column and footnotes at the bottom of the **Page 3**. A table with the results of testing for non-regulated microbials can be found in **Table 2 on Page 3**.

NNWW participated in the EPA's 2018 fourth round of the Unregulated Contaminant Monitoring Rule (UCMR4) with results shown in **Table 3** found on **Page 3**. Unregulated contaminants are those that don't yet have a drinking water standard set by the EPA. The purpose of monitoring for these contaminants is to help the EPA decide if they need regulating in the future in order to protect public health.

DEFINITION OF KEY TERMS

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

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 allowing 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 microbial contaminant control.

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.

MRL (Minimum Reporting Level): An estimate of the lowest concentration of a compound that laboratories would report as a detection.

ND (Not Detected): Does not equate to zero, but refers to an amount below analytical reporting limits.

NTU (Nephelometric Turbidity Unit): A measure of water clarity. Turbidity greater than five NTU is just noticeable to the average person.

pCi/L (Picocuries per liter): A measure of radioactivity. EPA considers 50 pCi/L to be the level of concern for beta particles.

ppm (Parts per million or milligrams per liter [mg/L]): Equivalent to one penny in \$10 thousand.

ppb (Parts per billion or micrograms per liter [$\mu\text{g}/\text{L}$]): Equivalent to one penny in \$10 million.

ppt (Parts per trillion or nanograms per liter [ng/L]): Equivalent to one penny in \$10 billion.

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

Turbidity: A measure of water clarity serving as an indicator of the treatment facility's performance.

TABLE 1 REGULATED SUBSTANCES - WATER QUALITY TESTING RESULTS: CONTAMINANTS IN WATER AT NEWPORT NEWS WATERWORKS

Contaminant	Unit	EPA's Ideal Goal MCLG	Highest EPA Allowed Level	Highest Test	Range of Test Results Low-	Meets State & Federal	Likely Source
INORGANICS FROM TESTING COMPLETED IN 2018							
Fluoride	ppm	4	4	1.02	0.66-1.02	YES	Added to promote strong teeth
Barium	ppm	2	2	0.023	0.021-0.023	YES	Erosion of natural deposits
Nitrate	ppm	10	10	0.105	0.057-0.105	YES	Erosion of natural deposits
Nitrite	ppm	1	1	0.002	<0.001-0.002	YES	Erosion of natural deposits
DISINFECTION BY-PRODUCTS AND PRECURSORS FROM TESTING COMPLETED IN 2018							
Total Organic Carbon Removal		None	TT	1.02 ¹	0.98-1.71	YES	Naturally present in the environment
MICROBIOLOGICAL FROM TESTING COMPLETED IN 2018							
Turbidity	NTU	None	TT	0.32 ²	0.02-0.32	YES	Soil runoff
RADIOLOGICAL FROM TESTING COMPLETED IN 2016							
Radium-228	pCi/L	0	5	0.6	<0.6-0.6	YES	Erosion of natural deposits
Beta emitters	pCi/L	0	50	2.5	1.4-2.5	YES	Decay of natural & man-made deposits

IMPORTANT HEALTH INFORMATION

Cryptosporidium is a parasitic microbe found in surface waters throughout the U.S. Our monitoring indicates the presence of these organisms at very low levels in our source water but not in our treated water. Current test methods approved by the EPA 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.

Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people, 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. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline at **(800) 426-4791**.

WATER QUALITY TEST RESULTS OF SAMPLES IN 2018

TABLE 2: NON-REGULATED MICROBIALS MONITORED AT THE SOURCE*

CONTAMINANT	U N I T	N C L G	M C L	HIGHEST AMOUNT DETECTED	RANGE OF TEST RESULTS LOW TO HIGH	LIKELY SOURCE
Cryptosporidium	#/L*	n/a	TT	0.041	ND-0.041	Human or animal fecal waste

*Found in source water only ; not in treated water; in Oocysts/L

TABLE 3 — UNREGULATED SUBSTANCES UNREGULATED CONTAMINANT MONITORING REGULATION — 4 (UCMR4)

CONTAMINANT	UNIT	MRL	AVERAGE	RANGE OF TEST RESULTS LOW-HIGH	SOURCES & COMMENTS
Quinoline	µg/L	0.0200	<0.020	<0.020 - 0.026	Used as a pharmaceutical (anti-malarial) and flavoring agent; produced as a chemical intermediate; component of coal
Manganese	µg/L	0.4	6.3	4.5 - 8.8	Naturally-occurring element; commercially available in combination with other elements and minerals; used in steel production, fertilizer, batteries and fireworks; drinking water and wastewater treatment chemical; essential nutrient
HALOACETIC ACIDS					
Dichloroacetic Acid (DCAA)	µg/L	0.2	16.4	5.0 - 27.1	By-product of drinking water chlorination
Trichloroacetic Acid (TCAA)	µg/L	0.5	3.5	1.4 - 6.3	By-product of drinking water chlorination
Dibromoacetic Acid (DBAA)	µg/L	0.3	<0.3	<0.3 - 0.4	By-product of drinking water chlorination
Bromochloroacetic Acid (BCAA)	µg/L	0.3	2.4	0.4 - 3.1	By-product of drinking water chlorination
Bromodichloroacetic Acid (BDCAA)	µg/L	0.5	0.7	<0.5 - 1.1	By-product of drinking water chlorination
Chlorodibromoacetic Acid (CDBAA)	µg/L	0.3	<0.3	<0.3 - 0.30	By-product of drinking water chlorination

TABLE 4 WATER QUALITY TESTING RESULTS: FORT MONROE WATER DISTRIBUTION SYSTEM

CONTAMINANT	UNIT	SAMPLING FREQUENCY	MCLG	MCL	TEST RESULTS	RANGE OF TEST RESULTS LOW - HIGH	SOURCES & COMMENTS
Total Trihalomethanes (TTHM)	ppb	Quarterly	0	80	15 ³	6.7 - 25.6	By-product of drinking water chlorination
Haloacetic Acids (HAA5)	ppb	Quarterly	0	60	2 ³	ND - 7	By-product of drinking water chlorination
Total Chlorine (Chloramines)	ppm	Monthly	MRDLG=4.0	MRDLG=4.0	0.23 ⁴	0.03 - 0.42	Water additive used to control microbes
Lead	ppb	Triennially	0	AL=15	<1.0 ⁵ 90th percentile	ND - ND	Corrosion of household plumbing; erosion of natural deposits
Copper	ppm	Triennially	0	AL=1.3	0.50 ⁵ 90th percentile	0.096 - 0.559	Corrosion of household plumbing; erosion of natural deposits
CONTAMINANT		SAMPLING FREQUENCY	MCLG	MCL	TEST RESULTS	VIOLATION (Y/N)	SOURCES & COMMENTS
Total Coliform Bacteria		Monthly	N/A	TT	0	N	Naturally present in the environment

Footnotes: The State allows Fort Monroe and NNWW to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the data, though accurate, is more than one year old. (1) Compliance with TOC MCL is based on the running annual average (RAA) computed quarterly. A RAA equal to or greater than 1.0 meets water quality standards. The "Highest Test Result" TOC concentration in the table is actually the lowest RAA found in samples collected between 4/1/2017 and 12/31/2018. The range is the individual monthly ratios from both water treatment plants in 2018. TOC has no adverse health effects, but can be a critical component in the formation of disinfection by-products. (2) Turbidity is a measure of water cloudiness. It is a good indicator of the effectiveness of our filtration system. 100% of samples were within the turbidity limit. (3) TTHM and HAA5 sample sites are buildings selected according to the Disinfection Byproduct Rule State 2. The Test Result of TTHM or HAA5 is the highest of the locational running annual average over the period of 4/1/2017-12/31/2018. The range of TTHM or HAA5 is the lowest and the highest concentrations in the individual samples collected in 2018. (4) The highest level of chloramines is the highest of the four running annual averages of chloramines from 4/1/2017 through 12/31/2018. The range of chloramines is the lowest and the highest of the individual chloramines measured in 2018. (5) Our last required lead and copper samples were collected in September 2018. None of the individual lead-and-copper sample results exceeded the established Action Levels. At least 90% of the sample results were at or below the Test Results. Since the 90th percentiles of the lead-and-copper concentrations have been consistently below the established Action Levels, your waterworks remains in the Triennial Reduced Monitoring for the contaminants. Our next required monitoring will be during the June 2021 through September 2021.

ABOUT LEAD

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. We have not detected lead in the treated water tested monthly at either of Waterworks' treatment plants.

Lead in drinking water comes primarily from some materials associated with service lines and home plumbing. Waterworks is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components.

To reduce the potential for lead exposure, Waterworks adds lime during the treatment process to adjust the pH of the water and reduce corrosion of plumbing. We also add zinc orthophosphate to the water as a corrosion inhibitor. Zinc orthophosphate forms a protective layer on the inside of the pipes, which prevents lead and other metals from dissolving into the water. Lime and zinc orthophosphate are harmless to humans – especially in the quantities we use – and help prevent lead contamination.

Nonetheless, if your water has been sitting for several hours or longer, you can further minimize the potential for lead exposure by running cold water until it becomes as cold as it will get before using it for drinking or cooking. This could take from 30 seconds to 2 minutes or even longer. Waterworks and the health department recommend that you use only cold water for drinking, cooking, and especially for making baby formula. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure are available from the Safe Drinking Water Hotline at www.epa.gov/safewater/lead.

ABOUT NEWPORT NEWS WATERWORKS REPORT

The Newport Waterworks 2018 Consumer Confidence Report featuring additional test results is available online at: nnva.gov/waterqualityreport. A paper copy of Newport News Waterworks report is also available at all local libraries in the Waterworks service area, in Newport News Waterworks' walk-in services lobby at 700 Town Center Drive in Newport News, and in city halls and county offices in Waterworks service area. Call **(757) 926-1000** if you would like a copy of the Newport News Waterworks report sent via mail.

INFORMATION FOR SPECIAL POPULATION

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 at **(800) 426-4791**.

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/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline at **(800) 426-4791**.

Veolia
Attn: Project Manager
57 Patch Road; Fort Monroe, VA 23651 **(757) 224-2411**



ADDITIONAL INFORMATION

OF INTEREST

Sodium: The EPA has no set standard for sodium levels in drinking water. However, levels are usually low and unlikely to be a significant contributor to adverse health effects. The average level of sodium found in our treated water in 2018 was 13 mg/L, and the range was 10 mg/L - 18 mg/L. Should you have a health concern, please contact your health care provider.

Fluoride: Added to water to prevent tooth decay - Newport News Waterworks adheres to drinking water regulations set by the EPA and guidance provided by the Virginia Department of Health (VDH). VDH has adopted the recommendation of 0.7 mg/l, set by the U.S. Department of Health and Human Services, as the optimum level of fluoride concentration in drinking water. This is the target Waterworks strives to achieve.

Hardness: No EPA standard is set. Water treated by NNWW is considered hard (4 grains - 6 grains which is equal to 70 mg/L -120 mg/L as calcium carbonate or CaCO₃). The 2018 average was 81 mg/L with a range of 62 mg/L -114 mg/L.

OPPORTUNITIES

Because NNWW is a department of the City of Newport News, major decisions about your drinking water are made by Newport News City Council. They meet on the second and fourth Tuesdays of each month at 7:00 pm, and you are welcome to attend and participate. These meetings are broadcast live on Newport News City Channel (in Newport News - Cox channel 48 and Verizon FIOS channel 19) and streamed live on Facebook at www.facebook.com/NewprtNewsTV. They also can be viewed live or on-demand by all customers in our service area on the web at www.nnva.gov/nnty.

The Fort Monroe Authority (FMA) is a political subdivision of the Commonwealth of Virginia and is governed by a twelve member Board of Trustees. The FMA Board meets no less than quarterly to discuss operations and to make managerial and financial decisions including matters related to the water distribution system on Fort Monroe. You are welcome to attend and participate in these meetings as well. The schedule of upcoming meetings can be found on the web at www.fmauthority.com/public-meetings/meeting-schedule/.

ABOUT FORT MONROE CONSUMER CONFIDENCE REPORT

If you have questions or concerns about Fort Monroe's water or water quality, please contact either Fort Monroe Authority or Veolia via the contacts provided below. You are able to receive additional copies of Fort Monroe's Consumer Confidence Report through Veolia located at 57 Patch Road Fort Monroe, VA 23651

Fort Monroe Authority
Attn: Public Relations
20 Ingalls Road; Fort Monroe, VA 23651 **(757) 637-7778**

