

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. The Virginia Department of Health, Office of Drinking Water 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 2022. 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 NNWW by calling Customer Service at 757-926-1000.

NEWPORT NEWS WATERWORKS SOURCE WATER

During 2021, the drinking water at Fort Monroe was purchased from Newport News Waterworks (NNWW). The primary source of your drinking water is surface water from the Diascund Creek Reservoir supplemented by the Chickahominy River as dictated by weather patterns. Water is pumped from Diascund Creek Reservoir and/or the Chickahominy river above Walkers Dam and transferred through pipes to NNWW’s reservoirs for storage. NNWW owns and operates five reservoirs that store and supply water to two treatment plants.

WATER TREATMENT

Untreated water is pumped 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, chloramines, the secondary disinfectant 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 the 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. When it is used, the finished water is blended with treated surface water and 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:

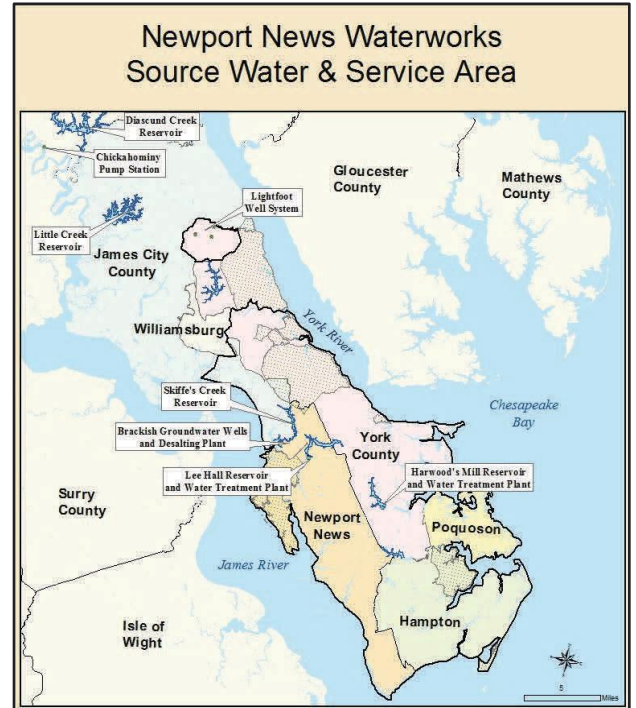
Microbial Contaminants: Such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

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

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

Organic Chemical Contaminants: including synthetic and volatile organics, are by-products of industrial processes and petroleum production, and also can 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 2022 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 NNWW 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 3 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 **Table 3 on Page 3**. NNWW participated in the EPA's 2019 fourth round of the Unregulated Contaminant Monitoring Rule (UCMR4) with results shown in **Table 2** 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 IN TABLES

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. MCLGs allow for a margin of safety.

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

MRDL (Maximum Residual Disinfectant Level): The highest level of a disinfectant allowed in drinking water. The 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.

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 NTUs 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 [µg/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 NNWW

Contaminant	Unit	EPA's Ideal Goal MCLG	Highest EPA Allowed Level MCL	Highest Test Result	Range of Test Results Low - High	Meets State Standards	Likely Source
FROM TESTING COMPLETED IN 2021 AND 2022 INORGANICS							
Copper	ppm	0	AL = 1.3	0.01 ¹	0.007 - 0.311	YES	Corrosion of household plumbing
Lead	ppb	0	AL = 15	<1.0 ¹	<1.0-9.86	YES	Corrosion of household plumbing
Fluoride	ppm	4	4	0.75	0.59 - 0.75	YES	Added to promote strong teeth
Barium	ppm	2	2	0.021	0.019 - 0.021	YES	Erosion of natural deposits
Nitrate	ppm	10	10	0.060	0.047 - 0.060	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 2021 AND 2022							
Total Trihalomethanes (TTHM)	ppb	0	80	14 ²	4 - 23	YES	By-product of chlorination
Haloacetic Acids (HAA5)	ppb	0	60	16 ²	<2 - 39	YES	By-product of chlorination
Total Organic Carbon Removal		None	TT	1.16 ³	0.97- 1.57	YES	Naturally present in the environment
MICROBIOLOGICAL FROM TESTING COMPLETED IN 2021 AND 2022							
Turbidity	NTU	n/a	TT	0.144 ⁴	0.014 - 0.144	YES	Soil runoff
Total Chlorine (Chloramines)	ppm	MRDLG=4.0	MRDL=4.0	3.1 ⁵	<0.02 - 5.4 ⁵	YES	Water additive (disinfectant) used to control
RADIOLOGICAL FROM TESTING COMPLETED IN 2022							
Combined Radium-226 & -228	pCi/L	0	5	0.6	0.2 - 0.6	YES	Erosion of natural deposits
Beta emitters	pCi/L	0	4	1.8	1.2 - 1.8	YES	Decay of natural & man-made deposits

TABLE 2 - UNREGULATED SUBSTANCES			UNREGULATED CONTAMINANT MONITORING REGULATE - 4 (UCMR4)			
Contaminant	Unit	MRL	Average	Range of Test Results	Sources and Comments	
Manganese	µg/L	0.4	9.6	2.9—24.1	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	11.6	1.6 - 27.1	By-product of drinking water chlorination	
Trichloroacetic Acid TCAA	µg/L	0.5	3	0.7 - 11.7	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	2.2	0.4 - 3.3	By-product of drinking water chlorination	
Bromodichloroacetic Acid BDCAA	µg/L	0.5	0.8	<0.5 - 2.3	By-product of drinking water chlorination	
Chlorodibromoacetic Acid CDBAA	µg/L	0.3	<0.3	<0.3 - 0.7	By-product of drinking water chlorination	

TABLE 3—REGULATED SUBSTANCES			WATER QUALITY TESTING RESULTS: FORT MONROE WATER DISTRIBUTION SYSTEM				
Contaminant	Unit	Sampling Frequency	MCLG	MCL	Test Results	Range of Results Low - High	Sources & Comments
Total Trihalomethanes-TTHM	ppb	Quarterly	0	80	13 ²	4.7-23	By-product of drinking water chlorination
Haloacetic Acids-HAA5	ppb	Quarterly	0	60	3 ²	ND - 9.0	By-product of drinking water chlorination
Total Chlorine-Chloramines	ppm	Monthly	MRDLG=4.0	MRDLG=4.0	0.11 ⁵	0.01 – 0.72	Water additive used to control microbes
Lead	ppb	Triennially	0	AL=15	<1.0 ¹	ND - ND	Corrosion of household plumbing; erosion of
Copper	ppm	Triennially	0	AL=1.3	0.306 ¹	0.037 – 0.379	Corrosion of household plumbing; erosion of
Contaminant					Violation(Y/N)		Sources & Comments
Total Coliform Bacteria		Monthly	N/A	TT	#	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. Except for radiological testing, which was completed in 2016, the results reported in the table above are for samples taken in 2021-2022. Samples taken in 2021 are part of required four-quarter or annual running averages. **(1)** At least 90% of the samples were at or below this level. None of the individual samples exceeded the Action Level. Because our lead and copper levels are so low, we only have to test every three years. Lead and copper testing on Fort Monroe was completed in 2021 and NNWW 2022. **(2)** The highest detected levels of THM and HAA are based on a specific location’s four-quarter running average. The range numbers are the results from individual samples. The data in “Highest Result” column include samples from 2021. The range is for samples taken in 2022. **(3)** Compliance is based on a running four-quarter average. The range is the individual monthly ratio from both water treatment plants. TOC has no adverse health effects, but can be a critical component in the formation of disinfection by-products. The data in the “Highest Result” column includes samples from 2021. The range is for samples taken in 2022. **(4)** Turbidity is a measure of water cloudiness. It is a good indicator of the effectiveness of the filtration system. 100% of samples were within the turbidity limit. **(5)** For Chloramines , a system-wide annual running average is used. The range numbers are the results of individual samples. The data in the “Highest Result” column includes samples from 2021. The range is for samples taken in 2022.

ABOUT PFAS

Recent national news reports, books, and movies about a group of synthetic chemicals known as PFAS may have some Waterworks customers concerned about the safety of their drinking water. We want to assure you that we're aware of this issue and have been conducting water quality testing. PFAS stands for per- and polyfluoroalkyl substances. There are thousands of PFAS chemicals, and they are found in many different consumer, commercial, and industrial products. PFAS are long-lasting chemicals used for non-stick, waterproof, stain-resistant, firefighting foams, and other uses. For most people, consumer products and food are the main sources of exposure to these chemicals; however, drinking water can be a source in communities where these chemicals have contaminated water supplies. Such contamination is typically localized and associated with a specific facility, for example, an industrial plant where these chemicals were produced or an airfield at which they were used for firefighting. There have been no industrial PFAS manufacturers, in the watersheds of Waterworks' reservoirs (properties that drain to our reservoirs), and our screening program includes airports and military facilities in the watersheds. At this time, there is no regulatory limit on the concentration of these chemicals in drinking water. In June 2022, U.S. EPA issued new interim updated health advisories for PFOS and PFOA replacing those EPA issued in 2016. These updated levels are below any analytical method of detection at this time. Final health advisories for Gen X chemicals and PFBS were also issued. It is anticipated that EPA will propose PFAS regulations in 2023 and Waterworks will continue to monitor developments in this area. Waterworks customers can be assured that their water meets all federal and state standards for safety. We are committed to protecting public health and will continue to monitor this issue closely to stay ahead of potential health risks.

NNWW PFAS Testing Results					
	Unit	Health Advisory	MRL	Max Conc	Range
Perfluorooctanoic Acid (PFOA)	ppt	0.004	<1.9	3.6	<1.9 – 3.6
Perfluorooctane Sulfonate (PFOS)	ppt	0.02	<1.9	4.1	2.6 - 4.1
Gen X Chemicals	ppt	10	<1.9	<1.9	<1.9
Perfluorobutane Sulfonic Acid (PFBS)	ppt	2000y	<1.9	<1.9	<1.9

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 (800-426-4791) or at www.epa.gov/safewater/lead.

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 2021 was 11.8 mg/L, and the range was 11.3 mg/L – 12.3 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 0.71 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. Information about fluoridation, oral health, and current issues is available at www.cdc.gov/fluoridation.

Hardness: No EPA standard is set. Water treated by NNWW is considered moderately hard (4 grains - 6 grains which is equal to 70 mg/L -120 mg/L as calcium carbonate or CaCO₃). The 2021 average was 52 mg/L with a range of 40 mg/L -64 mg/L.

ABOUT NEWPORT NEWS WATERWORKS REPORT

The Newport Waterworks 2022 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.

PUBLIC HEALTH PRECAUTIONS

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.

Another factor that affects water quality in your home is how "stale" the water is. When you leave your home or business for a long time, as you may when you take a vacation, the water in the pipes and plumbing doesn't move. When water doesn't move, bacteria can grow, and if you have lead or copper plumbing, those metals can start to seep into the water. The best thing to do is run the water on full blast for 30 seconds to two minutes before using it for drinking or cooking. For more details visit www.nnva.gov/2746/Water-Quality.

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/nntv.

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 at the Veolia office.

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

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

