



NORFOLK NAVAL SHIPYARD & ST. JULIENS CREEK ANNEX PORTSMOUTH, VIRGINIA 2018 CONSUMER CONFIDENCE REPORT

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Norfolk Naval Shipyard (NNSY) is committed to providing you drinking water that is safe and reliable. NNSY believes that providing you with accurate information about your water is the best way to assure that your water is safe. There were no drinking water violations to report for 2018.

Each year, the Consumer Confidence Report (CCR) is required to be distributed by July 1st of the current year. This CCR is a snapshot of the quality of your drinking water in 2018. The purpose of this annual report is to advise consumers of where their water comes from, provide water quality data, advance greater understanding of drinking water, and heighten awareness to conserve water resources.

NORFOLK NAVAL SHIPYARD SOURCE WATER

NNSY purchases finished water from the City of Portsmouth. Portsmouth's water supply comes from a system of four surface lakes (Kilby, Meade, Cohoon, and Speight's Run) and five deep wells in the Middle Potomac Aquifer. From these lakes and wells, the water is pumped through pipes to a water treatment facility which has the capacity to treat 33 million gallons of water each day and serves over 120,000 customers in Portsmouth, Chesapeake and Suffolk. Water treatment chemicals are added to the water causing small solid particles to clump together and sink to the bottom of a settling basin. The water is then filtered to remove bacteria, algae, and other impurities. Finally, the water is disinfected with chloramines to kill any remaining bacteria.

ABOUT DRINKING WATER

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. 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.

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 may 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 contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and may come from gas stations, urban storm water runoff, and septic systems.

Radioactive contaminants, which may be naturally occurring, or the result of oil and gas production and mining activities.

In addition to these contaminants, all lakes and streams contain algae, which are microscopic plants that can cause taste and odor problems in drinking water.

For additional information:

City of Portsmouth,
Water Quality Division
(757) 539-2201 x232

Virginia Department of
Health
757-683-2000
[http://www.vdh.state.va.us/
drinkingwater/](http://www.vdh.state.va.us/drinkingwater/)

USEPA Safe Drinking
Water Hotline
800-426-4791
<http://www.epa.gov/safewater/>

NAVFAC Mid-Atlantic
Environmental
757-641-4370



The source of NSA Norfolk Naval Shipyard's drinking water includes four surface lakes (Kilby, Meade, Cohoon, and Speight's Run) and five deep wells in the Middle Potomac Aquifer.

ABOUT DRINKING WATER (continued)

All 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 the 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).

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) establishes limits for contaminants in bottled water, which must provide the same protection for public health.

WATER QUALITY DATA

The tables below list only those contaminants that were present in your drinking water at levels detectable by laboratory equipment. Unless otherwise noted, the data presented in these tables is from testing done in 2018. We are required to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change. Table 1 summarizes data from testing conducted by the City of Portsmouth at the treatment plant. Tables 2 and 3 summarize data from additional testing conducted by the Navy in the distribution system. The presence of contaminants in the water does not necessarily indicate that the water poses a health risk. The EPA sets the Maximum Contaminant Levels (MCLs) and the Maximum Contaminant Level Goals (MCLGs) as listed in the tables. The Regulated Substances Table and the Unregulated Substances Table are provided for your information and as required by the Consumer Confidence



Who needs 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 systems 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 EPA's Safe Drinking Water Hotline (800-426-4791).

Kidney dialysis patients should consult with their health care providers or dialysis centers in order to take special precautions when using chloraminated water. Fish owners should be sure chloramines are removed from the water before it is used in aquariums or ponds. Many pet stores sell water conditioners for chloraminated water.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. The primary source of Lead in drinking water is materials and components associated with service lines and home plumbing. NSA NNSY is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components in buildings. 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 or until it becomes cold or reaches a steady temperature before using water for drinking or cooking. If you have questions about your water, please contact PWD Portsmouth Environmental at 757-641-4370. 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>.

DEFINITIONS AND ABBREVIATIONS

Contaminants in your drinking water are routinely monitored according to Federal and State regulations. The table on the following pages shows the results of monitoring for 2018. In the tables and elsewhere in this report you may find many terms and abbreviations which you are not familiar. The following definitions are provided to help you better understand these terms:

- **Action Level (AL)** - The concentration of a contaminant that, if exceeded, triggers treatment or other requirements which a water system must follow. For lead and copper monitoring, compliance is based on the 90th percentile value.
- **Level 1 Assessment** - A Level 1 assessment is a study of the waterworks to identify potential problems and determine, if possible, why total coliform bacteria have been found in our waterworks.
- **Level 2 Assessment** - A level 2 assessment is a very detailed study of the waterworks to identify potential problems and determine, if possible, why an *E. Coli* PMCL violation has occurred and why total coliform bacteria have been found in our waterworks on multiple occasions.
- **Maximum Contaminant Level (MCL)** - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology.
- **Maximum Contaminant Level Goal (MCLG)** - 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.
- **Maximum Residual Disinfectant Level (MRDL)** - The highest level of a disinfectant allowed in drinking water based on running annual average. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants. For chlorine and chloramines, a waterworks is in compliance with the MRDL when the running annual average of monthly averages of samples taken in the distribution system, computed quarterly, is less than or equal to the MRDL.
- **Maximum Residual Disinfectant Level Goal (MRDLG)** - 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.
- **NA** - Not applicable
- **Nephelometric Turbidity Unit (NTU)** - A measure of the clarity, or cloudiness, of water. Turbidity in excess of 5 NTU is just noticeable to the average person. Turbidity is monitored because it is a good indicator of the effectiveness of the filtration system.
- **Non-detection (ND)** - Laboratory analysis indicates that the contaminant is not present.
- **Picocuries per liter (pCi/L)** - A measure of the radioactivity in water.
- **Parts per million (ppm) or Milligrams per liter (mg/L)** - A measurement of the amount of contaminant per unit of water. A part per million is one cent in \$10,000 or one minute in two years.
- **Parts per billion (ppb) or Micrograms per liter (ug/L)** - A measurement of the amount of contaminant per unit of water. A part per billion is like one cent in \$10,000,000 or one minute in 2,000 years.
- **Secondary Maximum Contaminant Level (SMCL)** - Non-enforceable standard that is established for aesthetic considerations
- **Treatment Technique (TT)** - A required process intended to reduce the level of a contaminant in drinking water.

Table 1. 2018 WATER QUALITY TABLE - CITY OF PORTSMOUTH (Water Treatment Plant Samples)

Regulated Substances	Unit	MCLG	MCL	Amount Detected	Range	Meets EPA Standards	Possible Source of Contamination
Alpha Emitters ¹	pCi/L	0	15	0	-0.56-1.62	Yes	Erosion of natural deposits
Barium	ppm	2	2	0.024	NA	Yes	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Beta/Photon Emitters ²	pCi/L	0	50	0	1.1-1.8	Yes	Decay of natural and man-made deposits
Chloramines	ppm	4	4	3.62	1.04 – 4.1	Yes	Water additive used to control microbes
Combined Radium	pCi/L	0	5	0	0.45	Yes	Erosion of natural deposits
Fluoride	ppm	4	4	0.73	0.48-1.16	Yes	Erosion of natural deposits; Water additive which promotes strong teeth
Total Organic Carbon	ppm	NA	TT	2.13	1.78-2.58	Yes	Natural in environment
Turbidity	Unit	MCLG	MCL	Amount Detected	Range	Meets EPA Standards	Possible Source of Contamination
Turbidity	NTU	NA	TT**	0.13	0-0.13	Yes	Soil Run-off
Turbidity (Lowest monthly percent of samples meeting limit)	NTU	NA	TT**	100%	NA	Yes	Urban and soil runoff, waste discharge, sediments from erosion
*Turbidity is a measure of the cloudiness of water. Turbidity, by itself, is not harmful, but it can interfere with the disinfection of drinking water. **The treatment technique (TT) for turbidity is ≤ 0.3 NTU in 95% of samples.							
Secondary and Unregulated Substances	Unit	SMCL	Amount Detected	Range	Likely Source		
Corrosivity	Corrosivity units	Non-corrosive	-1.36	-1.84 - -0.89	Natural or industrially-influenced balance of hydrogen, carbon and oxygen in the water; Affected by temperature and other factors		
Sulfate	ppm	250	52	10-66	Runoff/leaching from natural deposits; Industrial wastes		
Total Dissolved Solids (TDS) (2017)	ppm	500	224	176-193	Runoff/leaching from natural deposits		
pH (acidity)	pH units	6.5-8.5	7.45 ³	7-7.8	Runoff/leaching from natural deposits		
Sodium	ppm	NA ⁴	60	N/A	Natural in environment; also from use of chemicals at water treatment plant		
Additional Information*	Unit	Average Level			Range		
Alkalinity	ppm	76			62-108		
Calcium Hardness	ppm	21			18-28		
Conductivity	umhos/cm	331			262-370		
Orthophosphate	ppm	0.34			0.21-0.70		
*The substances listed above are not regulated by the EPA; however, this information is provided as a service to our customers							
UCMR4 (2018 Data)	Unit	Amount Detected	Range Low-High		Typical Source		
Bromide	ppb	33.86	26.4 - 33.4		Usually found in pesticides and some baked goods		
HAA5	ppb	27.12	17.44 – 36.85		By-product of drinking water disinfection		
HAA6Br	ppb	8.87	5.98 – 12.21		By-product of drinking water disinfection		
HAA9	ppb	35.71	24.12 – 47.76		By-product of drinking water disinfection		
Manganese	ppb	0.788	0.562 – 0.942		Naturally Occurring		
Quinolone	ppb	0.0419	NA		Typically found in cocoa, black teas, and certain types of alcohols		
Total Organic Carbon (TOC)	ppb	7868	6000-10500		Naturally Occurring		

Table 2. 2018 WATER QUALITY TABLE - NORFOLK NAVAL SHIPYARD (Distribution System Samples)

Microbiological Contaminants	Unit	MCL G	MCL	Highest Level	Range	Meets EPA Standards	Possible Source of Contamination	
<i>E. Coli</i>	# of positive samples	0	*	0	NA	Yes	Human and animal fecal waste	
*Effective April 1, 2016 The Revised Total Coliform Rule established the following Primary Maximum Contamination Level (PMCL): In compliance unless (i) the waterworks has an E. coli-positive repeat sample following a total coliform-positive routine sample; (ii) the waterworks has a total coliform-positive repeat sample following an E. coli-positive routine sample; (iii) the waterworks owner fails to take all required repeat samples following an E. coli-positive routine sample; or (iv) the waterworks owner fails to test for E. coli when any repeat sample tests positive for total coliform.								
Lead and Copper Monitoring	Unit	MCLG	AL	Samples above AL	Amount Detected (90th Percentile)	Range	Meets EPA Standards	Possible Source of Contamination

Lead	ppb	0	15	0	2 ⁵	ND - 7	Yes	Corrosion of household plumbing systems; Erosion of natural deposits
Copper	ppm	1.3	1.3	0	0.229 ⁵	0.013 – 0.524	Yes	Corrosion of galvanized pipes; Erosion of natural deposits

¹ The Gross Alpha MRL= 3.0 results fell in the range -0.56/+ 1.62 with a min. detectable activity of 2.0 pCi/L. ²MCL for Beta particles is 4 mrem/year; EPA considers 50 pCi/L to be the level of concern for Beta particles. ³Combined Radium Footnote for City of Portsmouth 0.1 pCi/L is for Radium 226. Radium 228 is <0.9pCi/L. ⁴This number is the highest monthly average of compliance samples for the calendar year. ⁵For physician-prescribed “no salt diets” a limit of 20 ppm is suggested. ⁶At 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.

Cont. Table 2. 2018 WATER QUALITY TABLE - NORFOLK NAVAL SHIPYARD (Distribution System Samples)

Residual Disinfectants and Disinfection By Products	Unit	MCLG	MCL	Highest Level ⁶	Range (Individual Results)	Meets EPA Standards	Possible Source of Contamination
Haloacetic Acids (HAA5)	ppb	NA	60	32.5	0-39	Yes	Drinking water disinfectant by-product
Trihalomethanes (TTHM)	ppb	NA	80	44.1	26.8 - 50.3	Yes	Drinking water disinfectant by-product
Total Chlorine Residual	ppm	4 ⁷	4 ⁸	1.5	0 – 3.4	Yes	Drinking water disinfectant

Table 3. 2018 WATER QUALITY TABLE - ST. JULIENS CREEK ANNEX (Distribution System Samples)

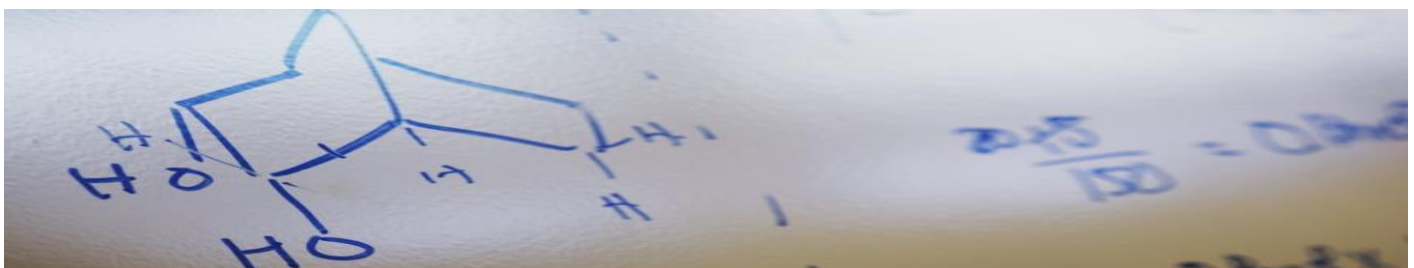
Microbiological Contaminants	Unit	MCLG	MCL	Highest Level	Range	Meets EPA Standards	Possible Source of Contamination
<i>E. Coli</i>	# of positive samples	0	*	0	NA	Yes	Human and animal fecal waste

*Effective April 1,2016 The Revised Total Coliform Rule established the following Primary Maximum Contamination Level (PMCL): In compliance unless (i) the waterworks has an E. coli-positive repeat sample following a total coliform-positive routine sample; (ii) the waterworks has a total coliform-positive repeat sample following an E. coli-positive routine sample; (iii) the waterworks owner fails to take all required repeat samples following an E. coli-positive routine sample; or (iv) the waterworks owner fails to test for E. coli when any repeat sample tests positive for total coliform.

Lead and Copper Monitoring	Unit	MCLG	AL	Samples above AL	Amount Detected (90th Percentile)	Range	Meets EPA Standards	Possible Source of Contamination
Lead	ppb	0	15	0	1 ⁵	ND – 1	Yes	Corrosion of household plumbing systems; Erosion of natural deposits
Copper	ppm	1.3	1.3	0	0.209 ⁵	0.079 – 0.260	Yes	Corrosion of galvanized pipes; Erosion of natural deposits

Residual Disinfectants and Disinfection By Products	Unit	MCLG	MCL	Highest Level ⁶	Range (Individual Results)	Meets EPA Standards	Possible Source of Contamination
Haloacetic Acids (HAA5)	ppb	NA	60	12.3	0-14	Yes	Drinking water disinfectant by-product
Trihalomethanes (TTHM)	ppb	NA	80	35.1	19.2 - 47.3	Yes	Drinking water disinfectant by-product
Total Chlorine Residual	ppm	4 ⁷	4 ⁸	1.0 ⁹	0.0 – 3.3	Yes	Drinking water disinfectant

⁶The highest levels found for TTHM and HAA5 were the highest running annual averages found at each of the sample sites for each of the four quarters in 2018. The range is the highest and the lowest values found in the individual samples. The highest level found for Total Chlorine Residual was based on the running annual average calculated for each of the four quarters in 2018. The range is the highest and lowest values found in the individual samples.; ⁷MRDLG; ⁸MRDL, ⁹This number is the highest running annual average of quarterly compliance samples for the 2018 calendar year; for Total Chlorine Residual, the highest running annual average was determined by calculating quarterly values which were based on monthly compliance samples.



VIOLATIONS AND EXCEEDANCES

There were no drinking water violations to report for 2018 for Norfolk Naval Shipyard or St Juliens Creek Annex.

QUESTIONS

Contact NAVFAC Mid-Atlantic Environmental staff at 757-641-4370.

To access this report electronically, please visit the CNIC website at:

http://www.cnic.navy.mil/regions/cnrma/om/environmental_support/water_quality_information.html