



NSA HAMPTON ROADS, NORTHWEST ANNEX

CHESAPEAKE, VIRGINIA

2014 CONSUMER CONFIDENCE REPORT

NSA Hampton Roads, Northwest Annex is committed to providing you safe and reliable drinking water. Northwest believes that providing you with accurate information about your water is the best way to assure you that your water is safe.

This Consumer Confidence Report is a snapshot of the quality of your drinking water in 2014. The purpose of this annual report is to explain where your water comes from and contains tables listing all contaminants detected in your water in 2014.



SOURCE WATER

Northwest Annex obtains raw water from the Yorktown aquifer, a naturally clean source of groundwater. Pumps, located in pump houses, are used to withdraw water from nine deep-water wells at the Base. Five wells supply water treatment plant No. 1 and are located east of Wren Street in the vicinity of the Navy Housing complex. Four other wells supply water

to treatment plant No. 2 and are located between Relay Road and Douglas A. Munro Road, south of the Coast Guard Facility.

Raw water (sometimes referred to as untreated water) is pumped from the wells into the treatment plants and passes through pressure filters called "greensand filters." The greensand filters are designed to remove naturally occurring iron and manganese from the groundwater. After passing through the filters, chlorine is added to the treated water to disinfect and protect against microbiological contamination. This treated water is then pumped into storage tanks prior to being fed into the distribution system and ultimately to your faucet. NSA Hampton Roads, Northwest Annex, with the help of the Virginia Health Department, monitors your drinking water throughout the year to ensure that it is safe to drink.

The Virginia Department of Health conducted a Source Water Assessment of the Northwest Annex Waterworks in 2001. Drilled wells A, B, C, 297, 298, and 299 were determined to be of low susceptibility of contamination using the criteria developed by the state in its approved Source Water Assessment Program. Drilled wells 158 and 161 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 of concern, and documentation of any known contamination within the last 5 years. The report is available by contacting NAVFAC MIDLANT Environmental at 341-0482.

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 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 contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can 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.

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.

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's) Safe Drinking Water Hotline (800-426-4791).

ABOUT DRINKING WATER (continued)

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.

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 Safe Drinking Water Hotline (800-426-4791).

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. NSA Northwest 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 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 NAVFAC Mid-Lant Environmental at 757-341-0482. 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 www.epa.gov/safewater/lead.

NEED MORE INFORMATION?

NAVFAC MIDLANT Environmental: 341-0482

Virginia Department of Health: 683-2000
www.vdh.state.va.us/drinkingwater

EPA Safe Drinking Water Hotline: 1-800-426-4791
www.epa.gov/safewater

DEFINITIONS & ABBREVIATIONS

Contaminants in your drinking water are routinely monitored according to Federal and State regulations. The tables below show the results of monitoring for 2014. In this report you may find terms and abbreviations that are not familiar to you. 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.
- **Coliform** - A group of bacteria commonly found in the environment. They are an indicator of potential contamination of water. Adequate and appropriate disinfection effectively destroys coliform bacteria.
- **Contaminant** - Any natural or man-made physical, chemical, biological, or radiological substance or matter in water, which is at a level that may have an adverse effect on public health, and which is known or anticipated to occur in public water systems.
- **Disinfection** - A process that effectively destroys coliform bacteria.
- **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. 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.
- **Nitrates** - A dissolved form of nitrogen found in fertilizers and sewage by-products which may leach into groundwater and other water sources. Nitrates may also occur naturally in some waters.
- **ND** - Non-Detection. Laboratory analysis indicates that the contaminant is not present.
- **NTU (nephelometric turbidity unit)** - 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 our filtration system.
- **Pathogens, disease-causing pathogens, waterborne pathogens** - A pathogen is a bacterium, virus, or parasite that causes or is capable of causing disease. Pathogens may contaminate water and cause waterborne disease.
- **pCi/L, picocuries per liter** - A measure of the radioactivity in water.
- **pH** - A measure of the acidity or alkalinity of water.

DEFINITIONS & ABBREVIATIONS (continued)

- **part per billion (ppb), part per million (ppm)** - Measurements of the amount of contaminant per unit of water. One part per million corresponds to one minute in two years or a single penny in \$10,000 and a part per billion is like a penny in \$10,000,000.
- **Trihalomethanes (THM)** - Four separate compounds that form as a result of disinfection.

- **Treatment Technique (TT)** - A required process intended to reduce the level of a contaminant in drinking water.
- **Turbidity** - A measure of the cloudiness of water caused by suspended particles.



WATER QUALITY DATA

The tables below list only those contaminants that were present in your drinking water at levels detectable by laboratory equipment. The data presented in these tables is from testing done in 2014, unless otherwise noted. The Maximum Contaminant Levels (MCLs) and the Maximum Contaminant Level Goals (MCLGs) listed in the tables are set by EPA. The Regulated Substances Table and the Unregulated Substances Table are provided for your information and as required by the Consumer Confidence Rule.

REGULATED CONTAMINANTS

Inorganic Contaminants ¹	Unit	EPA Limits		Northwest Drinking Water		Meets EPA Standards	Possible Source of Contamination
		MCLG	MCL	Highest Level	Range		
Barium	Ppm	2	2	ND	ND	Yes	Discharge of drilling wastes; discharge metal refineries; erosion if natural deposits
Fluoride	ppm	4	4	0.30	0.29-0.30	Yes	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from Fertilizer and Aluminum Factories.

¹Data for Barium and Fluoride represents compliance samples collected in 2012.

Organic Contaminants ²	Unit	EPA Limits		Northwest Drinking Water		Meets EPA Standards	Possible Source of Contamination
		MCLG	MCL	Highest Level	Range		
Benzene	ppb	0	5	1	ND - 1	Yes	Discharge from factories; leaching from gas storage tanks and landfills
Ethylbenzene	ppb	700	700	0.7	ND - 0.7	Yes	Discharge from petroleum refineries
Xylenes	ppb	10,000	10,000	5.3	ND - 5.3	Yes	Discharge from petroleum factories; discharge from chemical factories

²Traces of Benzene, Ethylbenzene, and Xylenes were detected at concentrations below the Primary MCL on 7/30/2014. The Navy immediately discontinued use of the affected wells until corrective actions are completed. Increased monitoring data detected additional traces of Xylenes on 10/24/2014. While contamination was detected, finished water in the distribution system meets the Safe Drinking Water Act standards.

Lead and Copper Monitoring	Unit	EPA Limits		Northwest Drinking Water		Meets EPA Standards	Possible Source of Contamination
		MCLG	AL	Highest Level ³	Range		
Copper (2014)	ppb	1300	1300	90 th percentile = 408	34 - 474	Yes	Corrosion of household plumbing systems
Lead (2014)	ppb	0	15	90 th percentile = 2	1 - 3	Yes	Corrosion of household plumbing systems; erosion of natural deposits

³Lead and copper are regulated by a treatment technique that requires systems to control the corrosiveness of their water. If more than 10% of tap water samples exceed the AL, water systems must take additional steps.

Disinfectants and Disinfection Byproducts	Unit	EPA Limits		Northwest Drinking Water			Meets EPA Standards	Possible Source of Contamination
		MCLG	MCL	Highest Level ⁴	Average Level	Range		
Total Chlorine Residual	ppm	4 MRDLG	4 MRDL	0.9	1.0	0.3 – 1.7	Yes	Water additive to control microbes
Haloacetic Acids (HAA5)	ppb	N/A	60	8	7.5	7 – 8	Yes	Drinking water disinfection by-product
Trihalomethanes (THMs)	ppb	0	80	48	46.2	44.65–47.65	Yes	Drinking water disinfection by-product

⁴This number is the highest annual average of two locations sampled annually; for Total Chlorine Residual, the highest running annual average was determined by calculating quarterly values which were based on monthly compliance samples.

Radionuclides	Unit	EPA Limits		Northwest Drinking Water			Meets EPA Standards	Possible Source of Contamination
		MCLG	MCL	Highest Level	Range			
Gross Beta ⁶	pCi/L	0	50	5.0	3.5-5.0		Yes	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation
Combined Radium 226 + Radium 228	pCi/L	0	5	0.7	0.4-0.7		Yes	Erosion of natural deposits

Microbial Indicators ⁵	Unit	EPA Limits		Northwest Drinking Water			Meets EPA Standards	Possible Source of Contamination
		MCLG	MCL	Highest Level	Average Level	Range		
Total Coliform Bacteria	# of positive samples	0	More than 1 per month	0	0	0	Yes	Naturally present in the environment

⁵There were no MCL violations in 2014. Monthly testing for Coliform bacteria is performed throughout the distribution system at Northwest. If these bacteria are detected, we are required to take further samples in that portion of the distribution system.

UNREGULATED CONTAMINANTS

Additional Monitoring Info	Unit	Northwest Drinking Water	
		Range	Possible Source of Contamination
pH ⁶	pH Units	7.4 – 8.0	Adjusted during water treatment process
Turbidity ⁶	NTU	< 0.1	Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.
Hardness ⁶	ppm	143 – 154	Naturally present in the environment
Iron ⁶	ppm	0.014 – 0.098	Naturally present in the environment
Manganese ⁶	ppm	0.014 – 0.02	Naturally present in the environment
Sodium ⁶	ppm	28.3 -31.1	Natural in environment; also from use of chemicals at water treatment plant. For physician-prescribed “no salt diets,” a limit of 20 ppm is suggested.
Methyl tert-butyl ether (MTBE) ⁷	ppb	ND - 20	Synthetic volatile organic chemical with no natural sources. Leakage from gasoline storage tanks

⁶Data from 2012 compliance year.

⁷MTBE was detected above the remediation trigger level of 15ppb on 7/30/2014. The trigger level means the concentration at which MTBE should be more closely monitored. The Navy immediately discontinued use of the affected wells until corrective actions are completed. While contamination was detected, finished water in the distribution system meets the Safe Drinking Water Act standards.