



NAVAL WEAPONS STATION YORKTOWN

YORK COUNTY, VIRGINIA

2015 CONSUMER CONFIDENCE REPORT

Inside this issue:

NWSY Source Water	1
Definitions and Abbreviations	2
2015 Sampling Results Table	3
Violation Information	4

For additional information:

Newport News Waterworks
(757) 926-1000

<http://www.nnva.gov/waterworks>

Virginia Department of Health

757-683-2000

<http://www.vdh.state.va.us/drinkingwater/>

USEPA Safe Drinking Water Hotline

800-426-4791

<http://www.epa.gov/safewater/>

NAVFAC Mid-Atlantic Environmental

757-341-0482

The base is committed to providing you drinking water that is safe and reliable. Naval Weapons Station Yorktown (NWSY) believes that providing you with accurate information about your water is the best way to assure you that your water is safe. There were no drinking water violations to report for 2015.

This Consumer Confidence Report is a snapshot of the quality of your drinking water in 2015. The purpose of this annual report is to advise consumers of where their water comes from, provide water quality data, advance understanding of drinking water, and heighten awareness to conserve water resources.

DRINKING WATER SOURCES AND TREATMENT

NWSY purchases drinking water from the Newport News Waterworks system, which is owned and operated by the City of Newport News. Surface water from the Chickahominy River provides the **primary source** of your drinking water and Lee Hall groundwater wells provide a **secondary source** of water. This water is stored in five reservoirs owned and operated by Newport News Waterworks and supplied to two water treatment facilities, Lee Hall Water Treatment Plant and Harwood's Mill Water Treatment Plant.

Untreated water is pumped to the treatment plants, where it passes through screens to remove large debris. Aluminum sulfate and polymer are chemicals added to the water to cause small particles to cling together in a process called coagulation, making the particles easier to remove. Once the water becomes clear, it is disinfected with ozone (primary disinfection). Disinfection kills microorganisms such as bacteria and viruses. The water is then sent through filters to remove any remaining particles. Lime is added to adjust the pH, fluoride is added to prevent tooth decay in children, and zinc orthophosphate is added to control corrosion inside the distribution system piping. Finally, chloramines are added (secondary disinfection) to maintain disinfection through the piping system to your home or business. The brackish groundwater from deep wells is treated using a reverse osmosis process where the brackish groundwater is forced by high pressure through membranes that can remove the salt and most other contaminants. After the surface water and brackish groundwater are treated, they are blended together and distributed to customers in the service area.

According to the Hampton Roads Planning District Commission's 2001-02 Source Water Assessment, the Newport News surface water sources were rated as relatively high in susceptibility to contamination (which is one reason why water treatment is so important), while the deep groundwater wells were rated as low in susceptibility using the criteria developed by the state in its approved Source Water Assessment Program. The assessment report includes maps showing the source water assessment area, an inventory of known land-use activities, a susceptibility explanation chart, and definitions of key terms. The report is available by contacting Newport News Waterworks, the Virginia Department of Health, or the Hampton Roads Planning District Commission.

ABOUT DRINKING WATER

All 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**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- **Inorganic**, 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.



The primary source of NWSY & CAX drinking water is the Chickahominy River, and the Lee Hall ground water wells provide a secondary source. This water is stored in reservoirs owned and operated by Newport News Water works.

ABOUT DRINKING WATER (continued)

- **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 byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.
- **Radioactive**, which can be naturally occurring or be the result of oil and gas production and mining activities.

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.

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. Most 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.

Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

NWSY 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 - 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 <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 2015. 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.
- **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.
- **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.
- **NA** - Not applicable

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 2015. We are required to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change. 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 Rule.

2015 NEWPORT NEWS WATER QUALITY INFO (TREATMENT PLANT SAMPLES)

Regulated Substances	Unit	MCLG	MCL	Highest Level	Range	Meets EPA Standard?	Likely Source
Barium	ppm	2	2	0.024	0.021-0.024	YES	Erosion of natural deposits
Beta emitters	pCi/L	0	4	1.8	1.8-1.8	YES	Decay of natural and man-made deposits
Fluoride	ppm	4	4	0.98	0.90 – 0.98	YES	Added for the prevention of tooth decay
Nitrate	ppm	10	10	0.040	0.038-0.040	YES	Erosion of natural deposits
Nitrite	ppm	1	1	0.001	<0.001	YES	Erosion of natural deposits
TOC Removal	Removal ratio	NA	TT	1.22 ¹	1.05-1.94 ¹	YES	Occurs naturally in environment
Turbidity	Unit	MCLG	MCL	Highest Level	Range	Meets EPA Standard?	Likely Source
Turbidity	NTU	n/a	TT	0.22 ²	0.02 – 0.22	YES	Soil Run-off

2015 NAVAL WEAPONS STATION YORKTOWN WATER QUALITY INFO (DISTRIBUTION SYSTEM SAMPLES)

Residual Disinfectants and Disinfection By Products	Unit	MRDLG	MRDL	Highest Level ³	Range (Individual Results)	Meets EPA Standard?	Likely Source
Haloacetic Acids	ppb	0	60	3	ND-6	YES	Drinking water disinfectant by-product
Total Trihalomethanes	ppb	0	80	13	5.2 - 24	YES	Drinking water disinfectant by-product
Total Chlorine Residual	ppm	4.0	4.0	2.0	0.1 – 2.2	YES	Drinking water disinfectant
Microbial Contaminants	Unit	MCLG	MCL	Highest Level	Range	Meets EPA Standard?	Likely Source
Total Coliform	# Positive	0	1/month	0	N/A	YES	Naturally present in environment
Lead and Copper Monitoring	Unit	MCLG	AL	90th Percentile ⁴	Range	Meets EPA Standard?	Likely Source
Copper (2013 data)	ppm	1.3	1.3	0.034	0.012 – 0.137	YES	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (2013 data)	ppb	15	15	ND	ND - ND	YES	Corrosion of galvanized pipes; Erosion of natural deposits

¹ 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 "Highest Level" column include samples from 2014. The range is for samples taken in 2015.

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.

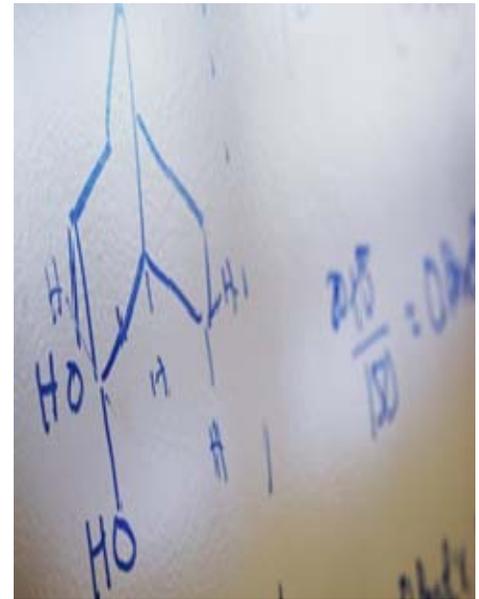
³ The highest levels found for TTHM and HAA5 were the highest running annual averages found at each of the sample sites for each of the four quarters in 2015. The range is the highest and the lowest values found in the individual samples. The highest level found for Total Chlorine Residual was based on the running annual average calculated for each of the four quarters in 2015. The range is the highest and lowest values found in the individual samples.

⁴ 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. Our next sampling will be in 2016.

Delivered: 10 June 2016

ADDITIONAL 2015 NEWPORT NEWS WATER QUALITY INFO

Secondary Monitored Substances ⁷	Unit	SMCL	Average Level	Range
pH	pH units	6.5 – 8.2	7.5	5.9-9
Chloride	ppm	250	30	21-40
Color	Color units	15	0	0
Copper	ppb	1300	2.0	ND – 17
Iron	ppb	300	4.0	ND – 20
Manganese	ppb	50	16	ND – 52
Silver	ppb	100	<1	ND
Sulfate	ppm	500 (proposed)	35	34-36
Total Dissolved Solids	ppm	500	138	121-155
Zinc	ppm	5	0.208	0.081-0.245



Unregulated Organics	Unit	Average Level	Range	Sources
Chloroform	ppb	2.3	1.1-3.5	By-product of chlorination
Dichlorobromo-methane	ppb	2.6	2.5-2.6	By-product of chlorination
Dibromochloro-methane	ppb	2.2	0.9-3.4	By-product of chlorination
Unregulated Contaminant Monitoring Regulation 3 ⁸	Unit	Average Level	Range	Sources
Chlorate	ppb	177	0 – 550	Agricultural defoliant or desiccant; disinfectant by-product; and used in production of chlorine dioxide
Total Chromium	ppb	0.19	0 – 0.74	Naturally occurring, used in industry and can be discharged by industrial facilities. Total Chromium is the sum of chromium in all its valence states.
Hexavalent Chromium Cr-6 (dissolved)	ppb	0.088	0.044 – 0.180	Naturally occurring. Used in making steel and other alloys. A new EPA risk assessment, not finalized yet, has raised concerns about the risk to human health.
Strontium	ppb	130	90 – 200	Naturally occurring. Has been used commercially to produce color TV tubes. It also blocks x-ray emissions.
Vanadium	ppb	0.71	0.49 – 1.00	Naturally occurring. Is used as an additive to steel to make engine parts and tools.

⁷Samples taken at treatment plant

⁸This monitoring provides a basis for future regulatory actions to protect public health.

VIOLATION INFORMATION

There were no drinking water violations to report for 2015.

ADDITIONAL INFORMATION

Lead and Copper

NWSY did not find concentrations above action levels (AL) during the most recent round of Lead and Copper sampling.

Regular Board Meetings

Because Waterworks 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 the Newport News City Channel (in Newport News - Cox channel 48 and Verizon FIOS channel 19) and can be viewed live or on-demand on the web at www.nnva.gov.