

## Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

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, in some cases, radioactive material, and 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, or wildlife;

**Inorganic Contaminants**, such as salts and metals, which can be naturally occurring or may result from urban stormwater 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 stormwater 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 also come from gas stations, urban stormwater runoff, and septic systems;

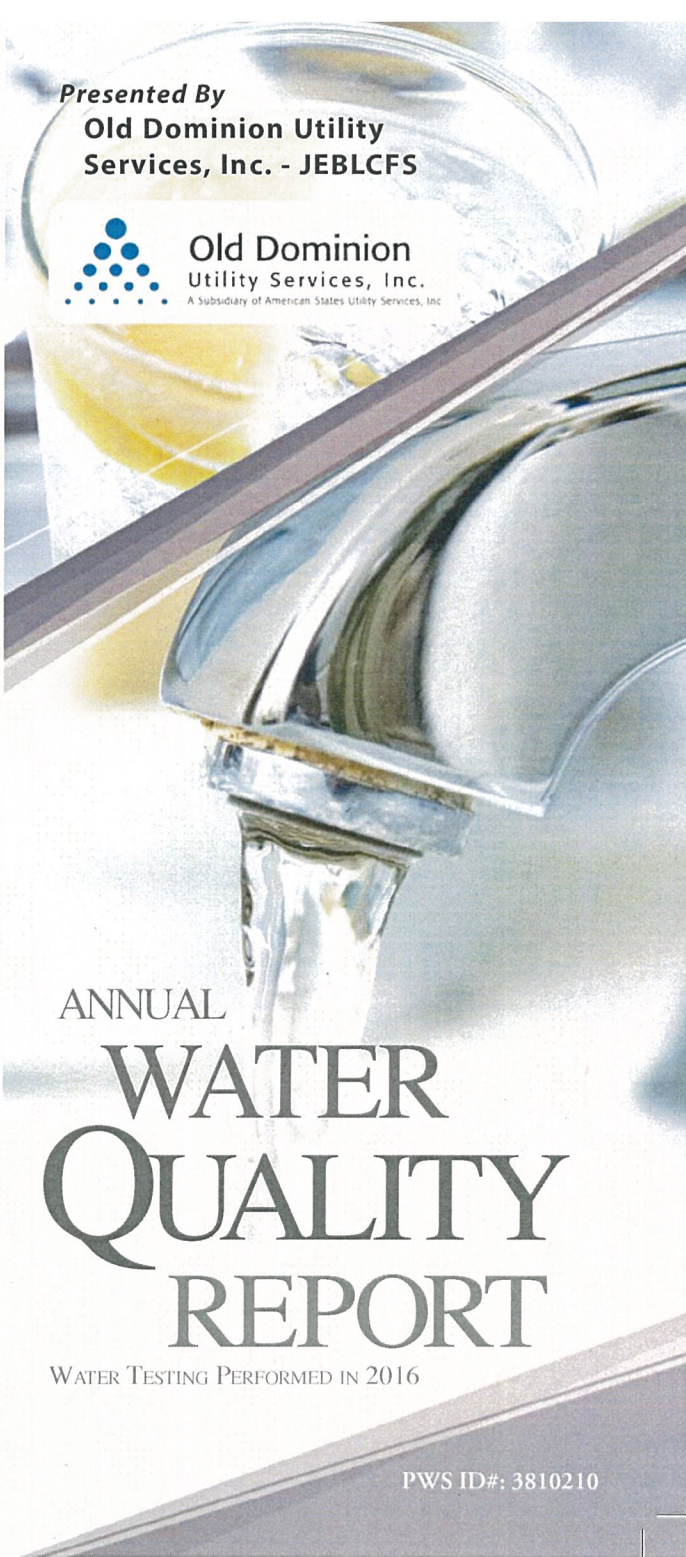
**Radioactive Contaminants**, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.



Old Dominion Utility Services, Inc. - JEBCFS  
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## Protecting and Preserving Your Drinking Water

We are pleased to present the following 2016 Water Quality Report, which contains information about testing completed in your water system through December 2016.

Old Dominion Utility Services, Inc. (ODUS) takes its job seriously as the guardian of the drinking water quality and the service we provide to our customers. ODUS is regulated by the State and Federal governments, and we are proud to say that the quality of your water continually meets all drinking water standards.

Daily, ODUS industry professionals take water samples to monitor quality at approved sites throughout the distribution system. If there is an instance of a sample exceeding a drinking water standard, we are required to notify you quickly and take action to restore normal service.

We pride ourselves on our strong customer service culture that comes from industry knowledge and relationships built in the water industry. Our representatives are available around the clock to answer questions and address any water concerns, day or night.

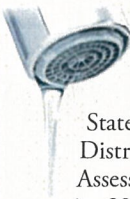
On behalf of all of us at Old Dominion Utility Services, Inc., thank you for providing us the opportunity to serve those who serve. If you have any questions about this report, please call our Customer Service Center at (757) 888-0484.

Sincerely,

Susan Miller  
Utility Manager  
American States Utility Services, Inc.  
Old Dominion Utility Services, Inc.

## Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.



## Source Water Assessment

Your water is tested before and after it is treated to ensure it meets Federal and State standards. The Hampton Roads Planning District Commission has completed a Source Water Assessment of the City of Norfolk water sources in 2001-02. The surface water sources were rated as relatively high in susceptibility to contamination (one reason it's important for water treatment) 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, a susceptibility explanation chart, and term definitions. The report is available by contacting Norfolk's Water Quality Lab at (757) 441-5678.

## From Where Does my Water Come?

The drinking water being delivered to you is purchased from the City of Norfolk and rechlorinated by the City of Virginia Beach. Virginia Beach, including Joint Expeditionary Base Little Creek-Fort Story (JEBCFS East formerly Fort Story), is provided water through a 76-mile pipeline leading from Lake Gaston on the North Carolina-Virginia border to Lake Prince, a reservoir in Suffolk that is owned and operated by Norfolk. Lake Gaston water is treated at the Moores Bridges Water Treatment Plant in Norfolk, where it is blended with City of Norfolk water. Norfolk's primary water supply comes from Lake Prince and Western Branch Reservoir in Suffolk and Lake Burnt Mills in Isle of Wright. During extended dry periods, these lakes may be supplemented with water from deep wells located around the lakes and pump-overs from the Blackwater and Nottoway Rivers, located west of the lakes. In-town lakes in Norfolk and Virginia Beach also supplement Norfolk's water supply. These include Lake Wright, Lake Whitehurst, Little Creek Reservoir, Lake Smith, Lake Lawson, and Stumpy Lake. From the reservoirs, water is pumped to the treatment plant.

## QUESTIONS?

Call the U.S. Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791.

### About local drinking water quality:

- For Joint Expeditionary Base Little Creek-Fort Story East, call Susan Miller at (757) 888-0485.
- For Norfolk, contact Jillian Terhune, Division of Water Production and Water Quality, City of Norfolk, at (757) 441-5678 or [Jillian.Terhune@norfolk.gov](mailto:Jillian.Terhune@norfolk.gov).
- For Virginia Beach, contact Susan Sadowski, Virginia Beach Department of Public Utilities Laboratory, at (757) 385-1400 or [ssadowski@vbgov.com](mailto:ssadowski@vbgov.com).
- For the Virginia Department of Health Office of Drinking Water, contact them at (757) 683-2000 or [vdh.virginia.gov/ODW](http://vdh.virginia.gov/ODW).

If you have questions or concerns about decisions affecting your drinking water quality, please contact either of the following:

- Virginia Beach Department of Public Utilities is part of the City of Virginia Beach municipal government. The Virginia Beach City Council meets on the first and third Tuesdays of each month except July and December, when the meetings occur on the first and second Tuesdays. Information and agendas for upcoming meetings may be requested from the Virginia Beach City Clerk's office at (757) 385-4303 or they can be found at [www.VBgov.com](http://www.VBgov.com).
- Contact the Norfolk City Clerk to find out when water quality presentations are scheduled before the Norfolk City Council. For times and agendas, call (757) 664-4253.
- Or, you may contact Bob Montague, Director, Virginia Beach Department of Public Utilities, at (757) 385-4171 or [bmontagu@vbgov.com](mailto:bmontagu@vbgov.com).

Results of Detected Contaminants

JEBLCFS East, Norfolk, and Virginia Beach constantly monitor for various contaminants in the water supply to meet all regulatory requirements. The tables list only those contaminants that had some level of detection. Many other contaminants have been analyzed but were not present or were below the detection limits of the lab equipment.

The following tables list the drinking water contaminants that were detected during the 2016 calendar year. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in these tables is from testing done January 1 – December 31, 2016. The state requires JEBLCFS East to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

REGULATED SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Atrazine (ppb)	2016	3	3	ND	ND–0.09	No	Runoff from herbicide used on row crops
Barium (ppm)	2016	2	2	0.03	0.03–0.04	No	Erosion of natural deposits
Beta/Photon Emitters <sup>1</sup> (pCi/L)	2016	50	0	4	ND–4	No	Decay of natural and man-made deposits
Chloramines (ppm)	2016	[4]	[4]	1.59	0.22–2.5	No	Water additive used to control microbes
Chlorine (ppm)	2016	[4]	[4]	3.3	3.3–3.5	No	Water additive used to control microbes
Dalapon (ppb)	2016	200	200	ND	ND–1	No	Runoff from herbicide used on rights of way
Dibromochloropropane (ppt)	2016	200	0	ND	ND–10	No	Runoff/leaching from soil fumigant used on soybeans, cotton, and orchards
Fluoride <sup>2</sup> (ppm)	2016	4	4	0.7	0.1–0.8	No	Erosion of natural deposits; Water additive which promotes strong teeth.
Haloacetic Acids [HAA] <sup>3</sup> (ppb)	2016	60	NA	39	0–43	No	By-product of drinking water disinfection
Hexachlorocyclopentadiene (ppb)	2016	50	50	ND	ND–0.05	No	Agricultural runoff
Nitrate (ppm)	2016	10	10	0.13	0.04–0.20	No	Runoff; Erosion of natural deposits
TTHMs [Total Trihalomethanes] <sup>3</sup> (ppb)	2016	80	NA	47	30–48	No	By-product of drinking water disinfection
Total Organic Carbon (ppm)	2016	TT	NA	2.6	1.9–3.5	No	Naturally present in the environment
Turbidity <sup>4</sup> (NTU)	2016	TT	NA	100	NA–100	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2015	1.3	1.3	0.036	0/10	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2015	15	0	ND	0/10	No	Corrosion of household plumbing systems; Erosion of natural deposits

SECONDARY SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Aluminum (ppb)	2016	200	NA	30	20–70	No	Erosion of natural deposits; Residual from some surface water treatment processes
Chloride (ppm)	2016	250	NA	17	11–20	No	Runoff/leaching from natural deposits
Iron (ppb)	2016	300	NA	70	ND–160	No	Leaching from natural deposits
Manganese (ppb)	2016	50	NA	ND	ND–10	No	Leaching from natural deposits
pH <sup>5</sup>	2016	6.5–8.5	NA	7.6	7.4–8.1	No	Naturally occurring
Total Dissolved Solids [TDS] (ppm)	2016	500	NA	103	86–127	No	Runoff/leaching from natural deposits
Zinc (ppm)	2016	5	NA	0.12	0.02–0.19	No	Runoff/leaching from natural deposits; Industrial wastes

UNREGULATED SUBSTANCES				
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Metolachlor (ppm)	2016	ND	ND–0.1	Agricultural use
Nickel (ppm)	2016	ND	ND–0.003	Corrosion of plumbing materials
Sodium <sup>6</sup> (ppm)	2016	17	10–31	Natural in the environment; Also from the use of chemicals at the water treatment plant
Sulfate (ppm)	2016	28	20–36	Natural in the environment; Also from the use of chemicals at the water treatment plant

<sup>1</sup>The MCL for beta particles is 4 mrem/year. The U.S. EPA considers 50 pCi/L to be the level of concern for beta particles.  
<sup>2</sup>Highest monthly averages for the calendar year.  
<sup>3</sup>Four-Quarterly Average.  
<sup>4</sup>Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of water quality and the effectiveness of disinfectants. Lowest monthly % of samples meeting the limit = 100%.  
<sup>5</sup>Amount detected is the highest monthly average for the calendar year.  
<sup>6</sup>For physician-prescribed “no salt diets,” a limit of 20 ppm is suggested.

Definitions

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

**LRAA (Locational Running Annual Average):** The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters. Amount Detected values for TTHMs and HAAs are reported as LRAAs.

**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.

**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 control of microbial contaminants.

**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 contaminants.

**NA:** Not applicable

**ND (Not detected):** Indicates that the substance was not found by laboratory analysis.

**NTU (Nephelometric Turbidity Units):** Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

**pCi/L (picocuries per liter):** A measure of radioactivity.

**ppb (parts per billion):** One part substance per billion parts water (or micrograms per liter). This is equivalent to 1 drop in 14,000 gallons (average swimming pool).

**ppm (parts per million):** One part substance per million parts water (or milligrams per liter). This is equivalent to 3 drops in 42 gallons (large bathtub).

**ppt (parts per trillion):** One part substance per trillion parts water (or nanograms per liter). This is equivalent to 1 drop in 14,000,000 gallons (average lake).

**SMCL (Secondary Maximum Contaminant Level):** SMCLs are established to regulate the aesthetics of drinking water like appearance, taste and odor.

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

Lead in Home Plumbing

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. We are 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 before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. 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/lead](http://www.epa.gov/lead).

Good to Know

Chloramine Disinfection

In fall 2000, Norfolk and Virginia Beach, along with other cities in South Hampton Roads, changed from a chlorine disinfection process to chloramines. Chloramine disinfection is created when chlorine is combined with a small amount of ammonia. The purpose of this change was to lower disinfection byproducts in response to new and more stringent State and Federal regulations.

Chloraminated water is safe for drinking, cooking, bathing, and all other everyday uses. There are, however, two groups of people who should take special precautions in using chloraminated water: kidney dialysis patients and fish owners. Like chlorine, chloramines must be removed from water used in kidney dialysis machines and aquariums.

Sodium

There is presently no established standard for sodium in drinking water. Water containing more than 20 mg/L should not be used as drinking water for those persons whose physician has placed them on severely restricted sodium diets. The maximum detected level was 31 mg/L, the average was 17 mg/L, and the range was 10 – 31 mg/L.

