

## Where Can I Get More Information?

**Water Quality:** Contact the U.S. Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791 ([www.epa.gov/safewater](http://www.epa.gov/safewater)).

**Local Drinking Water Quality:** Contact Susan Sadowski of the Virginia Beach Department of Public Utilities Laboratory at (757) 385-1400 ([ssadowsk@vbgov.com](mailto:ssadowsk@vbgov.com)), or the Virginia Department of Health Office of Drinking Water at (757) 683-2000 ([www.vdh.state.va.us/drinkingwater](http://www.vdh.state.va.us/drinkingwater)).

**Water Treatment/Source Water Assessment:** Contact Jim Van de Riet at (757) 385-4171 ([jvanderi@vbgov.com](mailto:jvanderi@vbgov.com)).

**Water Conservation:** Contact Tiffany Wright at (757) 385-4171 ([tiwright@vbgov.com](mailto:tiwright@vbgov.com)).

**This Report:** Contact Tiffany Wright at (757) 385-4171 ([tiwright@vbgov.com](mailto:tiwright@vbgov.com)).

**Your Water Account:** Contact the Virginia Beach Department of Public Utilities at (757) 385-4631 or toll-free at 1-866-697-3481.

**Backflow and Cross-Connection Prevention:** Contact Stephen Motley at (757) 385-4171 ([smotley@vbgov.com](mailto:smotley@vbgov.com)).

**TTY:** 711

**Web site:** [www.VBgov.com/dpu](http://www.VBgov.com/dpu)

### Tagalog

Ang pahayag na ito ay naglalaman nang importanteng inpormasyon na nauukol sa tubig na iniinom ninyo. Kong nangangailangan kayo nang tagapaliwanag tungkol sa iba pang nilalaman nang pahayag na ito ay pakitawagan lamang ninyo ang Departamento nang Public Utilities sa (757) 385-4171.

### Spanish

Este reporte contiene información muy importante acerca del agua potable que usted consume. Si usted tiene una pregunta acerca de este reporte, por favor contacte a nuestro Departamento de Servicios Públicos al (757) 385-4171.

## Public Participation Opportunities

The Virginia Beach Department of Public Utilities is part of the City of Virginia Beach municipal government. The City Council meets on the second and fourth Tuesdays of each month except in July and December, when the meetings occur on the first and second Tuesdays. Meetings are held on the second floor of City Hall at the Municipal Center and are open to the public. Agendas for upcoming meetings may be requested from the City Clerk's office at (757) 385-4303 or found online at [www.VBgov.com](http://www.VBgov.com).

## 2011 Annual Water Quality Report for 2010 Data



Municipal Center, Building 2  
2405 Courthouse Drive  
Virginia Beach, VA 23456

(757) 385-4171

[www.VBgov.com/dpu](http://www.VBgov.com/dpu)



[facebook.com/VBPublicUtilities](https://www.facebook.com/VBPublicUtilities)

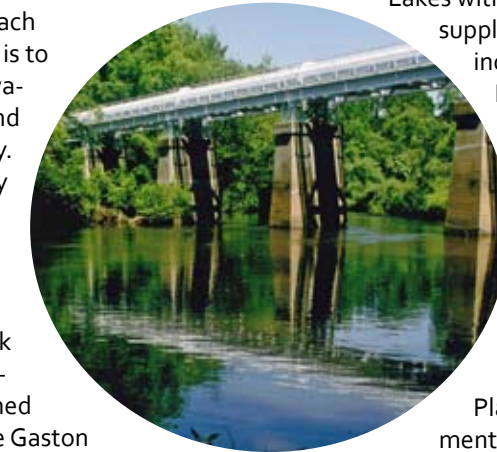
## Clearly Defined

### Virginia Beach Annual Water Quality Report

Virginia Beach Public Utilities is committed to delivering safe, high-quality drinking water to your tap all day, every day. We are pleased to present you with this annual water quality report which contains information about your water and summarizes test results performed from January 1 through December 31, 2010. In this report, learn where your water comes from, how it is treated and tested, and how Virginia Beach water compares to federal and state standards.

### Where Does My Water Come From?

The mission of the Virginia Beach Department of Public Utilities is to provide a safe and sufficient water supply that will enhance and sustain our vibrant community. The Lake Gaston Water Supply Project helps fulfill that mission by providing water to Virginia Beach citizens through a 76-mile-long pipeline leading from Lake Gaston in Brunswick County to Lake Prince, a reservoir located in Suffolk but owned and operated by Norfolk. Lake Gaston provides an average of 36 million gallons



per day (MGD) of water to Virginia Beach citizens, and it will eventually furnish up to 45 MGD, supplying enough water to sustain our growing city for many years.

Water from Lake Gaston is blended with Norfolk's water and treated at Norfolk's Moores Bridges Water Treatment Plant. Lake Gaston and most of Norfolk's water sources are surface water. Norfolk's primary water supply comes from Lake Prince and Western Branch Reservoir in Suffolk, and Lake Burnt Mills in Isle of Wight. During extended dry periods, these lakes may be supplemented with water from four deep wells located around the lakes, or with water from the Blackwater and Nottoway rivers.

Lakes within 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, where it undergoes an extensive filtering and disinfection process to remove any particles, bacteria, algae, and other impurities. The Moores Bridges Water Treatment Plant provides state of the art treatment technology and ensures water quality through continual monitoring and testing.

### Hot Topic: Uranium Mining

In response to higher prices for uranium, Virginia Uranium Inc. is seeking to have the General Assembly lift a 29-year state ban on uranium mining so that it can develop a uranium mining operation in Pittsylvania County, Virginia—upstream of Virginia Beach's Lake Gaston water intake. Uranium mining generates massive quantities of radioactive tailings which are stored in sophisticated landfills known as confinement cells. Should uranium mining be allowed, a catastrophic storm—however unlikely—could cause these radioactive tailings to flow into downstream drinking water supplies, including Lake Gaston.

Last year, Virginia Beach commissioned a study to assess the potential water quality impacts in the unlikely event of a catastrophic storm. The study found that should Virginia Beach's water supply be compromised due to a major tailings release, the impact would be significant but not permanent. As explained herein, the Lake Gaston water supply is integrated into Norfolk's raw water supplies. So if contamination were to occur, the city would turn off the pumps to the water source at Lake Gaston and rely upon Norfolk's supplies while the problem was being investigated. Under no circumstances would Norfolk or Virginia Beach ever provide water to our customers that violated the water quality limits in the Safe Drinking Water Act. For more information regarding the study and complete study findings, visit [www.VBgov.com/dpu](http://www.VBgov.com/dpu).

## Why Treat Water?

Treating and testing the water ensures that it is clean, safe, and pleasant to drink.

The sources of drinking water (both tap water and bottled water) include lakes, ponds, reservoirs, rivers, springs, streams, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring organic and inorganic substances. Water also picks up contaminants from animals and human activity. Furthermore, fertilizers, herbicides, pesticides, metals, and salts wash off streets and lawns and enter the water supply. Neighboring communities, farms, and industries all contribute to these impurities. Left untreated, this water could make you sick.

Disinfection is an essential part of the water treatment process, preventing the occurrence and spread of many water-borne diseases. Norfolk's Moores Bridges Water Treatment Plant treats our source water, testing it for over 290 substances. Further testing is performed daily throughout Virginia Beach's water distribution system. On average, over 400 water quality samples are collected and analyzed monthly, providing continual monitoring for the highest water quality possible.

### Possible contaminants in untreated water:

**MICROBIAL CONTAMINANTS**, such as viruses and bacteria, which may come from wildlife, pets, agricultural livestock operations, septic tanks, and sewage treatment plants. When ingested, these microscopic organisms can cause diarrhea, fever, and other gastrointestinal symptoms. The best defense against these organisms is an effective water treatment process.

**INORGANIC CONTAMINANTS**, such as salts and metals, which can be naturally-occurring or result from 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, stormwater runoff, and residential use.

**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, stormwater runoff, and septic systems.

**RADIOACTIVE CONTAMINANTS**, which can be naturally occurring or be the result of oil and gas production and mining activities.

The water treatment process removes these impurities and ensures the water is safe to drink.

## Is the Water Safe for Everyone to Drink? Virginia Beach water meets all Environmental Protection Agency (EPA) drinking water standards.



To ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) has developed regulations limiting the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) has established similar regulations for bottled water.

All 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.

However, some people may be more vulnerable than the general population to drinking water contaminants. Immunocompromised persons such as people undergoing chemotherapy, organ transplant recipients, people with HIV/AIDS or other immune system disorders, some elderly people, and infants can be particularly at risk for infections. These people, or those caring for them, should seek advice from their health care providers about their drinking water.

The EPA/CDC (Centers for Disease Control and Prevention) guidelines on reducing the risk of infection

by microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791) or the EPA Web site at [www.epa.gov/safewater](http://www.epa.gov/safewater).

### A message about lead in drinking water:

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. Virginia Beach Public Utilities 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 two 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 (1-800-426-4791) or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

## Source Water Assessment

Your water is tested before and after it is treated to ensure it meets federal and state standards.

A source water assessment of our system has been conducted by the Hampton Roads Planning District Commission. This was done to determine the susceptibility to contamination of the surface water from which our drinking water originates. In Hampton Roads, all surface water sources were determined to be of high susceptibility to contamination using the criteria developed by the state. Areas that rely on surface water commonly receive this rating. However, Norfolk's Moores Bridges Water Treatment Plant tests and treats the water to meet federal drinking water standards.

The assessment report consists of maps showing the source water assessment area, a list of known land use activities of concern, and documentation of any known contamination. The report is available by contacting Jim Van de Riet at (757) 385-4171 or [jvanderi@vb.gov](mailto:jvanderi@vb.gov).

## VIRGINIA BEACH WATER QUALITY DATA - JANUARY 1 THROUGH DECEMBER 31, 2010

REGULATED SUBSTANCES TABLE	Substance	Likely Source	Range	Average Level	Highest Level Detected	MCL	MCLG	Unit	Meets EPA Standards
	Barium	Erosion of natural deposits	27 - 40	33	40	2000	2000	ppb	✓
	Fluoride	Added for the prevention of tooth decay	0.1 - 1.2	0.7	1.0 <sup>1</sup>	4	4	ppm	✓
	Gross Beta Activity	Erosion of natural deposits	3.3	3.3	3.3	50 <sup>2</sup>	NA	pCi/L	✓
	Haloacetic Acids (HAA5)	Drinking water disinfection byproduct	27-60	39	44 <sup>3</sup>	60	NA	ppb	✓
	Nitrate as Nitrogen	Erosion of natural deposits, runoff	0.12 - 0.45	0.27	0.45	10	10	ppm	✓
	Radium 226/228	Erosion of natural deposits	0.8	0.8	0.8	5	0	pCi/L	✓
	Total Organic Carbon	Occurs naturally in the environment	1.9 - 3.3	2.4	2.9 <sup>1</sup>	TT	NA	ppm	✓
	Total Trihalomethanes (TTHMS)	Drinking water disinfection byproduct	35-81	58	61 <sup>3</sup>	80	NA	ppb	✓

MICROBIOLOGICAL TABLE	Substance	Likely Source	Range	Average Level	Highest Level Detected	MCL	MCLG	Unit	Meets EPA Standards
	Total Coliform Bacteria	Naturally present in the environment	0 - 1.49	0.37	1.49	5.00	0	Percent of monthly samples testing positive	✓
	Substance	Likely Source	Lowest monthly percentage of samples meeting the limit	Highest Level Detected	MCL	MCLG	Unit	Meets EPA Standards	
Turbidity	Soil runoff	100%	0.29	< 95%	NA	NTU	✓		
Substance	Likely Source	Range	Average Level	Highest Level Detected	MRDL	MRDLG	Unit	Meets EPA Standards	
Chloramine	Drinking water disinfectant	0.7 - 6.8	3.5	4.1 <sup>1</sup>	4 <sup>4</sup>	4	ppm	✓	

LEAD/COPPER TABLE	Substance	Likely Source	Range	Number of Sites Exceeding the AL	MCL	MCLG	Unit	Meets EPA Standards
	Copper	Corrosion of household plumbing system	90% of samples < 0.23 0.01 - 0.41	0	AL = 1.3	1.3	ppm	✓
	Lead	Corrosion of household plumbing systems, erosion of natural deposits	90% of samples < 2.0 ND - 6.0	0	AL = 15	0	ppb	✓

UNREGULATED SUBSTANCES TABLE	Substance	Likely Source	Range	Average Level	Highest Level Detected	Secondary Standard	Unit
	Aluminum	Erosion of natural deposits; also comes from the addition of treatment chemicals at the water treatment plant	0.01 - 0.07	0.04	0.07	0.05 - 0.2	ppm
	Diethylphthalate	Personal Care Products and Plastics	ND - 2.1	ND	2.1	NA	ppb
	Manganese	Occurs naturally in the environment	ND - 0.02	ND	0.02	0.05	ppm
	Nickel	Corrosion of plumbing materials	ND - 2	ND	2	NA	ppb
	Sodium	Occurs naturally in the environment; also comes from the addition of treatment chemicals at the water treatment plant	9 - 16	12	16	NA <sup>5</sup>	ppm
Sulfate	Occurs naturally in the environment; also comes from the addition of treatment chemicals at the water treatment plant	27 - 31	29	31	250	ppm	

Monitoring the unregulated substances in the above table helps the EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants. <sup>1</sup>The highest monthly average for the calendar year. <sup>2</sup>EPA considers 50 pCi/L to be the level of concern for Beta particles. <sup>3</sup>Highest quarterly running average of compliance samples for the calendar year. <sup>4</sup>Annual Average. <sup>5</sup>For physician-prescribed "no salt diets," a limit of 20 ppm is suggested.

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

**Maximum Contaminant Level or MCL** - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs (see definition below) as feasible by using the best available treatment technology.

**Maximum Contaminant Level Goal or 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 set by EPA.

**Maximum Residual Disinfectant Level or MRDL** - The highest level of disinfectant allowed in the drinking water. There is convincing evidence that addition of a disinfectant is necessary for the control of microbial contaminants.

**Maximum Residual Disinfectant Level Goal or 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 contaminants.

**NA** - Not applicable.

**ND** - Not detected in the water.

**Nephelometric Turbidity Unit or NTU** - Units describing how cloudy a water sample appears. Turbidity is a good indicator of the effectiveness of our filtration system.

**pCi/L (picocuries per liter)** - A measure of the radioactivity of water.

**ppb (parts per billion)** - Concentration in parts per billion, or micrograms per liter (µg/L); this is equivalent to a single penny in \$10,000,000.

**ppm (parts per million)** - Concentration in parts per million, or milligrams per liter (mg/L); this is equivalent to a single penny in \$10,000.

**Secondary Standard** - A non-enforceable guideline regulating a contaminant that may cause cosmetic or aesthetic effects in drinking water.

**Treatment Technique or TT** - A required process intended to reduce the level of a contaminant in drinking water.