

Where Can I Get More Information?

Water Quality:

U.S. Environmental Protection Agency
Safe Drinking Water Hotline: 1-800-426-4791
Website: www.epa.gov/safewater

Local Drinking Water Quality:

Susan Sadowski, Virginia Beach Public Utilities
Phone: (757) 385-1400
Email: ssadowsk@vb.gov

Virginia Department of Health Office of Drinking Water

Phone: (757) 683-2000
Website: www.vdh.state.va.us/ODW

Water Treatment/Source Water Assessment:

Don Piron, P.E., Virginia Beach Public Utilities
Phone: (757) 385-4171
Email: dpiron@vb.gov

Water Conservation:

Laura Tworek, Virginia Beach Public Utilities
Phone: (757) 385-4171
Email: ltworek@vb.gov

This Report:

Laura Tworek, Virginia Beach Public Utilities
Phone: (757) 385-4171
Email: ltworek@vb.gov

Backflow and Cross-Connection Prevention:

Katherine Nixon, P.E., Virginia Beach Public Utilities
Phone: (757) 385-4171
Email: knixon@vb.gov

Your Water Account:

Virginia Beach Department of Public Utilities
Phone: (757) 385-4631 or 1-866-697-3481
Website: www.VBgov.com/DPU

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 first and third 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.

TAGALOG

Ang pahayag na ito ay naglalaman ng mahalagang impormasyon tungkol sa tubig na iniinom ninyo. Kung nangangailangan kayo ng tagapaliwanag tungkol sa iba pang nilalaman ng pahayag na ito, pakitawagan lamang po ninyo ang Departamento ng 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.

2019 WATER QUALITY REPORT

for 2018 data

VB City of Virginia Beach
Public Utilities

Clearly Defined

The Virginia Beach Annual Water Quality Report is our report card to you.

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, 2018. 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?

Virginia Beach water comes from surface water treated at Norfolk's Moores Bridges water treatment plant.

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 Pipeline 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.



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 uses state-of-the-art treatment technology and ensures water quality through continual monitoring and testing.

Why Treat Water?

To ensure the water 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.



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 230 substances. Further testing is performed daily throughout Virginia Beach's water distribution system. An average of 385 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.
- **Inorganic contaminants**, such as salts and metals, which can be naturally-occurring or result from 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, storm water 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, 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.

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

Is the Water Safe for Everyone?

Virginia Beach water meets all Environmental Protection Agency 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 cryptosporidium and microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791) or the EPA website at 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 a property's service lines and 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 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 (1-800-426-4791) or at 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 Don Piron at (757) 385-4171 or dpiron@vb.gov.

Water Quality Data Table Definitions

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.

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.

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

Virginia Beach Water Quality Data - January 1 through December 31, 2018

| Regulated Substances Table | Substance | Likely Source | Range | Average Level | Highest Level Detected | MCL | MCLG | UNIT | Meets EPA Standards |
|------------------------------|---------------------------------------|---------------------|----------|-------------------|------------------------|-----|------|------|---------------------|
| | 2,4-D | Agricultural runoff | ND - 0.3 | ND | 0.3 | 70 | 70 | ppb | ✓ |
| Atrazine | Agricultural runoff | ND - 0.05 | ND | 0.05 | 3 | 3 | ppb | ✓ | |
| Barium | Erosion of natural deposits | 0.03 - 0.04 | 0.03 | 0.04 | 2 | 2 | ppm | ✓ | |
| Fluoride | Added for prevention of tooth decay | 0.1 - 0.9 | 0.7 | 0.8 ¹ | 4 | 4 | ppm | ✓ | |
| Haloacetic Acids (HAA5) | Drinking water disinfection byproduct | 14.6 - 35.9 | 31.8 | 34.2 ² | 60 | NA | ppb | ✓ | |
| Nitrate as Nitrogen | Erosion of natural deposits, runoff | 0.10 - 0.19 | 0.14 | 0.19 | 10 | 10 | ppm | ✓ | |
| Total Organic Carbon | Occurs naturally in environment | 1.7 - 2.9 | 2.4 | 2.8 ¹ | TT | NA | ppm | ✓ | |
| Total Trihalomethanes (TTHM) | Drinking water disinfection byproduct | 16.5 - 61.4 | 47.8 | 52.5 ² | 80 | NA | ppb | ✓ | |

| Microbiological Table | Substance | Likely Source | Range | Highest Level Detected | MRDL | MRDLG | UNIT | Meets EPA Standards |
|-----------------------|------------|-----------------------------|--|------------------------|--|-------|------|---------------------|
| | Chloramine | Drinking water disinfectant | 1.3 - 5.2 | 3.5 ³ | 4 | 4 | ppm | ✓ |
| Microbiological Table | Substance | Likely Source | Lowest Monthly Percentage of Samples Meeting the Limit | Highest Level Detected | MCL | MCLG | UNIT | Meets EPA Standards |
| | Turbidity | Soil runoff | 100% | 0.24 | < 1.0 maximum, and ≤ 0.3 95% of the time | NA | NTU | ✓ |

| Lead and Copper Table from 2018 | 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 ≤/ 0.11 0.002 - 0.214 | 0 | 1.3 | 1.3 | ppm | ✓ |
| Lead | Corrosion of household plumbing systems, erosion of natural deposits | 90% of samples ≤/ ND ND - 2.0 | 0 | 15 | 0 | ppb | ✓ | |

| Secondary and Unregulated Substances Table ⁵ | Substance | Likely Source | Range | Average Level | Highest Level Detected | Secondary Standard | UNIT |
|---|---|---|-------------|---------------|------------------------|--------------------|------|
| | Aluminum | Erosion of natural deposits; also comes from addition of treatment chemicals at the water treatment plant | 0.02 - 0.03 | 0.02 | 0.03 | 0.20 | ppm |
| Chloride | Natural in environment | 10 - 22 | 17 | 22 | 250 | ppm | |
| Foaming Agents | Natural in environment | 3 - 10 | 7 | 10 | 500 | ppb | |
| Iron | Natural in environment | ND - 0.14 | 0.08 | 0.14 | 0.3 | ppm | |
| Metolachlor | Agricultural use | ND - 0.1 | ND | 0.1 | NA | ppm | |
| Sodium | Occurs naturally in the environment; also comes from the addition of treatment chemicals at the water treatment plant | 10 - 16 | 13 | 16 | NA ⁴ | ppm | |
| Sulfate | Occurs naturally in the environment; also comes from the addition of treatment chemicals at the water treatment plant | 27 - 34 | 31 | 34 | 250 | ppm | |
| Total Dissolved Solids | Natural in environment | 102 - 126 | 112 | 126 | 500 | ppm | |
| Zinc | Occurs naturally in the environment; also comes from the addition of treatment chemicals at the water treatment plant | 0.06 - 0.25 | 0.18 | 0.25 | 5 | ppm | |

| Unregulated Contaminant Monitoring Rule ⁵ | Substance | Range | Average Level | UNIT |
|--|--------------------------|-------------|---------------|------|
| | Bromochloroacetic Acid | 2.4 - 5.6 | 4.0 | ppb |
| | Bromodichloroacetic Acid | 2.7 - 4.9 | 4.0 | ppb |
| | Chlorodibromoacetic Acid | 0.57 - 1.2 | 0.78 | ppb |
| | Dibromoacetic Acid | 0.31 - 0.71 | 0.53 | ppb |
| | Dichloroacetic Acid | 11 - 28 | 20 | ppb |
| Manganese | 0.5 - 1.3 | 0.8 | ppb | |
| Trichloroacetic Acid | 11 - 18 | 14 | ppb | |

¹The highest monthly average for calendar year.

²The highest running average over four quarters at one location.

³The highest quarterly running annual average of the monthly averages.

⁴For physician-prescribed "no salt diets," a limit of 20 ppm is suggested.

⁵Monitoring unregulated substances helps the EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants.