



# 2007 annual water quality report

## Fort Lee District

PWS ID: VA3149247



## Continuing our Commitment

*We are once again proud to present our annual water quality report. This document covers all testing completed from January through December 2007. Over the years, we have dedicated ourselves to producing drinking water that meets or is better than all state and federal drinking water standards. We continually strive to adopt new and better methods of delivering the best quality drinking water to you. As regulations and drinking water standards change, it is our commitment to incorporate these changes system-wide in an expeditious and cost-effective manner, while maintaining our objective of providing quality drinking water at an affordable price.*

*For more information about this report, or for any questions relating to your drinking water, please feel free to call our Customer Service Department at (800) 452-6863, where you will be placed in contact with a water quality professional.*

### Our Customer Charter

#### **We Are...**

- dedicated to service excellence
- focused on personalized solutions
- committed to our customers' health and welfare

#### **therefore...**

#### **We Will...**

- partner with our customers
- treat them with dignity and respect
- enhance their quality of life
- earn their loyalty
- exceed their expectations

## Information on the Internet

Virginia American Water ([www.vawc.com](http://www.vawc.com)) provides water service to 55,000 customers in the cities of Alexandria and Hopewell, and portions of Prince William, Prince George, Westmoreland, Essex, King William, Lancaster and Northumberland counties. Virginia American Water is a subsidiary of American Water. With headquarters in Voorhees, NJ, American Water employs approximately 7,000 dedicated professionals who provide high quality water, wastewater and other related services to more than 17 million people in 29 states and Canada. More information can be found by visiting [www.amwater.com](http://www.amwater.com).

The U.S. EPA Office of Water ([www.epa.gov/safewater](http://www.epa.gov/safewater)) and the Centers for Disease Control and Prevention ([www.cdc.gov](http://www.cdc.gov)) web sites provide a substantial amount of information on many issues relating to water resources, water conservation and public health. Also, the Virginia Department of Health and the Virginia Department of Environmental Quality have web sites that provide complete and current information on water issues in Virginia. These web sites are located at ([www.vdh.state.va.us](http://www.vdh.state.va.us)) and ([www.deq.state.va.us](http://www.deq.state.va.us)).

All these web sites have numerous links that will direct you to other professional organizations, public education and public health topics related to water.

## What is a Water Quality Report?

To comply with Virginia Department of Health and U.S. Environmental Protection Agency (EPA) regulations, Virginia American Water issues a report annually describing the quality of your drinking water. The purpose of this report is to provide you an overview of last year's (2007) drinking water quality. It includes details about where your water comes from and what it contains. We hope the report will raise your understanding of drinking water issues and awareness of the need to protect your drinking water sources.

## Where Does My Water Come From?

In April 2001, the Virginia American Water acquired ownership and is the current operator of the water system at the U.S. Army Garrison at Fort Lee, Virginia. Virginia American Water customers at Fort Lee enjoy an abundant water supply from two major surface water treatment plants. Fort Lee is a consecutive water system. That is, the drinking water that enters the base is supplied from other treatment facilities outside the installation. Currently, water is supplied from both the Appomattox River Water Authority (ARWA) in Petersburg, and Virginia American Water (VAW) in Hopewell. At the Hopewell District, the water is withdrawn from the Appomattox River, at the confluence with the James River. The combined drainage area of these two watersheds is approximately 9,000 square miles. Lake Chesdin, which is supplied by the Appomattox River, is the water source for the Appomattox River Water Authority. To learn more about our watershed on the Internet, go to U.S. EPA's Search Your Watershed at [www.epa.gov/safewater](http://www.epa.gov/safewater).

## Protecting Your Water Source

The Source Water Assessment Program is a result of the 1996 amendments to the Federal Safe Drinking Water Act (SDWA). Those amendments require all states to establish a program to assess the vulnerability of public water systems to potential contamination. While Fort Lee is classified as a consecutive water system, the Virginia Department of Health, Office of Water Programs, performed a source water assessment of the Appomattox and James Rivers in 2001 for the Hopewell District. This assessment consisted of defining the drainage-watershed area, provided an inventory of known land use activity, and identified any known contamination that occurred within the last five years within a five mile radius of our water intakes. The report became available in the year 2002, and is the first step in the preparation of a Source Water Protection Program. The following paragraph which has been prepared by the Virginia Department of Health is required to be included in the CCR:

“The Virginia Department of Health conducted a Source Water Assessment of the Appomattox and James Rivers in 2001. The rivers 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 and Potential Sources of Contamination of Concern, Best Management Practices Utilized at Land Use Activity Sites in Zone 1, documentation of any known contamination within the last five years, Susceptibility Explanation Chart, and Definitions of Key Terms. The report is available by contacting your waterworks system owner at the telephone number or address included in the CCR.”

## Water Information Sources

**Virginia American Water**  
[www.vawc.com](http://www.vawc.com)

**Virginia Department of Health**  
[www.vdh.state.va.us](http://www.vdh.state.va.us)

**United States Environmental Protection Agency**  
[www.epa.gov/safewater](http://www.epa.gov/safewater)

**Safe Drinking Water Hotline:** (800) 426-4791

**Centers for Disease Control and Protection**  
[www.cdc.gov](http://www.cdc.gov)

**American Water Works Association**  
[www.awwa.org](http://www.awwa.org)

**National Library of Medicine/  
National Institute of Health**  
[www.nlm.nih.gov/medlineplus](http://www.nlm.nih.gov/medlineplus)

## Share This Report

Landlords, businesses, schools, hospitals and other groups are encouraged to share this important water quality information with water users at their location who are not billed customers of Virginia American Water and therefore do not receive this report directly.

## Substances Expected to be in Drinking Water

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 water poses a health risk. More information about contaminants and potential health effects can be obtained by call the U.S. Environmental Protection Agency's Safe Drinking Water Hotline (800) 426-4791.

The source of drinking water (both tap water and bottled water) includes 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.

### 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, 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.

## Special Health Information

**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 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. EPA/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.**

## Cryptosporidium

*Cryptosporidium* is a microbial pathogen found in surface water throughout the US. Although *Cryptosporidium* can be removed through commonly-used filtration methods, US EPA issued a new rule in January 2006 that requires systems with higher *Cryptosporidium* levels in their source water to provide additional treatment. In anticipation of this upcoming rule, Virginia American Water monitored for *Cryptosporidium* in its raw water in 2005. In 24 monthly samples collected between July 2003 and June 2005, no viable *Cryptosporidium* cysts were detected.

The Appomattox River Water Authority began monitoring for *Cryptosporidium* in 2007. Please refer to the table of results for data pertaining to *Cryptosporidium* occurrence in Lake Chesdin.

## Unregulated Contaminant Monitoring

**Definition:** Unregulated contaminants are those for which the U.S. Environmental Protection Agency has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist the EPA in determining the occurrence of unregulated contaminants in drinking water and whether regulation is warranted.

Since Fort Lee does receive water from the Hopewell District, the information on a special sampling program is provided. Monitoring for contaminants in accordance with the Unregulated Contaminant Monitoring Rule (UCMR) was conducted in 2002 at the Hopewell District.

We are happy to report that there were no detections for any of the parameters for which monitoring was required under this rule. For information concerning our results, please contact our water quality professional. Data is also available on the EPA's web site ([www.epa.gov/safewater/ucmr/data.html](http://www.epa.gov/safewater/ucmr/data.html)).

## DRINKING WATER NOTICE

### Monitoring requirements not met for Virginia American Water—Hopewell District

We violated a drinking water standard. Even though this was not an emergency, as our customers, you have a right to know what happened and what we are doing to correct this situation.

**We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. According to the Waterworks Regulations, we are required to continuously monitor the individual turbidity levels of water leaving each filter in our treatment plant and record each level every 15 minutes. We accomplish this through the use of continuous turbidity monitoring equipment installed at each filter. In the event of a malfunction of the continuous turbidity monitoring equipment, the regulations require that turbidity samples be collected manually (referred to as grab samples) from the affected filter every 4 hours in lieu of continuous monitoring.**

The continuous turbidity monitoring equipment for Filter 2 was out of order from 1:15 p.m. on June 14, 2007 until 10:00 a.m. on June 15, 2007. We began collecting grab samples for turbidity at Filter 2 at 6:00 a.m. on June 15th, which was more than four hours after the continuous monitoring equipment went offline.

**What This Means:** There is nothing you need to do at this time. The table below lists the contaminants we did not test for, how often we are supposed to sample and how many samples we are supposed to take, how many samples we took, when samples should have been taken, and the date on which follow-up samples will be taken.

Contaminant	Required Sampling Frequency	When Samples Were Taken	When Samples Should Have Been Taken
Turbidity	Continuously or every 4 hours when online equipment fails	Beginning 6:00 a.m. on June 15th	Beginning 5:15 p.m. on June 14th

**Steps We Are Taking:** We will increase our efforts to ensure that future samples are collected and analyzed within the timeframes established by state and federal drinking water regulations.

For more information, please contact Brenda Frye, Water Quality Supervisor at (804) 458-8185.

Please share this information with all other people who drink this water, especially those who may not receive this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

### How to Read the Data Tables

Virginia American Water conducts extensive monitoring to ensure that your water meets all water quality standards. The results of our monitoring are reported in the following tables. While most monitoring was conducted in 2007, certain substances are only monitored once every three years because the levels do not change frequently. For help with interpreting this table, see the "Table Definitions" section.

Starting with a **Substance**, read across. **Year Sampled** is usually in 2007 or a year prior. **MCL** shows the highest level of substance (contaminant) allowed. **MCLG** is the goal level for that substance (this may be lower than what is allowed). **Amount Detected** represents the measured amount (less is better). **Range** tells the highest and lowest amounts measured. A **Yes** under **Compliance Achieved** (or **No** under **Violation**) means the amount of the substance met government requirements. **Typical Source** tells where the substance usually originates.

Unregulated substances are measured, but maximum allowed contaminant levels have not been established by the government.

## Table Definitions and Abbreviations

- **Action Level (AL):** The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.
- **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 disinfectant routinely allowed in drinking water. Addition of a disinfectant is necessary for control of microbial contaminants.
- **MRDLG (Maximum Residual Disinfectant Level Goal):** The level of 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.
- **NA:** Not applicable
- **ND:** Not detected

- **NTU - Nephelometric Turbidity Units:** Measurement of the clarity, or turbidity, of water.
- **pCi/L (picocuries per liter):** Measurement of the natural rate of disintegration of radioactive contaminants in water (also beta particles).
- **ppm (parts per million):** One part substance per million parts water, or milligrams per liter.
- **ppb (parts per billion):** One part substance per billion parts water, or micrograms per liter.
- **TT (Treatment Technique):** A required process intended to reduce the level of a contaminant in drinking water.

## What's in My Water?

We are pleased to report that during the past year, the potable water delivered to your home or business complied with, or was better than, all state and federal drinking water requirements. For your information, we have compiled a list in the table, showing what substances were detected in your drinking water during 2007. We feel it is important that you know exactly what was detected and how much of the substance was present in the water.

## Virginia American Water Company – Fort Lee Potable Water 2007

Regulated Substances								
Substance (units)	Year Sampled	MCL	MCLG	ARWA		VAWC		Typical Source
				Amount Detected	Range of Detected Levels	Amount Detected	Range of Detected Levels	
Alpha emitters (pCi/L)	2003	15	0	0.7	NA	0.6	NA	Erosion of natural deposits
Barium (ppm)	2007	2	2	NA	NA	0.028	NA	Erosion of natural deposits
Beta emitters (pCi/L)	2003	50	0	2.9	NA	4.2	NA	Decay of natural and man-made deposits
Chloride (ppm)	2007	250	–	NA	NA	15.3	NA	Naturally occurring
Fluoride (ppm)	2007	4	2	0.89	≤ 1.41	0.89	0.51 – 1.23	Added to water to promote health teeth
Nitrate (ppm)	2007	10	10	0.09	NA	0.27	0.26 – 0.27	Erosion of natural deposits; Runoff from fertilizer use
Radium (pCi/L)	2003	5	0	1.3	NA	1.1	NA	Erosion of natural deposits
TOC (removal ratio)	2007	–	–	1.26	≥ 1.31	1.20	0.81 – 1.56	Naturally present in the environment
Turbidity (NTU)	2007	TT	0	0.04	≤ 0.15	0.11	0.02 – 0.15	Soil erosion and runoff
Chloramines (ppm)	2007	MRDL = 4	MRDLG = 4	NA	NA	3.41	1.5 – 4.1	Additive used to control microbes
Chlorine (ppm)	2007	MRDL = 4	MRDLG = 4	2.98	1.6 – 3.5	NA	NA	Additive used to control microbes
Chlorine Dioxide (ppm)	2007	MRDL = 0.8	MRDLG = 0.8	0.03	≤ 0.24	NA	NA	Additive used to control microbes
Chlorite (ppm)	2007	1.0	0.8	0.33	0.05 – 0.71	ND	ND	Naturally occurring
Zinc (ppm)	2007	5.0		NA	NA	0.081	NA	Water treatment additive

YEAR SAMPLED: The state requires monitoring for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

BETA/PHOTON EMITTERS: The MCL for Beta/photon emitters is written as 4 mrem/year. EPA considers 50 pCi/L as the level of concern for beta emitters.

TURBIDITY: Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. During the reporting year, a minimum of 100% of all samples taken to measure turbidity met water quality standards.

### Disinfection By-products

Substance (units)	Sampled	MCL	MCLG	Amount Detected	Range of Detected Levels	Violation	Typical Source
Haloacetic acids (HAAS)	2007	60	NA	17.5	8.5 – 30.4	No	By-product of drinking water disinfection
Total Trihalomethanes (TTHM)	2007	80	0	63.0	42.4 – 84.7	No	By-product of drinking water disinfection

TRIHALOMETHANES: Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.

### Lead and Copper (Tap Water Samples Were Collected from 30 Homes on Base)

Substance (units)	Year Sampled	MCL	MCLG	Amount Detected (90th Percentile)	Action Level	Violation	Typical Source
Copper (ppm)	2005	1.3	1.3	0.151	0	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	2005	15	0	1	0	No	Corrosion of household plumbing systems; Erosion of natural deposits

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline at (800) 426-4791.

<b>Bacteriological Results (from the Distribution System)</b>						
Substance (units)	Year Sampled	MCLG	MCL	Highest Percentage Detected	Compliance Achieved	Typical Source
Total Coliform (% positive samples)	2007	0	5% positive samples	0	Yes	Bacteria naturally present in the environment
<b>Cryptosporidium</b>						
Substance (units)	Year Sampled	MCLG	Highest Amount Detected	Average Amount Detected	Typical Source	
Cryptosporidium (oocysts/L)	2007	< 0.075	0.2	0.012	Organism naturally occurring in source water monitored twice monthly by ARWA	
<b>Unregulated Substances</b>						
Substance (units)	Year Sampled	ARWA		VAWC		Typical Source
		Amount Detected	Range Low-High	Amount Detected	Range Low-High	
Aluminum (ppm)	2007	NA	NA	0.012	NA	Naturally occurring and water treatment additive
Bromide (ppm)	2007	0.011	ND – 0.15	0.34	ND – 0.03	Naturally occurring
Bromochloroacetic Acid (ppb)	2007	NA	NA	2.89	ND – 7.9	By-product of drinking water disinfection
Bromodichloromethane (ppb)	2007	5.30	NA	11.39	4.1 – 19.5	By-product of drinking water disinfection
Bromoform (ppb)	2007	NA	NA	2.74	ND – 11.8	By-product of drinking water disinfection
Calcium (ppm)	2007	NA	NA	11	NA	Naturally occurring
Chlorate (ppm)	2007	0.116	ND – 0.24	0.043	ND – 0.15	By-product of drinking water disinfection
Chloroform (ppb)	2007	NA	NA	40.81	7.0 – 78.0	By-product of drinking water disinfection
Chlorodibromomethane (ppb)	2007	NA	NA	8.14	0.6 – 27.1	By-product of drinking water disinfection
Magnesium (ppm)	2007	NA	NA	3	NA	Naturally occurring
MTBE (ppb)	2007	< 5	NA	1.3	NA	Gasoline additive
Nickel (ppm)	2007	NA	NA	0.0011	NA	Naturally occurring
Sodium (ppm)	2007	NA	NA	33	17 – 43	Naturally occurring and water treatment additive
Strontium (ppm)	2007	NA	NA	0.063	NA	Naturally occurring
Sulfate (ppm)	2007	22.4	NA	ND	NA	Erosion of natural deposits and water treatment additive