

City of Fredericksburg
Water Distribution System
2007 Annual Water Quality Report

INTRODUCTION

This annual report for calendar year 2007 is designed to inform you about your drinking water quality. Our goal is to provide you with a safe and dependable supply of drinking water and help you understand the efforts that are made to protect your water supply. The quality of your drinking water must meet state and federal requirements administered by the [Virginia Department of Health \(VDH\)](#).

If you have any questions about this report or want to request any additional information concerning your drinking water, please contact J. W. Roberts, Superintendent of Public Works, (540) 372-1090.

The City's water system is operated under the authority of the Fredericksburg City Council. The City Council meets the second and fourth Tuesday of every month at 7:30 p.m. in the Council Chambers at City Hall, 715 Princess Anne Street.

GENERAL INFORMATION (Substances that may be in drinking water)

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up substances resulting from the presence of animals or from human activity. Substances (referred to as contaminants) in source water may come from septic systems, discharges from domestic or industrial wastewater treatment facilities, agricultural and farming activities, urban storm water runoff, residential uses, and many other types of activities. Water from surface sources is treated to make it drinkable while groundwater may or may not have any treatment.

All drinking water, including bottled drinking 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. 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 salt 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 results of oil and gas production and mining activities. More information can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline, (800) 426-4791. The [U.S. Environmental Protection Agency's Office of Water](#) and the U.S. Department of Health and Human Services' [Centers for Disease Control and Prevention](#) 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's Office of Drinking Water](#) Web site provides complete and current information on water issues in our own state.

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 can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. Environmental Protection Agency/Center for Disease Control (EPA/CDC) guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the [EPA's Safe Drinking Water Hotline](#), (800) 426-4791.

SOURCE AND TREATMENT OF YOUR DRINKING WATER

The source of your drinking water is surface water collected and treated from the sites listed below:

- [Motts Run Reservoir](#) @ Motts Run Water Treatment Plant - Spotsylvania County
- [Ni Reservoir](#) @ Ni River Water Treatment Plant - Spotsylvania County
- [Rappahannock River](#) @ Motts Run Water Treatment Plant - Spotsylvania County

A source water assessment of our system was conducted recently by the Virginia Department of Health. The river and reservoirs 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 of concern, and documentation of any known contamination within the last five (5) years. Additional information is available by contacting J. W. Roberts, Superintendent of Public Works (540) 372-1090.

LEAD IN DRINKING WATER

Lead is a naturally occurring element in our environment. Consequently, our water supply is expected to contain small, undetectable amounts of lead. However, most of the lead in household water usually comes from the plumbing in your own home, not from the local water supply. EPA estimates that more than 40 million U.S. residents use water that can contain lead in excess of EPA's Action Level of 15 ppb.

Lead in drinking water is a concern because young children, infants and fetuses appear to be particularly vulnerable to lead poisoning. A dose that would have little effect on an adult can have a big effect on a small body. On average, it is estimated that lead in drinking water contributes between ten (10) and twenty (20) percent of total lead exposure in young children.

All kinds of water, however, may contain some amount of lead. The City's drinking water supply is maintained at an optimum pH and mineral content level to prevent corrosion in your home's water piping. To reduce lead levels in your drinking water you should flush your cold water pipes by running the water until it becomes as cold as it will get (anywhere from five (5) seconds to two (2) minutes or longer) and use only water from the cold-water tap for drinking, cooking, and especially for making baby formula. Hot water is likely to contain higher levels of lead.

For more information, please contact [National Lead Information Center](#), (800) LEAD-FYI (800-532-3394), and the [Safe Drinking Water Hotline](#), (800) 426-4791.

WATER CONSERVATION TIPS

Water conservation measures are an important first step in protecting our water supply. Such measures not only save the supply of our water source, but can also save you money by reducing your water bill. Listed below are some conservation suggestions:

- Repair any leaking faucets, pipes, toilets, etc.
- Replace old fixtures; install water-saving devices in faucets, toilets and appliances. Wash only full loads of laundry.
- Do not use the toilet for trash disposal.
- Take shorter showers.
- Do not let the water run while shaving or brushing teeth.
- Soak dishes before washing.
- Run the dishwasher only when full.
- Water lawns and gardens in early morning or late evening.
- Use mulch around plants and shrubs.
- Use water saving nozzles.
- Use water from bucket to wash your vehicle and save the hose for rinsing.

TESTING & MONITORING

Contaminants in your drinking water are routinely monitored according to Federal and State regulations. The table on the next few pages shows the most recent results of our monitoring.

DEFINITIONS

The following definitions are provided to help you better understand these terms:

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

Maximum Contaminant Level (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 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 (MRDL) - the highest level of disinfectant allowed in drinking water. There is convincing evidence that the addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG) - the level of drinking water disinfectant below which there is no known or expected health risk. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Nephelometric Turbidity Unit (NTU) - nephelometric turbidity unit is 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 our filtration system.

Non-detects (ND) - indicates that the substance was not found by laboratory analysis.

Parts per billion (ppb) - one part per billion corresponds to one minute in 2,000 years or a single penny in \$10,000,000.

Parts per million (ppm) - one part per million corresponds to one minute in two years or a single penny in \$10,000.

Part per trillion (ppt) - one part per trillion corresponds to one minute in 2,000,000 years or a single penny in \$10,000,000,000.

Picocuries per liter (pCi/L) - picocuries per liter is a measure of the radioactivity in water.

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

2007 City of Fredericksburg Water Quality Results

Contaminants in your drinking water are routinely monitored according to federal and state regulations. The tables on this Web page show the most recent results of our monitoring. As you may find some unfamiliar terms within these tables and on the "[2007 Annual Water Quality Report](#)" Web page, including definitions provided to help you better understand these terms.

I. Lead and Copper Substances

Substance	Units of Measurement	Action Level	MCLG	Results of samples for the 90th Percentile Value	Action Level Exceedance (Y/N)	Sampling Year	# of Sampling Sites Exceeding Action Level	Typical Source
Lead	ppb	15	0	3	NO	2007	one (1)	Corrosion of household plumbing systems, erosion of natural deposits
Copper	ppm	1.3	1.3	0.15	NO	2007	NONE	Corrosion of household plumbing systems, erosion of natural deposits, leaching from wood preservatives

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 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 (800-426-4791).

II. Turbidity

Substance	Treatment Technique Limits	Level Detected	Violation (Y/N)	Sampling Year	Typical Source
Turbidity	1. 1 NTU Maximum 2. <0.3 NTU 95% of the time	1. highest single measurement = 0.17 2. lowest monthly percentage = 100%	NO	2007	Soil runoff

III. Radiological Substances

Substance	Units of Measurement	MCLG	MCL	Level Detected	Violation (Y/N)	Range of detection at Sampling Points, LOW-HIGH	Sampling Year	Typical Source
Combined Radium	pCi/L	0	5	1.5	NO	N/D-1.5	2002	Erosion of natural deposits
Alpha emitters	pCi/L	0	15	0.5	NO	N/D-0.5	2002	Erosion of natural deposits
Beta/photon emitters	pCi/L	0	50	3.8	NO	1.9-3.8	2002	Decay of natural and man-made deposits

IV. Total Trihalomethanes (TTHMs)

Substance	Units of Measurement	MCLG	MCL	Level Detected	Violation (Y/N)	Range of detection at Sampling Points	Sampling Year	Typical Source
TTHMs	ppb	0	80	29	NO	10 - 40	2007	By-product of drinking water chlorination
HAA5s	ppb	N/A	60	12	NO	1 - 19	2007	By-product of drinking water disinfection

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

Some people who drink water containing Haloacetic Acids (HAA5's) in excess of the MCL over many years may have an increased risk of getting cancer.

V. Other Regulated Substances

Substance	Units of Measurement	MCLG	MCL	Level Detected	Violation (Y/N)	Range of detection at Sampling Points, LOW-HIGH	Sampling Year	Typical Source
Fluoride	ppm	4	4	1.19	NO	0.93-1.2	2007	Erosion of natural deposits; water additive, which promotes strong teeth; discharge from fertilizer; and aluminum factories
Nitrate	ppm	10	10	0.14	NO	0.05-0.14	2007	Runoff from fertilizer use, leaching from septic tanks, sewage, and erosion of natural deposits
95% of water received from Motts Run Water Treatment Plant								
Total Organic Carbon	ppm	N/A	TT	1.09	NO	0.69-1.39	2007	Naturally present in environment
Chloramines	ppm	4	4	1.77	NO	0.85-2.15	2007	Water additive used to control microbes

We regularly monitor for various substances in the water supply to meet all regulatory requirements. The tables list only those substances that had some level of detection. Many other substances have been analyzed but were not present or were below the detection limits of the lab equipment.

Much of our water quality data is from testing done in 2007. However, the state allows us to monitor for some substances less than once per year because the concentrations of these substances do not change frequently. Even though some of our data may be more than one year old, it is accurate.

Maximum Contaminant Level's are set at very stringent levels by the U.S. Environmental Protection Agency. In developing the standards EPA assumes that the average adult drinks 2 liters of water each day throughout a 70-year life span. EPA generally sets MCLs at levels that will result in no adverse health effects for some substances or a one-in-ten-thousand to one-in-a-million chance of having the described health effect for other substances.

VIOLATION INFORMATION: The Fredericksburg Water Distribution System did not have any violations for contaminants during the year. Also, we are pleased to report to you that there were no detection of total coliforms or e-coli in the monthly samples collected during calendar year 2007.

This Drinking Water Quality report was prepared by: J. W. Roberts, Superintendent of Public Works