FORT BELVOIR

PWSID: 6059450

JUNE 2007

Calendar Year 2006

Annual Drinking Water Quality Report

This is Fort Belvoir's annual report on water quality in accordance with the 1996 Safe Drinking Water Act. The data in this report are the result of drinking water quality testing performed in 2006.

About this Annual Report

This is an annual report regarding the quality of drinking water delivered to Fort Belvoir for the period of January 1, 2006 through December 31, 2006 (except where noted). Under the "Consumer Confidence Reporting Rule" of the Federal Safe Drinking Water Act (SDWA), community water systems are required to report this water quality infomation to the consuming public. Presented in this report is information regarding the source of our water, its constituents and health risks associated with any contaminants detected in quantities exceeding a drinking water regulatory maximum contaminant level (MCL), action level (AL), or treatment techniques (TT).

Your Water is Safe!

As you can see by the Tables and information in this Report, the drinking water provided to you had no violations during the calendar year 2006. We have learned through our extensive monitoring and testing that some contaminants have been detected, but the Environmental Protection Agency (EPA) has confirmed that **YOUR WATER IS SAFE AT THESE LEVELS.**

Fort Belvoir's Directorate of Public Works and Fairfax Water analyze the water for more than 120 contaminants and of the few contaminants that were found, all were well below EPA's MCLs. The MCLs were established by the U.S. Congress in the SDWA of 1974 and its revisions in 1986 and 1996. Testing is performed by Fairfax Water on a daily basis at the treatment plant and Fort Belvoir performs additional testing to the water that is distributed throughout the Post.

These standards and other drinking water regulations are constantly reviewed by the EPA and, if needed, revised to reflect the latest medical research. In the Commonwealth of Virginia, the Department of Health (VDH) enforces and oversees these standards and regulations.

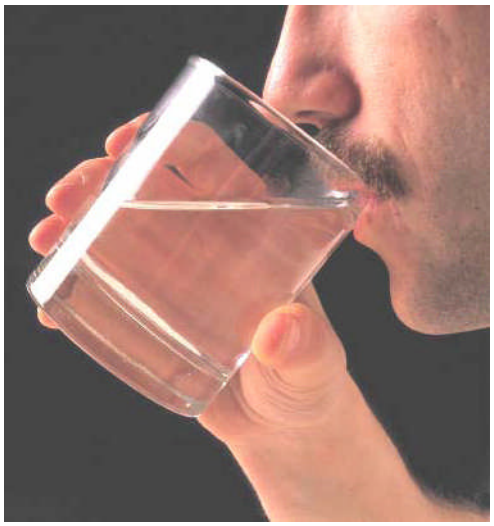
Where Does Your Drinking Water Come From?

The drinking water Fort Belvoir distributes to its 27,000 consumers is purchased from Fairfax Water, which serves the majority of northern Virginia and is the state's largest water utility. Fairfax Water draws surface water from two primary sources: the Potomac River and the Occoquan Reservoir fed by the Occoquan River. Fairfax Water's treatment facilities are located at opposite ends of Fairfax County and feed an interconnected distribution system. The water supplied to Fort Belvoir comes from the Occoquan Reservoir and is treated at the Frederick P. Griffith Jr. Treatment Plant, located near the Town of Occoquan on the southern border of Fairfax County.

Water Treatment Processes

Fairfax Water must process its intake (raw) water to assure it is safe to drink. The treatment includes both chemical and physical processes. When river water enters the treatment plant, it is treated with ozone, which enhances future treatment steps. Next, chemicals known as coagulants are added to cause any small particles to adhere to one another and settle out of the water. A filtering step then removes any remaining particles that did not settle. Additional chemical treatment is then employed: chlorine to inactivate harmful microorganisms; fluoride to protect teeth; and a corrosion inhibitor to minimize dissolution of lead used in older household plumbing. Activated charcoal and potassium permanganate are included in the treatment process if the raw water has an odor or unpleasant taste. The water furnished to Fort Belvoir has received chlorine to control the proliferation of microorganisms in the water mains. Fort Belvoir monitors the water to ensure that chlorine is maintained throughout the distribution system.

Inside This Issue:



Special Health Precautions

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 their drinking water from their health care providers. The EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the **Safe Drinking Water Hotline (800-426-4791)**.

How Can Impurities Get In the Water Supply?

The sources 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 radioactive material, and can pick up substances resulting from the presence of animal or human activity. Contaminants that may be present in the source waters include:

- **Microbial contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- **Inorganic contaminants**, such as salts and metals, which can be naturally occurring or result from urban 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, urban storm water runoff, and residential uses.
- **Organic chemical contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gasoline storage, urban 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.

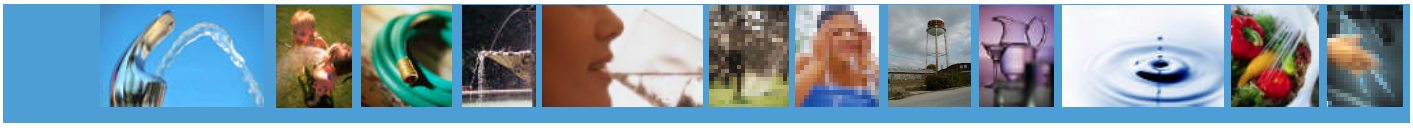
In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Consumers should be aware that drinking water, including bottled water, may reasonably be expected to contain at least trace 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 calling the **Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791)**.

Improvements to Fort Belvoir's Water Quality

Fort Belvoir's Directorate of Public Works is continuously striving to provide better service to its customers. Every Spring, in coordination with Fairfax Water, Fort Belvoir opens up hydrants and flushes its water mains to remove accumulated sediment and residue. In addition, maintenance of the fire hydrants and valves that are critical to the distribution system and fire protection is accomplished.

When new development occurs at Fort Belvoir, the Directorate of Public Works uses a computer software model to predict the effects the new demand will have on the water system. This process ensures that any new development will not impact the water supply of our existing customers. Fort Belvoir works closely with Fairfax Water on operation, maintenance, and resource planning issues and will continue to maintain a working relationship in order to provide the highest quality water to its customers.



Source Water Assessment and Protection

Under provisions of the Safe Drinking Water Act, states are required to develop comprehensive Source Water Assessment Programs (SWAPs) that identify the watersheds that supply public tap water, provide an inventory of contaminants present in the watershed, and assess susceptibility to contamination in the watershed. Based on the criteria developed by the state, the Potomac River and Occoquan Reservoir were determined to be of high susceptibility to contamination. This determination is consistent with the state's finding of other surface waters (rivers, lakes, streams) throughout the Commonwealth of Virginia. The assessment consists of an evaluation of the maps of the watershed area, an inventory of known land use activities, and documentation of any known source water contamination within the last five years. The Federal Safe Drinking Water Act Amendments of 1996 require each state to develop a SWAP that includes delineation of the contributing watershed area upstream of the water supply intake, identification of potential sources of contamination, and determination of the susceptibility of the intake to contamination from those sources. VDH is responsible for conducting source water assessments in Virginia. Fairfax Water applied for and received a grant to conduct the assessment, and has completed the SWAP on behalf of VDH. Fairfax Water also owns several wells, which account for less than 1 percent of their water production. VDH has conducted the assessment for these wells. A secure version of the report is available by contacting Fairfax Water or by visiting their web site, http://www.fairfaxwater.org.

2006 Cryptosporidium Information for Potomac River and Occoquan Reservoir

Cryptosporidium is a single-celled organism that lives and reproduces within the intestines of an animal host. During its life cycle it matures into resistant cells called oocysts that can be shed in feces. The disease caused by *Cryptosporidium* is called Cryptosporidiosis and is caused by infection with oocysts.

People can be exposed to oocysts from other people, animals, water, swimming pools, fresh food, soils, and any surface that has not been sanitized after exposure to feces. Symptoms range from a mild to incapacitating diarrhea, cramps, loss of appetite, weight loss, nausea, and low-grade fever.

Fairfax Water has completed monitoring of the Potomac River and Occoquan Reservoir for compliance with the U.S. Environmental Protection Agency's (EPA) Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR). The EPA created this rule to provide for increased protection against microbial pathogens, such as Cryptosporidium, in public water systems that use surface water sources. Fairfax Water's monitoring program began in 2004, and involved the collection of two samples from water treatment plant sources each month for a period of two years. Even though monitoring for compliance with the LT2ESWTR is complete, Fairfax Water is continuing to monitor for Cryptosporidium at water treatment plant sources on a monthly basis. The data collected in 2006 is summarized below:

Source (before treatment)	Average Cryptosporidium concentration (oocysts/Liter)
Potomac River	0.026
Occoquan Reservoir	0.021

Under the LT2ESWTR, the average Cryptosporidium concentration determines if additional treatment measures are needed. A Cryptosporidium concentration of 0.075 oocysts/Liter will trigger additional water treatment measures. As noted in the table above, Fairfax Water's raw water Cryptosporidium concentrations are well below this threshold.

FAQs

Q. Why does my water sometimes have a chlorine taste and odor?

A. During the months of April, May, and June you may notice the taste and odor of chlorine in your water. This is because, during this time, we use free chlorine, which provides the best method of disinfection during the water main flushing done each spring to maintain a high level of water quality. Keeping an open container of drinking water in the refrigerator allows the chlorine to dissipate, which usually improves taste.

Q. Where does lead in drinking water come from and should I be concerned?

A. In older homes where lead is present in pipes and solder connections, it may dissolve into the water when the water sits for long periods of time. In 1986, lead was banned from use in pipes and solder. The water that Fort Belvoir purchases from Fairfax Water contains a corrosion inhibitor to slow this dissolution process. Fort Belvoir tests the water in certain homes for lead according to EPA regulations and their water has always tested well below EPA limits. More information on lead is available on page 7.

Q. Who makes the rules and regulations for drinking water?

A. Regulations are made by both federal and state agencies. The Safe Drinking Water Act (SDWA) was passed by Congress in 1974 and amended in 1986 and 1996. It is governed by the United States Environmental Protection Agency (EPA). The web site for these standards is http://www.epa.gov/safewater/standards.html. In addition to the SDWA, the EPA has promulgated several specific rules, including the Total Coliform Rule and the Lead and Copper Rule, to address various types of water contaminant problems.

Q. Can I store my drinking water indefinitely?

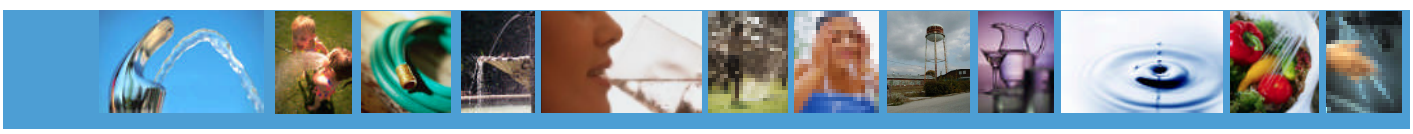
A. No. The disinfectant in drinking water will eventually dissipate even if it is stored in a closed container. Some experts believe that water could be stored in a closed container up to six months before needing to be replaced.

Q. Do I need to treat the tap water in any way before I place fish in aquarium?

A. Yes. Chlorine is used for disinfection purposes, which can be harmful to fish. Two types of chlorine are used—free chlorine and chloramines. Chloramines are normally used from July through March, and free chlorine is used from April through June. Free chlorine and chloramines dechlorination are performed differently. Chemical additives with directions for dechlorinating either free chlorine or chloramines from water for use in fish tanks or ponds are available at fish supply stores.

If you have questions about this report...

The point of contact at Fort Belvoir for water quality information is **Bill Sanders, Director of Public Works, (703-806-3017) or e-mail environmental@belvoir.army.mil.** For questions or information on Fairfax Water treatment facilities and processes, contact **Fairfax Water at 703-698-5800**. More information about contaminants and potential health effects can be obtained by calling the **EPA's Safe Drinking Water Hotline (800-426-4791) or on EPA's web site at http://www.epa.gov/safewater/index.html**.



2006 Summary of Fairfax Water Finished Water Characteristics

Components	Griffith/Lorton/Occoquan and J.J. Corbalis Water Treatment Plants					
	MCLG	MCL	Average	Minimum	Maximum	Major Source in Drinking Water
Atrazine (ppb)	3	3	0.03	ND	0.09	Runoff from herbicide used on row crops
Hexachlorocyclopentadine (ppb)	50	50	0.01	ND	0.07	Discharge from chemical factories
Chloroform (ppb)	NRL	NRL	19.8	7.3	38.7	By-product of drinking water disinfection/chlorination; industrial discharges
Bromodichloromethane (ppb)	NRL	NRL	10.2	3.7	48.5	By-product of drinking water disinfection/chlorination
Chlorodibromomethane (ppb)	NRL	NRL	2.2	0.6	3.0	By-product of drinking water disinfection/chlorination
Metolchlor (ppb)	NRL	NRL	0.01	ND	0.10	Runoff from herbicide used on row crops
Barium (ppm)	2	2	0.034	0.026	0.044	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Mercury (inorganic) (ppb)	2	2	ND	ND	0.7	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff form cropland
Fluoride (ppm)	4	4	0.9	0.6	1.5	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories
Nitrate (as Nitrogen) (ppm)	10	10	1.3	0.3	2.4	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nitrite (as Nitrogen) (ppm)	1	1	ND	ND	0.06	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Beta/photon emitters[1] (pCi/L)[2]	0	50	3.6	ND	4.9	Decay of natural and man-made deposits
Alpha Emitters (pCi/L)[3]	0	15	0.7	0.2	1.6	Erosion of natural deposits
Radium 228[3] (pCi/L)	0	5	0.6	0.2	12	Erosion of natural deposits

[1] The MCL for the Beta particles is written as 4mrem/year. EPA considers 50 pCi/L to be the level of concern for Beta particles.
[2] Results are an average of Lorton/Occoquan 2003, Corbalis 2005, and Griffith 2006 data points.
[3] Testing performed in 2003 for Corbalis, Lorton, and River Station plants; 2006 for Griffith plant.
[4] Testing performed in 2004, monitoring will occur in 2007.

Testing of Fairfax Water Process Water

Turbidity

MCL	TT (NTU)
MCLG	TT (NTU)
Average Annual Turbidity	0.07
Highest Single Measurement	0.5
Lowest Monthly % Samples Meeting Treatment Technique Tubidity Limit	100.000%
Major Source in Drinking Water	Soil runoff

Total Organic Carbon

MCL	TT (ratio)
MCLG	na
Quarterly Running Annual Average	1.2
Minimum	0.6
Maximum	1.6
Major Source in Drinking Water	Naturally present in the environment

Turbidity

Turbidity is a measure of the "cloudiness" of water quantified by nephelometric turbidity units (NTU). Turbidity itself has no health effects and is not a direct indicator of health risks. However, turbidity is monitored because it provides a good indication of the effectiveness of the treatment process. Turbidity levels are measured by Fairfax Water at all stages of the treatment process. The turbidity level of filtered water shall be less than or equal to 0.3 NTU in at least 95% of the measurements taken each month, and shall at no time exceed 1 NTU.

Total Organic Carbon

Total Organic Carbon (TOC) is a measure of the organic carbon and has no direct health effects. However, it provides a medium for the formation of disinfection by-products, which include trihalomethanes and haloacetic acids. Compliance with the treatment technique (TT) reduces the formation of these disinfection by-products.

Acronyms and Definitions - What they mean in plain english

In the tables and elsewhere in this report you may find terms and acronymns you might not be familiar with. The following definitions are provided to help you better understand these terms:

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirement, which 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 MCLGs as feasible using the best available treatment technology. Contaminants in drinking water, if detected, must be present in levels below the MCLs in order for the system to be in compliance with all applicable regulations.

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, over and above the MCL.

Nintieth percentile (for lead and copper only) (90th%): Ninty percent of the homes where tap water was tested are at or below this level.

MRDL (Maximum Residual Disinfectant Level): Disinfectant level beyond which some people may experience irritating effects. Based on running annual average of monthly averages of distribution system samples computed quarterly.

ND: (Non-detect) laboratory analyses indicate that the contaminant is not present, when using the EPA regulated methods and equipment.

NRL: (No regulatory limit)

NTU: (Nephelometric Turbidity Unit): Unit of measure for clarity of water.

pCi/L: (Picocuries per liter): A measure of radioactivity in water.

ppb: (Parts per billion) or micrograms per liter (ug/L), Corresponds to one penny in $10,000,000 or one minute in 2,000 years.

ppm: (Part per million) or milligrams per liter (mg/L), Corresponds to one penny in $10,000 or one minute in two years.

Total Coliform: A type of bacteriological test routinely used to determine if contamination has occurred in the drinking water system.

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

2006 Fort Belvoir Distribution System Water Quality

Microbiological Contaminants	Total Coliform Bacteria
MCLG	0
MCL	Not to exceed 1 positive sample per month
Fort Belvoir's Results	2 of 354 samples tested positive, retested negative
Highest Monthly Number of Positive Samples	1 Sample
Meets EPA Standards	Yes
Major Source in Drinking Water	Naturally present in the environment
Violation (Yes/No)	No

The Fort Belvoir Directorate or Public Works performs monthly sampling for microbiological contaminants in the water distribution system. During calendar year 2006, two samples tested positive for total coliform. Appropriate actions were taken and additional samples were collected that tested negative for total coliform. This Microbiological Contaminants table lists the results of our microbiological testing which is required by the EPA. Samples testing positive for total coliform bacteria, which occurs naturally in the environment, cannot exceed one positive sample per month.

Total Trihalomethanes and HAA5		TTHMs	HAA5s
Running Annual Average MCLG		0 ppb	0 ppb
Running Annual Average MCL		80 ppb	60 ppb
System Running Average	Annual	35 ppb	22 ppb
	Quarterly	18-66 ppb	11-29 ppb
System Range		15-87 ppb	8-50 ppb
Meets EPA Standards		Yes	Yes
Major Source in Drinking Water		By-product of drinking water disinfection/chlorination	By-product of drinking water disinfection/chlorination
Violation (Yes/No)		No	No

Total Trihalomethanes (TTHMs) and haloacetic acids (HAA5s) are compounds that can be formed when drinking water is disinfected with chlorine. The chlorine combines with naturally occurring organic matter in the water to form TTHMs and HAA5s. These disinfection by-products are suspected carcinogens and are regulated by the EPA. The concentration limit set by the EPA is 80 ppb for TTHMs and 60 ppb for HAA5s based on the annual running average of quarterly sampling results. Some people who drink water containing trihalomethanes in excess of MCL over many years could experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer. Fairfax Water regulates its chlorination process to minimize TTHM and HAA5 formation. During 2006, the Fort Belvoir quarterly running average concentration for disinfectant by-products were all within the EPA limits for both TTHMs and HAA5s.

Metals[4]	Copper	Lead
Action Level (AL)	1.3 ppm	15 ppb
Fort Belvoir 90th Percentile	0.059 ppm	3 ppb
Number of Fort Belvoir Sites Above 90th Percentile	0	1
Meets EPA Standards	Yes	Yes
Major Source in Drinking Water	Corrosion of household plumbing systems	Corrosion of household plumbing systems
Violation (Yes/No)	No	No

Because of Fort Belvoir's excellent past lead and copper results, we have been placed on Ultimate Reduced Monitoring, requiring us to collect 30 samples every three years from houses on Post. The Fort Belvoir Directorate of Public Works most recently sampled for lead and copper in 2004. The Lead and Copper Rule requires that 90% of the samples from high-risk homes (homes built between 1983-1986) must have levels less than 15 ppb of lead and 1.3 ppm of copper. Fort Belvoir's most recent samples had lead levels of 3 ppb and copper levels of 0.059 ppm (see Metals table). The number and location of sample sites are based on Fort Belvoir's population and plumbing conditions. The EPA requires us to analyze the first water drawn out of the faucet in the morning, since water that sits in your plumbing system's pipes overnight has the highest risk of lead and copper contamination.

Infants and young children typically are more vulnerable to lead in drinking water than the general poplulation. If you are concerned about potential elevated lead levels in your home's water and would like to minimize the levels, simply flush the cold tap water for 30 seconds to two minutes prior to using it for cooking or drinking. For more information on lead and copper in drinking water, call the **Fort Belvoir Directorate of Public Works, Environmental and Natural Resources Division at 703-806-4007**.

Department of the Army
Directorate of Public Works
Environmental and Natural Resource Division
9430 Jackson Loop, Suite 100
Fort Belvoir, VA 22060-5116

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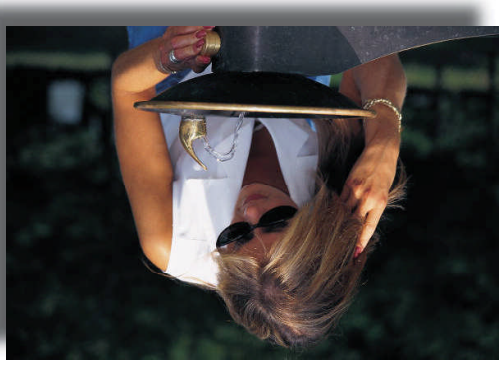
Annual Drinking Water Quality Report



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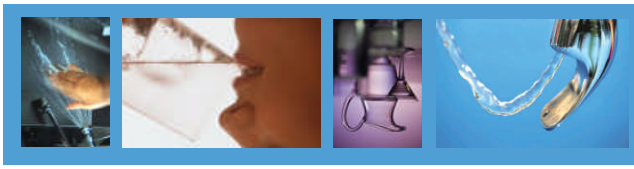

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