



2016 Annual

Water Quality Report

Fort Belvoir

PWS ID: VA6059450



AMERICAN WATER
Military Services

This report contains important information about your drinking water. If you do not understand it, please have someone explain or translate it for you.

Este informe contiene información muy importante sobre su agua potable. Si no lo comprende, favor acudir a alguien que se lo pueda traducir o explicar.

Continuing Our Commitment

A Message From Military Services Group President Todd Duerr

American Water's Military Services Group owns and operates water and wastewater utilities under the Utilities Privatization program and proudly provides water and wastewater services to military communities around the country, including yours. Our Company's Vision – "Clean Water for Life" drives everything we do for you, our product consumer. To reinforce our vision and maintain your trust, it's important that we share with you information about our commitment to providing high-quality water service.

I am pleased to provide you with the 2016 Annual Water Quality Report with detailed information about the source and quality of your drinking water. We have prepared this report using the data from water quality testing conducted for your local water system from January through December 2016. You'll find that we supply water that surpasses or meets all federal and state water quality regulations.

With equal importance, we place a strong focus on acting as stewards of our environment. In all of the communities we serve, we work closely with the local directorates of public works, civil engineering squadrons, local environmental departments and state regulatory agencies to protect environmental quality, educate customers on how to use water wisely, and ensure the high quality of your drinking water every day.

At American Water, our values – safety, trust, environmental leadership, teamwork, and high performance – result in more than making water available "on-demand". We deliver more than just water. We deliver a key resource for public health, fire protection, the economy and the overall quality of life we enjoy – Clean Water for Life. For more information or for additional copies of this report, visit us online at www.amwater.com.

Sincerely,

Todd Duerr

President – American Water's Military Services Group

What is a Water Quality Report?

To comply with the Virginia Department of Health and the U.S. Environmental Protection Agency (EPA) regulations, 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 (2016) 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.

Public Participation

Public input concerning water quality is always welcome. Water quality suggestions may be forwarded directly to the following:

Mail: American Water
6035 16th Street, Building #739
P.O. Box 1280
Fort Belvoir, VA 22060

Phone: (571) 339-8087

Share This Report

Landlords, businesses, schools, hospitals and other groups are encouraged to share this important information with water users at their location who may not receive this report directly.

Water Information Sources

The Military Services Group of American Water provides water and wastewater contract services to military installations across the country as part of the federal government's Utility Privatization Program. It operates and maintains the water and/or wastewater assets at Fort A.P. Hill, Va., Fort Sill, Okla., Fort Leavenworth, Kan., Scott Air Force Base, Ill., Fort Rucker, Ala., Fort Meade, Md., Fort Belvoir, Va., Fort Hood, Texas, Fort Polk, La., Picatinny Arsenal, N.J., Hill Air Force Base, Utah and Vandenberg Air Force Base, Calif.

The Military Services Group is part of [American Water Enterprises](#), a market-based subsidiary of American Water.

American Water O&M Inc. – Fort Belvoir provides water service to approximately 37,000 customers at Fort Belvoir, VA. With a history dating back to 1886, American Water is the largest and most geographically diverse U.S. publicly-traded water and wastewater utility company. The company employs more than 6,700 dedicated professionals who provide regulated and market-based drinking water, wastewater and other related services to an estimated 15 million people in 47 states and Ontario, Canada. More information can be found by visiting www.amwater.com.

The web sites of US EPA Office of Water, the Centers for Disease Control and Prevention, Virginia Department of Health (VDH) provide a substantial amount of information on many issues relating to water resources, water conservation and public health. You may visit these sites as well as American Water's website at the following addresses:

Centers for Disease Control and Prevention

<http://www.cdc.gov>

United States Environmental Protection Agency

<http://www.epa.gov/safewater>

Virginia Dept. of Health – Office of Drinking Water

<http://www.vdh.virginia.gov.odw>

American Water

<http://www.amwater.com>

Fairfax Water

www.fairfaxwater.org

American Water Works Association

<http://www.awwa.org>

Safe Drinking Water Hotline: (800) 426-4791

Water Conservation Tips

Conservation measures you can use inside your home include:

- Fix 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.

You can conserve outdoors as well:

- Water the lawn and garden in the early morning or evening.
- Use mulch around plants and shrubs.
- Repair leaks in faucets and hoses.
- Use water-saving nozzles.
- Use water from a bucket to wash your car, and save the hose for rinsing.

Source Water Assessment Completed

Under the 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 water (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. VDH is responsible for conducting source water assessments in Virginia. A secure version of the report is available by contacting Fairfax Water or by visiting their web site at www.fairfaxwater.org.

Where Does My Water Come From?

Fort Belvoir purchases its water supply 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, which is fed by the Occoquan River. The water supplied to Fort Belvoir comes from the Occoquan Reservoir and is treated at both the Frederick P. Griffith Jr. Treatment Plant and the James J. Corbalis Jr. Treatment Plant.

Cryptosporidium

Cryptosporidium is a microbial pathogen sometimes found in surface water throughout the United States. Although filtration removes *Cryptosporidium*, the most commonly used filtration methods cannot guarantee 100 percent removal. Fairfax Water consistently maintains its filtration process in accordance with regulatory guidelines to maximize removal efficiency. Our monitoring indicates the occasional presence of these organisms in the source water. Current test methods do not allow us to determine whether the organisms are dead or if they are capable of causing disease.

Ingestion of *Cryptosporidium* may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immunocompromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immunocompromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection.

Cryptosporidium must be ingested in order to cause disease. It may be spread through means other than drinking water, such as other people, animals, water, swimming pools, fresh food, soils and any surface that has not been sanitized after exposure to feces.

Fairfax Water is currently monitoring the Potomac River and Occoquan Reservoir for compliance with Round 2 of the EPA Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR Round 2). 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 LT2ESWTR Round 2 monitoring program began in April 2015 and involves the collection of one sample from

water treatment plant sources each month for a period of two years. Monitoring for compliance with the LT2ESWTR Round 2 will continue through March 2017.

Under the LT2ESWTR Round 2, the average *Cryptosporidium* concentration determines whether additional treatment measures are needed. A *Cryptosporidium* concentration of 0.075 oocysts/Liter triggers additional water treatment measures. Fairfax Water's raw water *Cryptosporidium* concentrations consistently remain below this threshold. The results for 2016 are as follows:

Source (before treatment)	Average <i>Cryptosporidium</i> concentration (oocysts/Liter)
Potomac River	ND
Occoquan Reservoir	0.01

Substances Expected to be in Drinking Water

To ensure that tap water is of high quality, U.S. Environmental Protection Agency prescribes regulations limiting the amount of certain substances in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

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.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

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 calling the EPA's Safe Drinking Water hotline at (800) 426-4791. 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. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Information About Lead

Is there lead in my water?

Although we regularly test lead levels in your drinking water, it is possible that lead and/or copper levels at your home are higher because of materials used in your plumbing. If present, elevated levels of lead can cause serious 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. American Water 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 and copper 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 drinking 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 EPA Safe Drinking Water Hotline at 1-800-426-4791 or at <http://www.epa.gov/safewater/lead>.

Special Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as those 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 (Centers for Disease Control and Prevention) 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) or by calling our Customer Service Center at (800) 685-8660.

How to Read the Data Tables

Starting with a **Substance**, read across. The **Year Sampled** is usually in 2016 or the 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). **Average Amount Detected** represents the measured amount (less is better). **Range** tells the highest and lowest amounts measured. A **Yes** under **Compliance Achieved** 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:** 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.
- **mrem/year:** Millirems per year (a measure of radiation absorbed by the body).
- **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).
- **pH:** A measurement of acidity, 7.0 being neutral.
- **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.

Water Quality Statement

American Water O&M Inc. and Fairfax Water jointly analyze your drinking water for more than 120 contaminants and of the few contaminants that were found, all were well below the 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 American Water performs additional testing to the water that is distributed throughout the Post.

We have learned through our extensive monitoring of testing that some contaminants have been detected but we continue to make improvements to your water system to ensure the quality of water provided and consumed by you is at its highest. We remain committed to providing you with information because internal customers are our best allies.

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.

Water Quality Results

FINISHED WATER DATA FROM FAIRFAX WATER (PURCHASED WATER)

Substance (units)	Year Sampled	MCL	MCLG	Average Amount Detected	Range	Compliance Achieved	Typical Source
INORGANIC							
Atrazine (ppb)	2011	3	3	ND	ND	Yes	Runoff from herbicide used on row crops
Barium (ppm)	2016	2	2	0.032	ND - 0.049	Yes	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Bromate (ppb)*	2016	10	0	0.5	ND - 6	Yes	By-product of drinking water disinfection
Fluoride (ppm)	2016	4	4	0.7	0.6 - 0.8	Yes	Water additive that promotes strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories
Mercury (ppb)	2011	2	2	ND	ND	Yes	Erosion of natural deposits; Discharge from refineries and factories; Runoff from cropland
Nitrate [as Nitrogen] (ppm)	2016	10	10	1.06	0.48 - 2.51	Yes	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Nitrite [as Nitrogen] (ppm) ¹	2016	1	1	0.005	ND - 0.02	Yes	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
RADIONUCLIDES							
Radium 226 (pCi/L) ²	2013/2014	5	0	0.284	ND - 0.691	Yes	Erosion of natural deposits
Alpha emitters (pCi/L) ²	2013/2014	15	0	1.79	ND - 3.01	Yes	Decay of natural and man-made deposits
Beta/photon emitters ² (pCi/L) ³	2014	50	0	3.16	ND - 5.99	Yes	Decay of natural and man-made deposits
TOTAL ORGANIC CARBON							
Total Organic Carbon (TOC) (removal factor) ⁵	2016	TT ⁴ (ratio)	n/a	1.4	0.8 - 2.1	Yes	Naturally present in the environment
Total Organic Carbon has no health effects. However, it provides for a medium for the formation of disinfection by-products. These by-products include trihalomethanes and haloacetic acids. Compliance with the treatment technique reduces the formation of these disinfection by-products.							
TURBIDITY							
Turbidity (NTU)	2016	TT ⁴ (NTU) ⁶	n/a	0.03	0.25 Highest Single Measurement	Yes	Soil runoff
Turbidity levels are measured during the treatment process after the water has been filtered, but before disinfection. 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. Lowest monthly % samples meeting treatment technique turbidity limit: 100.							
UNREGULATED CONTAMINANTS							
Bromodichloromethane (ppb)	2011	NRL	NRL	3.0	0.8 - 4.1	NA	By-product of drinking water disinfection
Chlorodibromomethane (ppb)	2011	NRL	NRL	1.8	0.9 - 4.0	NA	By-product of drinking water disinfection
Chloroform (ppb)	2011	NRL	NRL	5.4	0.8 - 8.6	NA	By-product of drinking water disinfection

* The MCL for Bromate is based on the result of the highest quarterly running annual average of all monitored sites.

¹ The average amount detected for Nitrite is an average of all sample results from the year, assuming a value of zero for non-detects.

² Derived from Griffith 2013 data and Corbalis 2014 data, pCi/L = picocuries per liter

³ The MCL for the Beta particles is written as 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for Beta particles.

⁴TT = Treatment Technique.

⁵ Quarterly Running Annual Average (QRAA) of the monthly ratio of actual Total Organic Carbon removal versus required Total Organic Carbon removal between source and treated waters. QRAA is to be ≥ 1 to be in compliance.

⁶ NTU = Nephelometric Turbidity Unit

FINISHED WATER DATA FROM FORT BELVOIR WATER DISTRIBUTION SYSTEM

DISINFECTANT AND DISINFECTION BY-PRODUCTS							
Substance (units)	Year Sampled	MCL	MCLG	Average Amount Detected	Range	Compliance Achieved	Typical Source
Haloacetic Acids (HAA5) (ppb)	2016	60	0	10.78	6.17–27.7	Yes	By-product of drinking water disinfection
Total Trihalomethanes (TTHMs) (ppb)	2016	80	0	20.58	9.94- 49.9	Yes	By-product of drinking water disinfection
Chloramines (ppm)	2016	4	4	1.85	0.0 - 3.2	Yes	Disinfectant water additive used to control microbes
MICROBIOLOGICAL CONTAMINANTS							
Substance (units)	Year Sampled	MCL	MCLG	Tested Positive	Compliance Achieved	Typical Source	
Coliform, Total (TCR)	2016	Less than 5% of samples per month test positive for the presence of Total Coliform. All repeat samples test negative for the presence Total Coliform and E. Coli.	0	0	Yes	Naturally present in the environment	
LEAD AND COPPER							
Substance (units)	Year Sampled	AL	MCLG	90th Percentile	Sites Above AL	Compliance Achieved	Typical Source
Lead (ppb)	2016	15	0	0.51	0	Yes	Corrosion of household plumbing; Erosion of natural deposits
Copper (ppm)	2016	1.3	1.3	0.12	0	Yes	Corrosion of household plumbing; Erosion of natural deposits

Unregulated Contaminants Monitoring Rule (UCMR3) From Fort Belvoir Water Distribution System Distribution System Monitoring

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted.

Substance (units)	Average	Highest Level Detected	Range of Detection	Typical Source
Chromium – Total (ppb)	0.2	0.3	ND – 0.3	Naturally occurring element; used in making steel and other alloys;Chromium-3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning, and wood preservation
Strontium (ppb)	96.25	118.3	75 – 118.3	Naturally occurring element; historically commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions
Vanadium (ppb)	0.125	0.3	ND – 0.3	Naturally occurring elemental metal; used as a vanadium pentoxide which is a chemical intermediate and a catalyst
Chromium – 6 (ppb)	0.15	0.17	0.13-0.17	Naturally occurring element; used in making steel and other alloys;Chromium-3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning, and wood preservation
Molybdenum (ppb)	0.33	1.3	ND – 1.3	Naturally occurring element found in ores and present in plants; animals and bacteria; commonly used form molybdenum trioxide used as a chemical reagent
Chlorate (ppb)	242.5	350	160 - 350	Agricultural defoliant or desiccant; disinfection byproduct; and used in production of chloride

Unregulated Contaminants Monitoring Rule (UCMR3) From Fort Belvoir Water Distribution System Entry Point

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted.

Substance (units)	Average	Highest Level Detected	Range of Detection	Typical Source
Chromium - Total (ppb)	2.95	11.3	ND - 11.3	Naturally occurring element; used in making steel and other alloys; Chromium-3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning, and wood preservation
Strontium (ppb)	88.4	122.4	63.6 - 122.4	Naturally occurring element; historically commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions
Vanadium (ppb)	0.1	0.2	ND - 0.2	Naturally occurring elemental metal; used as a vanadium pentoxide which is a chemical intermediate and a catalyst
Chromium - 6 (ppb)	0.09	0.13	0.07-0.13	Naturally occurring element; used in making steel and other alloys; Chromium-3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning, and wood preservation
Molybdenum (ppb)	0.35	1.4	ND - 1.4	Naturally occurring element found in ores and present in plants; animals and bacteria; commonly used form molybdenum trioxide used as a chemical reagent
Chlorate (ppb)	222.5	300	150 - 300	Agricultural defoliant or desiccant; disinfection byproduct; and used in production of chloride

Unregulated Contaminants Monitoring Rule (UCMR3) From Fairfax Water Purchased Water

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted.

Substance (units)	Average	Highest Level Detected	Range of Detection	Typical Source
Strontium (ppb)	117	155	65 - 155	Naturally occurring element; historically commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions
Vanadium (ppb)	ND	0.24	ND - 0.24	Naturally occurring elemental metal; used as a vanadium pentoxide which is a chemical intermediate and a catalyst
Chromium - 6 (ppb)	0.102	0.16	0.066 - 0.16	Naturally occurring element; used in making steel and other alloys; Chromium-3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning, and wood preservation
Chlorate (ppb)	148	240	86 - 240	Agricultural defoliant or desiccant; disinfection byproduct; and used in production of chloride