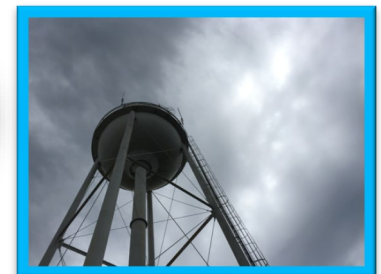




Marine Corps Base Quantico Camp Upshur Water System (PWSID 6153063)



2022 Annual Drinking Water Consumer Confidence Report



Introduction

The Public Works Branch (PWB) of the Marine Corps Base Quantico G-F, Installation and Environment Division, is pleased to present the Base's Camp Upshur Water System Annual Water Quality Report. This report is designed to inform you of our water quality monitoring results summary for the period January 1 through December 31, 2022.

Our goal is to provide you with a safe and dependable supply of drinking water and we are committed to ensuring the quality of your water. To help us meet this goal, we have established a Water System Working Group (WSWG) Team with personnel from water treatment plant, Utility Shop, Facility Maintenance Section, Engineering Section, Utility Section and Natural Resource & Environmental Affairs Branch to proactively address water quality concerns and issues.

Our water sources for the Camp Upshur distribution system (PWSID No. 6153063) are two deep wells. The well water from each well is chlorinated for disinfection (at each well house) and distributed to the Camp Upshur distribution system.

Regarding This Report

MCB Quantico Utilities routinely monitor for contaminants in your drinking water according to Federal and State laws. This report contains summarized information on all regulated contaminants found in your drinking water based on water quality tests performed for a variety of contaminants. An explanation of the results is included in a data table at the end of this report.

Maximum Contaminant Levels (MCL's) are set at very stringent levels by the USEPA. In developing the standards USEPA assumes that the average adult drinks 2 liters of water each day

throughout a 70-year life span. USEPA generally sets MCL's at levels that will result in no adverse health effects for some contaminants or a one-in-ten-thousand to one-in-a-million chance of having the described health effect for other contaminants.

We Want To Hear From You

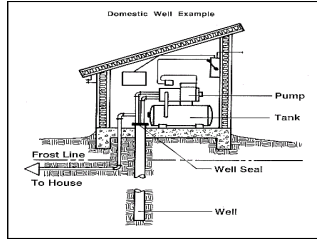
In order to meet increasingly stringent water quality requirements, we are constantly planning and funding projects to address many water-related issues including source water protection, system operation and maintenance improvement, and timely upgrade and replacement of water system infrastructure (pipes, pump stations and tanks) and treatment plant facility. We value your inputs on our water quality and water system related issues. You can call us at 703-432-2466 (PWB Water Commodities Manager) for any water related questions and inputs. To stay informed on important water related public notifications, please visit us on line at

<https://www.quantico.marines.mil/water-quality/>.



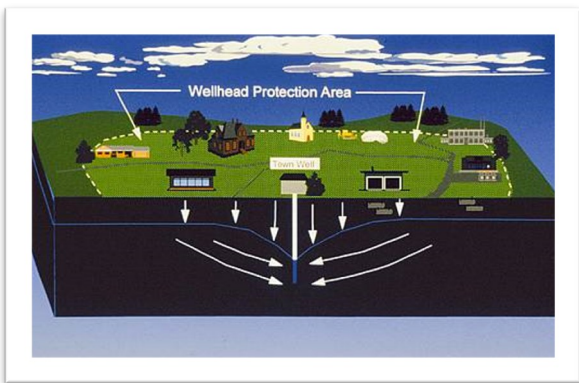
Source Water

Camp Upshur water system receives water from two deep wells located within Camp Upshur facility territory. The VDH conducted a source water assessment in 2002. The purpose was to determine the relative susceptibility of the source water to activities in the watershed. The source water was calculated to have a high susceptibility to contamination due to ongoing Base activities. There was no evidence of contamination of the water source in any of our testing.



We ask for your help to protect wellhead protection area for our two wells at Camp Upshur. A Wellhead protection area is a surface and subsurface land area regulated to prevent contamination of a well or well-field supplying a public water system. The best way to maintain high quality drinking water at Camp Upshur is to protect wellhead protection area by preventing contaminants from reaching our well water sources.

We ask for your help to properly dispose of trash, waste oil, anti-freeze, and other hazardous materials and minimize application of fertilizer and pesticides so that they do not enter into well head protection area. If you witness any illegal activities (e.g.,



illegal dumping) near, around or inside of two wells' fenced area, please report your observations to MCB Quantico Security Battalion at 703-784-2251.

Potential Sources of Water Contaminants

As water travels over the surface and subsurface 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, 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 byproducts of industrial processes and petroleum production, and can also come from gas stations, 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, USEPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water. Drinking water, including bottled water, may reasonably be expected to contain at least a small amount of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about drinking water contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking water Hotline at 1-800-426-4791 or visiting their website at <https://www.epa.gov/ground-water-and-drinking-water>.

Should Some People Take Special Precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune system compromised persons such as persons with cancer undergoing chemotherapy, people who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly and infants can be partially at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the USEPA Safe Drinking Water Hotline at 1-800-426-4791.

We strongly recommend that our customers not use water from the hot water tap for consumption. Any contaminants found in the water may accumulate in the hot water tank. This would be true anywhere, regardless of the water source. This does not mean that there is anything wrong with our drinking water. All water tests are conducted on water from the cold-water tap. Our concern is that the water quality is unknown when water from the hot-water tap is consumed. We believe you are better served by heating cold-water for this purpose.

Microbial Analysis

Coliforms are bacteria that are present naturally in the environment and are used as an indicator that other, potentially harmful bacteria, may be present. When Coliform bacteria are found, special follow-up tests are done to determine if harmful bacteria are present in the water supply. If the limit is exceeded, the water supplier must notify the public by bulletin boards, emails, social media, newspaper, radio, or television. We are proud to announce that we did not have any samples test present for coliform during the 2022 calendar year.

Lead and Copper

During 2022, we completed all required testing for lead and copper and 90 percentiles of the lead and copper test results were less than their action levels (15 ppb for lead and 1.3 ppm for copper). None of samples exceeded lead action level of 15 ppb or copper action level of 1.3 ppm and the lead and copper levels found in samples taken at Camp Upshur water system are well below their regulatory limits. Based on our triennial lead and copper sampling schedule, we are scheduled to conduct next lead and copper testing in 2025.

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 service lines and home plumbing. Marine Corps Base Quantico 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, until it becomes cold or reaches a steady temperature before using the 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 USEPA's Safe Drinking Water Hotline at 1-800-426-4791 or visit <https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water>.

Per- and polyfluoroalkyl substances (PFAS)

What are per- and polyfluoroalkyl substances and where do they come from?

Per- and polyfluoroalkyl substances (PFAS) are a group of thousands of man-made chemicals. PFAS have been used in a variety of industrial and consumer products around the globe, including in the U.S., for decades. Due to their widespread use and environmental persistence, most people in the United States have been exposed to certain PFAS. PFAS have been used to make coatings and products that are used as oil and water repellents for carpets, clothing, paper packaging for food, and cookware. They are also contained in some foams (aqueous film-forming foam or AFFF) used for fighting petroleum fires.

Is there a federal or Virginia regulation for PFAS in drinking water?

There is currently no federal drinking water standard for any PFAS compounds. In May 2016, the U.S. Environmental Protection Agency (EPA) established a lifetime drinking water health advisory (HA) level at 70 parts per trillion (ppt) for individual or combined concentrations of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). Both chemicals are types of PFAS.

In Virginia, there is not a PFAS drinking water regulation.

The Department of Defense (DoD) issued a policy in 2020 to monitor drinking water for PFAS at all DoD owned and operated water systems at a minimum of every three years. The DoD policy states that if water sampling results confirm that drinking water contains PFOA and PFOS at individual or combined concentrations greater than the 2016 EPA HA level of 70 ppt, water systems would 1) take immediate action to reduce exposure to PFOS or PFOA, to include providing alternative drinking water; and 2) undertake additional sampling to assess the level, scope, and localized source of contamination.

What about the EPA's 2022 interim Health Advisories or proposed regulations?

EPA issued interim Health Advisories for PFOS and PFOA in 2022. However, these newer levels are below quantifiable limits (i.e., below detection levels). EPA is expected to issue a proposed regulation on PFAS drinking water standards for public comment in the next few months. DoD looks forward to the clarity that a nationwide regulatory standard for PFOS and PFOA in drinking water will provide.



MCB Quantico Camp Upshur Water System — 2022 Consumer Confidence Report

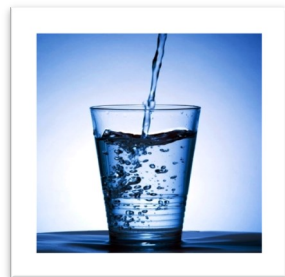
In anticipation of this EPA drinking water regulation and to account for emerging science that shows potential health effects of PFOS and PFOA at levels lower than 70 ppt, DoD is evaluating its efforts to address PFAS in drinking water, and what actions we can take to be prepared to incorporate this standard, such as reviewing our current data and collecting additional sampling where necessary. DoD remains committed to communicating and engaging with our communities throughout this process

Has Marine Corps Base Quantico Camp Upshur Water System tested its water for PFAS?

Yes, in March 2020 samples were collected from Marine Corps Base Quantico Camp Upshur Well #1 and #2 Entry Point. We are pleased to report that drinking water testing results were below the Method Reporting Limit (MRL) for all 29 PFAS compounds covered by the sampling method, including PFOA and PFOS. This means that PFAS were not detected in your water system. In accordance with DoD policy, the water system will be resampled every three years for your continued protection.

Conclusion

Our Public Works Branch Utilities work around the clock to provide top quality water to our families, co-workers and Quantico Community. In order to maintain a safe and dependable water supply we will continue to make improvements to our supply lines and distribution system components that benefits all of our customers. Please help us in our goal of ensuring a safe and sustainable water system by careful use of this resource, which is the heart of our community, our way of life and our children's future.



Learn About Your Drinking Water



To stay informed on important water related public notifications, please visit us on line at <https://www.quantico.marines.mil/water-quality/>.



More information about drinking water contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking water Hotline at 1-800-426-4791 or visiting their website at <https://www.epa.gov/ground-water-and-drinking-water>.



Please visit Virginia Department of Health (VDH) Office of Drinking Water (ODW) website for VDH drinking water compliance information: <https://www.vdh.virginia.gov/drinking-water/>



For any questions about our drinking water, call at 703-432-2466 (MCBQ GF-Public Works Branch Utilities, Water Commodities Manager).

Quantico Marine Corps Base Water Quality Report Camp Upshur 2022

Microbiological Results	MCLG	MCL	No. of Samples Indicating Presence of Bacteria	Highest total number of positive samples per month	Samples collected per Month**	Violation	Major source in drinking water.
Total Coliform Bacteria	0	No more than one positive sample per month	0	0	1	No	Naturally present in the environment
Fecal Coliform	0	A routine sample & a repeat sample are total coliform positive & one is also fecal coliform.	0	0		No	Naturally present in the environment

* We are pleased to report there were no samples that indicated the presence of bacteria.

Primary Regulated Contaminants

Metals (units)	MCLG	Action Level	90th Percentile	Number of sites tested	No. of Sites Exceeding action level.	Range Low to Highest	Violation	Source
Copper (ppm)	0	1.3 ppm	0.047 ppm	5	0	0.010 - 0.050 ppm	No	Corrosion of household plumbing systems
Lead (ppb)	0	15 ppb	< 2 ppb	5	0	all less than < 2 ppb	No	Corrosion of household plumbing systems

* The Lead and Copper results are from the sampling between June and Aug 2022; per triennial monitoring schedule, next lead and copper monitoring is scheduled in 2025 (during the months of June, July, August or September)

Parameter (units)	MCLG	MCL	Average Results	Range Low to High	Violation	Source
Nitrate-Nitrite (ppm)	10ppm	10 ppm	ND (Non Detect)	ND	No	Leaching from septic tanks, fertilizer, erosion of natural deposits.
Chlorine (ppm) Results from distribution system.	MRDLG 4ppm	MRDL 4ppm	1.89 ppm	1.20 to 3.10	No	Added to drinking water as a disinfectant.
Barium (ppm) *	2	2	0.33 ppm	0.23 - 0.43 ppm	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Arsenic (ppm) *	0	0.01	0.0015 ppm	0.0014 - 0.0015 ppm	No	Erosion of natural deposits; runoff from orchards, runoff from glass and electronics production wastess

* Result is from August 2021 testing from both wells (one testing from each well) in Camp Upshur.

Disinfection By-Products	MCLG	MCL	Results	Violation	Source
Haloacetic Acids Group, HAA5 (ppb)	0	60 ppb	7 ppb - one test in August 2022	No	By-product of drinking water disinfection.
Total Trihalomethanes, TTHM (ppb)	0	80 ppb	17 ppb - one test in August 2022	No	By-product of drinking water disinfection.

Secondary Contaminants

Parameter (units)	PMCL	SMCL	Average Results	Range Low to High	Violation	Source
Chloride (ppm)*	NA	250 ppm	9.64 ppm	9.40 - 9.88 ppm	No	Naturally present in environment
Fluoride (ppm)*	4.0 ppm	2.0 ppm	0.135 ppm	0.13 - 0.14 ppm	No	Erosion of natural deposits; discharge from fertilizer and aluminum factories.
Sulfate (ppm)*	NA	250 ppm	48.2 ppm	46.4 - 50.0 ppm	No	Naturally present in the environment; addition of water treatment substances.
Zinc (ppm)*	NA	5 ppm	0.038 ppm	0.025 - 0.050 ppm	No	Naturally present in environment
Sodium (ppm)*	NA	NA	27.5 ppm	26 - 29 ppm	No	Naturally present in the environment; addition of water treatment substances.
Iron*	NA	0.3 ppm	0.025 ppm	ND - 0.05 ppm	No	Naturally present in environment; corrosion of

* Result is from August 2021 testing from both wells (one testing from each well) in Camp Upshur.

Physical Quality

Parameter (Units)	PMCL	SMCL	Average Results	Range Low to High	Violation	Source
Total Dissolved Solids (ppm)*	NA	500 ppm	319 ppm	297 ppm - 340 ppm	No	Naturally present in environment

* Result is from August 2021 testing from both wells (one testing from each well) in Camp Upshur.

Key to acronyms and abbreviations.

Non-Detects (ND)	Laboratory analysis indicates that the constituent is below the detection level.
Parts per million (ppm) & Milligrams per liter (mg/L)	Parts per million and milligrams per liter are the same. One part per million corresponds to one minute in two years, or a penny in \$10,000.
Parts per billion (ppb) & Micrograms per liter (µg/L)	Parts per billion and Micrograms per liter are the same. One part per billion corresponds to one minute in 2000 years, or a penny in \$10,000,000.
Picocuries per liter (pCi/l)	Picocuries per liter is a measure of the radioactivity in the water.
Action Level (AL)	Concentration of a contaminant which, if exceeded, triggers treatment or other requirements a water system must follow.
Treatment Techniques (TT)	A treatment technique is a required process intended to reduce level of contaminant in drinking water
Maximum Contaminant Level (MCL)	The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology
Maximum Contaminant Level Goal (MCLG)	The "Goal" (MCLG) is the level of a contaminant in drinking water below which there is no known or expected risk to MCLG's allow for a margin of safety.
Maximum Residual Disinfection Level (MRDL)	The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfection is necessary for control of microbial contaminants.
Maximum Residual Disinfection Level Goal (MRDLG)	The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLG does not reflect the benefits of the use of disinfectants.
No Regulatory Limit (NRL)	A substance or chemical constituent that is of interest but currently does not have a regulatory limit or concentration.