Marine Corps Base Quantico, Va. 2018 Annual Drinking Water Quality Report
Camp Barrett Water System
[TBS / DOJ/WTB/Russell Knox Complex]

Introduction

Marine Corps Base Quantico G-F, Installation and Environment Division, is pleased to present the Base's Camp Barrett Annual Water Quality Report for 2018. This report is designed to inform you about the quality of water and services we deliver to you every day.

Our constant goal is to provide you, the consumer, with a safe and dependable supply of drinking water.

We are committed to ensuring the quality of your water. To help us meet this goal, we have established a Water Quality Response Team. Personnel from the Base Naval Health Clinic join with our Water Quality Assurance Technician, to respond to customer concerns and water quality questions. Together, they have the resources to test the chemical and bacteriological quality at the consumer's tap.

Camp Barrett (PWSID No. 6153060) water is processed at a water treatment plant in Stafford County, Va. (PWSID No. 6179100). This service area includes The Basic School, the Department of Justice complex, the Weapons Training Battalion, and The Russell Knox Complex.

Summary

Both Stafford County and MCB Quantico Utilities routinely monitor for contaminants in your drinking water according to Federal and State laws. This report shows the results of our monitoring for the period **January 1 through December 31, 2018**.

The sources of drinking water (both tap water and bottled water) include 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:

(i) *microbial contaminants*, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

(ii) *inorganic contaminants*, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

(iii) *pesticides and herbicides*, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

(iv) *organic chemical contaminants*, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

(v) *radioactive contaminants*, which can be naturally occurring or be the result of oil and gas production and mining activities.

Marine Major General Charles Dodson Barrett, the first Commanding General of the 3d Marine Division, was awarded the Distinguished Service Medal posthumously in recognition of his outstanding service during World War II. Born August 16, 1885 in Henderson, Kentucky, he was killed accidentally while on duty at Noumea, New Caledonia in the South Pacific October 8, 1943. Barrett is buried at Arlington National Cemetary.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (USEPA) prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The 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 small amounts of some contaminants. The presence of contaminants does not necessarily indicate that 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 http://water. epa.gov/drink/index.cfm.

2018 MCB Quantico Annual Drinking Water Quality Report

Camp Barrett Water System (TBS/DOJ/WTB/Russell Knox Complex)

The Facts

This report contains information on all regulated contaminants found in your drinking water. Additionally, over 85 *water tests* are performed for a variety of contaminants not found in the water delivered to the Base. An explanation of the results is included.

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. The USEPA generally sets MCLs 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.

A Source Water Assessment Report **(SWAR)** was completed in 2002. It was determined that the source water was highly susceptible to contaminants.

Stafford County's water treatment plants and distribution system were in compliance for microbiological testing for 2018. *Total Coliform*: 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 performed to determine if harmful bacteria are present in the water supply. If the limit is exceeded, the water supplier must notify the public.

During 2018 we had no positive samples for coliform bacteria.

The Distribution System

We encourage our customers to contact us to report their observations. At that time, we will visit the site and determine if we need to run additional tests.
If you have any questions about this report or concerning your water utility, please contact Hunho Kim, Water and Wastewater Commodities Manager at (703) 432-2466.

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, 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.

USEPA / Center for Disease Control and Prevention (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 be accumulated 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.

Lead and Copper

The lead levels found in samples taken on base are in compliance.

The USEPA drinking water hot line can answer your questions about lead contamination. More information about contaminants and potential health effects can be obtained by calling the ***USEPA Safe Drinking Water Hotline at 1-800- 426-4791.***

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 15 to 30 seconds, until it becomes cold or reaches a steady temperature before using 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 Safe Drinking Water Hotline at 1-800- 426-4791 or visit http://www.epa.gov/safewater/lead.***

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Additional Monitoring

The Individual Distribution System Evaluation (IDSE)

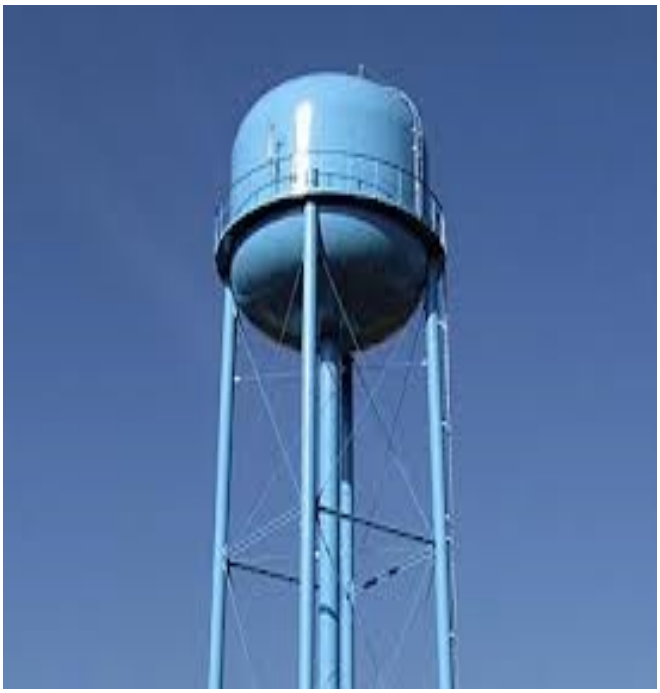
In March 2010 USEPA and VDH approved the The Camp-Barrett area IDSE plan. The compliance monitoring began in October 2013. This evaluation of the distribution system allows the Base to better monitor disinfection byproducts in the distribution system. The monitoring results will be used to evaluate and make changes in the distribution system or treatment process, as necessary.

Conclusion

Thank you for allowing us to continue providing your family with clean, quality water this past year. In order to maintain a safe and dependable water supply we sometimes need to make improvements that will benefit all of our customers.

Our goal is to provide water of excellent quality to every customer. We in the Utilities Section, work around the clock to provide top quality water to every tap.

Our customers can help protect themselves and our water system by careful use of this resource, which is the heart of our community, our way of life and our children's future.



Stay Hydrated!

Our energy level is greatly affected by the amount of water we drink. A 5% drop in body fluids will cause a 25-30% loss of energy in the average person.

If you lose 5% of your body's water, you will likely run a fever.

If you lose 10% of your body's water, you will have difficulty moving and may not be able to move at all.

Losing 12% of your body's water can result in death.

Most people can exist for over 30 days without food, but only 4-7 days without water.

Even mild dehydration will slow down metabolism as much as 3%.

One glass of water will reduce midnight hunger pangs for most people.

Water leaves the stomach five minutes after consumption.
Lack of water is one of the primary triggers of daytime fatigue.

Preliminary research indicates that 8-10 glasses of water a day could significantly ease back and joint pain for up to 80% of sufferers.

A mere 2% drop in body water can trigger fuzzy, short-term memory, trouble with basic math, and difficulty focusing on the computer screen or on a printed page.

Quantico Marine Corps Base Water Quality Report Camp Barrett 2018

Microbiological Results	MCLG	MCL	No. of Samples Indicating Presence of Bacteria	Highest total number of positive samples per month	Monthly Samples	Violation	Major source in drinking water.
Total Coliform Bacteria	0	More than one positive sample per month	0	0	10	No	Naturally present in the environment / Human and animal fecal waste
E. Coli	0	A routine sample & a repeat sample are total coliform positive & one is also *E.coli* positive.	0	0	10	No	Human and animal fecal waste

We are proud to report that we had no positive samples for coliform for the calendar year of 2018.

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	1.3ppm	0.063ppm	20	0	0.006 to 0.653 ppm	No	Corrosion of household plumbing systems
Lead (ppb)	0	15ppb	2ppb	20	2	<2.0 to 67 ppb	No	Corrosion of household plumbing systems

The Lead and Copper results are from August to September 2016; next test are to be conducted in June-August 2019. All samples are below the EPA Safe Drinking Water Act-Action Level. ***The two high results were an anomaly; as a safe measure repeat samples were collected and results were below EPA Action Levels.***

Disinfection (units)	MCLG	MCL	Average	Range Low to High	In Compliance	Source
Chloramines (ppm) Results from distribution system.	MRDLG-4ppm	MRDL-4ppm	2.00	0.38-4.0ppm	Yes	Added to drinking water as a disinfectant.

Disinfection By-Products	MCLG	MCL	Quarterly Running Annual Average	Range Low to High	Violation	Source
Haloacetic Acids Group HAA5 (ppb)	0	60ppb	40 ppb	21 to 73 ppb	No	By-product of drinking water disinfection.
Trihalomethane THM (ppb)	0	80ppb	48 ppb	21 to 78 ppb	No	By-product of drinking water disinfection.

Regulated Contaminants and Treatment Techniques as reported by Stafford County Smith Lake and Abel Lake Water Plant. (PWSID 6179100)

Parameter (units)	MCLG	MCL	Average	Range	Violation	Source
NITRATE+NITRITE (ppm)	10ppm	10ppm	0.24	< Detection level-0.24ppm	No	Erosion of natural deposits, fertilizer runoff.
Fluoride (ppm) Results from distribution.	4ppm	4ppm	0.71ppm	0.11-0.72ppm	No	Added to the drinking water to promote dental health; erosion of natural deposits; discharge from fertilizer and aluminum factories.
Barium	MCLG	MCL	0.014	< Detection level-0.018ppm	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits

Total Organic Carbons (TOC)	MCLG	MCL	N/A	Violation	Source
The running annual average of quarterly TOC percent removals **ranged from 1.23 to 2.22.**		TT	Treatment Technique: Running annual average of quarterly TOC % removals must be>/=1.0	No	Naturally present in environment

Total Organic Carbon has no health effects. However, it provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes and haloacetic acids. Compliance with the treatment technique reduces the formation of these disinfection byproducts.

Compliance with Treatment Technique (TT) is a removal ratio of 1.0 and higher. The ratio of removal is the actual Total Organic Carbon removed between the source water and treated water.

PARAMETER (TT)	MCL	units	Max. Detected	Lowest percentage of Monthly samples Meeting Limit.		Violation	Source
Turbidity	Treatment Technique (TT)-at least 95% of all samples taken each month must be 0.30 NTU or less; 1 NTU maximum.	NTU	0.37	99% of samples taken in June were 0.3 NTU or less.		No	Soil runoff.

Turbidity (samples taken from filtered water at the treatment facility)

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 Mcg/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.
Nephelometric (NTU) Turbidity unit measurement	Nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just visibly cloudy with the naked eye.
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 contaminate 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.