

Marine Corps Base Quantico 2011 Annual Drinking Water Quality Report Mainside Water System PWSID 6153675



Introduction

Marine Corps base Quantico, Installation and Environment Division, is pleased to present the Base's *Mainside* Annual water Quality Report for 2011. 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 consumers tap.

Our Mainside water (PWSID No. 6153675) comes from protected surface water sources. The water is processed at the Mainside Water Treatment Plant.

Base Waterworks Receives Award

For the fourth consecutive year, the Base Water Facility received the BRONZE Excellence in Filter Performance Award for 2011. The Virginia Department of Health (VDH), Office of Drinking Water, recognized the Base for achieving Virginia's Optimization Program Goal for Filtration. The Base Water Works succeeded in providing filtration performance three times below the United States Environmental Protection Agency (USEPA) standards.

Lower water plant output turbidity indicates a higher rate of particulate removal; USEPA standard is 0.3 NTU (see definition in data table). The Base waterworks consistently maintained an effluent turbidity below 0.10 NTU. The low turbidity allows for an extremely effective disinfection process.

Summary

The Mainside Water Treatment Plant routinely monitors for constituents in your drinking water according to State and Federal laws. This report shows the results of our monitoring for the period **January 1 through December 31, 2011**.

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 byproducts 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.

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 which provide the same protection for public health.

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 <http://water.epa.gov/drink/index.cfm>.

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 contaminant not found in the water delivered to the Base. *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.

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.

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There was no evidence of contamination of the water source in any of our testing.

Microbial Analysis

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 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 newspaper, radio, or television.

We are pleased to announce the Base was in compliance.

Systems

We have three different sources of water at Marine Corps Base Quantico, depending geographically where you are located. 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 Mr. Larry Weedon, Utility Supervisor at (703) 784-2246 or (703) 432-0698.

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 constantly monitor the water supply for various contaminants.

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.

Lead and Copper

In August 2009, the Base completed testing for Lead and Copper in the distribution system. Samples from thirty sites were tested according to an approved sampling plan. All samples were below USEPA Action Level

(15 ppb). As a result, the next sample event for lead and copper is scheduled in 2012.

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>.

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 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 <http://water.epa.gov/safewater/lead>.

Additional Tests and Monitoring

Unregulated Contaminant Monitoring Rule 2 (UCMR2)

The Safe Drinking Water Act (SDWA), as amended in 1996, requires the USEPA to establish criteria for a program to monitor unregulated contaminant and publish a list of contaminants to be monitored every five years.

USEPA published the first set of contaminants in 1999. This final regulation meets the Safe Drinking Water Act (SDWA) requirement by publishing the next set of unregulated contaminants to be monitored and the requirements for such monitoring.

This final rule describes for the design for second Unregulated Contaminant Monitoring Cycle (UCMR2) of 2007-2011. USEPA is requiring the monitoring of 25 chemicals using 5 different analytical methods. UCMR 2 monitoring began in 2008 and was completed in 2010.

Implementation of this final rule benefits the environment by providing USEPA and other interested parties with scientifically valid data on the occurrence of the contaminants in drinking water; thereby, permitting the assessment of the population potentially being exposed and the levels of exposure. These results are the primary resource of occurrence and provide exposure data for the USEPA to determine whether to regulate these contaminants.

UCMR2 testing for 2008 through 2010 indicates all constituents (e.g. flame retardants, pesticides, explosives) tested are non-detectable per USEPA guidelines.

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Individual Distribution System Evaluation (IDSE)

In March 2010 USEPA and VDH approved the Base IDSE plan. The sampling is schedule to begin in October 2013. This evaluation of the distribution system will allow the Base to better monitor disinfection byproducts in the distribution system. Once this information has been obtained and evaluated, the Base will know where to makes necessary changes in the distribution system or treatment process.

Conclusion

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

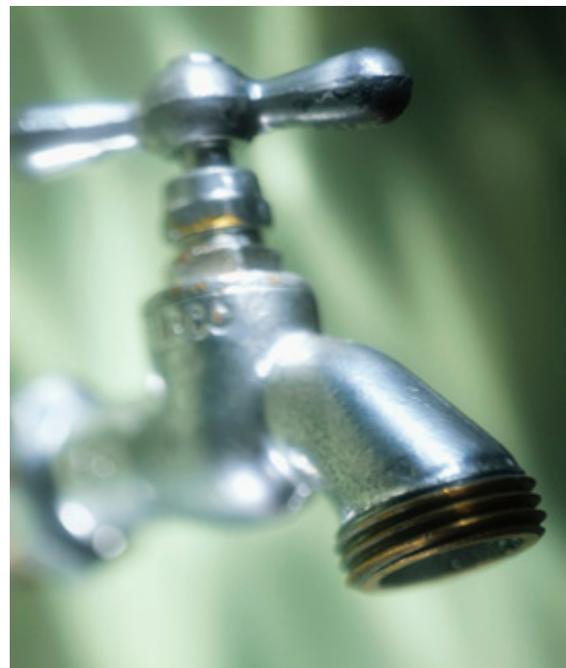
As announced in the Base newspaper, The Quantico Sentry, water mains and fire hydrants are flushed twice a year. This may cause temporary water discoloration. We apologize for any inconvenience. Our goal is to provide water of excellent quality to every customer. We in the Utilities Section, work around 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.



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Mainside 2011							Source
Microbiological Contaminates	MCLG	MCL	Percent Positive	Highest no. Positive	Monthly Samples	In Compliance	
Total Coliform Bacteria	0	One positive sample per Month	0.01	2	15	Yes	Naturally present in the environment

We may not exceed one positive sample per month.

The Base Water Utilities performed 180 bacteriological test for calendar year 2011. Of the 180 samples tested there were two positive samples; one in June and one in September. Three repeat samples were collected for each location and all were negative.

REGULATED CONTAMINANTS

METALS

PARAMETER	Units	MCLG	Action Level	90th Percentile	Number of sites tested	No. of Sites Exceeding action level.	Range	In Compliance	Source
Copper**	ppm	0	1.3ppm	0.183ppm	30	0	0.20 ppm is the lowest detection level for copper, range of test <.20-.31 ppm.	Yes	Corrosion of household plumbing systems
Lead**	ppb	0	15ppb	3.15ppb	30	0	2 ppb is the lowest detection level for lead.	Yes	Corrosion of household plumbing systems
Barium	ppm	2	>2	Result 0.26	One test 2011			Yes	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits

The Lead and Copper results are from August 2009. Next test to be conducted in June 2012. No samples were above the EPA Safe Drinking Water Act Action Level.

PARAMETER	Units	SCLG	Results	Range	In Compliance	Source
Aluminum	ppm	0.05-0.20ppm	0.06	One test 2011	Yes	Naturally present in the environment, addition of water treatment substance.
Manganese	ppm	0.05	0.037	One test 2011	Yes	Naturally present in the environment. May cause water discoloration.

TURBIDITY

PARAMETER	TT - Filtered water shall be less than or equal to 0.30 NTU 95% of the time.	Units	Annual avg.	Max. Detected	In Compliance	Source-Soil runoff
Turbidity	Treatment technique (TT) at least 95% of all samples taken each month must be 0.30 NTU or less; 1 NTU maximum.	NTU	0.05	0.3	Yes	Turbidity is a measure of cloudiness in the water. It is a good indicator of plant performance.
		Month with lowest average.	September			All combined filter turbidity's met Regulation Standard's.

THM (Trihalomethanes)

PARAMETER	Units	MCLG	MCL	Highest	Range	Average	In Compliance	Source
TTHM	ppb	NA	80	88	17-88	53	Yes	By-product of drinking water disinfection.

Total Trihalomethane compliance is based on a 4 quarter running average of 53 ppb.

HAA5 (Haloacetic Acids Group 5)

PARAMETER	Units	MCLG	MCL	Highest	Range	Average	In Compliance	Source
HAA5	ppb	NA	60	63	17-63	44	Yes	By-product of drinking water disinfection.

HAA5 compliance is based on a 4 quarter running average of 44 ppb.

TOTAL ORGANIC CARBONS (TOC)

PARAMETER	Units	MCLG	TT Treatment Technique	Goal	Removal Ratio Average for year	In Compliance	Source
TOC	ppm	NA	Removal ratio above 1.	Removal ratio above 1.	1.48	Yes	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.

Inorganics

PARAMETER	Units	MCGL	MCL	Average	Range	In Compliance	Source
Fluoride*	ppm	4	4	0.84	0.71-0.95	Yes	*Fluoride results taken from distribution system. Added to the drinking water to promote dental health.*
Chlorine*	ppm	4	4	1.80	0.20-3.20	Yes	*Chlorine results taken from distribution system. Added to drinking water as a disinfectant.
Chloride	ppm	NA	250	7.6	One test	Yes	Naturally present in environment
Sulfate	ppm	NA	250	32.1	One test	Yes	Naturally present in environment, decay of organic material.
Total Dissolved Solids	ppm	NA	500	88	One test	Yes	Naturally present in environment

RADIOLOGICAL

Parameter	Units	MCLG	MCL	Highest	Range	When Tested	In Compliance	Source
Gross Beta	pCi/L	0	50*	1.9	one test	2003	Yes	Erosion of natural deposits.
Radium 228	pCi/L	0	5	0.5	one test	2003	Yes	Erosion of natural deposits.

* EPA considers 50 pCi/l to be the level of concern.

These results are from 2003. Because results where so low the next tests will be performed in 2013.

NONREGULATED CONTAMINANTS

PARAMETER	Units	MCLG	MCL	Results	Range	When Tested	In Compliance	Source
Chloroform	ppm	NA	250	6.3	10.- 65	2010	N/A	By-Product of disinfection.
Bromodichloromethane	ppb	NA	no limit	41	2.6 -10.0	2010	N/A	By-Product of disinfection.
Sodium	ppm	NA	250	21.4	One test in 2011		N/A	Naturally present in the environment, addition of water treatment substance.

WATER QUALITY (Key to Abbreviations)

Non-Detects ND	Laboratory analysis indicates that the constituent is below the detection level.
Parts per million, PPM	One part per million corresponds to one minute in two years, or a penny in \$10,000.
Milligrams per liter MG/L	Milligrams per liter is the same as parts per million.
Parts per billion PPB	One part per billion corresponds to one minute in 2000 years, or a penny in \$10,000,000.
Micrograms per liter	Micrograms per liter is the same as parts per billion.
Picocuries per liter (pCi/l)	Picocuries per liter is a measure of the radioactivity in the water.
(NTU) Nephelometric Turbidity Unit	Nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just visibly cloudy
Action Level AL	Concentration of a contaminant which, if exceeded, triggers treatment or other requirements a water system must follow.
(TT) Treatment Techniques	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.
Maximum Contaminant Level Goal MCLG	MCL's are set as close to the MCLG's as feasible using the best available treatment technology
MRDL	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.
MRDLG	Maximum Residual Disinfection Level: 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.
MRDLG	Maximum Residual Disinfection Level Goal: The level of a 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