

2008 MCB QUANTICO ANNUAL DRINKING WATER QUALITY REPORT MAINSIDE WATER SYSTEM



Introduction

We are pleased to present to you this year's Annual Water Quality Report. 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 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 Naval Medical 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.

Our water comes from protected surface water sources. The water is processed at the Mainside Water Treatment Plant.

Base Waterworks Receives Award

On September 15, 2008 The Base Water Facility received the 2007 Bronze Excellence in Filter Performance Award. The Virginia Department of Health (VDH), Office of Drinking Water, recognized the Base for achieving Virginia's Optimization Program Goal for Filtration. The Base Waterworks succeeded in providing filtration performance three times below the United States Environmental Protection Agency (USEPA) standards.

The lower a plant's turbidity is the higher rate of contaminate removal; USEPA standard is 0.3 NTU the Base Water Works consistently maintained an effluent turbidity of below 0.10 NTU. cleaner the water equals more effective disinfection. Filter The performance for 2008 is 0.05 NTU.

Better Plant Performance

The Base Water Treatment Facility just completed *two* Plant upgrades:

- 1) New Filter Controls and Programmable Logic Controller (PLC)
- 2) Redesigned Hypochlorite Feed System.

What this means to our customers is excellent water made better!

Since start-up of Filter Controls-PLC, the filter performance has been enhanced to 100%. *Regulations require that 95% of filter turbidities must be below 0.03 NTU's*, The New Hypochlorite System tracks Plant Flows and makes adjustments automatically, providing better disinfection performance.

Summary

Mainside Water Plant routinely monitors for constituents in your drinking water according to Federal and State laws. This report shows the results of our monitoring for the period of **January 1 to December 31, 2008**.

As water travels over the land or underground, it can pick up substances or contaminants such as microbes, inorganic and organic chemicals, and radioactive substances. All drinking water,

including bottled drinking water, may be expected to contain at least small amounts of some constituents.

It's important to remember that the presence of these constituents does not necessarily pose a health risk. In order to ensure tap water is safe to drink, the USEPA prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems.

The VDH, Office of Drinking Water, enforces the regulations. More information about contaminants and potential health effects can be obtained by calling the USEPA's **Safe Drinking Water Hotline** at **1-800-426-4791**.

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 Contaminants Levels (MCL) are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

The VDH conducted a source water assessment in 2007. 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 however no evidence of contamination of the water source in any of our testing.

Microbiological Contaminants

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.

During 2008 there were 3 separate months with one positive test. Further checking at one sample site revealed a damaged supply line going to the sample tap. This was possibly the cause of positive samples at this site. Since supply line repairs, all subsequent samples were negative for bacteria.

We are pleased to announce the Base was in compliance.

Systems

We have three (3) different sources of water at Quantico and each source tastes a little different. We encourage our customers to report bad tasting or discolored water. At that time, we will visit the site and determine if we need to run additional test

If you have any questions about this report, please contact Mr. Carl Morgans, Public Works Branch, at 784-5201.

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.

EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline. We constantly monitor the water supply for various constituents.

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 September 2006 the Base tested the distribution system for lead and copper. Thirty sample sites were tested according to an approved plan. The final results proved the Base is in compliance. One sample tested above the EPA Maximum Contaminant Level. That sample was collected in the Facilities Maintenance building. Compliance with the Lead/Copper Rule is based on a percentage of acceptable samples. One elevated result does not mean a violation. The compliance level for Lead was <15 ppb. The next Lead and Copper testing is scheduled for June 2009.

*The lead levels found in samples taken on Base are well below regulatory limits. More information about contaminants and potential health effects can be obtained by calling the **Environmental Protection Agency's 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 or 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 **Safe Drinking Water Hotline** or at <http://www.epa.gov/safewater/lead>.

Additional Monitoring:

Cryptosporidium

Cryptosporidium is a microbial pathogen found in surface water throughout the US. Although filtration removes Cryptosporidium,

the most commonly used filtration methods cannot guarantee 100% removal. 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 mild to incapacitating diarrhea, cramps, loss of appetite, weight loss, nausea, and low-grade fever. Most healthy individuals can overcome the disease within a few weeks; however, immune-compromised people, infants, small children, and the elderly are at greater risk of developing a life-threatening illness.

We encourage immune-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection.

Currently, we are monitoring our source water for compliance under the US EPA's Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR). The EPA has developed this rule to provide increased source water protection against microbial pathogens, such as Cryptosporidium. Under the LT2ESWTR, the average concentration, 0.075 oocysts/liter, determines if additional treatment measures are needed.

We began the two-year monitoring period in April 2008.

As of December 2008, these microbial pathogens were not detected in our source water.

Unregulated Contaminant Monitoring Rule 2 (UCMR2)

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

EPA published the first set of contaminants in 1999. This final regulation meets the SDWA requirement by publishing the next set of unregulated contaminants to be monitored and the requirements for such monitoring.

This final rule describes the design for the second Unregulated Contaminant Monitoring Regulation cycle (UCMR 2) of 2007-2011. EPA is requiring the monitoring of 25 chemicals using 5 different analytical methods. UCMR 2 monitoring will occur during 2008 and continue until-2010.

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

UCMR2 testing is complete for 2008 and all constituents (e.g., flame retardants, pesticides, explosives) tested are Non-Detectable per EPA guidelines.

Individual Distribution System Evaluation (IDSE)

Currently, MCBQ is waiting for Virginia Department of Health (VDH) approval of the revised IDSE plan submitted in October 2007. Once approved by the VDH, the information obtained from this evaluation will allow the Base better monitoring of *disinfection byproducts* throughout the distribution system and the Base will know where to make necessary changes in the system or maybe treatment process.

This information will be presented in a future consumer confidence report.

Pending Contract Will Keep Water Fresh on Base

Automatic Flush Valves

The Base has a contract to install automatic flush valves and chlorine monitoring stations at various locations on the Base. The Stage 2 Disinfection Byproduct Rule requires the Base to reduce the age of water in the distribution system.

Distribution System Upgrade

Future plans for the Base Distribution System include a new elevated storage tank and redesign of some existing tanks so there is better turnover in storage tanks, reducing the age of water in the distribution system.

Conclusion

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

As reported in 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 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.

We don't often pause to consider the incredible value of a safe, reliable water supply and the water system that delivers it in our everyday lives. But consider what tap water does that no other water can do.

Only tap water delivers public health protection:

In a world where an estimated 3 million people die every year from preventable waterborne disease, our water systems allow us to drink from virtually any public tap with a high assurance of safety. Each community water supply meets rigorous federal and state health-protective standards.

Fire protection:

A well-maintained water system is critical in protecting our communities from the ever-present threat of fire. A system that provides reliable water at an adequate pressure can be the difference between a small fire and an urban inferno. The ability to suppress fires also influences new home construction, business location decisions and insurance rates.

Support for the economy:

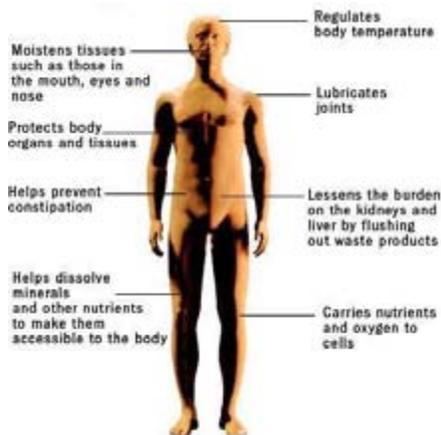
Businesses or housing developments do not succeed without a safe and sustainable water supply. Tap water is critical to businesses' day-to-day operations and is often a primary ingredient in the products they create. The incredible value of water is magnified during times of drought and when populations expand into arid climates.

The overall quality of life we enjoy:

Any measure of a successful society (low mortality rates, economic diversity, productivity, and public safety) is in some way related to access to safe water.

In North America, we take for granted that safe water is always accessible to drink, to wash our clothes, to water our lawns and for a myriad of other purposes. When water service is interrupted, we're all reminded of the extraordinary value of water resources and service.

UP TO 60 % OF THE HUMAN BODY IS WATER... WATER ALLOWS OUR BODIES TO WORK.





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MANSIDE WATER SYSTEM



BACTERIOLOGICAL QUALITY								
Microbiological Contaminates	MCLG	MCL	Percent Positive	Highest no. Positive	Monthly Samples	In Compliance	Source	
Total Coliform Bacteria	0	One Sample per Month	2%	3	15	Yes	Naturally present in the environment	
<p><i>We may not exceed one positive sample a month.</i> <i>Out of 180 samples there were three (3) separate months with positive tests.</i></p>								
REGULATED CONTAMINANTS								
METALS								
Parameter	Units	MCLG	Action Level	Results	No. of Sites Exceeding AL	Range	In Compliance	Source
Copper **	ppm	1.3ppm	90% of samples tested must be below 1.3 ppm.	100% of samples tested below 1.3 ppm	0	.20 ppm is the lowest detection level for copper, range of test <.20 - .234 ppm.	Yes	Corrosion of household plumbing systems
Lead **	ppb	15ppb	90% of samples tested must be below 15 ppb.	Compliance sample 2.41 ppb	1	2 ppb is the lowest detection level for lead, range of test < 2 - 24 ppb.	Yes	Corrosion of household plumbing systems
<p>** The Lead and Copper results are from June 2006. Next test to be conducted in June 2009. Although one sample was above the EPA Safe Drinking Water Act 'Action' Level, the Base remained in compliance. (see accompanying text)</p>								
TURBIDITY								
Parameter	MCL			Units	Annual Avg.	Max. Detected	In Compliance	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	0.05	* September one sample tested 0.32 NTU	Yes	Soil Runoff
				Month with Lowest Average - September - Average .997%				
* Of a total of 360 turbidity tests conducted on finished water during September, only one sample above 0.30.								
THM (Trihalomethanes)								
Parameter	Units	MCLG	MCL	Highest	Range	Average	In Compliance	Source
TTHM	ppb	no limit	80	101	28 - 101	58	Yes	By-product of drinking water disinfection.
Compliance is based on a 4 quarter running average, that value was 54 ppb.								
HAA5 (Halo, Acidic Acids Group 5)								
Parameter	Units	MCLG	MCL	Highest	Range	Average	In Compliance	Source
HAA5	ppb	no limit	60	81	Nov-81	46	Yes	By-product of drinking water disinfection.
HAA5 compliance is based on a 4 quarter running average, that value was 46 ppb.								
TOTAL ORGANIC CARBONS (TOC)								
Parameter	Units	MCL	MCLG	Removal Ratio	In Compliance		Source	
TOC	N/A	Treatment Technique	Average Removal Ratio Above 1.0	Average for Year 1.27	Yes		Naturally present in the environment	
Treatment Technique: TOC removal ratio must be above 1, average for the year was 1.31								
FLUORIDE								
Parameter	Units	MCGL	MCL	Average	Range	In Compliance		Source
Fluoride	ppm	4	4	1.0 ppm	0.16 - 1.8 ppm	Yes		Added for healthy teeth.
CHLORINE (Cl ₂)								
Parameter	Units	MRDL	MRDLG	Highest	Range	Average	In Compliance	Source
Chlorine	ppm	4	4	4.20	0.20 - 4.2	1.24	Yes	Samples taken from distribution system. Used for disinfection
RADIOLOGICAL								
Parameter	Units	MCLG	MCL	Results	Range	In Compliance		Source
Gross Beta	pCi/L	0	50 *	1.9	one test	Yes		Erosion of natural deposits.
Radium 228	pCi/L	0	5	0.5	one test	Yes		Erosion of natural deposits.
* EPA considers 50 pCi/l to be the level of concern These results are from 2003. Because results were so low the next tests will be performed in 2013								
UNREGULATED CONTAMINANTS								
Parameter	Units	MCLG	MCL	Results	Range	In Compliance		Source
Chloroform	PPB	no limit	no limit	20	one test	Yes		By-Product of water chlorination.
Bromodichloromethane	PPB	no limit	no limit	2.7	one test	Yes		By-Product of water chlorination.
Sulfate	mg/l	no limit	250	27.1	one test	Yes		Decay of organic material
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 (µ/L or mcl)	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.							
Nephelometric (NTU)	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.							
Treatment Techniques (TT)	A treatment technique is a required process intended to reduce level of contaminant in drinking water							
Maximum Contaminant Level (MCL)	The "Maximum Allowed" is the highest level of contaminant 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. MCLG's allow for a margin of safety.							
MRDL	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.							