



# Fort Detrick Drinking Water Quality Report



## Calendar Year 2016

We are pleased to provide you with the 2016 Annual Drinking Water Quality Report for Fort Detrick, Maryland. The report is presented to inform the Fort Detrick community on the quality of drinking water delivered to our customers. The Fort Detrick Directorate of Public Works (DPW) and Environmental Management Division (EMD) are committed to providing our customers with safe and reliable drinking water. Drinking water provided to our customers has once again met or surpassed strict Environmental Protection Agency (EPA) and Maryland Department of the Environment (MDE) standards for quality. Further, we take pride in returning clean water to the environment resulting from treatment of our sanitary wastes. As required by the "Consumer Confidence Reporting Rule" of the Safe Drinking Water Act (SDWA), community water systems are obligated to provide an annual report on the water quality to the consuming public. This report fulfills the SDWA requirements for the water produced and delivered to the Fort Detrick community. Presented in this report is information on the source of our water, its constituents and the health risks associated with any contaminants.

Fort Detrick has entered into a long-term agreement with Frederick County to purchase drinking water for use at the installation. Beginning on September 20, 2012, Fort Detrick began obtaining supplemental drinking water from Frederick County sources. Fort Detrick's water treatment plant (WTP) was shut down on March 12, 2013 for a major upgrade of the facility. The Fort Detrick WTP was placed back in operation on April 1, 2016. During the period of March 12, 2013 through March 31, 2016, all drinking water delivered to our customers was supplied by Frederick County. This Drinking Water Quality Report details the quality of water produced at the Fort Detrick WTP (Public Water System ID MD010-0011). The quality of the drinking water produced and distributed by Frederick County is documented in Frederick County's Annual Water Quality Report, which is available by clicking on the New Design link at the following location: [www.frederickcountymd.gov/6989/consumer-confidence-report-2016](http://www.frederickcountymd.gov/6989/consumer-confidence-report-2016).

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## Source of Your Drinking Water

Fort Detrick is permitted to withdraw water from local resources in accordance with permits regulated by the MDE. The average volume of water consumed at Fort Detrick during calendar year 2016 was 1.34 million gallons per day. Drinking water consumed by Fort Detrick customers during 2016 was a combination of Fort Detrick and Frederick County sources. Source water provided by Fort Detrick comes from the Monocacy River. The majority of source water provided by Frederick County comes from the Potomac River. In general, 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.

## What's in the Drinking Water?

All sources of drinking water, including bottled water, are subject to potential contamination by sources that are naturally occurring or manmade. Potential sources of contamination for the Potomac River watershed include point and non-point sources, including transportation, agriculture, on-site septic systems and runoff from developed areas. A susceptibility analysis conducted by the MDE indicates that turbidity, disinfection by-product precursors, and pathogenic (capable of causing disease) microorganisms are the contaminants of most concern. Sampling for microorganisms in the watershed indicates the highest concentrations were found during storm events. Nutrient enrichment, algal blooms and natural organic matter all contribute to the creation of disinfection by-product precursors. Decaying organic matter decreases the availability of oxygen in the river and algae growth increases the total organic carbon in the water. The reaction of organic carbon with disinfectants used in the water treatment process results in the production of disinfection by-products in the treated water. High turbidity levels are associated with erosion and transport of sediment during storm events. 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 (800-426-4791).

## Vulnerable Community Members

Some groups of people may be more vulnerable to contaminants in drinking water than the general population. Immuno-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. At risk 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 microbial contaminants are available from the EPA's Safe Drinking Water Hotline at 800-426-4791.

## Cryptosporidium (microbial pathogens)

*Cryptosporidium* is a microbial pathogen found in surface water throughout the United States. Monitoring indicates the presence of these organisms in our source water. Although filtration removes *cryptosporidium*, filtration methods cannot guarantee 100 percent removal. Current test methods do not allow us to determine if the organisms are capable of causing disease. *Cryptosporidium* must be ingested to cause disease, and may be spread through means other than drinking water. There have been no known health concerns at Fort Detrick from microbial pathogen ingestion from drinking water.

## Bottled vs. Tap Water

Bottled water comes in glass and plastic containers. If not recycled, these containers are disposed in landfills throughout the world. It takes approximately 1,000 years for one plastic bottle to decompose. It is just as easy, more economical and much more environmentally friendly to buy a reusable water bottle and refill it using tap water.

## Monitoring of Your Drinking Water

We are proud to provide safe and dependable drinking water to the Fort Detrick community. In order to ensure that the tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. As shown in the table: “Analyte/Contaminant Groups and Monitoring Frequency”, drinking water is continuously monitored for contaminants to ensure quality. Tap water provided to our customers has met all EPA and MDE drinking water health and safety standards.



Only EPA-approved laboratory methods were used to analyze your drinking water. Our personnel collect water samples throughout the distribution system. These samples are then delivered to an accredited laboratory where a full spectrum of water quality analyses is performed. The left column of the following table specifies the contaminant groups that are monitored using EPA-approved methods. The right column of the table specifies the monitoring frequency for these contaminant groups. Refer to the Frederick County Water Quality Report for all additional monitoring.

### Analyte/Contaminant Groups and Monitoring Frequency Table

Analyte/Contaminant Group	Monitoring Frequency
Arsenic	Once yearly
Fluoride	Once yearly
Nitrate	Once yearly (1 <sup>st</sup> quarter)
Metals (Phase II/V)	Once yearly
Atrazine	Once yearly (2 <sup>nd</sup> quarter)
SOC (Phase II/V) <sup>1</sup>	Once yearly Samples taken by MDE.
SOC (Method 525)	Twice yearly (2 quarters yearly)
VOC <sup>2</sup>	Once yearly
Gross Alpha <sup>3</sup>	Every 9 years Samples taken by MDE.
Radium-228	Every 9 years Samples taken by MDE.
Total Haloacetic Acids	Four times yearly (4 quarters yearly)
Total Trihalomethanes	Four times yearly (4 quarters yearly)
Bacteriologic samples	9 per month
Total Organic Carbon	1 set per month
Lead	80 samples were be taken in 2016. 40 samples were taken in June and December, respectively.
Copper	80 samples were be taken in 2016. 40 samples were taken in June and December, respectively.

1 - Synthetic Organic Contaminants (SOC) include Carbofuran, Dalapon and 2,4-D.

2 - Volatile Organic Contaminants (VOC) include Benzene, Styrene and Toluene.

3 - Gross Alpha emitters.

## **Definitions of Key Terms/Acronyms Used in this Report**

**CDC** Centers for Disease Control and Prevention; serves as the National focus for developing and applying disease prevention and control, environmental health, and health promotion and education activities.

**EPA** Environmental Protection Agency; Federal governing agency for the regulation of drinking water quality.

**FDA** Food & Drug Administration; Federal governing agency which establishes limits for contaminants in food and bottled beverages.

**MCL** Maximum Contaminant Level; The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the maximum contaminant level goals (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.

**MDE** Maryland Department of the Environment; State governing agency for the regulation of drinking water quality.

**MGD** Million gallons per day.

**NTU** Nephelometric turbidity unit; a measure of turbidity in water

**ppb** parts per billion; a unit of measure equivalent to a single penny in \$10,000,000. Generally equivalent to micrograms per liter.

**ppm** parts per million; a unit of measure equivalent to a single penny in \$10,000. Generally equivalent to milligrams per liter.

**SDWA** Safe Drinking Water Act; Federal law which sets forth drinking water regulations.

**Total Haloacetic Acids (HAA)** Byproducts of drinking water disinfection. Includes monochloroacetic acid, monobromoacetic acid, dichloroacetic acid, trichloroacetic acid, bromochloroacetic acid and dibromoacetic acid.

**Total Trihalomethanes (TTHMs)** Byproducts of drinking water chlorination. Includes chloroform, bromodichloromethane, dibromochloromethane, and bromoform.

**Treatment Technique (TT)** A required process intended to reduce the level of a contaminant in drinking water.

## **Notices of Violations**

In 2016, Fort Detrick received one (1) violation from the MDE associated with turbidity levels exceeding regulatory limits. The incident had negligible impacts to the treatment operations of the plant. Drinking water quality or consumer health was not impacted by this incident. The WTP continuously utilizes redundant disinfection practices using chlorine and ultraviolet (UV) treatment processes.

## **Public Involvement**

For additional information concerning the Fort Detrick Consumer Confidence Report, please contact the Fort Detrick Environmental Management Division at 301-619-3136 or the Environmental Hotline at 301-619-0044.

## **Water Conservation**

It is the responsibility of all Fort Detrick residents and work force to conserve water. Saving water is saving money and a very valuable natural resource. In the event of a drought or infrastructure maintenance and repairs, the Garrison Commander may direct strict water conservation measures for Fort Detrick water customers.

## **Plumbing Problems and Repairs**

Fort Detrick residents should contact Balfour Beatty Communities at 240-379-6410 for plumbing repairs. Authorized personnel at administrative and industrial facilities should contact the DPW Trouble Desk at 301-619-2726 for repairs.

## Monitoring Results

The following table presents sampling results conducted by Fort Detrick for the 2016 reporting period. In addition to sampling results tabulated below, Fort Detrick tests for over a hundred other contaminants. None of these additional contaminants were detected. Refer to the Frederick County Water Quality Report for all additional monitoring.

### Results Table - Detected Contaminants

Contaminant	MCL <sup>1</sup>	MCLG	Level Found	Range	Sample Date	Within Standards
Chlorine	4 ppm	4 ppm	0.8 ppm <sup>2</sup>	0.1-3.2 ppm	9 per month	Yes
Barium	2.0 ppm	2.0 ppm	0.028 ppm	NA	10 June 2016	Yes
Nitrate	10 ppm	10 ppm	2.7 ppm	NA	16 December 2016	Yes
Atrazine	3 ppb	3 ppb	0.33 ppb	NA	10 June 2016	Yes
Total Haloacetic Acids	60 ppb <sup>3</sup>	NA	53.7 ppb <sup>3</sup>	34.1-75.6 ppb	12 February 2016 17 May 2016 16 August 2016 18 November 2016	Yes
Total Trihalomethanes	80 ppb <sup>3</sup>	NA	65.7 ppb <sup>3</sup>	25.2-89.0 ppb	12 February 2016 17 May 2016 16 August 2016 18 November 2016	Yes
Turbidity <sup>4</sup>	0.3 NTU <sup>4</sup>	NA	<0.3 NTU (95% of measurements)	0.02-2.5 NTU	Continuous	Yes
Turbidity <sup>4</sup>	1.0 NTU <sup>4</sup>	NA	2.5 NTU	0.02-2.5 NTU	Every 4 hours	No
Lead	0.015 ppm	0 ppm	0.0065 ppm <sup>5</sup>	NA	June 2016	Yes
Copper	1.3 ppm	1.3 ppm	0.14 ppm <sup>5</sup>	NA	December 2016	Yes

1. Applicable State, Local, or Federal MCL, TT, or AL value.
2. Running annual average. Chlorine residuals must be detectable in 95% of monthly samples collected in the distribution system. The running annual average cannot exceed 4.0 ppm.
3. Disinfection By-Products cannot exceed running annual average of 60 ppb for total haloacetic acids and 80 ppb for total trihalomethanes. The "Level Found" column indicates the maximum running annual average in 2016. The "range" column indicates individual concentrations used to calculate the running annual average.
4. The turbidity level of representative samples of the system's filtered water must be less than or equal to 0.3 NTU in at least 95% of the measurements taken each month. Turbidity levels cannot exceed a maximum limit of 1.0 NTU at any time.
5. 90th percentile value for lead and copper.

## Common Sources of Contaminants and Potential Health Effects

Contaminant	Potential Health Effects	Common Sources of Contaminant
Chlorine	Chlorine in excess of MCL could cause irritating effects to eyes and nose; stomach discomfort.	Water additive used to control microbes.
Barium	Barium in excess of MCL can cause an increase in blood pressure.	Discharge of drilling wastes; discharge from metal refineries; and erosion of natural deposits
Nitrate	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath	Runoff from fertilizer use; leaching from septic tanks, sewage; and erosion of natural deposits.
Atrazine	Atrazine in excess of MCL can cause problems with cardiovascular system or reproductive	Runoff from herbicide use on row crops.
Total Haloacetic Acids	Total Haloacetic Acids in excess of MCL can cause an increased risk of cancer.	By-product of drinking water disinfection.
Total Trihalomethanes	Total Trihalomethanes in excess of MCL can cause an increase in liver, kidney or central nervous system problems; increased risk of cancer.	By-product of drinking water chlorination.
Turbidity	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.	Soil runoff.
Lead	Delays in physical or mental development in infants and children; children could show slight deficits in attention span and learning abilities. Kidney problems and high blood pressure in adults.	Corrosion of household plumbing systems; erosion of natural deposits.
Copper	Short term exposure can cause gastrointestinal distress. Long term exposure can cause liver and kidney damage.	Corrosion of household plumbing systems; erosion of natural deposits.

## Lead and Copper Rule

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. Fort Detrick 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 in your pipes and fixtures for several hours, you can minimize the potential for lead 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>.

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