

Freedom District

MD0060002

*Community Water System * Carroll County, Maryland*

2016 Annual Water Quality Report

This is an annual report on the quality of water delivered by the Carroll County Bureau of Utilities' Department of Public Works. This report meets the Federal Safe Drinking Water Act (SDWA) requirement for "Consumer Confidence Reports" and contains information of the Source of the Water, its constituents, and the health risks associated with any contaminants. Safe water is vital to the community. Please read this report carefully and, if you have questions, call the Bureau of Utilities at 410-386-2164.

Since 1969, water quality has been the primary commitment of Freedom District Water System.

Freedom District 2016 Annual Water Quality Report

Bureau of Utilities
Department of Public Works
225 North Center Street, Room 218
Westminster, Maryland 21157

Where Does Your Water Come From?

The Freedom District Water Treatment Plant #1 is located on the shores of the Liberty Reservoir within the Sykesville formation. This plant draws raw surface water from the reservoir, owned by the City of Baltimore which, under agreement, Carroll County purchases. Plants #2 and #4 are groundwater wells which supplement the Freedom Water system.

Source Water Assessment and its Availability

A source water assessment was completed for the Carroll County Bureau of Utilities, Department of Public Works in 2003 by Maryland Department of the Environment for the Freedom District Water Treatment Plant #1. Copies are available by stopping by, calling or writing the Bureau of Utilities, Carroll County Government, 225 North Center Street, Room 218, Westminster, MD 21157, 410-386-2164.

The susceptibility analysis of the Freedom District's water supply is based on water quality data from Freedom District, in the reservoir and watershed characteristics.

The State Drinking Water Program has determined that Freedom's water supply is susceptible to: 1) An increasing trend of dissolved solids, chlorides at conductivity, shown through data analysis by the City of Baltimore to correlate with an increase in road miles within the tributaries watersheds (and therefore deduced to be related to road salt use). 2) Protozoa's, viruses and bacteria and turbidity as are all surface sources. The reservoir, however, significantly reduces the susceptibility in comparison to water supplies withdrawn directly from free flowing streams. 3) Disinfection by product precursors; and 4) Nutrients, (particularly phosphorus) which are a primary threat to the reservoir; and 5) Spills in the tributaries feeding the reservoir. The intake, due to its location is likely to be more susceptible to volatile organic compounds, synthetic organic compounds or metals. (All of the sections in Chapter 8 other than 8.10.2 and 8.10.3 apply to the Freedom District intake.)

continued

How is the Water Treated?

Raw water is pumped from Liberty Reservoir via intake lines located in the reservoir which then travels into Plant #1's Dissolved Air Flotation clarifier (DAF). A coagulant is added causing small particles and other suspended matter to attach to one another for easy removal. This clarified water enters a channel which feeds both Membrane Ultra filters and Diatomaceous Earth filters before entering the clearwell. The water is then chlorinated for disinfection and fluoridated for dental protection. Caustic soda is used to raise pH causing the water to be less aggressive to pipes and fixtures. Plant #1 also has the potential to handle various mineral and organic compounds that are present in the reservoir at various times of the year. A Corrosion inhibitor, poly orthophosphate, is added just before the treated water enters the distribution system, along with Plants #2 & #4 and into your home or business.

Important Health Information

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 contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

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: **(A) Microbial Contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife. **(B) 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. **(C) Pesticides and Herbicides**, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses. **(D) Organic Chemical Contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, can also come from gas stations, urban stormwater runoff and septic systems. **(E) 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, 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.

Some 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. These people should seek advice about drinking water from their health care providers. The EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Giardia/*Cryptosporidium* and Radon Information

On December 27, 2009, the Bureau of Utilities, Department of Public Works tested for and did not detect *Giardia*/*Cryptosporidium*. *Giardia*/*Cryptosporidium* are microbial pathogens found in surface water throughout the U.S. Although filtration removes these pathogens, the most commonly used filtration methods cannot guarantee 100 percent removal. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of *Giardia* or *Cryptosporidium* may cause giardiasis or cryptosporidiosis, abdominal infections. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome these diseases within a few weeks. Immuno-compromised people 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. *Giardia* and *Cryptosporidium* must be ingested to cause disease and it may be spread through means other than drinking water.

The Bureau of Utilities tested for Radon in 2003 at Plant #1 (Freedom Water Treatment Plant). The water showed a Radon quarterly annual average of 956 picocuries per liter (pCi/L). The County tested for Radon in 2008 at Plant #4 (Raincliffe Well); the annual average was 1,900 pCi/L. Radon is a radioactive gas that you can't see, taste, or smell. It is found throughout the United States and can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will, in most cases, be a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. There are simple ways to fix a radon problem that aren't too costly. For additional information, call your State Radon Program or call EPA's Radon Hotline (800-SOS-RADON).

Copper and Lead Information

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. The Bureau of Utilities 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 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>. Copper and lead testing will be performed between June and September in 2017 per EPA/MDE regulations.

Inorganic Contaminants			FDWTP (Plant #1)	Range of Detected		Fairhaven (Plant #2)	Range of Detected		Raincliffe (Plant #4)	Range of Detected		Likely Source of Contamination
Substance	MCL	MCLG	Test Date	Level/HLD	Violation	Test Date	level/HLD	Violation	Test Date	Level/HLD	Violation	
Copper ¹ (Distribution System)	AL=1.3 ppm	1.3 ppm	12/31/14	0.14 ppm	N --	--			—	—	N	Corrosion of household plumbing Systems; erosion of natural deposits.
Fluoride	4 ppm	4 ppm	2016	.36 - .8/.8 ppm	N	2015	1.07 ppm	N	2012	1.11 ppm	N	Erosion of natural deposits; water additive which Promotes strong teeth; Discharge from fertilizer and aluminum factories.
Lead ² (Distribution System)	AL = 15 ppb	0	12/31/14	0 ppb	N	--	--	N	--	--	N	Corrosion of household Plumbing systems, erosion of natural deposits.
Nitrate ³	10 ppm	10 ppm	11/29/16	1.2 ppm	N	11/30/16	1.9 ppm	N	02/06/12	1.2 ppm	N	Run-off from fertilizer use; Leaching from septic tanks, sewage; erosion of natural deposits.
Selenium	0.05 ppm	0.05 ppm	08/06/14	<.025 ppm	N	08/06/14	<.025 ppm	N	04/09/12	<.005 ppm	N	Discharge from petroleum Refineries; erosion of natural deposits; discharge from mines.
Barium	2 ppm	2 ppm	2016	.019 - .021/.021 ppm								Discharge of drilling wastes; Discharge from metal re-fineries; Erosion of natural deposits.
Definitions: Action Level Goal (ALG): The level of a contaminant in drinking water below which there is no known or expected risk to health. ALGs allow for a margin of safety. Action Level: The concentration of a contaminant which if exceeded, triggers treatment or other requirements which a water system must follow.												
Disinfectants & Disinfection By-Products			FDWTP (Plant #1)	Range of Detected		Fairhaven (Plant #2)	Range of Detected		Raincliffe Well (Plant #4)	Range of Detected		
Substance	MCL	MCLG	Test Date	Level/HLD	Violation	Test Date	level/HLD	Violation	Test Date	level/HLD	Violation	Major Sources
Chlorine ⁵ as CL (Distribution System)	MRDL=4	MRDL=4	2016	2.00ppm	N	2016	2.13ppm	N	2012	2.66 ppm	N	Water additive used to control microbes
Haloacetic Acids (HAA5) ⁶ (Distribution System)	60 ppb	na	2016	22 -65/49 ppb	N	--	--	N	--	--	N	By-product of drinking water Disinfection.
*TTHM's ⁶	80 ppb	na	2016	24.5 - 110/70.7 ppb	N	4/23/07	29.7 ppb	N	3/16/11	21.8 ppb	N	By-product of drinking water disinfection
*Water samples showed that the amount of this TTHM contaminant in our drinking water was above its standard (called a maximum contaminant level and abbreviated MCL) for the period indicated (10/1/15 to 12/31/15)												
Synthetic Organic Contaminants			FDWTP (Plant #1)	Range of Detected		Fairhaven (Plant #2)	Range of Detected		Raincliffe Well (Plant #4)	Range of Detected		
Substance	MCL	MCLG	Test Date	Level/HDL	Violation	Test Date	Level/HLD	Violation	Test Date	Level/HLD	Violation	Maioir Sources
Di(2-ethylhex-yl) phthalate	6.0 ppb	0	08/06/14	<1ppb	N	08/16/14	<1ppb	N	2/26/08	.8 ppb	N	Discharge from rubber & chemical factories
Benzo(a) Pyrene	0.2 ppb	0	08/16/14	<.1ppb	N	08/06/14	<.1ppb	N	2/26/08	<.1ppb	N	Leaching from lining of water storage tanks & distribution Systems
2,4-D	70.0 ppb	70.0 ppb	08/06/14	<1ppb	N	08/06/14	<.1ppb	N	2/26/08	<.1ppb	N	Run-off from herbicide used on row crops
Coliform Bacteria												
Maximum Contaminant Contaminant Level			Total Coliform Maximum		Highest No. of Positive	Total No. of Positive E. Coli or Fecal Coliform Samples						
Goal	Contaminant Level								Violation	Likely Source of Contamination		
0	*1 positive monthly				1	0			N		Naturally present in the environment	
*When a positive sample is detected, a second sample is collected immediately thereafter. If the second sample result is negative, the first sample is labeled as a false positive sample.												

Radioactive Contaminants	MCL	MCLG	Units	FDWTP Plant #1 Test Date	Highest level detected	Range of levels detected	Violation	Likely Source of Contamination
Beta/photon emitters	50	0	pCi/L	2015	10.7	10.7 – 10.7	N	Decay of natural and man-made deposits.
Combined Radium 226/228	5	0	pCi/L	2015	1.8	1.8 – 1.8	N	Erosion of natural deposits.
Gross alpha excluding Radon and uranium	15	0	pCi/L	2015	15.8	13.1 – 15.8	N	Erosion of natural deposits.
Uranium	30	0	ug/l	2015	4	4 - 4	N	Erosion of natural deposits.

Synthetic organic Contaminants and herbicides Including pesticides	MCL	MCLG	Units	Collection Date	Highest Level Detected	Range of Levels Detected	Violation	Likely source of Contamination
Atrazine	3	3	ppb	N/A	112	0 - 112	N	Runoff from herbicide used on row crops.

Turbidity	Limit (Treatment Technique)	Highest Level Detected	Violation	Likely Source of Contamination
Highest single measurement	1 NTU	.26 NTU	N	Soil runoff
Lowest monthly % meeting limit	0.3 NTU	100%	N	Soil runoff

Total Organic Carbon

The percentage of Total Organic Carbon (TOC) removal was measured each month and the system met all TOC removal requirements set, unless a TOC violation is noted in the violations section. 2016, HLD= 3.1 mg/L

Water Quality Test Results

Maximum Contaminant Level Goal or MCLG:	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.
Maximum Contaminant Level or MCL:	The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
Maximum residual disinfectant level Goal or MRDLG:	The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
Avg:	Regulatory compliance with some MDLs are based on running annual average of monthly samples.
ppm:	milligrams per liter or parts per million – or one ounce in 7, 350 gallons of water.
ppb:	micrograms per liter or parts per billion – or one ounce in 7,350,000 gallons of water.
na:	not applicable
pCi/L:	picocuries per liter
ug/L:	micrograms per liter
ntu:	Nephelometric Turbidity Units

Water Quality Table Footnotes

¹None of the samples tested for copper exceeded the current action level of 1.3 ppm.

²None of the samples tested for lead exceeded the current action level of 15 ppb.

³Nitrate in drinking water at levels above 10 pm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly or short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.

⁴100% of the samples tested were below the treatment technique level of 0.5 NTU. Turbidity is a measurement of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

⁵Maximum Residual Disinfectant Level (MRDL) – The highest level of a disinfectant allowed in Drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG) – The level of drinking water Disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

⁶Although there is no collective MCLG for this contaminant group, there are individual MCLG's for some of the individual contaminants:

- Haloacetic acids: dichloroacetic acid (zero); trichloroacetic acid (0.3 mg/L)
- Trihalomethanes: bromodichloromethane (zero); bromoform (zero); dibromochloromethane (9.06 mg/L)

For additional information, contact the Bureau of Utilities, Department of Public Works, at 410-386-2164; or consult our web site at <http://ccgovernment.carr.org/ccg/util>. For further information, see U.S. Environmental Protection Agency (EPA water information at <https://www.epa.gov/ccr> or by calling EPA's Safe Drinking Water Hotline at 1-800-426-4791.

For billing information, call 410-386-2000, and for Operation and Maintenance inquiries, call 410-386-2164, Monday through Friday from 8:00 a.m. to 5:00 p.m. An answering machine is available after hours.

The Board of Carroll County Commissioners meets regularly with Department staff. The Carroll County Commissioners' weekly agenda is available on the internet at <http://ccgovernment.carr.org/ccg/commiss/agenda.pdf> or by calling the Commissioners' Office at 410-386-2043. The Carroll County Commissioners welcome and encourage public participation.

