



Aberdeen Proving Ground Aberdeen Area

2018 Annual Drinking Water Quality Report

PWSID No. MD0120002

July 1, 2019

Dear Customer:

The City of Aberdeen is required to provide you with the Annual Drinking Water Quality Report. This report shows the water quality results of our monitoring for the period of January 1 to December 31, 2018 (except as noted). The report is designed to inform you about the quality of water and services the City delivers to you every day. We are committed in providing you with safe water that meets or exceeds all federal and state requirements.

The City of Aberdeen routinely monitors for contaminants in your drinking water according to federal and state laws and under the United States Environmental Protection Agency (EPA) guidelines of the Clean Water Act of 1972 (1996). The City is pleased to report that your drinking water is safe and meets these guidelines of federal and state requirements. This report describes the regulation limits and provides you with your water's annual results.

The Aberdeen Proving Ground Aberdeen Area (APG) primary water source is pumped from Deer Creek, a major stream in Harford County that originates in southern York County, PA, and flows into the Susquehanna River just above Rock Run Mill in Susquehanna State Park. The City's Chapel Hill Water Treatment Plant processes an average of 809,847 gallons per day to supply the Aberdeen Proving Ground, Aberdeen Area. A secondary source of water supply is from the Harford County water system from which the City of Aberdeen purchases 200,000 gallons per day.

Report any water quality issues, leaks, or interruptions in service through your contact on Aberdeen Proving Ground, Aberdeen Area. Any questions about this report or your water utility, contact me at (410) 272-2650 between the hours of 7 a.m. and 3 p.m. (M - F). We value our customers and want to reaffirm our commitment for providing you with safe and dependable water. More information can be found on the City website at www.aberdeennmd.gov.

George R. Skinner
Assistant Superintendent, Water Operations
Department of Public Works

What does all this information mean?

The EPA requires that the City of Aberdeen provide the following pages of technical data of potential water contaminants and annual test results. While the data tables may appear complex, it demonstrates that your water meets or exceeds all federal and state regulation standards.

The Chapel Hill Water Treatment Plant treats your water to remove pollutants and is disinfected to protect you against microbial contaminants. All drinking water, including bottled drinking water, may reasonably be expected to contain small amounts of some contaminants. It is important to remember that the presence of these contaminants do not necessarily pose a health risk. More information about contaminants, potential health effects, testing methods, and steps you can take to minimize exposure is available from the EPA Safe Drinking Water Hotline at (800) 426-4791 or at www.epa.gov/safewater.

Our water production and distribution system had NO VIOLATIONS, and analysis shows very few detectable contaminants. We are proud that your drinking water meets or exceeds all federal and state requirements. Through our monitoring and testing protocols, our staff identified that some of the finished water contains low levels of constituents as it leaves the water treatment plant and enters the distribution system. The levels of constituents measured in the water are below the limits and DO NOT POSE a health risk. The water is SAFE to drink at these levels according to EPA standards.

Definitions

In this report you will see many terms and abbreviations not familiar to you. To help better understand these terms we provide you the following definitions:

- Maximum Contaminant Level - The “Maximum Allowed” (MCL) is 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 Contaminant Level Goal - The “Goal” (MCLG) is 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.
- Non-Detects (ND) - laboratory analysis indicates that the constituent is not present.
- Parts per million (ppm) or Milligrams per liter (mg/l) - one part per million corresponds to one minute in two years or a single penny in \$10,000.
- Parts per billion (ppb) or Micrograms per liter - one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.
- Parts per trillion (ppt) or Nanograms per liter (nanograms/l) - one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.
- Parts per quadrillion (ppq) or Picograms per liter (picograms/l) - one part per quadrillion corresponds to one minute in 2,000,000,000 years or one penny in \$10,000,000,000,000.
- Picocuries per liter (pCi/L) - picocuries per liter is a measure of the radioactivity in water.
- Millirems per year (mrem/yr) - measure of radiation absorbed by the body.
- Million Fibers per liter (MFL) - million fibers per liter is a measure of the presence of asbestos fibers that are longer than 10 micrometers.
- Nephelometric Turbidity Unit (NTU) - nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- Action Level (AL) - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- Treatment Technique (TT) - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

Detected Contaminants – Chapel Hill Water Supply

In addition to the many constituents that were subject to testing but not found, the City found regulated constituents present in the water system at levels *below the MCL* which is determined safe by the EPA. These constituents are shown below, along with the MCL and MCLG for each one detected.

The state requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently. Data in these instances are indicated by date in **bold**.

Regulated Contaminant	Violation Y/N	Level Detected			Unit of Measure	MCL	MCLG	Likely Source of Contamination
		Low	High	Avg.				
Total Coliform (% of positive tests)	N	0%	0%	0%		Presence of coliform bacteria in <5% of monthly samples	0	Naturally present in the environment. 192 samples were tested with all negative result.
** Turbidity	N	0.02	0.07	0.03	NTU	TT	N/A	Soil runoff.
*Lead 2017	N		<0.002		ppm	AL = 0.015 (90 th percentile)	0	Corrosion of household plumbing systems; erosion of natural deposits.
Copper 2017	N		0.109		ppm	AL = 1.3 (90 th percentile)	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
Fluoride	N	0.2	1.0	0.7	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
†Nitrates (as Nitrogen)	N		3.4		ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
†† TTHM (Total trihalomethanes)	N	8.6	79.3	*44.9	ppb	80		Byproduct of drinking water chlorination. * Highest rolling yearly avg. by quarter.
HAA5 (Haloacetic Acids)	N	4.0	24.0	*19.8	ppb	60		Byproduct of drinking water chlorination. * Highest rolling yearly avg. by quarter.
Chlorine (as Cl ₂)	N	0.92	1.85	1.61	ppm	4	4	Water additive to control microbes.
Barium	N		0.016		ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.

*Lead: 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. While the City is responsible for providing high quality drinking water, we cannot control the variety of materials used in plumbing components. Lead and copper sampling is scheduled every three (3) years. 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 www.epa.gov/safewater/lead.

**Turbidity: Turbidity is the measure of the cloudiness of water. Monitor it is a good indicator of the effectiveness of our filtration system. 100% of samples taken were below MCL.

†Nitrates: As a precaution we always notify physicians and health care providers in this area if there is ever a higher than normal level of nitrates in the water supply.

††TTHM: Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems and may have increased risk of getting cancer.

Unregulated Contaminant	Violation Y/N	Level Detected	Unit of Measure	Standard	Likely Source of Contamination
Sulfate	N	8.9	ppm	250 (Secondary Drinking Water Regulation)	Naturally occurring.
Sodium	N	23.6	ppm	30 – 60 (Advisory Level)	Naturally occurring.

Detected Contaminants – Harford County Water Supply

Harford County monitors and reports their water quality under the same EPA and MDE regulations. The water the City purchases from Harford County found some constituents present in the water system at levels ***below the MCL*** which is determined safe by the EPA with no further treatment required. These constituents are shown below, along with the MCL and MCLG for each one detected.

The state requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently. Data in these instances are indicated by date in **bold**.

Additional information about the County water system and water quality can be accessed on the web at www.harfordcountymd.gov/782/Water-Sewer.

Regulated Contaminant	Violation Y/N	Level Detected			Unit of Measure	MCL	MCLG	Likely Source of Contamination
		Low	High	Avg.				
Copper 2017	N		0.17		ppm	AL = 1.3 (90 th percentile)	1.3	Corrosion of plumbing; erosion of natural deposits.
Lead 2017	N		<2.0		ppb	AL = 15 (90 th percentile)	15	Corrosion of plumbing; erosion of natural deposits.
Disinfectants & Disinfection By-Products								
Chlorine (as Cl ₂)	N	0.4	2.5	2.5	ppm	4	4	Water additive to control microbes. Avg. = 1.46
TTHM (Total Trihalomethanes)	N	9	72	44	ppb	80	N/A	Byproduct of drinking water chlorination. CL=Rolling yearly average by quarter
HAA5 (Haloacetic Acids)	N	9	43	29	ppb	60	N/A	Byproduct of drinking water chlorination. CL=Rolling yearly average by quarter
Inorganic Contaminants								
Barium (ppm)	N	0.03	0.09	0.09	ppm	2	2	Discharge of drilling waste; discharge from metal refineries; erosion of natural deposits.
Beryllium	N	<0.001	<0.001	<0.001	ppm	0.004	0.004	Discharge from metal refineries and coal burning factories; discharge from electrical aerospace, and defense industries.
Fluoride (ppm)	N	0.04	0.95	0.95	ppm	4	4	Water additive which promotes strong teeth; discharge from fertilizer and aluminum factories. Avg. = 0.50
Chromium	N	<2.0	<2.0	<2.0	ppb	100	100	Discharge from steel and pulp mills. Erosion of natural deposits.
Nitrates (as Nitrogen)	N	1.14	3.66	3.66	ppm	10	10	Runoff from fertilizer use; leaking from septic tanks, sewage; erosion of natural deposits.
Microbiological Contaminants								
Total Coliform (% of positive tests)	N	0%	0%	0%		Presence of coliform bacteria in <5% of monthly samples	0	Naturally present in the environment. 1440 samples were tested with 0 positive.
Turbidity <0.3 in 95% of samples in a month. Never <1.0.	N	0.015	0.268	100%	NTU	TT	N/A	From soil runoff. Average = 0.054 NTU
Organic Contaminants								
Total Organic Carbon	N	CL by % removal Range 0.8 to 3.0			Ppm	TT	N/A	Organic matter. It can provide a medium for formation of disinfection byproducts.
Trichloroethene	N	<0.5	0.52	0.52	ppb	5	0	Discharge from metal degreasing sites and other factories.

Detected Contaminants – Harford County Water Supply (Cont'd)

Regulated Contaminant	Violation Y/N	Level Detected			Unit of Measure	MCL	MCLG	Likely Source of Contamination
		Low	High	Avg.				
Radioactive Contaminants								
Combined Radium (226&228) (pCi/L) 2017	N	1.7	1.7	1.7		5	0	Erosion of natural deposits.
Gross Alpha (pCi/L) 2017	N	8.1	8.1	8.1		15	0	Erosion of natural deposits.

Unregulated Contaminant	Violation Y/N	Level Detected			Unit of Measure	Likely Source of Contamination
		Low	High	Avg.		
Anatoxin-a		<0.03	0.073	0.005	ppb	Cyanobacteria bloom in fresh water.
Haloacetic Acids (HA66Br)		3.4	9.9	6.6	ppb	Byproduct of drinking water disinfection.
Haloacetic Acids (HAA9)		12.4	63.4	32.7	ppb	Byproduct of drinking water disinfection.
Manganese	N	0.001	0.024	0.015	ppm	Erosion of natural deposits.
Perfluoro-n-Octanoic Acid (ppt)	N	ND	61.0	30.0	ppt	Firefighting Foams, industrial waste sites.
Sodium	N	13	79.3	33.9	ppm	Sodium salts used in water treatment. Erosion of natural deposits.

Cryptosporidium and Giardia Lambia (found in human and animal fecal waste) was sampled monthly from the Deer Creek raw water source during 10/11/2016 to 9/11/2008. The two-year analysis report was submitted to MDE.

Health Information

The detection of these substances in the drinking water does not constitute a known threat to public health because they were found at levels *less than* the MCL and *below* the level that EPA currently constitute as a health threat. The MCL's are set at very stringent levels, and the Chapel Hill water has proven to be below those levels for the constituents listed above.

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. 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 (800) 426-4791.

Thank you for allowing us to continue providing your family or workplace with clean, quality water this year. The employees of the City of Aberdeen work around the clock to provide top quality water to the entire community. We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life and our children's future. Please call our office if you have questions.

Source Water Assessment Deer Creek Chapel Hill Water Treatment Plant

The 1996 Safe Drinking Water Act Amendments require states to develop and implement source water assessment programs to evaluate the safety of all public drinking water systems. A Source Water Assessment (SWA) is a process of evaluating the vulnerability of a source of public drinking water supply to contaminants. This SWA was prepared by MDE in July 2005 for Deer Creek, our water source for the City of Aberdeen Chapel Hill Water Treatment Plant. About 16,000 people in the Aberdeen Area of Aberdeen Proving Ground in Harford County, Maryland, are served by this water system.

Deer Creek originates in southern Pennsylvania (York County) and flows easterly across northern Harford County to its mouth on the Susquehanna River. The source water protection area for the Deer Creek intake encompasses approximately 164 square miles (105,216 acres) of mixed land use. The Deer Creek Watershed above the confluence of the Susquehanna River covers approximately 171 square miles. An evaluation of the 1997 land use/land cover revealed that 60% of the watershed was for agricultural purposes, 30% forested, and 9% developed. Changes in land use in the Maryland portion of the watershed between 1997 and 2002 indicated a decrease of about 2,600 acres of cropland and an increase of about 2,400 acres of residential development. Forested land cover did not show a significant change during this period.

Potential sources of contamination for Deer Creek Watershed include point and non-point sources including transportation, agricultural, and runoff from developed areas. There are three minor industrial and one minor municipal dischargers in the source water assessment area. Colonial Pipeline, an interstate carrier of petroleum products, also crosses the watershed above the Deer Creek Pumping Station. Non-point sources were determined to be the most significant sources of contaminants for the Deer Creek Watershed.

The susceptibility analysis indicates that turbidity (sediment), disinfection byproduct precursors, and pathogenic microorganisms are the contaminants of most concern. The results of a two-year sampling program indicated that both E. coli and fecal bacteria are present consistently in Deer Creek. The highest concentrations were coincident with increased stream flow following rainfall. Nutrient enrichment, algal growth, and natural organic matter all contribute to the reactive nature of disinfection byproduct precursors. Additional study is needed to better understand the disinfection byproduct precursor sources in the Deer Creek Watershed. High turbidity levels are associated with erosion and transport of sediment during storm flows. Detailed stream surveys are recommended to identify specific tributaries needing greater protection.

This Deer Creek Watershed report lists specific recommendations for consideration in developing a source water protection plan. The preservation of the rural character of the watershed, addressing non-point sources of contaminants and enhancing forested buffers throughout the watershed, are vital to protecting and enhancing the water quality in Deer Creek. Providing critical information for implementing source water protection efforts for Deer Creek is the ultimate goal of this assessment.

You can learn more about the Source Water Assessment by visiting the following internet site www.mde.maryland.gov/programs/Water/water_supply/Source_Water_Assessment_Program/Pages/index.aspx.