Aberdeen Proving Ground
Aberdeen Area
2015 Annual Drinking Water Quality Report

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Dear Customer: July 1, 2016

The City of Aberdeen is pleased 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, 2015 (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 and dependable water that meets or exceeds all federal and state requirements.

The City of Aberdeen is pleased to report that your drinking water is safe and meets federal and state requirements. This report will provide you with the results and describe the limits by the State of Maryland that the water is required to meet the Clean Water Act of 1972 (1996). The City routinely monitors for contaminants in your drinking water according to Federal and State Laws and under EPA guidelines.

The 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 Chapel Hill Water Treatment Plant processes an average of 792,000 gallons per day to supply the Aberdeen Proving Ground, Aberdeen Area. A secondary source of supply, since April 2013, is the Harford County water system from which the City of Aberdeen purchases 200,000 gallons per day.

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 reasonably expected to contain small amounts of some contaminants. It is important to remember that the presence of these contaminants does not necessarily pose a health risk.

Any water quality issues, leaks, or interruptions in service should be reported through your contact on Aberdeen Proving Ground, Aberdeen Area. However, if you have any questions about this report or your water utility, please contact George R. Skinner, Assistant Superintendent of Water/Wastewater Operations, 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.

George R. Skinner
Assistant Superintendent

What does all this information mean?

Our water production and distribution system had NO VIOLATIONS and very few detectable contaminants from the table on the next page. We are proud that your drinking water meets or exceeds all Federal, State, and EPA requirements. Through our monitoring and testing protocols, our staff identified that some of the finished water contains small 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 POSSESS a health risk. The water is SAFE to drink at these levels according to EPA standards. We have learned through our monitoring and testing that some constituents have been present in the finished water and will continue to monitor for all identified constituents. Again, it is important to remember that the EPA has determined that your water IS SAFE at these levels.

All sources of drinking water are subject to potential contamination by substances that are naturally occurring or manmade. These substances can be microbes, inorganic or organic chemicals, and radioactive substances. All 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 the 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 at (800) 426-4791.

Definitions

Below you will find a list of terms and abbreviations that are used in the report:

Non-Detects (ND) - laboratory analysis indicates that the constituent is not present.

Parts per million (ppm) or Milligrams per liter (mg/l) - one (1) part per million corresponds to one (1) minute in two years or a single penny in $10,000.

Parts per billion (ppb) or Micrograms per liter - one (1) part per billion corresponds to one (1) minute in 2,000 years, or a single penny in $10,000,000.

Parts per trillion (ppt) or Nanograms per liter (nanograms/l) - one (1) part per trillion corresponds to one (1) minute in 2,000,000 years, or a single (1) penny in 10,000,000,000 dollars.

Parts per quadrillion (ppq) or Picograms per liter (picograms/l) – one (1) part per quadrillion corresponds to one (1) minute in 2,000,000,000 years or one (1) penny in 10,000,000,000,000 dollars.

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 five (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.

Maximum Contaminant Level (MCL)- 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 (MCLG)- 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.

In addition to the many constituents that were subject to testing but not found, the City did find some regulated constituents present in the water system at levels below the maximum allowable level (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 the City to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, although accurate, is more than a year old as indicated by date (mm/yy). This should not cause you additional concerns.

Detected Contaminants – Chapel Hill Water Supply

Regulated Contaminant	Violation Y/N	Level Detected			Unit of Measure	Maximum Contaminant Level (MCL)	MCL Goal	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. In 2015, 192 samples were tested, and all samples were negative.
** Turbidity	N	0.02	0.09	0.03	NTU	TT	N/A	Soil runoff.
* Lead **For 2014**	N		<0.002		ppm	AL = 0.015 (90th percentile)	0	Corrosion of household plumbing systems; erosion of natural deposits.
Copper **For 2014**	N		0.14		ppm	AL = 1.3 (90th percentile)	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
Fluoride	N	0.2	1.1	0.6	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories. Avg. 0.6 ppm.
†Nitrates (as Nitrogen)	N		3.4		ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Chloroform	N	7.5	31.7	50.0	ppb	see TTHM	N/A	Byproduct of drinking water chlorination.
Bromo - dichloromethane	N	ND	ND	ND	ppb	see TTHM	0	Byproduct of drinking water chlorination.
Dibromo - dichloromethane	N	1.30	2.07	3.20	ppb	see TTHM	60	Byproduct of drinking water chlorination.
†† TTHM (Total trihalomethanes)	N	12.4	67.2	42.5	ppb	80	40	Byproduct of drinking water chlorination. Rolling yearly average by quarter.
HAA5 (Haloacetic Acids)	N	10.1	22.2	16.1	ppb	60	30	Byproduct of drinking water chlorination. Rolling yearly average by quarter.
Chlorine (as Cl2)	N	0.56	1.35	1.01	ppm	4	4	Water additive to control microbes. Avg. 1.01 ppm.
Barium	N		0.19		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. The City of Aberdeen 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.

** Turbidity: Turbidity is the measure of the cloudiness of the water. We monitor it because 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, experience problems with their liver, kidneys, or central nervous systems and may have increased risk of getting cancer.

Detected Contaminants – Chapel Hill Water Supply (cont.)

Unregulated Contaminant	Violation Y/N	Level Detected	Unit of Measure	Standard	Likely Source of Contamination
Sulfate	N	9.7	ppm	250 (Secondary Drinking Water Regulation)	Naturally occurring.
Sodium	N	20.1	ppm	30 – 60 (Advisory Level)	Naturally occurring.

Detected Contaminants – Harford County Water Supply

Harford County is required to monitor and report their water quality and must comply with the same EPA and Maryland Department of the Environment regulations. In the water that is purchased from the County, there were some constituents present in the water system at levels ***below*** *the maximum allowable level (MCL)* which is determined safe by the EPA. These constituents are shown below, along with the MCL and MCLG for each one detected. The water supplied to the City by Harford County is drawn from the Susquehanna River and is processed in Havre de Grace. Additional information about the County water system and water quality can be accessed on the web at http://www.harfordcountymd.gov/782/Water-Sewer .

Regulated Contaminant	Violation Y/N	Level Detected			Unit of Measure	Maximum Contaminant Level (MCL)	MCL Goal	Likely Source of Contamination
		Low	High	Avg.				
Total Coliform (% of positive tests)	N	0%	1%	1%		Presence of coliform bacteria in <5% of monthly samples	0	Naturally present in the environment. In 2015, 1206 samples were tested with only 1 positive, and the retest was negative.
Barium	N	0.03	0.09	0.09	ppm	2	2	Discharge of drilling waste; discharge from metal refineries; erosion of natural deposits.
Fluoride	N	ND	1.1	1.1	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories. Avg.0.6
Nitrates (as Nitrogen)	N	1.3	4.1	4.1	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Copper	N		0.25		ppm	AL = 1.3 (90th percentile)	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
Lead	N		ND		ppb	AL = 15 (90th percentile)	15	Corrosion of household plumbing systems; erosion of natural deposits.
Chlorine (as Cl_2)	N	0.2	2.9	2.9	ppm	4	4	Water additive to control microbes. Avg. 1.4
Chromium	N	ND	2.1	2.1	ppb	100	100	Erosion. Discharge from steel & pulp mills.
Di(ethylhexyl)phthalate	N	ND	1.0	1.0	ppb	6	0	Discharge from rubber and chemical factories.
Total Organic Carbon	N	CL by % removal Range 0.6 to 1.7			ppb	TT	N/A	TOC has no health effects but can provide a medium for formation of disinfection byproducts.
Turbidity	N	0.01	0.45	100%	ntu	TT	N/A	From soil runoff. Avg. 0.5 NTU
TTHM, **For 2014 & 2015** (Total trihalomethanes)	N	8	50	27	ppb	80	40	Byproduct of drinking water chlorination. Rolling yearly average by quarter.
HAA5 (Haloacetic Acids) **For 2014 & 2015**	N	5	45	22	ppb	60	30	Byproduct of drinking water chlorination. Rolling yearly average by quarter.
Simazine	N	ND	0.1	0.1	ppb	4	4	Herbicide runoff.
Atreazine	N	ND	0.2	0.2	ppb	3	3	Runoff from herbicide used on row crops.
Combined Radium (226&228) (pCiL) (2014)	N	2	2	2		5	0	Erosion from natural deposits.
Gross Alpha (pCiL) (2014)	N	5.8	5.8	5.8		15	0	Erosion from natural deposits.
Gross Beta (pCiL) (2014)	N	4.3	4.3	4.3		50	0	Decay of natural and manmade deposits.

Detected Contaminants – Harford County Water Supply (cont.)

Unregulated Contaminant	Violation Y/N	Level Detected			Unit of Measure	Likely Source of Contamination
		Low	High	Avg.		
Sodium	N	15	71	35	ppm	Sodium salts used in water treatment for pH adjustment.
Manganese	N	ND	0.02	0.01	ppm	Erosion of natural deposits.
Sulfate	N	ND	41	33	ppm	Used in production of fertilizers, fungicides, and insectacides.
Tert-Butyl Alcohol	N	ND	8.4	2.8	ppb	Gasoline additive, paint remover ingredient.

Cryptosporidium and Giardia Lambia (which is found in Human and animal fecal wastes) was sampled from the Deer Creek raw water source during 10/17/2006 to 9/16/2008 monthly. All results were found to be negative.

Health information

The detection of these substances in the drinking water does not constitute a known threat to public health. The levels were found to be *less than* the MCL and *below* the level that EPA currently identifies as a health threat. The MCLs 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 healthcare 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 placing your trust in allowing us to providing you, 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 to evaluate the vulnerability of a source of public drinking water supply to contaminants. This SWA was prepared by the Maryland Department of the Environment (MDE) in July 2005 for Deer Creek which supplies the City of Aberdeen Chapel Hill Water Treatment Plant. About 10,000 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 percent of the watershed was for agricultural purposes, 30 percent forested, and 9 percent 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, and that 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 SWA by visiting the following internet site; http://www.mde.state.md.us/Programs/WaterPrograms/WaterSupply.