



Aberdeen Proving Ground Aberdeen Area

2021 Annual Drinking Water Quality Report

PWSID No. MD0120002 TP(03)

July 1, 2022

Dear Customer:

The City of Aberdeen Department of Public Works 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, 2021 (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 (City) 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The Aberdeen Proving Ground North, Aberdeen Area, (APGN) primary water source is withdrawn from production wells located on APGN Plumb Point in a confined aquifer of the Potomac Group. The Building 250 Water Treatment Plant (B-250) processes an average of 1,040,000 gallons per day to supply APGN.

Report any water quality issues, leaks, or interruptions in service through your contact on APGN. 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 in providing you with safe and dependable water. More information can be found on the City website at www.aberdeenmd.gov.

Jonathan Ely
Assistant Superintendent, Water Operations
Department of Public Works

What does all this information mean?

The EPA requires that the City 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.

B-250 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 does 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 acceptable 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 – APGN Building 250 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. All test results negative of 192 samples tested.
** Turbidity	N	0.031	0.297	0.070	NTU	TT	N/A	Soil runoff.
*Lead 2020	N		<0.002		ppm	AL = 0.015 (90 th percentile)	0	Corrosion of household plumbing systems; erosion of natural deposits.
Copper 2020	N		0.147		ppm	AL = 1.3 (90 th percentile)	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
Fluoride	N	0.34	0.87	0.68	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
†† TTHM (Total trihalomethanes)	N	1.7	16.5	■ 11.8	ppb	80		Byproduct of drinking water chlorination. ■ Highest rolling yearly avg. by quarter.
HAA5 (Haloacetic Acids)	N	0.00	10.1	■ 6.1	ppb	60		Byproduct of drinking water chlorination. ■ Highest rolling yearly avg. by quarter.
Chlorine (as Cl ₂)	N	1.18	2.34	1.58	ppm	4	4	Water additive to control microbes.
Combined Radium 226/228 2021	N		1.6		pCi/L	5	0	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 the City notifies physicians and health care providers in this area if there is ever a higher-than-normal level of nitrates in the water supply.

The city purchases water from Harford County, which had a high level of nitrate at 6.4 ppm.

Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels can cause blue baby syndrome. Nitrate levels may rise quickly for 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.

††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
Sodium	N	3.6	ppm	30 – 60 (Advisory Level)	Naturally occurring.
PFOA + PFOS 2020 (Perfluorinated compounds)	N	ND	ppt	70 ppt EPA Health Advisory Level	Firefighting foams, industrial waste sites.

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 2020	N		0.25		ppm	AL = 1.3 (90 th percentile)	1.3	Corrosion of plumbing; erosion of natural deposits.
Lead 2020	N		<1.0		ppb	AL = 15 (90 th percentile)	15	Corrosion of plumbing; erosion of natural deposits.
Disinfectants & Disinfection By-Products								
Chlorine (as Cl ₂)	N	0.2	3.5	3.5	ppm	4	4	Water additive to control microbes. Avg. = 1.69
TTHM (Total Trihalomethanes)	N	3.2	41.7	36.0	ppb	80	N/A	Byproduct of drinking water chlorination. CL=Rolling yearly average by quarter.
HAA5 (Haloacetic Acids)	N	6.3	22.8	20.1	ppb	60	N/A	Byproduct of drinking water chlorination. CL=Rolling yearly average by quarter.
Inorganic Contaminant								
Barium	N	0.03	0.12	0.12	ppm	2	2	Discharge of drilling waste; discharge from metal refineries; erosion of natural deposits.
Beryllium	N	ND	1.00	1.00	ppb	100	100	Discharge from metal refineries, electrical, aerospace, or defense industries.
Fluoride	N	ND	2.96	2.96	ppm	4	4	Water additive which promotes strong teeth; discharge from fertilizer and aluminum factories. Avg. = 0.59
Nitrates (as Nitrogen)	N	0.60	6.40	6.40	ppm	10	10	Runoff from fertilizer use; leaking from septic tanks, sewage; erosion of natural deposits.
Selenium	N	ND	3.00	3.00	ppb	50	50	Discharge from petroleum refineries, mines. Erosion of natural deposits.
Microbiological Contaminant								
Total Coliform (% of positive tests)	N	0%	0%	0%		Presence of coliform bacteria in <5% of monthly samples	0	Naturally present in the environment. Zero positive of 1440 samples tested.
Turbidity ≤0.3 in 95% of samples in a month. Never >1.0.	N	0.011	0.166	100%	NTU	TT	N/A	From soil runoff. Average = 0.039 NTU
Organic Contaminant								
Total Organic Carbon (TOC)	N	CL by % removal Range 0.78 to 2.83			ppm	TT	N/A	Organic matter. TOC has no health effects but can provide a medium for formation of disinfection byproducts.
Atrazine	N	ND	0.26	0.26	ppb	3	3	Runoff from herbicide used on row crops.

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 Contaminant								
Combined Radium (226&228) 2020	N	3.2	3.2	3.2	pCi/L	5	0	Erosion of natural deposits.
Gross Alpha 2020	N	4.3	4.3	4.3	pCi/L	15	0	Erosion of natural deposits.

Unregulated Contaminant	Violation Y/N	Level Detected			Unit of Measure	Likely Source of Contamination
		Low	High	Avg.		
Iron		ND	0.146	0.07	ppm	Erosion of natural deposits.
Manganese		0.021	0.044	0.031	ppm	Erosion of natural deposits.
Nickel		ND	0.008	0.004	Ppm	Corrosion of pipes and fittings; erosion of natural deposits.
PFOA + PFOS		ND	6.0	2.7	ppt	Firefighting foams, industrial waste sites. EPA Health Advisory = 70 ppt.
Sodium		14.1	96.2	36.0	ppm	Sodium salts used in water treatment. Erosion of natural deposits.

Raw Water Contaminant	Level Detected			TYPICAL SOURCES
	Low	High	MCLG	
Cryptosporidium (oocyst/liter)	ND	ND	0.0	Human and animal fecal waste.
Giardia (cyst/liter)	0.0	0.2	0.0	Human and animal fecal waste.

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 B-250 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 Aberdeen Proving Ground North Building 250 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 WRA in October 2020 for the City of Aberdeen APGN Building 250 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.

B-250 and associated wells are located within the APGN Area. The source of the Building 250's water supply is a confined aquifer in the Potomac Group. Five production wells are used to pump the water out of this aquifer. The SWA area was delineated by a groundwater modeling of the five production wells. This modeling was conducted in Visual Modflow to produce a 10-year time of travel (TOT) area projected onto the ground surface and was based on the data from test wells.

Potential sources of contamination within the SWA area were identified based on WRA site visits, a review of GIS information, and various environmental reports provided by APGN. Well information and water quality data gathered during well testing were also reviewed.

The susceptibility analysis for B-250's water supply is based on a review of the test well water quality data, potential sources of contamination, aquifer characteristics, and proposed well construction. It was determined that B-250's water supply is not susceptible to contaminants originating at the land surface due to the protected nature of the confined aquifer. The water supply is susceptible to naturally occurring iron in the aquifer.

WRA prepared a Groundwater Monitoring Report about the Plumb Point Well Field at APGN for the City of Aberdeen, Maryland. In accordance with the authorized scope, WRA compiled and interpreted information provided by the City which includes pumpage totals from production wells, water levels in wells, and the results of laboratory tests of groundwater quality.

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