



## *Aberdeen Proving Ground North Aberdeen Area*

### *2022 Annual Drinking Water Quality Report*

PWSID No. MD0120002 TP(03)

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July 1, 2023

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, 2022 (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 to 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The Aberdeen Proving Ground North (APGN), Aberdeen Area, primary water source is withdrawn from production wells located on APGN Plumb Point in a confined aquifer of the Potomac Group.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 1,008,000 gallons per day to supply APGN.

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

Jonathan Ely  
Assistant Superintendent, Water Operations  
Department of Public Works

## **What does all this information mean?**

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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 contamination by constituents that are naturally occurring or man made. Those constituents can be microbes, organic or inorganic chemicals, or radioactive materials. 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](http://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**

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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:

- Compliance Level (CL) – Compliance level is the value used to determine compliance with EPA and State regulations.
- 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” 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 (mcg/L) - 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 (ng/L) - One part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.
- Picocuries per liter (pCi/L) - Picocuries per liter is a measure of the radioactivity in water.
- 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 B-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 Contaminants	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	0.043	0.229	0.095	NTU	TT	N/A	Soil runoff.
** Lead <b>2020</b>	N		<0.002		ppm	AL = 0.015 (90 <sup>th</sup> percentile)	0	Corrosion of household plumbing systems; erosion of natural deposits.
Copper <b>2020</b>	N		0.147		ppm	AL = 1.3 (90 <sup>th</sup> percentile)	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
Fluoride	N	0.41	1.13	0.70	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
† Nitrates (as Nitrogen)	N	ND	ND	ND	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
†† TTHM (Total trihalomethanes)	N	1	13.9	■ 9.18	ppb	80		Byproduct of drinking water chlorination. ■ Highest locational running annual average by quarter.
HAA5 (Haloacetic Acids)	N	1	6.09	■ 6.00	ppb	60		Byproduct of drinking water chlorination. ■ Highest locational running annual average by quarter.
Chlorine (as Cl <sub>2</sub> )	N	1.44	1.77	1.55	ppm	4	4	Water additive to control microbes.
Combined Radium 226/228 <b>2021</b>	N		1.6		pCi/L	5	0	Erosion of natural deposits.

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

\*\*Lead: 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's water treatment plant is responsible for providing high quality drinking water and removing lead pipes but cannot control the variety of materials used in plumbing components in your home. You share the responsibility for protecting yourself and your family from the lead in your home plumbing. You can take responsibility by identifying and removing lead materials within your home plumbing and taking steps to reduce your family's risk. Before drinking tap water, flush your pipes for several minutes by running your tap, taking a shower, doing laundry or a load of dishes. You can also use a filter certified by an American National Standards Institute accredited certifier to reduce lead in drinking water. If you are concerned about lead in your water and wish to have your water tested, contact the City at (410) 272 – 2650. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

†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. 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 Contaminants	Violation Y/N	Level Detected	Unit of Measure	Standard	Likely Source of Contamination
Sodium	N	34.45	ppm	30 – 60 ppm (Advisory Level)	Naturally occurring.
***PFOA+PFOS 2020 (Perfluorinated compounds)	N	ND	ppt	4 ppt (EPA Proposed MCL)	Firefighting foams, industrial waste sites.

\*\*\*PFAS: Beginning in 2020, the Maryland Department of the Environment (MDE) initiated a PFAS monitoring program. PFOA and PFOS are two of the most prevalent PFAS compounds. In March 2023, EPA announced proposed Maximum Contaminant Levels (MCLs) of 4 ppt for PFOA and 4 ppt for PFOS, and a Group Hazard Index for four additional PFAS compounds. Future regulations would require additional monitoring as well as certain actions for systems above the MCLs or Hazard Index. EPA will publish the final MCLs and requirements by the end of 2023 or beginning of 2024. Additional information about PFAS can be found on the MDE website: [www.mde.maryland.gov/PublicHealth/Pages/PFAS-Landing-Page.aspx](http://www.mde.maryland.gov/PublicHealth/Pages/PFAS-Landing-Page.aspx).

## 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](http://www.harfordcountymd.gov/782/Water-Sewer).

Regulated Contaminants	Violation Y/N	Level Detected			Unit of Measure	MCL	MCLG	Likely Source of Contamination
		Low	High	CL				
Copper <b>2020</b>	N		0.25		ppm	AL = 1.3 (90 <sup>th</sup> percentile)	1.3	Corrosion of plumbing; erosion of natural deposits.
Lead <b>2020</b>	N		<1.0		ppb	AL = 15 (90 <sup>th</sup> percentile)	15	Corrosion of plumbing; erosion of natural deposits.
<b>Disinfectants and Disinfection By-Products</b>								
Chlorine (as Cl <sub>2</sub> )	N	0.1	3.1	3.1	ppm	4	4	Water additive to control microbes. Avg. = <b>1.56</b>
†† TTHM (Total Trihalomethanes)	N	8.9	56.0	■ 40.0	ppb	80	N/A	Byproduct of drinking water chlorination. ■ Highest locational running annual average.
HAA5 (Haloacetic Acids)	N	9.9	37.3	■ 28.0	ppb	60	N/A	Byproduct of drinking water chlorination. ■ Highest locational running annual average.
<b>Inorganic Contaminants</b>								
Antimony	N	ND	0.5	0.5	ppb	6	6	Discharge from petroleum refineries, fire retardants, ceramics, electronics, solder.
Barium	N	ND	0.11	0.11	ppm	2	2	Discharge of drilling waste; discharge from metal refineries; erosion of natural deposits.
Chromium	N	ND	2.0	2.0	ppb	100	100	Discharge from steel and pulp mills. Erosion of natural deposits.
Fluoride	N	ND	0.8	0.8	ppm	4	4	Water additive which promotes strong teeth; discharge from fertilizer and aluminum factories. Avg = <b>0.57 ppm</b> .
† Nitrates (as Nitrogen)	N	1.3	3.5	3.5	ppm	10	10	Runoff from fertilizer use; leaking from septic tanks, sewage; erosion of natural deposits.
<b>Microbiological Contaminants</b>								
Total Coliform (% of positive tests)	N	0%	0%	0%		Presence of coliform bacteria in <5% of monthly samples	0	Naturally present in the environment. <b>Zero</b> positive of <b>1440</b> samples tested.
Turbidity ≤0.3 in 95% of samples in a month. Never >1.0.	N	0.014	0.276	100%	NTU	TT	N/A	From soil runoff. Average = <b>0.04 NTU</b>
<b>Organic Contaminants</b>								
Total Organic Carbon (TOC)	N	Highest locational running annual average by % removal. Range 0.96 to 2.57			ppm	TT	N/A	Organic matter. It can provide a medium for formation of disinfection by-products.
Atrazine	N	ND	0.25	0.25	ppb	3	3	Runoff from herbicide runoff, used in row crops.

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

Regulated Contaminants	Violation Y/N	Level Detected			Unit of Measure	MCL	MCLG	Likely Source of Contamination
		Low	High	CL				
<b>Radioactive Contaminants</b>								
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 Contaminants	Level Detected			Unit of Measure	Likely Source of Contamination
	Low	High	Avg.		
Iron	ND	0.151	< 0.10	ppm	Erosion of natural deposits.
Manganese	0.018	0.020	0.019	ppm	Erosion of natural deposits.
Nickel	ND	0.006	0.003	ppm	Corrosion of pipes and fittings; erosion of natural deposits.
PFOA	ND	1.6	< 1.0	ppt	Firefighting foams, industrial waste sites. EPA proposed MCL of 4 ppt.
PFOS	ND	2.5	< 1.0	ppt	Firefighting foams, industrial waste sites. EPA proposed MCL of 4 ppt.
PFBS	ND	2.1	< 1.0	ppt	Firefighting foams, industrial waste sites. EPA proposed Hazard Index of < 1.0.
PFHxS	ND	2.2	< 1.0	ppt	Firefighting foams, industrial waste sites. EPA proposed Hazard Index of < 1.0.
Sodium	13.5	75.2	31.6	ppm	Erosion of natural deposits. Sodium salts used in water treatment.

Raw Water Contaminants	Level Detected				TYPICAL SOURCES
	Low	High	MCL	MCLG	
Cryptosporidium (oocyst/liter)	ND	ND	TT	0	Human and animal fecal waste.
Giardia (cyst/liter)	ND	1.3	TT	0	Human and animal fecal waste. Susquehanna River (Havre de Grace Plant)

## 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 constitutes as a health threat. The MCLs 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 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 Whitman, Reardon and Associates (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 B-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 geographic information system mapping, 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.