



City of Aberdeen

2023 Annual Drinking Water Quality Report

PWSID No. MD0120001

July 1, 2024

Dear City of Aberdeen Resident:

The City of Aberdeen Department of Public Works is required to provide you with the Annual Drinking Water Quality Report for water quality results for the monitoring period from January 1 to December 31, 2023 (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 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 meets current guidelines of federal and state requirements. This report describes the regulation limits and provides you with your water's annual results.

Your water comes from fourteen (14) groundwater wells in the City fed from the Talbot Formation aquifer and up to 600,000 gallons of water from Harford County Water Treatment Plant facilities fed from the Susquehanna River, Perryman wellfield, and Abingdon Water Treatment Plant. Through the ground wells and Harford County sources, the combined water consumption is an average of 1,438,864 gallons per day.

If you have any questions about this report or your water utility, please contact me at (410) 272-2650 between 7 a.m. and 3 p.m. (M – F). The City values our residents and wants to reaffirm our commitment to providing you with safe and dependable water. If you want to be more informed about City Public Works, you may attend any of the regularly scheduled City Council meetings. Meeting schedules are found on the City website at www.aberdeenmd.gov.

Curtis A. Ball
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.

After your water comes from the various sources mentioned, the City treats it to remove pollutants and is disinfected to protect you against contamination by constituents that are naturally occurring or manmade. 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 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 CONTAMINANT 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.

Source Water Assessment

The Maryland Department of the Environment (MDE) Water Supply Program has conducted a Source Water Assessment for the City. The assessment covers: delineation of an area that contributes water to the source, identification of potential sources of contamination, and determination of the susceptibility of the water supply to contamination. At the time of this study, the source of the water supply came from 11 groundwater wells that fed from an aquifer in the Coastal Plain known as the Talbot Formation. Currently, the source of the water supply comes from fourteen (14) groundwater wells in the City fed from the Talbot Formation aquifer and up to 600,000 gallons of water from Harford County Water Treatment Plant facilities fed from the Susquehanna River, Perryman wellfield, and Abingdon Water Treatment Plant. Potential sources of contamination within the assessment area were identified from site visits, database reviews, and land use maps. The susceptibility analysis of the City water supply was based on the review of the water quality data, potential sources of contamination, aquifer characteristics, and well integrity. It was determined that the City water supply is susceptible to volatile organic compounds but is not susceptible to contamination by nitrates, synthetic organic compounds, radionuclides, and microbiological contaminants.

The full assessment is available on the MDE website at:

www.mde.maryland.gov/programs/water/water_supply/Source_Water_Assessment_Program/documents/www.mde.state.md.us/assets/document/watersupply/SWAPS/Harford/City%20of%20Abedeen.pdf

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:

- 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 (µg/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 – City 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. Zero positive of 180 samples tested.
*Lead 2023	N		<0.001		ppm	AL = 0.015 (90 th percentile)	0	Corrosion of household plumbing systems; erosion of natural deposits.
Copper 2023	N		0.315		ppm	AL = 1.3 (90 th percentile)	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
Barium 2022	N		0.150		ppm	2	2	Discharge of drilling waste, discharge from metal refineries, erosion of natural deposits.
**Fluoride	N	0.10	1.37	0.46	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
† Nitrates (as Nitrogen)	N		2.44		ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Chlorine (as Cl ₂)	N	1.23	1.99	1.66	ppm	4	4	Water additive to control microbes.
Tetrachloroethylene	N	0.5	0.72	0.56	ppb	5	0	Discharge from factories and dry cleaners.
Trichloroethylene	N	0	0.77		ppb	5	0	Discharge from metal degreasing sites and other factories.
†† TTHM (Total trihalomethanes)	N	1.00	32.9	■ 22.23	ppb	80		Byproduct of drinking water chlorination. ■ Highest locational running annual average by quarter.
HAA5 (Haloacetic Acids)	N	1.01	7.44	■ 6.09	ppb	60		Byproduct of drinking water chlorination. ■ Highest locational running annual average by quarter.
Combined Radium 226/228 2020	N		0.4		pCi/L	5	0	Erosion of natural deposits.

*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.

**Fluoride: Some individuals who drink water containing fluoride in excess of the MCL over many years are more at risk of skeletal fluorosis, a condition characterized by pain and tenderness of the major joints. Fluoride in drinking water at half the MCL or more in children may cause tooth discoloration and/or pitting that can be caused by excess fluoride exposure during the formative period prior to eruption of teeth.

†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 individuals 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.

Detected Contaminants – City Water Supply (Cont'd)

Unregulated Contaminants	Violation Y/N	Level Detected			Unit of Measure	Standard	Likely Source of Contamination
		Low	High	Avg.			
Sulfate 2013	N		10.7		ppm	250 ppm (Secondary MCL)	Naturally occurring.
Sodium 2022	N		35.9		ppm	30 – 60 ppm (Advisory Level)	Naturally occurring.
Methyl-tert-butyl-ether (MTBE)	N		ND		ppb	20 ppb (Advisory Level)	Gasoline additive.
Perchlorate	N		4		ppb	1.0 ppb (State Advisory Level)	Byproduct of explosives; fertilizer.
PFBA	N	ND	5.5	2.75	ppt	Not Applicable	Discharge from manufacturing and industrial chemical facilities, use of certain consumer products, occupational exposures, and certain firefighting activities.
PFBS	N	4.3	4.5	4.4	ppt	10 ppt (EPA Proposed MCL)	Discharge from manufacturing and industrial chemical facilities, use of certain consumer products, occupational exposures, and certain firefighting activities.
PFHpA	N	4.2	4.3	4.25	ppt	Not Applicable	Discharge from manufacturing and industrial chemical facilities, use of certain consumer products, occupational exposures, and certain firefighting activities.
PFHxA	N	7.9	8.2	8.05	ppt	Not Applicable	Discharge from manufacturing and industrial chemical facilities, use of certain consumer products, occupational exposures, and certain firefighting activities.
PFHxS	N	5.7	5.8	5.75	ppt	10 ppt (EPA Proposed MCL)	Discharge from manufacturing and industrial chemical facilities, use of certain consumer products, occupational exposures, and certain firefighting activities.
PFOA	N	7.2	7.6	7.4	ppt	4 ppt (EPA Proposed MCL)	Discharge from manufacturing and industrial chemical facilities, use of certain consumer products, occupational exposures, and certain firefighting activities.
PFOS	N	7.7	8.6	8.15	ppt	4 ppt (EPA Proposed MCL)	Discharge from manufacturing and industrial chemical facilities, use of certain consumer products, occupational exposures, and certain firefighting activities.
PFNA	N	ND	ND	ND	ppt	10 ppt (EPA Proposed MCL)	Discharge from manufacturing and industrial chemical facilities, use of certain consumer products, occupational exposures, and certain firefighting activities.
PFPeA	N	8.5	8.7	8.6	ppt	Not Applicable	Discharge from manufacturing and industrial chemical facilities, use of certain consumer products, occupational exposures, and certain firefighting activities.

PFAS: Aberdeen tested for 29 PFAS and lithium under the Fifth Unregulated Contaminated Rule UCMR5 in 2023.

City Wells – Perchlorate Information and Update

Aberdeen Proving Ground notified the City in April 2002 about a compound called perchlorate which was detected in the groundwater in the vicinity of the wellfield. Perchlorate is an unregulated contaminant used in a variety of products to manufacture air bag inflators, electronic tubes, lubricating oils, rocket propellant, explosives, and other commercial and agricultural applications.

Maryland Department of the Environment (MDE) recommended the City establish standards to assure levels in finished water do not exceed 1.0 ppb (the level established by MDE in the absence of an EPA standard) and installed perchlorate filtration units to wells most at risk.

Since 2005, the City continues to monitor the finished water for this unregulated contaminant. Analysis of perchlorate was undetectable. A fact sheet on perchlorate can be found on the EPA web site at www.epa.gov/fedfac/technical-fact-sheet-perchlorate.

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 the County 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 Contaminants	Violation Y/N	Level Detected			Unit of Measure	MCL	MCLG	Likely Source of Contamination
		Low	High	CL				
Copper 2023	N		0.37		ppm	AL = 1.3 (90 th percentile)	1.3	Corrosion of plumbing; erosion, wood preservatives.
Lead 2023	N		<1.0		ppb	AL = 15 (90 th percentile)	15	Corrosion of plumbing; erosion of natural deposits.
Disinfectants & Disinfection By-Products								
Chlorine	N	0.4	3.9	3.9	ppm	4	4	Water additive to control microbes. Avg. = 1.75
†† TTHM (Total trihalomethanes)	N	11.3	87.9	■ 46	ppb	80	N/A	Byproduct of drinking water chlorination. ■ Highest locational running annual average.
HAA5 Haloacetic Acids	N	8.3	38.1	■ 31	ppb	60	N/A	Byproduct of drinking water chlorination. ■ Highest locational running annual average.
Inorganic Contaminants								
Arsenic	N	ND	2.0	2.0	ppb	10	0	Erosion of natural deposits: runoff from orchards, glass, and electronics production waste
Barium	N	0.02	0.12	0.12	ppm	2	2	Discharge of drilling waste; discharge from metal refineries; erosion of natural deposits.
Fluoride	N	ND	0.65	0.65	ppm	4	4	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories. Avg = 0.55 ppm.
† Nitrates (as Nitrogen)	N	ND	3.45	3.45	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%	2%	2%		Presence of coliform bacteria in <5% of monthly samples	0	Naturally present in the environment. Three positives out of 1450 Samples.
Turbidity ≤ 0.3 in 95% of samples in a month. Never > 1.0	N	0.014	0.203	100%	NTU	TT	N/A	From soil runoff. Average = 0.05 NTU
Organic Contaminants								
Total Organic Carbon	N	1.09	2.96	Multiple Compliance Criteria	ppm	TT	N/A	Organic Matter. It can provide a medium for formation of disinfection byproducts.
Radioactive Contaminants								
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.

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

Unregulated Contaminants	Level Detected			Unit of Measure	Likely Source of Contamination
	Low	High	Avg.		
Iron	ND	0.911	0.18	ppm	Erosion of natural deposits.
Manganese	0.020	0.025	0.022	ppm	Erosion of natural deposits.
Nickel	0.002	0.005	0.004	ppm	Corrosion of pipes and fittings; erosion of natural deposits.
PFOA	ND	0.7	0.7	ppt	Firefighting foams, industrial waste sites. EPA proposed MCL of 4 ppt.
PFHxA	ND	0.6	0.4	ppt	Firefighting foams, industrial waste sites, and insecticides.
PFTA	ND	0.4	0.3	ppt	Firefighting foams, industrial waste sites, and insecticides.
PFTrDA	ND	0.4	0.4	ppt	Firefighting foams, industrial waste sites, and insecticides.
11CI-PF3OUdS	ND	0.4	0.3	ppt	Firefighting Foams, industrial waste sites, and insecticides.
Sodium	14.1	73.2	31.2	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)	0.2	0.2	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 City's water has proved 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 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.

City of Aberdeen Wellhead Protection Program

The purpose of a Wellhead Protection Plan is to protect the public health, safety, and welfare through the preservation of the groundwater resources of community public water supplies to ensure a future supply of safe and healthy drinking water. The designation of wellhead protection regions, and careful regulation of activities within these areas, can reduce the potential for groundwater contamination.

The groundwater underlying the community water supply wellhead protection areas is a major source for the City's existing and future water supply. Accidental spills and discharges of toxic and hazardous materials can threaten the quality of such water supplies, posing public health and safety hazards.

The wellhead protection regions include differing zones of protection as recommended by MDE. Within the City of Aberdeen, the wellhead protection region or district includes three (3) zones of protection. Each zone is further described below:

- Zone 1 represents the area bounded by a groundwater travel time of *one year to the Aberdeen supply wells.
- Zone 2 represents the area bounded by a groundwater travel time of *10 years to the Aberdeen supply wells.
- Zone 3 represents the remaining land area of the wellhead protection area located within the City of Aberdeen.

* Amount of time a potential hazard excreted in groundwater takes to travel to City wells.

Each zone of the wellhead protection area has identifying roadway signs posted when entering or leaving. The signs are as shown in the example below. More information can be viewed at www.ecode360.com/14368446.



Protection of drinking water is everyone's responsibility. You can help protect your community's drinking water source in several ways:

- Eliminate excess use of lawn and garden fertilizers and pesticides as they contain hazardous chemicals that can reach your drinking water source.
- Pick up after your pets.
- Dispose of chemicals properly; take used motor oil to a recycling center.
- Volunteer in your community. Find a watershed or wellhead protection organization in your community and volunteer to help. If there are no active groups, consider starting one. Use EPA's Adopt Your Watershed to locate groups in your community or visit the Watershed Information Network's How to Start a Watershed Team.