2022 WATER QUALITY REPORT

Division of Water and Sewer

PWSID #012-0016

HARFORD COUNTY
PUBLIC WORKS

Important Health Information from the Environmental Protection Agency

Drinking water, including bottled water may reasonably be expected to contain at least small amounts of some contaminants. Technically, a contaminant is any physical, chemical, biological, or radiological substance or matter in water. The presence of these contaminants does not necessarily mean that the water poses a health risk.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons, such as cancer patients undergoing chemotherapy, those who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, and some elderly and infants, can be particularly at risk for infections. These people should seek advice from their health care providers about drinking water.

EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the EPA's Safe Drinking Water Hotline (1-800-426-4791) or EPA's website https://www.epa.gov/safewater. More information about contaminants and potential health effects can also be obtained from the EPA hotline or website.

What is in the Water?

The table on the reverse lists all of the drinking water contaminants that we detected. The contaminant levels from other utilties that have provided water are incorporated into the tables. The state allows us to monitor for some contaminants less than once per year because the concentration of these contaminants changes infrequently. Unless otherwise noted, the data presented in the tables is from January 1 to December 31, 2022. The definitions provided at the end of the table may be useful in interpreting the data.

Lead Information

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. Harford County Water & Sewer 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 Harford County Water & Sewer. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at: http://www.epa.gov/safewater/lead.

Where Does Your Water Come From?

A requirement under the Safe Drinking Water Act is for each State to develop a Source Water Assessment Program (SWAP). The assessments evaluate the drinking water sources that serve public water systems, and examine activities associated with the surrounding areas to determine their contribution to contamination. The required components of an Assessment Report are: 1) outline the area that contributes water to the source; 2) identify potential sources of contamination; and 3) determine the susceptibility of the water supply to contamination.

WELLFIELD ASSESSMENT

The Maryland Department of the Environment has conducted a Source Water Assessment for Harford County's well water supply. The source for the well water is a semi-confined aquifer known as the Potomac Group. Potential souces of contamination are agricultural land use, underground storage tanks, ground water contamination sites, and commercial/industrial sites. It was determined that the well water supply is susceptible to contamination by nitrates, volatile organic compounds (e.g. solvents and gasoline), and radionuclides.

SUSQUEHANNA RIVER ASSESSMENT

The Susquehanna River Basin Commission conducted a Source Water Assessment of the Susquehanna River. Harford County has two surface water plants that can draw water from the lower Susquehanna Subbasin. Potential sources of contamination are agricultural land use, urban/residential development, boating activities, sewage effluent, major transportation corridors (highways, railroads) and nuclear power generating plants. It was determined that the water supply is susceptible to contamination by turbidity and sediment, microorganisms, inorganic compounds, organic compounds, disinfection byproducts, and radionuclides.

LOCH RAVEN ASSESSMENT

The Maryland Department of the Environment has conducted a Source Water Assessment for Loch Raven Reservoir. The reservoir collects water from a 303 square mile watershed spanning three Maryland Counties (Baltimore, Carroll, and Harford). Harford County has a surface water plant that can draw from the reservoir. Potential sources of contamination are public and private sewage systems, storm runoff from agricultural and developed areas, and spillage of hazardous materials. It was determined that the water supply is susceptible to contamination by phosphorus, turbidity and sediment, pathogenic protozoans, disinfection byproducts, and sodium.

TREATMENT PLANT PROCESSES

The County's Havre de Grace WTP treats water from the Susquehanna River by adsorption clarification, multi-media filtration, and with chemical treatment for coagulation, disinfection, pH adjustment, and fluoridation. The Abingdon WTP treats water from the Susquehanna River or the Loch Raven Reservoir by sedimentation, dual media filtration, and with chemical treatment for coagulation, disinfection, pH adjustment, corrosion inhibition, and fluoridation. The Perryman WTP treats water from the Potomac Group Aquifer by activated carbon filtration, and with chemical treatment for disinfection, pH adjustment, corrosion inhibition, and fluoridation.

PFAS Information

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. PFOA concentrations from samples taken from our water system in 2022 ranged from 1.27 - 1.60 parts per trillion (ppt); PFOS concentrations from samples taken from our water system in 2022 ranged from 1.57 - 2.47 ppt. In March 2023, EPA announced proposed Maximum Contaminant Levels (MCLs) of 4 ppt for PFOA and 4 ppt for PFOA, 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. 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:

http://mde.maryland.gov/PublicHealth/Pages/PFAS-Landing-Page.aspx

Nitrate Information

Levels above 10 ppm in drinking water are a health risk for infants of less than six months of age. High nitrate levels in drinking water 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 advice about drinking water from your health care provider.

Nitrate Result

Note: The 2nd quarter Nitrate result was not reported by our subcontract laboratory to MDE by June 10, 2022. This late reporting of the analytical result was a clerical error and it did not effect the quality of the water. The sample taken on May 17, 2022 had a concentration of 3.27 mg/L which is below the 10 mg/L MCL.

For questions about this report or water quality contact Mike Turner at 410-638-3939. For water emergencies call 410-612-1612. For additional information, go to web page: https://www.harfordcountymd.gov/WQR.

2022 WATER QUALITY DATA

Contaminants:

Metal Contaminants	AL	90th%	Samples>AL	Violation	Typical Source
Copper (ppm) for 2020	**1.3**	**0.25**	0	No	Corrosion of household plumbing systems; erosion of natural deposits.
Lead (ppb) for 2020	**15**	**<1.0**	0	No	Corrosion of household plumbing systems; erosion of natural deposits.

Disinfectants and Disinfection By-Product Contaminants			Your Water				Typical Source
	MCLG	MCL	CL	Low	High	Violation	
Chlorine (ppm)	**4**	**4**	3.1	0.1	3.1	No	Water additive used to control microbes. **Avg. = 1.56**.
Haloacetic Acids (HAA5) (ppb)	**N/A**	**60**	28.0	9.9	37.3	No	By-product of drinking water disinfection. CL = Highest locational running annual average.
Total Trihalomethanes (TTHMs) (ppb)	**N/A**	**80**	40.0	8.9	56.0	No	By-product of drinking water disinfection. CL = Highest locational running annual average.
Inorganic Contaminants							
Antimony (ppb)	**6**	**6**	0.5	ND	0.5	No	Discharge from petroleum refineries, fire retardants, ceramics, electronics, solder.
Barium (ppm)	**2**	**2**	0.11	ND	0.11	No	Discharge of drilling wastes; discharge of metal refineries. Erosion of natural deposits.
Chromium (ppb)	**100**	**100**	2.0	ND	2.0	No	Discharge from steel and pulp mills. Erosion of natural deposts.
Fluoride (ppm)	**4**	**4**	0.8	ND	0.8	No	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories. **Avg = 0.57 ppm**.
Nitrate (ppm of Nitrogen)	**10**	**10**	3.5	1.3	3.5	No	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits.
Organic Contaminants							
Atrazine (ppb)	**3**	**3**	0.25	ND	0.25	No	Agricultural herbicide runoff, used in row crops.
Total Organic Carbon (ppm)	**N/A**	**TT**	Multiple Compliance Criteria	0.96	2.57	No	Organic matter. It can provide a medium for formation of disinfection by-products.
Microbiological Contaminants							
Total Coliform (5% positive/month)	**0%**	**5%**	0%	0%	0%	No	Coliforms are naturally present in the environment. **Zero** positive of **1440** samples.
Turbidity (NTU) TT ≤ 0.3 in 95% of samples/month. Never > 1.0	**N/A**	**TT**	100%	0.014	0.276	No	From soil runoff. **Avg. = 0.04 NTU**.
Radioactive Contaminants							
Combined Radium (226 & 228) (pCi/L) for 2020.	**0**	**5**	3.2	3.2	3.2	No	Erosion of natural deposits.
Gross Alpha (pCi/L) for 2020.	**0**	**15**	4.3	4.3	4.3	No	Erosion of natural deposits.

Unregulated Contaminants	Avg.	Low	High	Typical Source
Iron (ppm)	< 0.10	ND	0.151	Erosion of natural deposits.
Manganese (ppm)	0.019	0.018	0.020	Erosion of natural deposits.
Nickel (ppm)	0.003	ND	0.006	Corrosion of pipes and fitting; erosion of natural deposits.
PFOA (ppt)	< 1.0	ND	1.6	Firefighting foams, industrial waste sites. EPA proposed MCL of 4 ppt.
PFOS (ppt)	< 1.0	ND	2.5	Firefighting foams, industrial waste sites. EPA proposed MCL of 4 ppt.
PFBS (ppt)	< 1.0	ND	2.1	Firefighting foams, industrial waste sites. EPA proposed Hazard index of <1.0.
PFHxS (ppt)	< 1.0	ND	2.2	Firefighting foams, industrial waste sites. EPA proposed Hazard index of <1.0.
Sodium (ppm)	31.6	13.5	75.2	Erosion of natural deposits; sodium salts used in water treatment.

Raw Water Contaminants	MCLG	MCL	Low	High			
Cryptosporidium (oocyst/liter)	**0**	**TT**	ND	ND			Human/animal fecal waste.
Giardia (cyst/liter)	**0**	**TT**	ND	1.3			Human/animal fecal waste. Susquehanna River (HdG Plant)

Action Level (AL) - If a contaminant exceeds this regulatory level, it can trigger improved treatment techniques or other requirements a utility must follow (for lead and copper only, see Ninetieth Percentile).

Avg - Average.

Compliance Level (CL) - The value used to determine compliance with EPA and State regulations.

Intestinal Parasites - Cryptosporidium and Giardia lamblia can cause gastrointestinal illness (eg. diarrhea/vomiting/cramps). Surface water sources (the Susquehanna River and Loch Raven Reservoir) for Harford County's treatment plants test for both organisms. Untreated water did show the presence of 1.3 cyst/liter of Giardia. This organism is resistant to chlorine disinfecton, but can be removed by filtration (see precautions on the reverse).

Maximum Contaminant Level (MCL) - The "Maximum Allowed" (MCL) is the highest level of a contaminant allowed in drinking water.

Maximum Contaminant Level Goal (MCLG) - The level of a contaminant in drinking water below which there is no known or expected health risk. The MCLGs allow for an extra margin of safety over and above the MCL.

N/A - Not applicable.

ND - No detectible levels in testing.

Ninetieth Percentile (for lead and copper testing only) - Ninety % of the homes where the tap water was tested are at or below this value. EPA only requires the voluntary testing of homes built between 1983 and 1986, where lead solder has been used in plumbing.

Parts per Million (ppm), Billion (ppb), or Trillion (ppt) - Measurement units for the level of contaminants in water. One unit per each ppm, ppb, or ppt.

PFOA and PFOS - Perfluorooctanoic Acid and Perfluorooctanesulfonic Acid.

Picocuries per Liter (PCi/L) - A measurement of radioactivity in water.

Total Coliform - Bacteria that are naturally present in the envoronment. They are used to indicate the presence of other potentially harmful bacteria. CL <5% samples positive each month.

Treatment Technique (TT) - A required process intended to reduce the level of a contaminant in drinking water. The compliance level (CL) for meeting turbidity and TOC standard is based on the TT used, instead of the MCL.

Turbidity - The cloudy appearance of water caused by the presence of suspended material. Turbidity has no health effects but can interfere with disinfection and provide a medium for microbial growth. An NTU is a unit of measure for turbidity and a level of 5 is just visible to the average person.

Unregulated Contaminants - Unregulated contaminant monitoring helps the EPA to determine where certain contaminants occur and whether it needs to regulate them.

Water Quality Report for 2022
Harford County Government

Last year, as in past years, your drinking water met all EPA and State health standards!

IS MY WATER SAFE?

In Harford County's system, the answer is yes. However, as with any other public water supply, your water is not 100% H_2O. All drinking water, including bottled water, may be reasonably expected to contain at least small amounts of contaminant. Technically, a contaminant is any physical, chemical, biological, or radiological substance or matter in water. It is important to remember that the presence of these contaminants does not necessarily indicate that the water poses a health risk.

Water, traveling on or in the ground, dissolves naturally occurring minerals, vegetation, and sometimes radioactive material, which can be the result of oil and gas production and mining activities. It can also pick up animal waste, pesticides, and debris from human activity. Rain can also wash waste from impervious surfaces (sidewalks, roads, etc.) to rivers and reservoirs.

For more information call the EPA's Safe Drinking Water Hotline (800-426-4791) or go to EPA: http://www.epa.gov/safewater.

WHAT IS IN THE WATER?

The table below lists all of the drinking water contaminants that we detected. The contaminant levels from other utilities that have provided water to us are incorporated into the tables. The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Unless otherwise noted, the data presented in these tables are from January 1 thru December 31, 2022. The definitions provided at the end of this document may be useful in interpreting the data. The Harford County Government's Public Water System Identification Number (PWSID) is 012-0016.

Metal Contaminants	AL	90th%	# Samples > AL	Violation	Typical Source
Copper (ppm) for 2020	1.3	0.25	0	NO	Corrosion of plumbing; erosion of natural deposits.
Lead (ppb) for 2020	15	<1.0	0	NO	Corrosion of plumbing; erosion of natural deposits.

	MCLG	MCL	Your Water CL	Low	High	Violation	Typical Source
Disinfectants & Disinfection By-Products Contaminants							
Chlorine (Cl) (ppm)	4	4	3.1	0.1	3.1	NO	Water additive used to control microbes. **Avg. 1.56.**
Haloacetic Acids (HAA5) (ppb)	N/A	60	28.0	9.9	37.3	NO	By-product of drinking water disinfection. CL = Highest locational running annual average.
Total Trihalomethanes (TTHMs) (ppb)	N/A	80	40.0	8.9	56.0	NO	By-product of drinking water disinfection. CL = Highest locational running annual average.

	MCLG	MCL	Your Water CL	Low	High	Violation	Typical Source
Inorganic Contaminants							
Antimony (ppb)	6	6	0.5	ND	0.5	No	Discharge from petroleum refineries, fire retardants, ceramics, electronics, solder.
Barium (ppm)	2	2	0.11	ND	0.11	NO	Discharge of drilling wsstes. Discharge from metal refineries. Erosion of natural deposits.
Chromium (ppb)	100	100	2	ND	2	NO	Discharge from steel and pulp mills; erosion of natural deposits.
Fluoride (ppm)	4	4	0.8	ND	0.8	NO	Water additive that promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories. **Avg. 0.57**.
Nitrate (ppm of Nitrogen)	10	10	3.5	1.3	3.5	NO	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Organic Contaminants							
Altrazine (ppb)	3	3	0.25	ND	0.25	NO	Agricultural herbicide runoff, used on row crops.
Total Organic Carbon (ppm)	N/A	TT	Multiple Compliance Criteria	0.96	2.57	NO	Organic matter. It can provide a medium for formation of disinfection byproducts.
Microbiological Contaminants							
Total Coliform (5% positive/month)	0%	5%	0	0	0	NO	Coliforms are naturally present in the environment. **Zero** positive of **1440** samples.
Turbidity (NTU) TT ≤ 0.3 in 95% of samples in a month. Never > 1.0.	N/A	TT	100%	0.014	.276	NO	From soil runoff. **Avg. = 0.04 NTU.**
Radioactive Contaminants							
Combined Radium (226 & 228) (pCi/L) for 2020.	0	5	3.2	3.2	3.2	NO	Erosion of natural deposits.
Gross Alpha (pCi/L) for 2020	0	15	4.3	4.3	4.3	NO	Erosion of natural deposits.

Unregulated Contaminants	**Avg.**	**Low**	**High**	**Typical Source**
Iron (ppm)	< 0.10	ND	0.151	Erosion of natural deposits.
Manganese (ppm)	0.019	0.018	0.020	Erosion of natural deposits.
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PFOA (ppt)	< 1.0	ND	1.6	Firefighting foams; industrial waste sites. EPA proposed MCL of 4 ppt.
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PFBS (ppt)	< 1.0	ND	2.1	Firefighting foams, industrial waste sites. EPA proposed Hazard index of <1.0.
PFHxS (ppt)	< 1.0	ND	2.2	Firefighting foams, industrial waste sites. EPA proposed Hazard index of <1.0.
Sodium (ppm)	31.6	13.5	75.2	Erosion of natural deposits; sodium salts used in water treatment.

Raw Water Contaminants	**MCLG**	**MCL**	**Low**	**High**	**Typical Source**
Cryptosporidium (oocyst/liter)	0	TT	ND	ND	Human and animal fecal waste.
Giardia (cyst/liter)	0	TT	ND	1.3	Human and animal fecal waste. Susquehanna River - (Havre de Grace Plant)

ND = not detectable, see definitions; N/A = not applicable
*EPA considers 50 pCi/L to be the level of concern for beta particles.

For questions concerning this report, water quality, or unregulated contaminants contact Bill Smith at (410) 638-3939, Monday through Friday, 7 a.m. to 3 p.m.

Note: The 2nd quarter Nitrate result was not reported by our subcontract laboratory to MDE by July 10, 2022. This late reporting of the analytical result was a clerical error and it did not affect the quality of the water. The sample taken on May 17, 2022 had a concentration of 3.27 mg/L which is below the 10 mg/L MCL.

For water-related emergencies, call 410-612-1612, 24 hours a day, 7 days a week.

HEALTH INFORMATION ABOUT WATER CONTAMINANTS

Harford County's water supply met requirements set by the EPA and Maryland Department of Environment. However, Federal and State health organizations want people in special risk groups to understand the following information.

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. Harford County Water & Sewer 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 Harford County Water & Sewer, Mike Turner at 410-638-3939. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at: **EPA: Lead in Drinking Water** .

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 in drinking water 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 advice from your health care provider. For more information go to:
EPA: Background Information on Nitrate and Nitrite.

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. PFOA concentrations from samples taken from our water system in 2022 ranged from 1.27 – 1.60 parts per trillion (ppt); PFOS concentrations from samples taken from our water system ranged from 1.57 – 2.47 ppt. 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. 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: **MDE: Public Health Information on PFAS.**

Special Precautions - 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).

For more information go to:

EPA: Drinking Water Contaminant Human Health Effects Information

WHERE DOES MY WATER COME FROM?

Harford County's water system has over 750 miles of water mains with 4,386 fire hydrants and 12 storage tanks holding more than 12 million gallons of water. We have three water treatment plants (WTP): Abingdon WTP treats surface water from either the Loch Raven Reservoir or the Susquehanna River, Havre de Grace WTP treats surface water from the Susquehanna River, and the Perryman WTP treats ground water from seven wells. In 2022, we provided 4.75 billion gallons of water to 130,000 consumers for an average of 13 million gallons each day. We obtained 4.07 billion gallons of surface water from the Loch Raven Reservoir, 43.2 million gallons from the Susquehanna River, and 0.55 billion gallons of groundwater from wells tapping the Potomac Group Aquifer.

Treatment at the Perryman Groundwater Plant includes:

- Granular-activated carbon filters to adsorb chemical contaminants.
- Chlorine to eliminate health-threatening organisms.
- Soda ash to raise the pH and make the water less acidic.
- Phosphate additive for corrosion prevention in the distribution system.
- Fluoride to help fight tooth decay for consumers.

Treatment at the Havre de Grace Water Plant (only draws from the Susquehanna River) includes:

- Screening the incoming raw water for debris.
- Aluminum sulfate plus polymer to condition the water for filtration.
- Powdered activated carbon is added to adsorb contaminants in the water.
- Clarification: filtration through one layer of course filter media (adsorption clarifier).
- Filtration: mixed media (three layers of fine filter media).
- Chlorine to eliminate health-threatening organisms.
- Caustic soda to raise the pH and make the water less acidic.
- Fluoride to help fight tooth decay for consumers.

Treatment at the Abingdon Water Plant (can draw from the Susquehanna River or the Loch Raven Reservoir) includes:

- Screening the incoming raw water for debris.
- Ferric Sulfate plus polymer to condition the water for filtration.
- Powdered activated carbon is added to adsorb contaminants in the water.

- Clarification: sedimentation basins.
- Filtration: dual media (two layers of fine filter media).
- Chlorine to eliminate health-threatening organisms.
- Soda ash to raise the pH and make the water less acidic.
- Phosphate additive for corrosion prevention in the distribution system.
- Fluoride to help fight tooth decay for consumers.

Surface water requires filtration to remove turbidity from the water. Turbidity is the measure of cloudiness in the water usually attributed to soil runoff. Removing turbidity from the water improves the ability of chlorine to eliminate health-threatening organisms.

Harford County also cooperates with other local water utilities. Using interconnections, we can exchange water from system to system when needed. These systems include the City of Havre de Grace, Maryland American Water Company (in the Bel Air area), City of Aberdeen, Greenridge Utilities, and Aberdeen Proving Ground.

SOURCE WATER ASSESSMENTS:

A requirement, under the Safe Drinking Water Act, is for each State to develop a Source Water Assessment Program (SWAP). The assessments evaluate the drinking water sources that serve public water systems, and examine activities associated with the surrounding areas to determine their contribution to contamination. The required components of an Assessment Report are: (1) outline the area that contributes water to the source; (2) identify potential sources of contamination; and (3) determine the susceptibility of the water supply to contamination.

COUNTY'S WELLFIELD

The Maryland Department of the Environment Water Supply Program (WSP) has conducted a Source Water Assessment for Harford County's well water supply. The source for Harford County's well water supply is a semi-confined aquifer in the Coastal Plain known as the Potomac Group. Potential sources of contamination within the assessment area are agricultural land use, underground storage tanks, ground water contamination sites, and commercial/industrial sites. It was determined that the water supply is susceptible to contamination by nitrates, volatile organic compounds (e.g. solvents and gasoline), and radionuclides.

SUSQUEHANNA RIVER

The Susquehanna River Basin Commission conducted a Source Water Assessment of the Susquehanna River. Harford County has two surface water plants that can draw water from the lower Susquehanna Sub-basin. Potential sources of contamination are agricultural land use, urban/residential development, boating activities, sewage effluent, major transportation corridors (highways, railroads) and nuclear power generating plants. It was determined that the water supply is susceptible to contamination by turbidity and sediment, microorganisms, inorganic compounds, organic compounds, disinfection byproducts, and radionuclides.

LOCH RAVEN RESERVOIR

The Maryland Department of the Environment has conducted a Source Water Assessment for Loch Raven Reservoir. The reservoir collects water from a 303 square-mile watershed spanning three Maryland Counties: Baltimore, Carroll, & Harford. Harford County has a surface water plant that can draw from the reservoir. Potential sources of contamination are public & private sewage systems, storm runoff from agricultural and developed areas, and spillage of hazardous materials. It was determined

that the water supply is susceptible to contamination by phosphorus, turbidity and sediment, pathogenic protozoans, disinfection byproducts, and Sodium.

FOR MORE INFORMATION ON HARFORD COUNTY'S SOURCE WATER ASSESMENTS:

MDE: Maryland's Source Water Assessment Program

Susquehanna River Basin Commission

EPA: Source Water Protection

WATER REGULATIONS

The Federal Government signed the Safe Drinking Water Act (SDWA) into law in December of 1974; the law was updated in 1986 and 1996. The push for Federal regulations was due to the possibility that carcinogenic chemicals were contaminating some of our Nation's water supplies. The SDWA identifies substances that are thought to pose a health threat, when present at certain levels. These water quality indicators are called Primary Standards or levels of contaminants.

- The setting of national standards regulating the levels of contaminants in drinking water. These are called the Maximum Contaminant Levels (MCL).
- Requiring public water systems to monitor and report the levels of identified contaminants.
- Definition of an approved treatment technique for each regulated contaminant.
- Mandatory revisions to the list of regulated contaminants, based on the available scientific data on contaminants.
- Filtration required for all surface water supplies.
- Disinfection of all water supplies.
- Prohibits the use of lead products in materials used to carry drinking water.

The SDWA identified 83 contaminants that had to be monitored for by 1989. More contaminants have been added to the list since then. The regulators that make sure the SDWA is followed are the Environmental Protection Agency (EPA) and for the State of Maryland: The Maryland Department of Environment (MDE). Monitoring is based on sanitary surveys, known pollutant sources, water chemistry, and the water source.

The Environmental Protection Agency (EPA) prioritizes contaminants for potential regulation based on risk and how often they occur in water supplies. Our system participates by monitoring for the presence of contaminants for which no national standards currently exist and reporting information on their occurrence to the EPA.

For more information go to:

EPA: Safe Drinking Water Act

EPA: Contaminant Candidate List

EPA: Drinking Water Standards

PREVENTION OF PATHOGENS AND CHEMICAL CONTAMINANTS

Presently, the EPA and the Maryland Department of Environment (MDE) decide how often we must test for contaminants. The frequency of the tests depends on the vulnerability of our water supply to sources of these contaminants. Government regulators found the presence or absence of some

contaminants can be very consistent, so we may only run some tests once a year. Usually tests are done biannually, quarterly, monthly, weekly, daily, and some contaminants like turbidity are monitored continuously.

EXAMPLES OF PATHOGENS:

Bacteria, Viruses, and Intestinal Parasites are classes of disease-causing organisms (pathogens) that can be transmitted through water.

Bacteria

- Shigella - dysentery
- Bacillus typhus - typhoid fever
- Vibro cholerae - cholera

Viruses

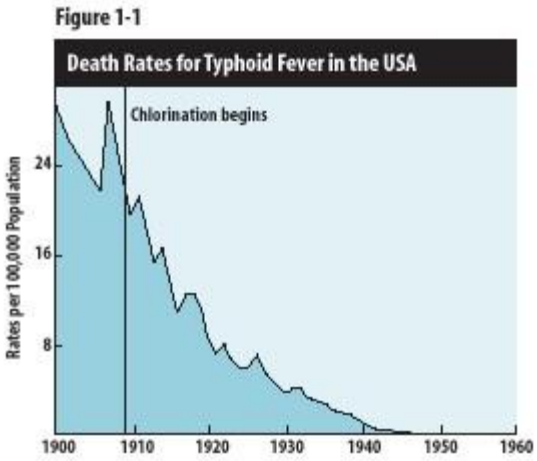
- Infectious Hepatitis
- Poliovirus

Intestinal Parasites

- Giardia lamblia
- Cryptosporidium

Harford County Water Operations uses chlorine and filtration as the primary means of protection against pathogens. Chlorine is a chemical element that was first used for the disinfection of drinking water in the 1890s. One such application of chlorine occurred in England following an 1897 typhoid epidemic where chlorine was used to disinfect the water mains. The first continuous use of chlorine in the United States was at a Jersey City, New Jersey water utility in 1908. Chlorine is a well proven disinfectant for the prevention of water borne disease outbreaks.

Before chlorination of drinking water, typhoid fever killed about 25 out of every 100,000 people in the U.S. annually.



Source: US Centers for Disease Control and Prevention, Summary of Notifiable Diseases, 1997.

Unfortunately, there are some pathogens that are resistant to chlorine. These organisms fall in the class of intestinal parasites with the most notorious being Giardia Lamblia and Cryptosporidium. Generally, these pathogens are found in surface waters, and the most effective means of protection is to keep the turbidity of the water at a very low level with filtration. For this reason, the Environmental Protection Agency (EPA) and the Maryland Department of the Environment (MDE) have set the maximum allowable level of instantaneous turbidity at 1.0 NTU, and the finished water must be less than or

equal to 0.3 NTU for 95% of the time during each month.

QUALITY ASSURANCE AGAINST PATHOGENS

Harford County monitors three criteria to judge our effectiveness in the battle against pathogens.

We constantly monitor the turbidity levels of the water leaving our surface water treatment plants. For 2022 the average turbidity at the Abingdon Water Treatment Plant was 0.004 NTU.

We constantly monitor the chlorine residuals of the water leaving our surface and groundwater treatment plants. We want the chlorine to produce an initial disinfection of the water and to maintain a minimum chlorine residual throughout the entire distribution system. The 2022 chlorine levels in our distribution system did not fall below the 0.2 mg/l minimum residual allowed.

We take samples throughout the distribution system to test for the presence of bacteria. In 2022 we tested 1440 samples, taken from every section of our distribution system for Total Coliform bacteria. Not one of the 1440 samples were positive.

For more information go to:

EPA: Total Coliform Rule Revisions

QUALITY ASSURANCE AGAINST CHEMICAL CONTAMINATION

An example of how the monitoring system can help safeguard our water supply: In February of 1992 routine monitoring found the presence of Trichloroethylene (TCE) in two of Harford County's Wells located at Aberdeen Proving Ground (APG). Further study showed that the water our customers were receiving had TCE levels well below the Maximum Contaminant Level of 5 ppb (parts per billion.) Even though we met guidelines set by the SDWA, the County Executive and APG officials decided to treat the Well water to remove the TCE. The Army built a Granular Activated Carbon (GAC) filtration system that was in service by the summer of 1993. The GAC filters can lower the TCE concentration to a nondetectable level.

For more information go the EPA website:

EPA: Trichloroethylene

In 2001 the Harford County Executive and APG officials decided to expand treatment to all wells that supply water to the Well Water Treatment Plant. The units were put in service in 2003 with the number of GAC filtration units increased from 5 to 11. The reason for expanding treatment was to be ready in case there was a migration of contamination beyond the two wells that had the TCE contamination.

In 2012 APG testing showed the presence of Perfluorinated compounds in 2 of the 7 Harford County

Wells. Currently, Perfluorinated Compounds are not regulated by the Federal or State Governments. However, in 2009 the EPA put out a Provisional Health Advisory for two of the Perfluorinated Compounds: Perfluoro-n-Octanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS). EPA's health advisories are non-enforceable and non-regulatory and provide technical information to state agencies. A health advisory level offers a margin of protection from adverse health effects resulting from exposure to a nonregulated contaminant in drinking water. The 2009 health advisory for PFOA was 400 parts per trillion (ppt), and for PFOS was 200 ppt. In 2016, a new EPA health advisory was issued lowering the level to 70 ppt for both PFOA and PFOS (either 70 ppt separately or combined). The GAC filters at the Well Water Plant can lower the PFOA and PFOS concentrations to a nondetectable level.

For more information go the EPA website:

EPA: PFAS

WATER CONSERVATION

During the 2002 drought condition, Harford County supplemented the reservoir water supply by drawing water for 9 months out of the Susquehanna River to the surface Water Plant that normally draws from the Lock Raven Reservoir. During the 2007 drought watch condition, it was necessary to draw water for 3 months out of the Susquehanna River. It is important for everyone to practice good water conservation measures. Population growth can cause increasing water demands by residential, commercial, and industrial users. Only 3% of the world's supply is fresh water, and 2% of that is locked up in the polar ice caps and glaciers. That leaves 1% for all of humanity's needs; including agricultural, manufacturing, community, and personal. Everyone can help by using water wisely. For example, a slight faucet drip or toilet leak can waste 15 gallons a day (105 gallons a week, 5,460 gallons a year).

For information on water efficiency, visit these websites:

MDE - Water Conservation

EPA - Watersense

Maryland Drought Status

WATER SYSTEM SECURITY

Harford County Government completed a vulnerability assessment of our water system in 2003. The assessment, per EPA guidelines, was done to evaluate our water systems susceptibility to potential threats and identify corrective actions. We are implementing these ideas through improved procedures, emergency response planning, and new security technology. We are also working with other utilities, government agencies, and law enforcement to minimize threats. Since a water or wastewater system has numerous facilities that can be isolated and cover a large area, they can be difficult to secure and patrol. Residents can assist by being aware of suspicious activities and reporting them to local law enforcement.

Examples of suspicious activities might include:

- People cutting or climbing a security fence.
- People discharging material into a water source (stream, river, reservoir).
- Unmarked vehicle parked near a water source or facility for no apparent reason.
- Suspicious opening or tampering with fire hydrants, manhole covers, buildings, or equipment.
- People climbing on top of water tanks.
- People photographing or videotaping utility facilities, structures, or equipment.
- People hanging around locks or gates.

For more information go to the EPA website:

EPA: Water Security

WATER DEFINITIONS

Action Level - If a contaminant exceeds this concentration, it can trigger improved treatment techniques or other requirements a utility must follow.

Avg. – Average.

Chlorine - A greenish-yellow gas, it occurs in nature in numerous and abundant compounds, e.g., sodium chloride (common salt). Chlorine is soluble in water; chlorine water has strong oxidizing properties and is used for disinfection in water treatment. Harford County DPW switched from Chlorine gas to Sodium Hypochlorite (bleach), which is a liquid with 12% strength of chlorine. This was done for safety reasons, since a chlorine gas leak would be very hazardous to people and the environment.

Coliform Bacteria - A group of bacteria found in the intestines of warm-blooded animals (including humans). The presence of coliform bacteria indicates that the water is polluted and may contain disease-causing organisms. When coliform bacteria are found, special follow-up tests are done to determine if harmful bacteria are present. If this limit is exceeded, the water supplier must notify the public by newspaper, television or radio.

Compliance Level (CL) - Is the value used to determine compliance with MCL or TT. The CL for contaminants can be a maximum test value, an average, or meeting a condition for a certain percentage of the time.

Cryptosporidium - Intestinal Parasites that can cause gastrointestinal illness (e.g., diarrhea, vomiting, cramps). In 2022, they were not found in the untreated surface water. See Special Precautions.

Disinfection - A process designed to kill most microorganisms in water, including essentially all disease-causing organisms. There are several ways to disinfect, with chlorine being the most frequently used in water treatment.

Disinfection By-Products - are formed when disinfectants used in water treatment plants react with bromide and/or natural organic matter (i.e., decaying vegetation) present in the source water. Different disinfectants produce different types or amounts of disinfection byproducts. Disinfection byproducts for which regulations have been established have been identified in drinking water, including trihalomethanes, haloacetic acids, bromate, and chlorite.

Distribution System - A network of pipes, valves, fire hydrants, service lines, meters, and pumping stations that deliver water to homes, businesses, and industries for drinking and other uses. This water is also used for fire protection.

EPA (Environmental Protection Agency) - An independent US agency in the executive branch of the federal government. It was established in 1970 to reduce and control air and water pollution, noise pollution, and radiation and to provide safe handling and disposal of toxic substances. The EPA engages in research, monitoring, and the setting and enforcement of national standards.

Filtration - A physical and chemical process for the removal of turbidity from water.

GAC (Granular Activated Carbon) - Adsorptive granules of carbon usually obtained by heating carbon (such as wood). These granules have a high capacity to remove certain trace and soluble materials from water.

Giardia lamblia - Intestinal Parasites that can cause gastrointestinal illness (e.g., diarrhea, vomiting, cramps). In 2022, 1.3 cyst/ liter was found in the untreated surface water. See Special Precautions.

Groundwater - Part of the precipitation that falls infiltrates the soil and percolates down until all voids in the earth's materials are filled with water. This zone of water is called ground water with the upper part of the zone called the water table. A Well penetrates the water table and is used to extract water from the ground water basin.

Inorganics - Material such as sand, salt, iron, calcium salts and other mineral materials. Inorganic substances are of mineral origin, whereas organic substances are usually of animal or plant origin.

MCL (Maximum Contaminant Level) - The "Maximum Allowed" is the highest level of a contaminant that is allowed in drinking water as set by federal law.

MCLG (Maximum Contaminant Level Goal) - This is the level of a contaminant in drinking water, below which there is no known or expected health risk. The MCLGs allow for an extra margin of safety, over and above the Maximum Contaminant Level (MCL).

MDE (Maryland Department of the Environment) - An agency of the State of Maryland that monitors for and enforces federal and state regulations, and is held accountable by the EPA.

Nephelometric Turbidity Unit (NTU) - A unit of measure for the clarity of water. A turbidity level of 5 NTU is just noticeable to the average person.

Ninetieth Percentile (for lead and copper testing only) - Ninety percent of the homes, where the tap water was tested, are at or below this value. EPA only requires the voluntary testing of homes built between 1983 and 1986 where lead solder has been used in the plumbing.

Nondetectable - Is the value given for a specific water quality test when there isn't any of the particular substance found. A nondetectable value doesn't mean the value is zero, but the level is below the sensitivity of current analysis procedures.

Organics - A term that refers to chemical compounds made from carbon molecules. These compounds may be natural materials (such as animal or plant sources) or man-made.

PFOA – Perfluorooctanoic Acid.

PFOS – Perfluorooctanesulfonic Acid

ppm (Parts Per Million) - A measurement unit for the level of contaminants in water. One part contaminant to one million parts water. One ppm corresponds to one minute in two years or a single penny in $10,000.

ppb (Parts Per Billion) - A measurement unit for the level of contaminants in water. One part

contaminant to one billion parts water. One ppb corresponds to one minute in 2,000 years, or a single penny in $10,000,000.

ppt (Parts per trillion) - A measurement unit for the level of contaminants in water. One part contaminant to one trillion parts water. One ppt 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. Results for testing radon in water are expressed as pCi/L.

Radionuclides - A term for radioactive elements that are sometimes found in drinking water. The MCLs for radiological contaminants are divided into two categories: (1) natural radioactivity which results from well water passing through deposits of naturally occurring radioactive materials; and (2) man-made radioactivity such as might result from industrial wastes.

SDWA (Safe Drinking Water Act) - An act passed by the US congress in 1974. The Act establishes a cooperative program among local, state and federal agencies to provide safe drinking water for consumers.

Surface Water - The accumulation of water on the surface of the ground as a result of runoff from precipitation. Surface water for drinking water supplies are usually classified into rivers, lakes, or reservoirs.

Treatment Technique (TT) - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water. The (CL) compliance level for meeting turbidity standards is based on the Treatment Technique used instead of using a MCL.

Trihalomethanes - A compound that can be formed with hydrogen and either chlorine or bromine. It is a suspected cancer-causing contaminant.

Turbidity - The cloudy appearance of water caused by the presence of suspended matter. A turbidity measurement is used to indicate the clarity of the water. A turbidimeter is an instrument that measures the amount of light that is reflected by suspended particles in the sample of water. Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms.

Volatile Organic Compounds (VOC) - Organic compounds that evaporate readily at normal pressures and temperatures. They include both human-made and naturally occurring chemical compounds. Some VOCs are dangerous to human health or cause harm to the environment. Harmful VOCs typically are not acutely toxic, but have compounding long-term health effects.

Unregulated Contaminants - Unregulated contaminant monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants.

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Second Quarter Nitrate Results Were Not Reported To MDE Within The Specified Timeframe

The Harford County DPW performs quarterly testing for Nitrates. During the second quarter, April 1, 2022 to June 30, 2022, a sample was taken on May 17, 2022 but it was not reported to the Maryland Department of Environment by July 10, 2022. On August 24, 2022, the Inorganic Self-Monitoring Report detailing the Nitrate result of 3.27 mg/L was submitted to the regulatory authority.

What should I do?

- No action is required since your water quality was not affected. The Nitrate result was well below the maximum contaminant level of 10 mg/L.

What does this mean?

- A clerical error occurred by the subcontract laboratory where the Nitrate result was not reported to the State of Maryland by the regulatory deadline. All other quarterly Nitrate results were reported within the specified timeframe. Please note that your water quality was not impacted by this violation.

What was done?

- An Inorganic Self-Monitoring Form was supplied to MDE on August 24, 2022. Quarterly Nitrate testing and reporting continued during 2022 with no other reporting incidents.

For more information, please contact William Smith, Laboratory Superintendent at (410) 638-3939.

Please share this information with all other people who drink this water especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

Harford County Department of Public Works – PWS# 012-0016 Notice Date: 5/23/23