

# Ayersville Water and Sewer District, Defiance Ohio

## 2023 Annual Drinking Water Quality Report

The Ayersville Water and Sewer District is pleased to present to you this year's Annual Quality Water Report. This report is designed to inform you about the quality and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water. Our water source is surface water taken from the Maumee River and pumped into an up-ground reservoir operated by the City of Defiance.

If you have any questions about this report or concerning your water utility, please contact the office at (419) 395-1733. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regular scheduled Board meetings. They are held every month on the third Thursday at 7:00 pm at the Ayersville Water and Sewer District Office; 13961 Fruit Ridge Road, Defiance, Ohio.

The district pumped 41,324,750 gallons of water to our customers during 2023, which was up from 2022's distribution of 35,408,080 gallons. The district is a satellite district of Defiance. Therefore, the District is influenced by Defiance's test results. In accordance with the Federal and State laws, we routinely monitor for chlorine, daily; total coliform, monthly; total trihalomethanes & Haloacetic acids, quarterly; and lead, & copper annually. The table on page five shows the results of the Defiance Water Treatment Plant's monitoring for the period of January 1st to December 31st, 2023; as well as results from analysis of the Ayersville W&S District's sampling.

The district was not in violation for exceeding the maximum contaminant level (MCL) standard of 80 ug/L as established in the Ohio Administrative Code (OAC) section 3745-81-12 for TTHM for the 1<sup>st</sup> & 2<sup>nd</sup> Quarters, January 1st - March 31<sup>st</sup> & April 1<sup>st</sup> - June 30<sup>th</sup> of 2023. Compliance with the MCL is based on a locational running annual average (LRAA). The LRAA for TTHM during the First Quarter of 2023-time period was 57.5 ug/L at location DS201 and 60.6 ug/L at location DS202. Second Quarter of 2023-time period was 57.6 ug/L at location DS201 and 47.8 ug/L at location DS202. Third Quarter of 2023-time period was 48.9 ug/L at location DS201 and 50.4 ug/L at location DS202. During Fourth Quarter of 2023-time period the LRAA was 51.7 ug/L at location DS201 and 51.7 ug/L at location DS202. 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 an increased risk of getting cancer. TTHMs are a by-product of disinfection and as water sits over time in the districts distribution system, these byproducts can accumulate in your water. Increased flushing can help alleviate this buildup by decreasing the time water sits. Be assured that the district is currently pursuing efforts to address and remedy our TTHM exceedances. The district has fluctuated tower levels in order to get more volume of water flowing in and out of the water tower. The flushing routine of our hydrants has been updated as well as a slow flush program "continuous flushing" to potentially cause a more thorough flushing of the district's distribution system, at the same time we are coordinating with the City of Defiance's flushing schedule to provide fresher water to be flushed through the system. A contract has been signed with a local engineering firm an ongoing study is being done to determine the best feasible solution to this issue. We are encouraged that these efforts will show positive change in the near future as it concerns our current TTHM issues.

### Where Does My Water Come From?

The Ayersville Water & Sewer District gets its water from Defiance, Defiance uses surface water from the Maumee River and the Upper Maumee Watershed. An estimated 57% of Ohio's population gets its drinking water from surface water sources. Water from the Maumee River is pumped to the reservoir located on Precision Way. Here the water has a chance to settle, which allows the reservoir to act as a pretreatment basin that provides the water plant with more consistent raw water quality. This also creates an isolated source of supply during times when large amounts of silt and other contaminants such as nitrates, phosphorus, and ammonia can be washed into the river making the water hard to treat. The water then flows by gravity to the water plant for treatment.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Surface waters are by their nature, susceptible to contamination, and there are numerous potential contaminant sources, including agricultural runoff, oil/gas wells, inadequate septic systems, leaking underground storage tanks, and road and rail crossings. As a result, the surface water supplied to these plants is considered to have a high susceptibility to contamination.

Contaminants that may be present in source water include: (A) Microbial contaminants such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife; (B) Inorganic contaminants such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming; (C) Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and septic systems; (D) Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems; (E) Radioactive contaminants, which can be naturally-occurring or be the result of oil gas production and mining activities.

In order to ensure that tap water is safe to drink, USEPA prescribes regulations which limit the number of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Federal Environmental Protection Agency's Safe Drinking Water Hotline (1-800-426-4791).

## **Source Water Assessment / Watershed Protection**

For the purposes of source water assessments, all surface waters are considered to be susceptible to contamination. By their nature surface waters are accessible and can be readily contaminated by chemicals and pathogens, with relatively short travel times from source to the intake. Based on the information compiled for the Source Water Assessment, the City of Defiance drinking water source protection area is susceptible to agricultural runoff (animal feedlots, pesticide/fertilizer storage and application), industrial and commercial sources, junkyards, above ground storage tanks, home construction runoff, oil and gas production activities, unsewered areas, and wastewater treatment plant discharges.

The City of Defiance's Public Water System treats water to meet drinking water quality standards, but no single treatment technique can address all potential contaminants. The potential and quantity of raw water contamination can and should be addressed by implementing measures to protect the Maumee River. More detailed information is provided in the City of Defiance's Drinking Water Source Assessment Report. This report has just gone under an extensive revision and is available for review. Copies can be requested by contacting the City of Defiance Water Superintendent.

### **Microbiological Contaminants:**

#### **Turbidity:**

Turbidity is a measure of the cloudiness of water and is an indication of the effectiveness of our filtration system. The turbidity limit set by the EPA is 0.3 NTU in 95% of the daily samples and shall not exceed 1 NTU at any time. As reported in the Table, the Defiance WTP highest recorded turbidity result for 2023 was 0.41 NTU and lowest monthly percentage of samples meeting the turbidity limits was 100%. This means all samples in 2023 met compliance for turbidity.

Inorganic Contaminants:

#### **Nitrate:**

Infants below the age of six months who drink water-containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.

### **Lead Educational Information:**

A public water system is required to collect samples at homes that are a high risk to have elevated lead and copper levels in their water. A public water system is in compliance if the 90th percentile is no greater than 15ug/L for lead and 1.3 ppm for copper. "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. Ayersville Water and Sewer District is responsible for providing high quality water drinking water, but cannot control the variety of materials used in plumbing components. When your water has been still/not flowing for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods and steps you can take to minimize exposure is available at the district office; please contact us at 13961 Fruit Ridge Road, Defiance OH 43512 or @ 419-395-1733. Some people who drink water containing fluoride well in excess of the MCL over years could get bone disease, including pain and tenderness of the bones. Children may get mottled or discolored teeth.

On page 3, you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we have provided the following definitions:

### **Abbreviated Definitions:**

**AL—Action Level.** The concentration of a contaminant, which if exceeded, triggers treatment or other requirements.

**NA—Not**

**Available. ND—**

**No Detection.**

**TT—Treatment Technique.** Required process intended to reduce the level of a contaminant in drinking water. **ppm or mg/L—Parts Per Million.** Milligrams per liter or parts per million - or one ounce in 7,350 gallons of water. One part per million corresponds to one minute in two years.

**ppb or ug/L—Parts Per Billion.** Micrograms per liter or parts per billion - or one ounce in 7,350,000 gallons of water. One part per billion corresponds to one minute in 2,000 years.

**NTU—Nephelometric Turbidity Unity.** A measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

**pCi/L—Picocuries Per Liter:** is a unit for measuring radioactive concentrations. The curie (Ci) unit is the activity of 1 gram of pure radium 226. Pico is a scientific notation term which **means**  $1 \times 10^{-12}$ . Another unit commonly used for radioactive concentrations is the SI unit Becquerels per meter cubed (Bq/m<sup>3</sup>).

**MCL—Maximum Contaminant Level:** Maximum allowable amount of a contaminant that is allowed in drinking water.

**MCLG--Maximum Contaminant Level Goal:** 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.

**MRDL--Maximum Residual Disinfectant Level:** The highest residual disinfectant level allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**MRDLG--Maximum Residual Disinfectant Level Goal:** The level of residual disinfectant below which there is no known or expected risk to health.

**RAA—Running Annual Average.**

**TTHM—Total Trihalomethanes or Trihalomethanes (THM):** are a group of four chemicals that are formed along with other disinfection by products when chlorine or other disinfectants used to control microbial contaminants in drinking water react with naturally occurring organic and inorganic matter in water.

**HAA5:** Haloacetic acids (also known as halogenated acetic acids, **HAAs** or **HAA5**) are chemicals that can form as a result of water treatment, when water acidity and temperature are slightly high and treatment chemicals react with organic particles or bromide.

**Master Meter:** A master meter is one that connects a wholesale public water system to consecutive public water system(s). This type of meter monitors the amount of water being sent to the consecutive system(s) and can also be used to determine the quality of water being delivered to the consecutive system(s).

**Microcystins:** Liver toxins produced by a number of cyanobacteria. Total microcystins are the sum of all the variants/congener (forms) of the cyanotoxins microcystin.

**Cyanobacteria:** Photosynthesizing bacteria, also called blue-green algae, which naturally occur in marine and fresh water ecosystems, and may produce cyanotoxins, which at sufficiently high concentrations can pose a risk to public health.

**Cyanotoxins:** Toxin produced by cyanobacteria. These toxins include liver toxins, nerve toxins, and skin toxins. Also sometimes referred to as “algal toxin”.

**DBP MM CCR Language:**

**Definition of Master Meter:** A master meter is a one that connects a wholesale public water system to consecutive public water system(s). This type of meter monitors the amount of water being sent to the consecutive system(s) and can also be used to determine the quality of water being delivered to the consecutive system(s).

**Consecutive PWS:** OAC 3745-81-24 requires specific public water systems to conduct disinfection byproduct sampling at their master meter location(s) after meeting specific triggers within the rule. This rule affects both consecutive systems and their wholesaler system. Ayersville Water & Sewer District has triggered into the requirement to sample at the designated master meter location for disinfection byproducts due to exceedances of the MCL and/or OEL for disinfection byproducts. This public water system purchases water from Defiance Water Treatment Plant. This sampling has been conducted since the third quarter 2021 and the results are shown below. If you have any questions about this sampling and/or the rule, please contact Eric Wenzinger at 419-395-1733.

MM DBP Sampling:	1Q2023	2Q2023	3Q2023	4Q2023	LRAA
HAA5	10.4	12.8	12.2	9.0	11.1
TTHM	22.6	32.1	44.7	34.4	33.5

Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

MCL's are set at very stringent levels. To understand the possible health effects described for many regulated contaminants, a person would have to drink two (2) liters of water every day at the MCL level for a lifetime to have a one- in-million chance of having the described health effect.

In our continuing efforts to maintain a safe and dependable water supply it may be necessary to make improvements in your water system. The costs of these improvements may be reflected in the rate structure. Rate adjustments may be necessary in order to address these improvements.

Thank you for allowing us to continue providing you & your family with clean, quality water this year. In order to maintain a safe and dependable water supply we sometimes need to make improvements that will benefit all of our customers. These improvements are sometimes reflected as rate structure adjustments. Thank you for understanding.

In the pursuit of providing our consumers with quality drinking water The Ayersville Water and Sewer District has proposed a standard procedure to continually slow flush two flushing plugs to improve the water quality for the entire district, lessen the standing time in the pipe, decrease TTHM formation and decrease labor and resources from the district. The Ayersville WSD submitted a request on February 20, 2019, to conduct slow flushing at the ends of 2 water lines. Ohio EPA notified Ayersville WSD on February 21, 2019, that the proposal was acceptable.

With the approval of the slow flush program our water system's routine flushing program schedule remained the same. A total system unidirectional flushing will take place twice a year at the end of May and the End of Oct and no less than 385,000 gallons will be flushed to completely replace all water in lines and elevated tower with fresh water; this is coordinated to follow the City of Defiance's unidirectional flushing. A formal unidirectional flushing program to reduce water age be implemented by the Ayersville Water and Sewer District to reduce TTHMs for the immediate future. This program would be implemented until the purchased water quality no longer deems it necessary. The City of Defiance has notified the Ayersville Water and Sewer District that the Granular Activated Carbon (GAC) filter system construction has been completed. GAC is a proven and effective approach to reduce concentrations of Total Organic Carbon in treated water. TOC is known to react with free chlorine used for disinfection to create disinfection byproducts, including THMs. In addition to the DWTP's GAC construction, AWSD has secured funding and has installed an aeration system that will be installed in the elevated tower. Since TTHM's quickly volatilize when exposed to air this project on top of DWTP's GAC system will further reduce the TTHM levels. The MCL notices that you receive in the mail are generated based off a 4 quarter average you may continue to receive notices even though the levels currently are drastically below the MCL. The letters must continue until the 4 quarter average drops below 80 parts per billion, as per OEPA requirements.

Some people may be more vulnerable to contaminants in the drinking than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplant, 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 are an appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

The Ayersville Water and Sewer District operates under a current, conditioned license from the Ohio EPA. The conditions require us to address ongoing violations. Our Public Water System Identification (PWSID) is OH2000903 and is valid until January 30, 2024. Please call our office if you have any questions on these conditions or violations. We work around the clock at the District to provide top quality water to every tap. We ask that all our customers help us in protecting our water sources. Water nourishes the seed of our community's health and well-being.



**Eric Wenzinger Manager/ORC WS2-20087068-20**  
**Ayersville Water & Sewer District**  
**13961 Fruit Ridge Rd.**  
**Defiance, Ohio 43512**  
**(419) 395-1733**

**Year of 2023**

<b>Contaminants (Units)</b>	<b>MCLG</b>	<b>MCL</b>	<b>Level Found</b>	<b>Range of Detection</b>	<b>Violation Yes/No</b>	<b>Year Sampled</b>	<b>Typical Sources of Contaminants</b>
<b>Microbiological Contaminants</b>							
Turbidity (NTU)	N/A	TT	0.41	0.02-0.41	No	2023	Soil Water Runoff
Turbidity (% Samples meeting standard)	N/A	TT=95 %	100%	100%	No	2023	
Total Organic Carbon (TOC)	TT	N/A	2.2	1.5-2.4	No	2023	Naturally present in the environment.
The value reported under "Level Found" for TOC is the lowest ratio between percentage of TOC actually removed to the percentage of TOC required to be removed. A value of greater than one (1) indicates that the water system is in compliance with TOC removal requirements. A value of less than one (1) indicates a violation of the TOC removal requirements.							
<b>Inorganic Contaminants</b>							
Fluoride (ppm)	4	4	1.12	0.77-1.36	No	2023	Erosion of natural deposits; Water additive which promotes strong teeth.
Nitrate (ppm)	10	10	2.21	0.16-2.21	No	2023	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Barium (ppm)	2	2	0.0150	0.0150	No	2023	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
<b>Volatile Organic Contaminants</b>							
Total Trihalomethanes (TTHM) (ppb)	N/A	80	66.6	16.6-82.8	Yes	2023	By-product of drinking water chlorination.
Haloacetic Acid (HAA5) (ppb)	N/A	60	17.6	8.2-16.2	No	2023	By-product of drinking water chlorination.
<b>Residual Disinfectant</b>							
Total Chlorine (ppm)	MRDLG=4.0	MRDL=4.0	1.22	0.50-1.60	No	2023	Water additive used to control microbes.
<b>Lead &amp; Copper</b>							
<b>Contaminants (Units)</b>	<b>Action Level</b>	<b>Individual Results over AL</b>	<b>90% of test samples were less than</b>	<b>Violation</b>	<b>Year Sampled</b>	<b>Typical Source Of Contamination</b>	
Lead (ppb) MCLG = 0	15	N/A	< 2	No	2023	Corrosion of household plumbing systems; Erosion of natural deposits.	
						0 out of 30 samples collected were found to have lead levels in excess of the Action Level of 15 ppb.	
Copper (ppm) MCLG-1.3 ppm	1.3	N/A	0.06	No	2023	Corrosion of household plumbing systems; Erosion of natural deposits.	
						0 out of 30 samples collected were found to have copper levels in excess of the Action Level of 1.3 ppm.	

**Detected Regulated Contaminants Table  
Ayersville Water & Sewer District 2023**

Contaminants (units)	MCLG	MCL	Level Found	Range of Detection	Violation Yes/No	Year Sampled	Typical Sources of Contaminants
<b>Microbiological Contaminants</b>							
<b>Residual Disinfectants</b>							
Total Chlorine (ppm)	MRDLG=4	MRDL=4	0.80833	0.60-1.0	No	2023	Water additive used to control microbes.
<b>Volatile Organic Contaminants</b>							
Total Trihalomethanes (TTHM)(ppb)	N/A	80	45.60	22.6 – 94.1	Yes	2023	By-product of drinking water chlorination
Haloacetic Acid (HAA5)(ppb)	N/A	60	13.6	7.5 – 37.0	No	2023	By-product of drinking water chlorination
<b>Lead and Copper</b>							
Contaminants (Units)	Action Level (AL)	Individual Results over theAL	90% of test levels were less than	Violation	Year Sampled	Typical Sources of Contaminants	
Lead (ppb)	15 ppb	N/A	<2.0	No	2023	Corrosion of household plumbing systems; Erosion of natural deposits.	
0 out of 46 samples were found to have lead levels in excess of the lead action level of 15ppb							
Copper (ppm)	1.3 ppm	N/A	0.034	No	2023	Corrosion of household plumbing systems; Erosion of natural deposits.	