MOOREFIELD MUNICIPAL WATER, PWSID WV3301601

2024 Consumer Confidence Report

Reporting Period: Calendar Year 2024

This report is a snapshot of the quality of the water that Moorefield Municipal Water provided in 2024. Included are the details about where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and West Virginia standards. For any questions concerning this report, contact Lucas Gagnon, Public Works Director at 304.530.6142. Additionally, the Moorefield Town Council meets on the first and third Tuesdays of each month.

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 EPA's Safe Drinking Water Hotline (800-426-4791).

The sources of drinking water (both tap water and bottled water) can 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.

Therefore, water testing standards have been established and enforced by the West Virginia Bureau of Public Health and the Environmental Protection Agency. The following definitions are the federally regulated standards of comparison for tested contaminants:

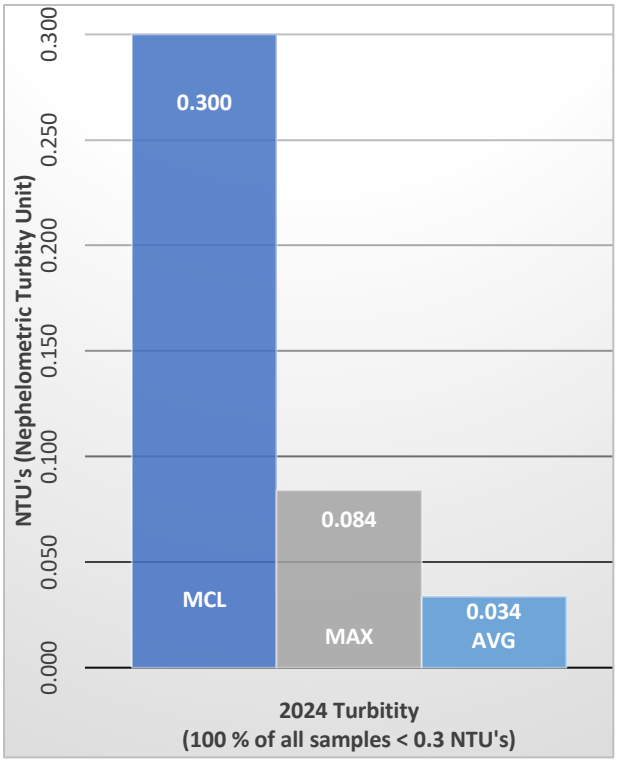
Definitions of terms and abbreviations used in this report

- **MCLG - Maximum Contaminant Level Goal** is the level of a contaminant in drinking water below which there is no known or expected risk to human health. MCLGs allow for a margin of safety.
- **MCL - Maximum Contaminant Level** 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.
- **MRDLG – Maximum Residual Disinfectant Level Goal** is the level of drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of using disinfectants to control microbial contaminants.
- **MRDL - Maximum Residual Disinfectant Level** is the highest level of a disinfectant allowed in drinking water. There is convincing evidence that the addition of a disinfectant is necessary for control of microbial contaminants.
- **SMCL - Secondary Maximum Contaminant Level** is recommended maximum level for a contaminant that is not regulated and has no MCL.
- **LRAA - Location Running Annual Average** is calculated by averaging the latest four quarters of data.
- **AL - Action Level** is the concentration of a contaminant that, if exceeded, triggers treatment or other requirements that the water system must follow.
- **TT - Treatment Technique** is a required process intended to reduce levels of a contaminant in drinking water.
- **ND – Non-Detectable** is used when the amount of analyte present is below the level that could be detected or reliably quantified using a particular EPA approved analytical method.
- **ppm – parts per million** or milligrams per liter (mg/L)
- **ppb – parts per billion** or micrograms per liter (µg/L)
- **pCi/L – Picocuries per Liter** is a measure of radioactivity in water
- **NTU – Nephelometric Turbidity Unit** is used to measure the cloudiness or clarity of the water

Important Note: Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as those 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 regarding appropriate means to lessen the risk of infection from *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Our Water Source: In 2024, the Moorefield Municipal Water produced and distributed over 1.18 billion gallons of drinking water. The main raw water source is the South Fork of the South Branch of the Potomac River which accounted for over 99 percent of the drinking water produced. The secondary backup source is the South Branch of the Potomac River, and it was the source for less than 1 percent of the water produced. All of Moorefield's drinking water comes from surface water.

Turbidity: Turbidity is a measurement of the cloudiness of the water. In raw water, it is a good indicator of the how much potential contaminates are present. In the finished drinking water, it is a way to measure the removal of targeted microorganisms. The chart to the right shows that all samples were less than the MCL of 0.3 NTU. The maximum finished water turbidity for 2024 was **0.084 NTU** and the monthly maximum average for our water treatment was **0.034 NTU**.

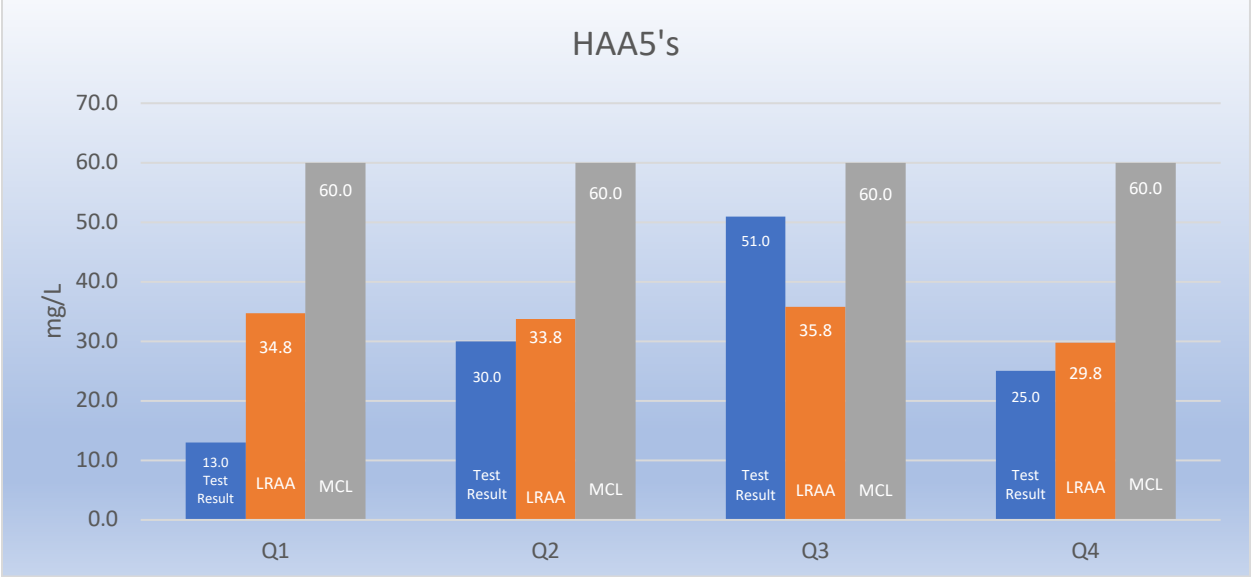


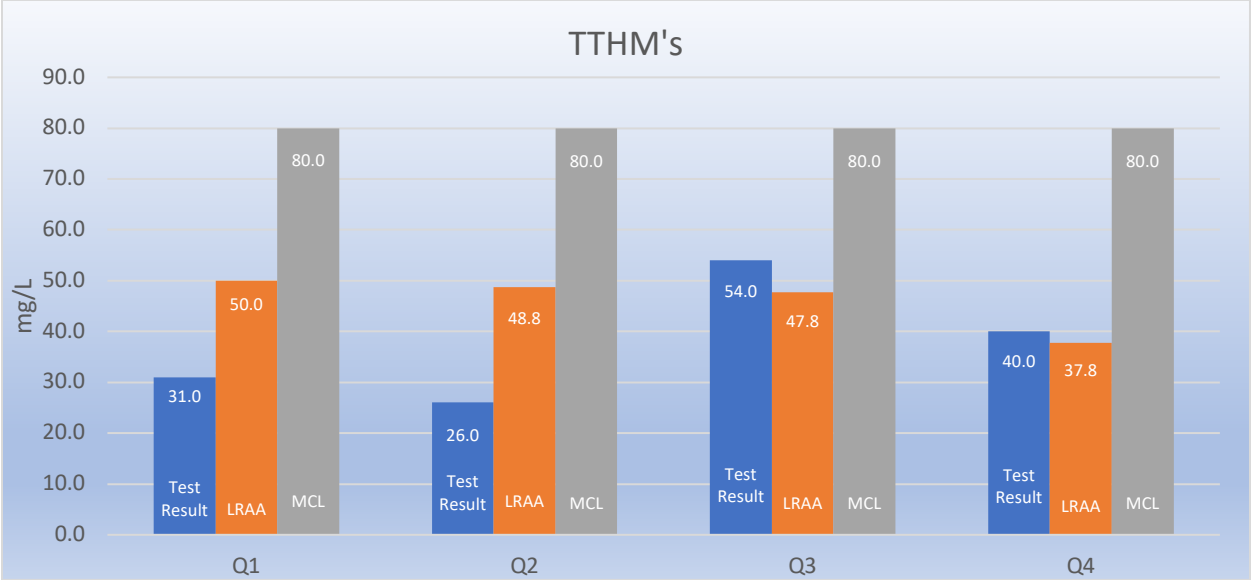
Total Organic Carbon: Total organic carbon (TOC) is naturally present in the environment. Organic compounds are precursors for disinfection by-products (DBP), which are strictly regulated in the drinking water industry. Measuring TOC makes it possible to implement the right treatment technique to reduce the formation of DBP in the water distribution system. The maximum TOC in the finished drinking water for 2024 was **3.7 ppm.** The average for the entire year was **1.6 ppm** while the minimal detectable limit is 1.0 ppm.

Chlorine: Moorefield Municipal Water uses chlorine to disinfect drinking water before it enters the distribution system. The minimum allowable chlorine residual in the distribution system is 0.2 ppm and the MRDL and MRDLG is 4.0 ppm. The range of chlorine residual in the system was a **minimum of 0.3 ppm** to **maximum of 2.0 ppm** and the **annual average was 1.01 ppm**.

Coliform Bacteria: Coliform bacteria is generally thought of as an indicator bacteria because it indicates the potential presence of disease-causing bacteria. Moorefield Municipal Water tests for Coliform bacteria in the water distribution system regularly and all sample results were ABSENT, meaning that **Coliform Bacteria is not present in the drinking water.**

HAA5's and TTHM's: Moorefield Municipal Water's use of the required chlorine creates disinfection by-products (DPB). Haloacetic Acids (HAA5's) and Trihalomethanes (TTHM's) are regulated by WV and the EPA. Some people who drink water containing disinfection by-products 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 cancer. Moorefield is in full compliance and the charts below show that the Location Running Annual Averages (LRAA) are below the MCL levels. LRAA is calculated using data from the four most recent yearly quarters, i.e., Q1 is Jan, Feb and Mar.





Lead and Copper: Moorefield was last directed to test for lead and copper in the distribution system in 2023. The results from 2023 were all below the Action Levels (AL) set by regulators, which is 15 ppb for lead and 1.3 ppm for copper. The **90th percentile** for **lead was 2.25 ppb** and for **copper was 0.053 ppm**. The lead samples ranged from **0 to 12.5 ppb** and for the copper samples ranged from **0.0025 to 0.0991 ppm**.

Infants and children are typically more vulnerable to leak in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (800-426-4791).

There is no safe level of lead in drinking water. Exposure to lead in drinking water can cause serious health effects in all age groups, especially pregnant people, infants (both formula-fed and breastfed), and young children. Some of the health effects to infants and children include decreases in IQ and attention span. Lead exposure can also result in new or worsened learning and behavior problems. The children or persons who are exposed to lead before or during pregnancy may be at increased risk of these harmful health effects. Adults have increased risks of heart disease, high blood pressure, kidney or nervous system problems. Contact your health care provider for more information about your risks.

Lead can cause serious health effects in people of all ages, especially pregnant people, infants (both formula-fed and breastfed), and young children. Lead in drinking water is primarily from materials and parts used in service lines and in home plumbing. Moorefield Municipal Water is responsible for providing high quality drinking water and removing lead pipes but cannot control the variety of materials used in the plumbing in your home. Because lead levels may vary over time, lead exposure is possible even when your tap sampling results do not detect lead at one point in time. You can help protect yourself and your family by identifying and removing lead materials within your home plumbing and taking steps to reduce your family's risk. Using a filter, certified by an American National Standards Institute accredited certifier to reduce lead, is effective in reducing lead exposures. Follow the instructions provided with the filter to ensure the filter is used properly. Use only cold water for drinking, cooking, and making baby formula. Boiling water does not remove lead from water. Before using tap water for drinking, cooking, or making baby formula, flush your pipes for several minutes. You can do this by running your tap, taking a shower, doing laundry or a load of dishes. If you have a lead service line or galvanized requiring replacement service line, you may need to flush your pipes for a longer period. If you are concerned about lead in your water and wish to have your water tested, contact Jim Iman, Moorefield Municipal Water, at 304-530-6067. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at www.epa.gov/safewater/lead.

Moorefield Municipal Water has identified all water service line materials throughout the distribution system. The lead and copper service line inventory has been submitted and approved by the state of WV in 2024 and can be viewed at the Town Office.

Radiological: Alpha radiation exists in the soil, in the air, and in water. Gross Alpha is a test that is performed to measure the overall radioactivity in drinking water. Naturally occurring radioactive elements emit alpha particles as they decay. Bedrock in the earth contains different amounts of radioactive elements, so levels of alpha radiation in water also vary. Gross Alpha testing detects these alpha particles in the water and indicates the presence of radioactive substances, such as radium 224 and radium 226. Moorefield was last directed to test for Gross Alpha in 2019 and the result was **1.22 pCi/L** which is far below the MCL of 15 pCi/L. Only one sample was required so the range was also 1.22 pCi/L.

Organic Compounds: Organic compounds which include volatile and synthetic chemicals may be by-products of industrial processes and petroleum production. They may also come from stormwater runoff, septic tanks, and gas stations. Moorefield tested for volatile organic compounds in 2024 and the results were all Non-Detectible (ND) with the exception of Benzo(a)pyrene, which has a MCL of 0.0002 ppm and had a test result of 0.00006 ppm. Benzo(a)pyrene is formed from the incomplete combustion of organic matter. The source is likely stormwater runoff from recent forest fires.

Inorganic Compounds: Inorganic compounds, such as salts and metals, can be naturally occurring or result from urban stormwater run-off, industrial or domestic wastewater discharge, oil and gas production, mining or farming.

Barium can be a typical result of discharge from drilling wastes, discharges from metal refineries, and erosion of natural deposits.

Nitrate can be a typical result of runoff from fertilizer use, leaching from septic tanks, and erosion of natural deposits.

Fluoride can be a typical result of erosion from natural deposits, discharge from fertilizer and aluminum factories, and as an additive to promote strong teeth. Moorefield does not add fluoride to the drinking water.

The results in the table to the right are from 2024.

Parameter	Units	MCL/SMCL	Result
Sodium	ppm	30	3.56
Antimony	ppb	6	ND
Arsenic	ppb	10	ND
Barium	ppm	2	0.0583
Beryllium	ppb	4	ND
Cadmium	ppb	5	ND
Chromium	ppb	100	1.1
Nickel	ppb	100	1.4
Selenium	ppb	50	ND
Thallium	ppb	0.5	ND
Mercury	ppb	2	ND
Fluoride	ppm	4	ND
Nitrate as N	ppm	10	0.27
Cyanide	ppb	200	ND
Nitrite	ppm	1	ND

Compliance and Violations: The Town of Moorefield did not experience any violations for the 2024.

This Consumer Confidence Report will NOT be mailed. A copy is available upon request at the Town Office during normal business hours. In addition, a copy will be posted on our website at https://www.townofmoorefield.com/wp-content/uploads/2025/07/Moorefield-2024-CCR.pdf. In a web browser, navigate to www.townofmoorefield.com and click on "Documents and Forms", then click on "2024 CCR Water Quality Report."

Turbidity (NTU)

	Monthly Maximum	Average Maximum
Jan-24	0.047	0.026
Feb-24	0.042	0.028
Mar-24	0.05	0.029
Apr-24	0.076	0.04
May-24	0.068	0.04
Jun-24	0.072	0.04
Jul-24	0.066	0.04
Aug-24	0.084	0.04
Sep-24	0.05	0.03
Oct-24	0.049	0.03
Nov-24	0.052	0.03
Dec-24	0.043	0.03

Chlorine Residual

Lowest Residual of 2024	Highest Residual of 2024	Average Residual of 2024
0.3 mg/L	2.0 mg/L	1.01 mg/L

Coliform Bacteria

All Samples	ABSENT

Organic Compounds (OC)

Benzo(a)pyrene	0.00006 mg/L
All other samples	ND

Total Organic Carbon

	RAW		FINISH	
	Alkalinity (mg/L)	TOC (mg/L)	TOC (mg/L)	% Reduction
1/3/24	46.4	1.4	1.2	14.29%
2/7/24	50.4	1.9	1.6	15.79%
3/6/24	50.5	1.7	1.3	23.53%
4/3/24	54.0	2.0	1.4	30.00%
5/1/24	75.5	1.9	1.4	26.32%
6/5/24	81.9	1.7	1.3	23.53%
7/3/24	98.6	1.5	1.1	26.67%
8/7/24	101.0	1.6	1.3	18.75%
9/4/24	55.9	3.6	3.7	-2.78%
10/9/24	59.0	2.6	2.6	0.00%
11/6/24	89.1	1.9	1.3	31.58%
12/4/24	202.0	1.0	0.96	4.00%
Average	**80.36**	**1.90**	**1.60**	**17.6%**

HAA5 (µg/L or ppb)

	Location	Test Result	LRAA	MCL
2/7/2024, Q1	Sheetz	13.0	34.8	60.0
5/1/2024, Q2	Sheetz	30.0	33.8	60.0
8/7/2024, Q3	Sheetz	51.0	35.8	60.0
11/6/2024, Q4	Sheetz	25.0	29.8	60.0

TTHM (µg/L or ppb)

	Location	Test Result	LRAA	MCL
2/7/2024, Q1	Brighton Park	31.0	50.0	80
5/1/2024, Q2	Brighton Park	26.0	48.8	80
8/7/2024, Q3	Brighton Park	54.0	47.8	80
11/6/2024, Q4	Brighton Park	40.0	37.8	80

Lead and Copper

	Testing Date	90th Percentile	Range	Allowable Limit (AL)	Number of testing sites over AL
Lead (ppb)	4/19/23	2.25	ND - 12.5	15	0
Copper (ppm)	4/19/23	0.053	0.003 - 0.099	1.3	0

Inorganic Compounds

Parameter	**Units**	**MCL/MCLG**	**TP 03**
Sodium	ppm	30	3.56
Antimony	ppb	6	ND
Arsenic	ppb	10	ND
Barium	ppm	2	0.0583
Beryllium	ppb	4	ND
Cadmium	ppb	5	ND
Chromium	ppb	100	1.1
Nickel	ppb	100	1.4
Selenium	ppb	50	ND
Thallium	ppb	0.5	ND
Mercury	ppb	2	ND
Fluoride	ppm	4	ND
Nitrate as N	ppm	10	0.27
Cyanide	ppb	200	ND
Nitrite	ppm	1	ND