

MOOREFIELD MUNICIPAL WATER, PWSID WV3301601

2023 Consumer Confidence Report

Reporting Period: Calendar Year 2023

This report is a snapshot of the quality of the water that Moorefield Municipal Water provided in 2023. 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:

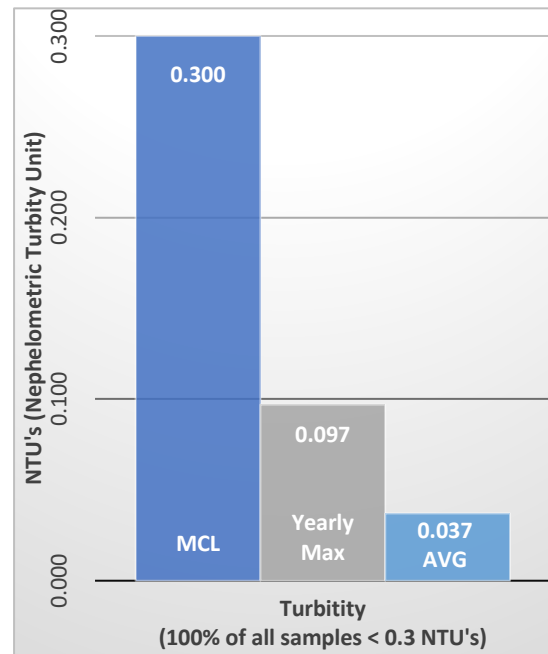
Definitions of terms and abbreviations used in this report

- **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 2023, the Moorefield Municipal Water produced and distributed over 1.16 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 2023 was **0.097 NTU** and the monthly maximum average for our water treatment was **0.037 NTU**.

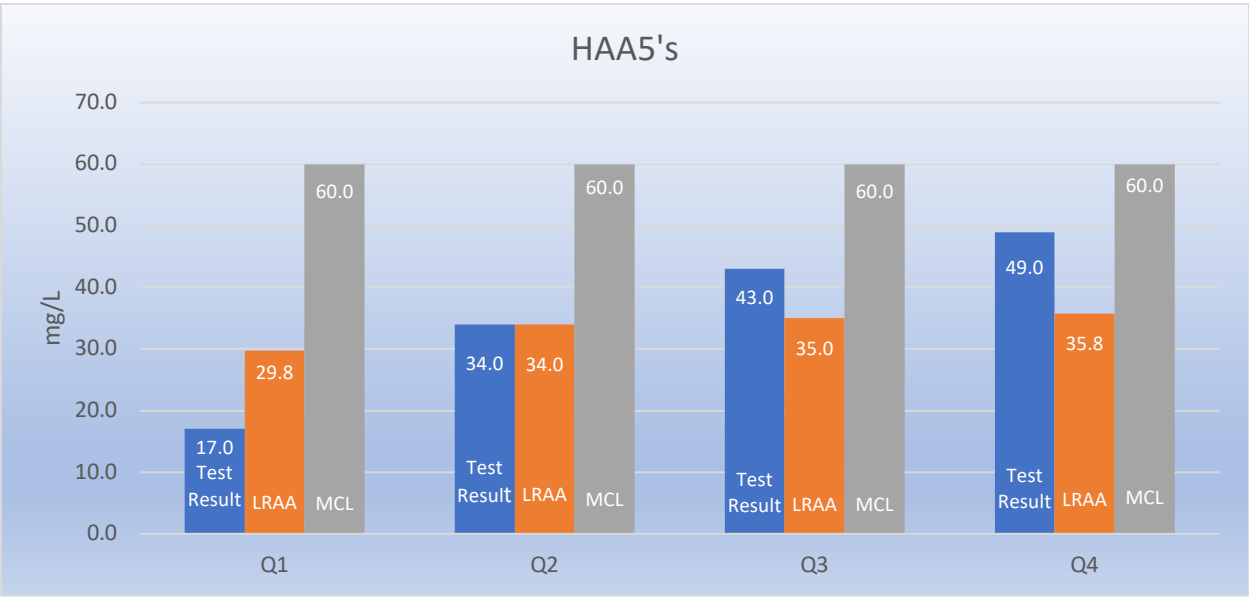


Total Organic Carbon: Total organic carbon (TOC) is naturally present in the environment. Organic compounds are precursors for disinfection by-products (DBP), which are strictly regulated in the drinking water industry. Measuring TOC makes it possible to implement the right treatment technique to reduce the formation of DBP in the water distribution system. The maximum TOC results in the drinking water for 2023 was **1.5 ppm**. The average for the entire year was **1.19 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 1.9 ppm** and the **annual average was 1.05 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 nervous system, 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 tested for lead and copper in the distribution system in 2023. The results 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**.

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. The water system is responsible for providing high quality drinking water but cannot control the variety of materials used in home plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap water 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 from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

Moorefield Municipal Water is identifying all water service line materials throughout the distribution system. The lead and copper service line inventory is required to be submitted to the state of WV by October 16, 2024. Currently, 92% of all service lines have been inventoried and can be viewed at the Town Office. Once complete, the inventory will be available on the town website, www.townofmoorefield.com.

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 last tested 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 2023 and the results were all Non-Detectable (ND).

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 2023.

Parameter	Units	MCL/SMCL	Result
Sodium	ppm	30	3.34
Antimony	ppb	6	ND
Arsenic	ppb	10	ND
Barium	ppm	2	0.0581
Beryllium	ppb	4	ND
Cadmium	ppb	5	ND
Chromium	ppb	100	2.0
Nickel	ppb	100	1.2
Selenium	ppb	50	ND
Thallium	ppb	0.5	ND
Mercury	ppb	2	ND
Fluoride	ppm	4	ND
Nitrate as N	ppm	10	0.22
Cyanide	ppb	200	ND

Compliance and Violations: The Town of Moorefield did not experience any violations for the 2023.

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 www.townofmoorefield.com.

Turbidity (NTU)

	Monthly Maximum	Average Maximum
Jan-23	0.024	0.017
Feb-23	0.034	0.021
Mar-23	0.049	0.023
Apr-23	0.097	0.040
May-23	0.050	0.033
Jun-23	0.082	0.046
Jul-23	0.086	0.050
Aug-23	0.070	0.043
Sep-23	0.080	0.052
Oct-23	0.080	0.052
Nov-23	0.064	0.038
Dec-23	0.059	0.031

Chlorine Residual

Lowest Residual of 2023	Highest Residual of 2023	Average Residual of 2023
0.3 mg/L	1.9 mg/L	1.05 mg/L

Coliform Bacteria

All Samples	ABSENT
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Organic Compounds (OC)

All Samples	ND
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Total Organic Carbon

	RAW		FINISH	% Reduction
	Alkalinity (mg/L)	TOC (mg/L)	TOC (mg/L)	
1/4/23	63	1.5	1.2	20.0%
2/1/23	66	1.2	1.1	8.3%
3/1/23	63.8	1.7	1.2	29.4%
4/5/23	50.3	1.4	1.1	21.4%
5/3/23	32.7	1.8	1.3	27.8%
6/7/23	76.2	1.3	0.96	26.2%
7/5/23	70.5	2.1	1.5	28.6%
8/2/23	90.9	1.8	1.4	22.2%
9/6/23	92.8	1.4	1.1	21.4%
10/4/23	81.1	1.4	1.2	14.3%
11/1/23	97.4	1.6	1.3	18.8%
12/6/23	77.1	1.2	0.92	23.3%
Average	71.82	1.53	1.19	21.8%

HAA5 (µg/L or ppb)

	Location	Test Result	LRAA	MCL
2/1/2023, Q1	Sheetz	17.0	29.8	60.0
5/3/2023, Q2	Sheetz	34.0	34.0	60.0
8/2/2023, Q3	Sheetz	43.0	35.0	60.0
11/1/2023, Q4	Sheetz	49.0	35.8	60.0

TTHM (µg/L or ppb)

	Location	Test Result	LRAA	MCL
2/1/2023, Q1	Brighton Park	26.0	41.8	80
5/3/2023, Q2	Brighton Park	31.0	42.5	80
8/2/2023, Q3	Brighton Park	58.0	47.3	80
11/1/2023, Q4	Brighton Park	80.0	48.8	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	3.34
Antimony	ppb	6	ND
Arsenic	ppb	10	ND
Barium	ppm	2	0.0581
Beryllium	ppb	4	ND
Cadmium	ppb	5	ND
Chromium	ppb	100	2
Nickel	ppb	100	1.2
Selenium	ppb	50	ND
Thallium	ppb	0.5	ND
Mercury	ppb	2	ND
Fluoride	ppm	4	ND
Nitrate as N	ppm	10	0.22
Cyanide	ppb	200	ND