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June 14, 2024

Dear City of Marshall Water Customers:

This letter is to inform you that as part of the 1996 Amendments to the Safe Water Drinking Act all community water systems are required to prepare and provide their customers with an annual Water Quality Report or a Consumer Confidence Report (CCR).

This report provides consumers with information on their drinking water, including the raw water source, contaminants detected in the finished water, health effects of the contaminants when violations occur, likely sources of the detected contaminants, availability of source water assessments, and how it compares to Environmental Protection Agency (EPA) and Michigan Department of Environment, Great Lakes, and Energy (EGLE) standards.

Community water systems such as ours, serving less than 10,000 people but more than 449 people are not required to deliver the report to each customer as part of the Governor's CCR mailing waiver. We are required to publish the report in one or more local newspapers, inform our customers that the report will not be mailed, and make reports available to the public upon request. We are also urged to make a good faith effort to get the report to customers that might not live in the community but might work in the community and thus have an interest in the quality of water they consume.

We are asking industrial and commercial customers that receive this report to make it available to employees or residents by posting it in a highly visible area such as employee bulletin boards or by putting a notice as the location of the report in newsletters or bulletins that you might send to your employees or residents.

It is our pleasure to offer our customers the annual Water Quality Report. The City of Marshall Water Department continuously strives to make improvements to the water system in order to provide consumers with the highest quality water possible.

Sincerely,

A handwritten signature in blue ink that reads "Aaron Ambler".

Aaron Ambler
Superintendent
Water Department
269-558-0328
aambler@cityofmarshall.com

A handwritten signature in blue ink that reads "Marguerite Davenport".

Marguerite Davenport
Director of Public Services
269-558-0328
mdavenport@cityofmarshall.com



WATER QUALITY REPORT

2024

This report covers the drinking water quality for the City of Marshall for the calendar year 2023. This information is a snapshot of the quality of the water provided to water users in 2023. Included are the details about where the City's water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and State of Michigan Department of Environment, Great Lakes, and Energy (EGLE) standards.

Water Source

The City of Marshall's water comes from four (4), twelve (12) inch wells that extend one hundred (100) feet deep into a geological rock formation called the Marshall Sandstone Aquifer. The wells are located in the Southeast section of the City at the Water Treatment Plant (WTP). Water is pumped from the wells to the plant where the iron and manganese in the raw water are removed through four pressure filters which contain layers of anthracite, manganese treated green sand, and gravel. In the water treatment process, potassium permanganate (an oxidizing agent) is added to the water to expedite the removal of iron and manganese. Chlorine is added for disinfection of bacteria and viruses, fluoride is added to enhance dental protection, and phosphate is added for corrosion control in the water distribution system. The levels of these additives are monitored daily to ensure proper dosages are being dispensed at the WTP.

Wellhead Protection Program

Protecting the groundwater source for our well field is vitally important to the community. The City of Marshall Water Department is actively involved in protection of groundwater through the Wellhead Protection Program. The Wellhead Protection Program was re-approved by EGLE in September 2023. The City of Marshall has an active Wellhead Protection Committee consisting of representatives from each jurisdiction within the WHPA and lead by the City's Water Superintendent, Aaron Ambler. The program is fully implemented and is in a maintenance phase. The team meets quarterly, and its current focus is public education.

The City of Marshall conducted a wellhead delineation survey in the mid-1990s. The survey identified the area where surface water, when entering into the ground, will eventually flow to the portion of the Sandstone Aquifer in which the City pulls water for distribution, after treatment, to users. This delineation helps the City understand potential contamination by providing the location and distance from the wells where contaminants would have to enter the groundwater to eventually reach the City well field. The WHPA extends from the City into the townships of Marshall, Marengo, Convis, and Lee as shown in the image to the right.

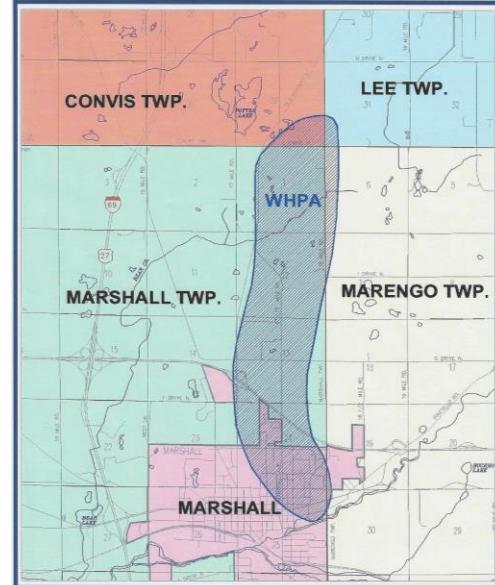


Figure 1 Wellhead Protection Area Map

Important Water User Information

Water Department Contact Information

Water Treatment Plant
269-781-2210

Superintendent
Aaron Ambler
aambler@cityofmarshall.com
269-558-0328

Contaminants and their presence in water

The City of Marshall routinely monitors contaminants in the drinking water according to Federal and State laws. 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) or access their web site (www.epa.gov/safewater/).

Vulnerability of sub populations

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 microbial contaminants are available from the Safe Drinking Water Hotline at 800-426-4791.

Drinking water contaminants

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.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- 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.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture and residential uses.
- Radioactive substances, which can be naturally-occurring.
- Organic chemical contaminants, which are by-products of industrial processes and petroleum production, and can also, come from gas stations, urban storm water runoff, and septic systems.

To ensure that tap water is safe to drink, EPA prescribes regulations which limit the number of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which provide the same protection for public health.

Terms and Abbreviations

Maximum residual disinfectant level (MRDL)	The highest level of a disinfectant allowed in drinking water based on a (RAA) Running Annual Average
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Maximum residual disinfectant level goal (MRDLG)	The level of a drinking water disinfectant below which there are no known or expected risks to health
Maximum Contaminant Level Goal (MCLG)	The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety
Maximum Contaminant Level (MCL)	The highest level of contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology
N/A	Not Applicable
ND	Not Detectable at testing limit
ppm	parts per million or milligrams per liter
ppb	parts per billion or micrograms per liter
pCi/l	picocuries per liter (a measure of radiation)
Action Level	The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow
Raw Water	Water in its natural state, prior to any treatment for drinking
Oxidizing Agent	A substance that gains electrons to reduce. An everyday example is rusting metal where oxygen is the oxidizing agent when iron combines with oxygen in the presence of water.
Aquifer	An underground bed or stratum of earth, gravel or porous stone that contains water

Water Quality Data

The following table lists all the contaminants that were detected in your drinking water during the 2023 calendar year. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The tables contain the name of each substance, the highest level allowed by regulation (MCL), the ideal goals for public health (MCLG), the amount detected, the usual sources of contamination, key to units of measurements, and footnotes explaining our findings. Unless otherwise noted, the data presented in these tables is from testing done January 1, 2023, through December 31, 2023. The State allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. All the data is representative of the water quality, but some is more than one (1) year old.

Table 1 Regulated Substances

Substance (units of measure)	Year Sampled	MCL (MRDL)	MCLG (MRDLG)		Amount Detected	Range	Violation	Typical Source
Chlorine (ppm)	2023	4	4		1.22	0.29- 1.73	No	Water additive used to control microbes (disinfection)
Flouride (ppm)	2023	4	4		.79	0.51- 0.88	No	Erosion of natural deposits; Water additive which promotes strong teeth
TTHMs (ppm)	2023	80		Site #1	.0112	.0136*	No	By-product of drinking water disinfection
				Site #2	.0175	.0183*		

*The TTHMs Range reported was calculated using a annual running average

Table 2 Unregulated Substances

Substance (units of measure)	Year Sampled	Amount Detected	Range Low-High	Typical Source
Sodium (mg/l)	2023	13ppm	N/A	Erosion of natural deposits

Table 3 Unregulated Contaminant Monitoring Rule (UCMR) Data from US EPA Screen Survey

Analyte Name	Collection Date	Reported Value ¹ ($\mu\text{g}/\text{L}$) ²	
germanium	7/16/2019	0	
chlorpyrifos	7/16/2019	0	
total permethrin	7/16/2019	0	
alpha-hexachlorocyclohexane	7/16/2019	0	
dimethipin	7/16/2019	0	
oxyfluorfen	7/16/2019	0	
profenofos	7/16/2019	0	
tebuconazole	7/16/2019	0	
tribufos	7/16/2019	0	
ethoprop	7/16/2019	0	
butylated hydroxyanisole	7/16/2019	0	
o-toluidine	7/16/2019	0	
quinoline	7/16/2019	0	
1-butanol	7/16/2019	0	
2-methoxyethanol	7/16/2019	0	
2-propen-1-ol	7/16/2019	0	
Collection Site	Analyte Name	Collection Date	Reported Value ¹ ($\mu\text{g}/\text{L}$) ²
Source Water	Bromide	7/16/2019	35.484
Source Water	Total Organic Carbon	7/16/2019	1029.6
Water Treatment Plant	Manganese	7/16/2019	2.213
Distribution System 15250 N. US 27	HAA5	7/16/2019	7.251
	HAA6Br	7/16/2019	6.441
	HAA9	7/16/2019	12.319
Distribution System 15300 W. Michigan	HAA5	7/16/2019	2.911
	HAA6Br	7/16/2019	0.516
	HAA9	7/16/2019	3.427

Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. Monitoring helps the U.S. EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants. We monitored for these contaminants and the results of monitoring are available on request. Specifically, the State of Michigan requires that Sodium testing be reported in this document for those monitoring sodium intake for health reasons.

The City is required to sample eight (8) Microbiological Samples a month. The City sampled one hundred eight (108) times in 2023 with all the results negative.

Municipal Water systems are required to test for hundreds of contaminants. The above tables list only the contaminants that were detected in your city water. For a complete list of

contaminants that were tested for but not detected, contact the City Water Department at 269-781-2210.

Compliance

The water department is happy to report that no chemical contamination violation occurred on the above samples. In addition, water operators had zero (0) violations related to monitoring requirements.

Lead and Copper

Our water supply has approximately 136 lead/galvanized service lines and approximately 512 service lines of unknown material out of a total number of 3186 service lines. The State of Michigan regulates the requirements of water suppliers regarding Lead and Copper Levels. As part of the newest provisions the City is required to replace lead service and galvanized previously connect to lead service lines at an average rate of 5% per year beginning in 2021. Additional to replacements, the city is required to make continuous efforts to inventory the unknown service lines with a complete inventory compiled by 2025. The department is actively working on both initiatives.

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 City of Marshall is responsible for providing high quality drinking water but cannot control the variety of materials used in plumbing components. When your water has been sitting 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 have a lead service line it is recommended that you run your water for at least 5 minutes to flush water from both your home plumbing and the lead service line. 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 <http://www.epa.gov/safewater/lead>.

Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

Table 4 Lead and Copper Data Table

Inorganic Contaminant Subject to AL	Action Level	MCLG	Your Water (90 th Percentile Value)	Range of Results	Year Sampled	Number of Samples above AL	Typical Source of Contaminant
Lead (ppb)	15	0	1	0 – 2.0	2023	0	Lead services lines, corrosion of household plumbing including fittings and fixtures; erosion of natural deposits
Copper (ppm)	1.3	1.3	.4	0 – 1.5	2023	1	Corrosion of household plumbing systems; erosion of natural deposits

*Tap water samples were collected for lead and copper from various sites throughout the community

We are committed to providing you with high quality, reliable, drinking water. We are pleased to provide you with this information to keep you fully informed about your drinking water. We will be updating this report annually and will also keep you informed of any problems that may occur throughout the year, as they happen. We are pleased to report that your drinking water meets all federal and state requirements. If you have any questions about this report or would like a paper copy of the report, please contact Aaron Ambler at 269-781-2210 or email aambler@cityofmarshall.com. We want our valued customers to be informed about their water utility. If you would like to learn more about decisions that affect drinking water quality, please attend any of our regularly scheduled council meetings. They are held on the first and third Mondays of each month at 7:00 PM. in the City Hall Council Chambers located at 323 W. Michigan Avenue.

