2023 WATER QUALITY REPORT

City of Muskegon

MUSKEGON

West Michigan's Shoreline City

www.shorelinecity.com

WATER QUALITY EXCEEDS THE MARK!

We are pleased to report that the water we treat has never had a violation of a contaminant level or of any other water quality standard.

This report covers the drinking water quality for the City of Muskegon (Water Supply Serial Number 04570) for the 2023 calendar year. This information details where our water comes from, what it contains, and how it compares to United States Environmental Protection Agency (USEPA) and state standards.

Your water comes from Lake Michigan and is treated at the City of Muskegon Water Filtration Plant. The personnel of the Muskegon Water Filtration Plant are committed to providing you with a safe and reliable water supply. A team of state-certified waterworks operators work 24/7 to oversee the water treatment and distribution processes. More than 100,000 water samples were analyzed throughout 2023 for different chemical, physical, and microbiological parameters. The State of Michigan and the USEPA require us to test our water on a regular basis to ensure its safety. We met all the monitoring and reporting requirements for 2023.

Informed customers are our best allies in maintaining safe drinking water. For more information about safe drinking water or the contents of this report, contact the Water Filtration Plant at 231-724-4106, visit our webpage at https://muskegon-mi.gov/city-services/public-works/water-filtration/, or visit the U.S. EPA at http://www.epa.gov/safewater.

We invite public participation in decisions that affect drinking water quality. The City of Muskegon Commission meets every 2nd and 4th Tuesday of each month at 5:30 p.m. in the City of Commission Chambers (Room 107) at City Hall (933 Terrace Street, Muskegon, MI).

The Muskegon Water Filtration Plant treated over 4 billion gallons of water in 2023!

SOURCE WATER

Our water source is surface water from Lake Michigan. The state performed an assessment of our source water in 2004 to determine the susceptibility or the relative potential of contamination. The susceptibility rating is on a seven-tiered scale from very low to very high based primarily on geologic sensitivity, water chemistry, and contaminant sources. The susceptibility of our source is moderately high. The report notes that "historically, the City of Muskegon Water Filtration Plant has effectively treated this source water to meet drinking water standards." The City of Muskegon's Source Water Intake Protection Plan (SWIPP) was first created in 2017 and updated in 2023. The purpose of a SWIPP is to protect the long-term viability of Muskegon's drinking water supply by reducing the potential risk of surface and subsurface contamination from affecting the source water protection area. The SWIPP is available online on the Water Filtration Plant webpage at https://muskegon-mi.gov/city-services/public-works/water-filtration/. If you would like more information about these reports, contact the Water Filtration Plant at 231-724-4106.

DRINKING WATER FACTS

·The Water Filtration Plant uses conventional water treatment, a method widely used around the world for producing drinking water. This five-step process includes disinfection, coagulation, flocculation, sedimentation, and filtration.
·The Water Filtration Plant's treatment capacity is 40 million gallons per day. This is equal to 27,778 gallons per minute, or enough water to fill eight average-sized bathtubs every second!
·The amount of water produced at the Water Filtration Plant changes seasonally. On average, 11 million gallons of water are treated per day. In the last five years, the lowest daily water production was 6 million gallons and the highest daily production was 23 million gallons.
·Water from Lake Michigan enters the Water Filtration Plant through a 60" diameter pipeline that extends over 1 mile into Lake Michigan, pulling in water from a depth of over 30 feet.
·Water flows from the lake, through the treatment process, and into the City in one continuous flow. When more water is treated, it travels more quickly through the treatment process. It takes 8-30 hours for water to travel from the lake and into the City. No matter the time taken, the water meets all drinking water standards.
·Water towers provide both water storage and water pressure. Each water tower in the City can hold 1 million gallons of water. Every 1 foot of water height provides 0.43 pounds per square inch (psi) of pressure. The water towers in the City of Muskegon are over 125 feet high, meaning they alone can provide around 54 psi of pressure without any pumps.
·The temperature of Lake Michigan water changes seasonally. At the Water Filtration Plant, lake water temperatures have ranged from 35-76 °F over the last five years. These temperature changes can be noticeable in the water delivered to consumers.

DRINKING WATER CONTAMINANTS

The Water Filtration Plant operates 24 hours a day, seven days a week!

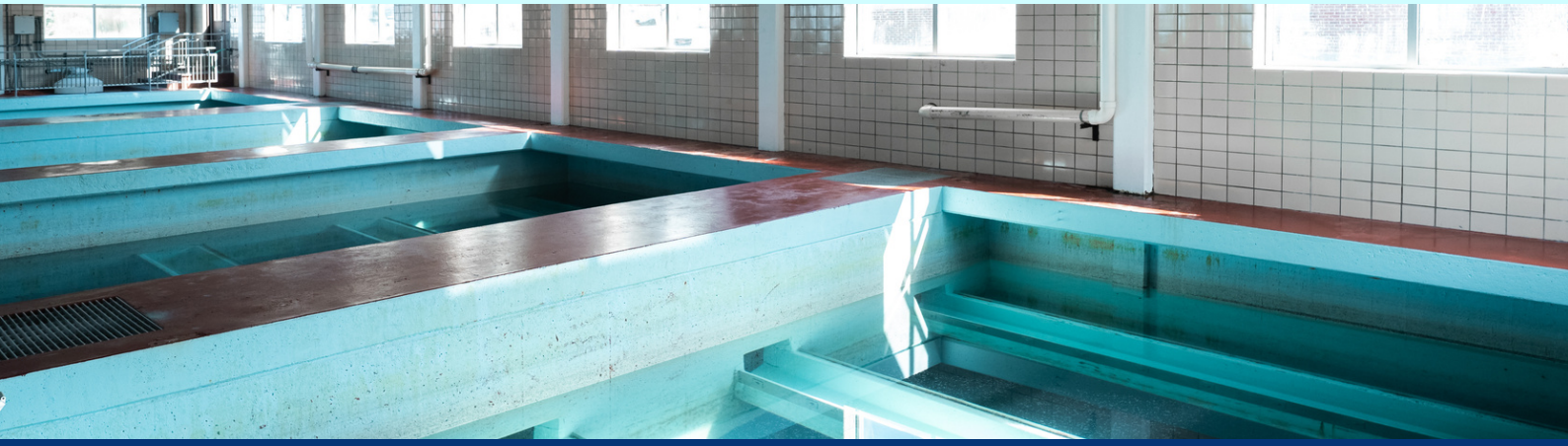
Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (800-426-4791).

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. Our water comes from Lake Michigan. 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 stormwater 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 contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.
- 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 stormwater runoff, and septic systems.

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

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 systems 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. USEPA/Center for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).



TREATED WATER QUALITY CHARTS

The tables below lists all the drinking water contaminants that we detected in 2023. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done January 1 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 are more than one year old. Definitions for terms and abbreviations are available on the last page.

Regulated at the Treatment Plant

Substance	MCL	MCLG	Level Detected	Range	Year	Violation	Typical Source
Barium (ppm)	2	2	.02	N/A	2023	No	Discharge of drilling wastes; Discharge from meatal refineries; Erosion of natural deposits
Fluoride (ppm)*	4.0	4.0	0.69	0.55-0.81	2023	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate (ppm)	10	10	0.66	0.28-0.66	2023	No	Runoff from fertilizer use; Leaking from septic tanks, sewage; Erosion of natural deposits
PFOS (ppt)*	16	N/A	2.3	2.0-2.4	2023	No	Firefighting foam; Discharge from electroplating facilities; Discharge and waste from industrial waste
Turbidity (ntu)**	1 (TT)	N/A	0.08	N/A	2023	No	Soil runoff

*The level detected for this substance is reported as the maximum running annual average (RAA) in 2023.
**Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. Turbidity must also be ≤0.3 ntu for ≥95% of measurements each month. 100% of the samples were ≤0.3 ntu each month.

Regulated in the Distribution System

Substance	MRDL or MCL	MRDLG or MCLG	Level Detected*	Range	Year	Violation	Typical Source
Chlorine (ppm)	4.0	4.0	1.12	0.05-1.81	2023	No	Water additive used to control microbes
Total Trihalomethanes (ppb)	80	N/A	39	21-44	2023	No	Byproduct of drinking water disinfection
Haloacetic acids (ppb)	60	N/A	26.4	14.2-32.8	2023	No	Byproduct of drinking water disinfection

*The level detected for this substance is reported as the maximum running annual average (RAA).

Regulated at the Customer's Tap

Substance	AL	MCLG	Level Detected*	Range	Year	Samples Above AL	Typical Source
Lead (ppb)	15	0	5	0-17	2023	1	Lead service lines, corrosion of household plumbing including fittings and fixtures; Erosion of natural deposits
Copper (ppm)	1.3	1.3	0.0	0.0-0.2	2023	0	Corrosion of household plumbing systems; Erosion of natural deposits

*Ninety (90) percent of the samples collected were at or below the level reported for our water.
Our water supply has 9,935 service lines of unknown material assumed to be lead out of a total of 12,966 service lines.

Infants and children who drink water containing lead 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.

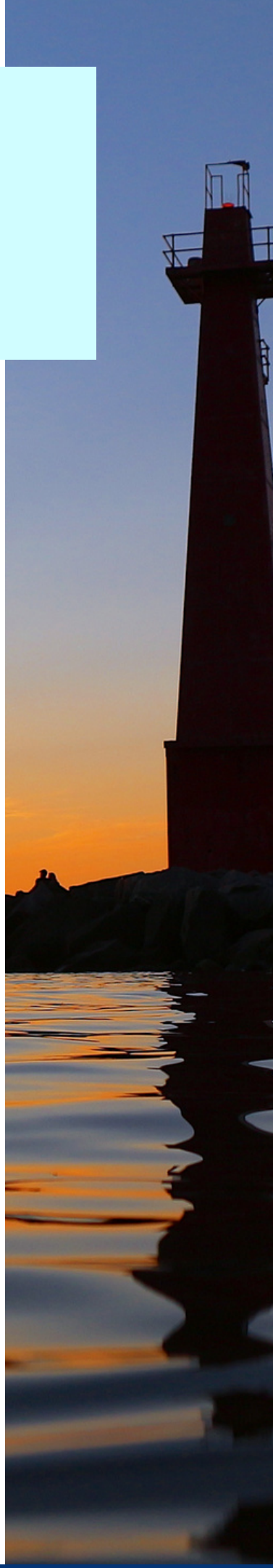
If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Muskegon is responsible for providing high quality drinking 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 at 1-800-426-4791 or at http://www.epa.gov/safewater/lead.

Additional Monitoring

Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. Monitoring helps the U.S. EPA determine where certain contaminants occur and whether regulation of those contaminants is needed.

Substance	Level Detected	Range	Year	Typical Source
Calcium (ppm)	39	34-46	2023	Naturally present in the environment
Magnesium (ppm)	13	12-15	2023	Naturally present in the environment
Hardness (ppm)	153	140-180	2023	Naturally present in the environment
Sodium (ppm)	13	11-16	2023	Naturally present in the environment
Sulfate (ppm)	33	28-40	2023	Naturally present in the environment
Haloacetic Acids (HAA9) (ppb)	34	27-46	2020	Byproduct of drinking water disinfection

TERMS AND ABBREVIATIONS



Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirement that a water system must follow.
Maximum Contaminant Level Goal (MCLG): The 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.
Maximum Contaminant Level (MCL): 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.
Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
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
ppt: parts per trillion or nanograms per liter
Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.
ntu: nephelometric turbidity units

Report Updates & Availability

We will update this report annually and will keep you informed of any problems that may occur throughout the year as they happen. This report will not be sent to you. Copies are available at Muskegon City Hall (933 Terrace St), the City of Muskegon Public Service Building (1350 East Keating Ave), and online at muskegon-mi.gov/csresources/waterquality.pdf