



CITY OF MUSKEGON ANNUAL WATER QUALITY REPORT

SYSTEM OVERVIEW

The Muskegon Water Filtration Plant is a conventional water treatment plant with a capacity of 40 million gallons per day. Our customers include not only the City of Muskegon, but also North Muskegon, Muskegon Township, Roosevelt Park, County Northside, Fruitport and Norton Shores.

Your water comes from Lake Michigan. The state performed an assessment of our source water in 2003 to determine the susceptibility or the relative potential of contamination. The susceptibility rating is on a six-tiered scale from very low to high based primarily on geologic sensitivity, water chemistry and contaminant sources. The susceptibility of our source water is moderately high.

*Do you know?
The Great Lakes
comprise 84% of North
America's surface fresh
water.*

Water Quality Exceeds Mark!

Dear Customer,

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 contains a summary of the quality of the

water provided to you during 2017 and details where our water comes from, what it contains, and the risks our water testing and treatment are designed to prevent. Muskegon Water Filtration Plant personnel are committed to providing you with the safest and most reliable water supply. Informed customers are our best allies in maintaining safe drinking water.



Muskegon Water Plant treated over 4.0 billion gallons of water in 2017.

Our state certified lab runs over 8,000 tests a year and include collecting water samples at various stages

of the treatment process as well as throughout the distribution system. These samples are analyzed for many different chemical and microbiological parameters.

Our sophisticated lab equipment can detect substances at very minute levels. 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 our water poses a health risk.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

GET INVOLVED!

Customer Views Welcome!

Meetings that deal with decisions about our source water are conducted through the Muskegon Conservation District at (231) 773-0008

Consult our web site at www.shorelinecity.com or contact the plant at (231) 724-4106

For further information, see U.S. Environmental Protection Agency (EPA) water information at www.epa.gov/safewater

Cryptosporidium

Cryptosporidium is a microscopic organism that, when ingested, can result in diarrhea, fever and other gastrointestinal symptoms. The Muskegon Water Filtration Plant has tested for Cryptosporidium in both Lake Michigan and in the water we treat. We have never detected it in our treated water. The organism is present in Lake Michigan and comes from animal wastes in the watershed. Cryptosporidium is eliminated by an effective treatment combination including filtration, sedimentation and disinfection.

DID YOU KNOW?

Six gallons of water costs less than one penny, delivered to you 24 hours a day, seven days a week!

Water Quality Concerns

Some people may be more vulnerable to contaminants in the 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 persons and infants can be particularly at risk for infections. These people should seek advice about drinking water from their health care providers. Environmental Protection Agency and Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the EPA's safe drinking Water Hotline at (800) 426-4791.

CITY OF MUSKEGON TREATED WATER QUALITY CHART

Listed below are the water quality parameters for the City of Muskegon drinking water during the reporting period of 2017. All parameters shown are BELOW allowed levels. Not listed are the hundreds of other contaminants for which we tested that were NOT detected.

SUBSTANCE	HIGHEST LEVEL ALLOWED (EPA'S MCL'S)	HIGHEST LEVEL DETECTED	IDEAL GOAL (EPA'S MCLG'S)	SOURCE OF CONTAMINANT	VIOLATION YES/NO
Regulated at the Treatment Plant					
BARIUM	2.0 PPM	0.02 PPM	2.0 PPM	DISCHARGE FROM DRILLING WASTES	NO
TOC	TT	*2.0 PPM	N/A	NATURALLY PRESENT	NO
TURBIDITY	TT	**0.05 NTU	N/A	LAKE SEDIMENT	NO
FLUORIDE	4.0 PPM	0.74 PPM	1.0 PPM	ADDITIVE	NO

* TOC or total organic carbon is measured quarterly. Because we remove 25% of the TOC from our source water, we are in compliance.

** Turbidity is a measure of the cloudiness of the water. We monitor turbidity because it is a good indicator of water quality.

Regulated in the Distribution System					
MAXIMUM RESIDUAL DISINFECTANT LEVEL	4 PPM	1.23 PPM RAA	N/A	DISINFECTANT (CHLORINE)	NO
TOTAL TRIHALOMETHANES	80 PPB (AVG)	34.4 PPB RAA	N/A	DISINFECTION BY-PRODUCT	NO
HALOACETIC ACID	60 PPB	20.6 PPB RAA	N/A	DISINFECTION BY-PRODUCT	NO

Detection range: Total Trihalomethanes 16.7 PPB to 40.2 PPB, Haloacetic Acids 12 PPB to 25 PPB, MRDL 0.20 PPM to 1.71 PPM

Unregulated Contaminants					
SODIUM	NOT REGULATED	10 PPM	N/A	NATURALLY OCCURRING MINERAL	

Unregulated contaminants are those for which EPA has not established standards. The purpose of monitoring is to assist the EPA in determining occurrence and whether future regulation is warranted. Other unregulated trace contaminants measured in micrograms per liter. Tap: Chlorate=225, Total Strontium=122, Total Vanadium=0.25, Total Molybdenum=1.1, Distribution: Chlorate=222, Hexavalent Chromium=0.15, Chromium=0.35, Molybdenum=1.0, Strontium=124, and Vanadium=0.28.

Regulated at Customer's Tap					
SUBSTANCE	ACTION LEVEL	90TH PERCENTILE	MCLG	SOURCE	
LEAD	15 PPB (AL)	3 PPB	0	PLUMBING	
COPPER	1.3 PPM (AL)	0.1 PPM	1.3 PPM	PLUMBING	

1 of the 65 sites tested exceeded the action level (AL) for lead. ZERO of the 65 sites exceeded the action level (AL) for copper. Tested 7/2017.

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 Muskegon Water Filtration Plant 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 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://water.epa.gov/drink/info/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.

Definitions

- 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 CONTAMINANT LEVEL GOAL (MCLG)** - The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. EPA and allow for a margin of safety.
- 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.
- PPM (mg/l)** - One part per million
- PPB (ug/l)** - One part per billion.
- ACTION LEVEL (AL)** - The concentration of a contaminant that triggers treatment or other requirement that a water system must follow. Action Levels are reported at the 90th percentile for homes at greatest risk.
- NTU** - Nephelometric Turbidity Units.
- TT** - Treatment Technique- a required process intended to reduce the levels of a contaminant
- RAA** - Running Annual Average
- MRDL** - The highest level of a disinfectant allowed in drinking water

The sources of drinking water (both tap water and bottled water) include rivers, lakes, ponds, reservoirs, springs and wells. Our water comes from Lake Michigan. As water travels over the surface of the land and through the ground, it dissolves naturally occurring minerals and in some cases, radioactive material and can pick up substances from the presence of animals or from human activity.

Contaminants which 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 agricultural and residential usage.
- **Radioactive contaminants**, which are naturally occurring or the result of oil and gas production and mining activities.
- **Organic chemical contaminants**, including synthetic and volatile organic chemicals which are byproducts of industrial processes and petroleum production and can also come from gas stations, urban runoff and septic systems. In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount 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.