

2016 Water Quality Report for Marine City and Portions of Cottrellville Township

Is my water safe?

We are pleased to present this year's annual Water Quality Report (consumer confidence Report) as required by the Safe Drinking Water Act (SDWA). This report is designed to provide details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. This report is a snapshot of last year's water quality. We are committed to providing you with information because informed customers are our best allies. Local water employees vigilantly safeguard your water supply, and once again we are proud to report that our system has not violated any maximum contaminant level.

Do I need to take special precautions?

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

Where does my water come from?

Our source water is the St. Clair River, one of the most beautiful connecting waters of the Great Lakes, part of the world's largest fresh water system. We provide full treatment and purify this water at our filtration plant, a facility that was affirmed as a National Water Historical Landmark by the American Water Works Association in 1992. The facility was originally constructed in 1935, upgraded in 1965 and again in 2007.

The Water filtration plant is operated by fully trained operators all tested and certified by the Michigan Department of Environmental Quality (MDEQ). The Marine City water plant has a capacity of 2.0 million gallons per day. The plant provides conventional water treatment using chlorination, flocculation, sedimentation and rapid sand filtration. We carefully monitor and frequently test the water during processing to ensure a high-quality, safe product is delivered to your tap.

Source water assessment and its availability

The State of Michigan 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 "high" given land uses and potential contaminant sources. Significant sources of contamination include commercial / industrial discharges, storm-sewer drainage and Urban / Agricultural runoff. More information from this report is available by contacting the Marine City Water Department.

Why are there contaminants in my drinking water?

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 Environmental Protection Agency's (EPA) 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. 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 such as:

Microbial Contaminants: Such as viruses and bacteria, that 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, urban storm water runoff, and residential uses.

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 storm water runoff, and septic systems.

Radioactive Contaminants: Which can be naturally occurring or be the result of oil and gas production and mining activities.

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 (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health

How can I get involved?

The Marine City Water Plant is a publicly owned utility. We encourage public interest and participation in our community's decisions affecting drinking water. Our board of Commissioners meets at 7 p.m. on the first and third Thursday of every month. Meetings are held at the Marine City Fire Hall (200 S. Parker St. Marine City). Our meetings are open to the public.

Water conservation Tips

Did you know that the average U.S. household uses approximately 400 gallons of water per day or 100 gallons per person per day? Luckily, there are many low-cost and no-cost ways to conserve water. Small changes can make a big difference – try one today and soon it will become second nature.

- Take short showers – a 5 minute shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.
- Shut off water while brushing your teeth, washing your hair and shaving and save up to 500 gallons a month
- Use a water – efficient showerhead. They're inexpensive, easy to install, and can save you up to 750 gallons a month
- Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons per month
- Water plants only when necessary.
- Fix leaky toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month
- Adjust sprinklers so only your lawn is watered. Apply water only as fast as the soil can absorb it and during the cooler part of the day to reduce evaporation.
- Teach your kids about water conservation to ensure a future generation that uses water wisely. Make it a family effort to reduce next month's water bill!
- Visit www.epa.gov/watersense for more information

Cross connection Control Survey

The purpose of this survey is to determine whether a cross-connection may exist at your home or business. A cross connection is an unprotected or improper connection to a public water distribution system that may cause contamination or pollution to enter the system. We are responsible for enforcing cross-connection control regulations and insuring that no contaminants can, under any flow conditions, enter the distribution system. If you have any of the devices listed below please contact us so that we can discuss the issue, and if needed, survey your connection and assist you in isolating it if that is necessary.

- Boiler/Radiant heater (water heaters not included)
- Underground lawn sprinkler system
- Pool or hot tub (whirlpool tubs not included)
- Additional sources of water on the property
- Decorative pond
- Watering trough

Source Water Protection Tips

Protection of drinking water is everyone's responsibility. You can help protect your community's drinking water source in several ways:

- Eliminate excess use of lawn and garden fertilizers and pesticides – they contain hazardous chemicals that can reach your drinking water source.
- Pick up after your pets
- If you have your own septic system, properly maintain your system to reduce leaching to water sources or consider connecting to a public water system.
- Dispose of chemicals properly; take used motor oil to a recycling center
- Volunteer in your community. Find a watershed or wellhead protection organization in your community and volunteer to help. If there are no active groups, consider starting one. Use EPA's Adopt your watershed to locate groups in your community, or visit the Watershed Information Network's How to Start a Watershed Team.
- Organize a storm drain stenciling project with your local government or water supplier. Stencil a message next to the street drain reminding people "Dump No Waste – Drains to River" or "Protect your Water." Produce and distribute a flyer for households to remind residents that storm drains dump directly into your local water body.

Additional Information for Lead

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 Marine City Water System 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 or at <http://www.epa.gov/safewater/lead>

Water Quality Data Table

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of contaminants in water provided by public water systems. The table below lists all of the drinking water contaminants that we detected during the calendar year of this report. Although many more contaminants were tested, only those substances listed below were found in your water. All sources of drinking water contain some naturally occurring contaminants. At low levels, these substances are generally not harmful in our drinking water. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health. A few naturally occurring minerals may actually improve the taste of drinking water and have nutritional value at low levels. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. As such, some of our data, though representative, may be more than one year old. In this table you will find terms and abbreviations that might not be familiar to you. To help you better understand these terms, we have provided the definitions below the table.

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Your Water	Range		Sample Date	Violation	Typical Source
				Low	High			
				Disinfectants & Disinfection By-Products				
(There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.)								
Total Organic Carbon	NA	TT	1.4	1.2	1.6	2016	No	Naturally present in the environment
TTHMs [Total Trihalomethanes] (ppb)	NA	80	18	24	29	2016	No	By-product of drinking water disinfection
Haloacetic Acids (HAA5) (ppb)	NA	60	21	21	21	2016	No	By-product of drinking water chlorination
chlorine (as C12) (ppm)	4	4	1.5	1	2	2016	No	Water additive used to control microbes
Inorganic Contaminants								
Barium (ppm)	2	2	0.01	NA		2016	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Fluoride (ppm)	4	4	0.45	0.2	1	2016	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Sodium (optional) (ppm)		MPL	7.6	NA		2016	No	Erosion of natural deposits; Leaching
Nitrate [measured as Nitrogen] (ppm0)	10	10	0.25	NA		2016	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

Radioactive Contaminants								
Alpha emitters (pCi/L)	0	15	1.27	0.463	2.81	2011	No	Erosion of natural deposits
Microbiological Contaminants								
Total Coliform (% positive samples/month)	0	5	0	NA		2016	No	Naturally present in the environment
Turbidity (NTU)	NA	1	100	NA		2016	No	Soil Runoff
100% of the samples were below the TT value of 1. A value less than 95% constitutes a TT violation. The highest single measurement was 0.15. Any measurement in excess of 5 is a violation unless otherwise approved by the state.								
Contaminants	MCLG	AL	Your Water	Sample Date	# Samples Exceeding AL	Exceeds AL	Typical Source	
Inorganic Contaminants								
Copper - action level at consumer taps (ppb)	1300	1300	28	2014	0	No	Corrosion of household plumbing systems; Erosion of natural deposits	
Lead - action level at consumer taps (ppb)	0	15	1.3	2014	0	No	Corrosion of household plumbing systems; Erosion of natural deposits	

Undetected Contaminants

The following contaminants were monitored for, but not detected in your water.

Contaminants	MCLG or MRDLG	MCL or MRDL	Your Water	Violation	Typical source
1,1,1 - Trichloroethane (ppb)	200	200	ND	No	Discharge from metal degreasing sites and other factories
1,1 - Dichloroethylene (ppb)	7	7	ND	No	Discharge from industrial chemical factories
1,2,4 - Trichlorobenzene (ppb)	70	70	ND	No	Discharge from textile-finishing factories
1,1,2 - Trichloroethane (ppb)	3	5	ND	No	Discharge from industrial chemical factories
1,2 - Dichloroethane (ppb)	0	5	ND	No	Discharge from industrial chemical factories
1,2 - Dichloropropane (ppb)	0	5	ND	No	Discharge from industrial chemical factories
Benzene (ppb)	0	5	ND	No	Discharge from factories; Leaching from gas storage tanks and landfills
Arsenic (ppb)	0	10	ND	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Antimony (ppb)	6	6	ND	No	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder; test addition.

Contaminants	MCLG or MRDLG	MCL or MRDL	Your Water	Violation	Typical source
Beryllium (ppb)	4	4	ND	No	Discharge from metal refineries and coal-burning factories; Discharge from electrical, aerospace, and defense industries
Cadmium (ppb)	5	5	ND	No	Corrosion of galvanized pipes; Erosion of natural deposits; Discharge from metal refineries; runoff from waste batteries and paints
Chromium (ppb)	100	100	ND	No	Discharge from steel and pulp mills; Erosion of natural deposits
Carbon Tetrachloride (ppb)	0	5	ND	No	Discharge from chemical plants and other industrial activities
(monochlorobenzene) (ppb)	100	100	ND	No	Discharge from chemical plants and other industrial activities
cis - 1,2 - dichloroethylene (ppb)	70	70	ND	No	Discharge from industrial chemical factories
Dichloromethane (ppb)	0	5	ND	No	Discharge from pharmaceutical and chemical factories
Ethylbenzene (ppb)	700	700	ND	No	Discharge from petroleum refineries
Xylenes (ppm)	10	10	ND	No	Discharge from petroleum factories; Discharge from chemical factories
Vinyl Chloride (ppb)	0	2	ND	No	Leaching from PVC piping; discharge from plastics factories
Tetrachloroethylene (ppb)	0	5	ND	No	Discharge from factories and dry cleaners
Toluene (ppm)	1	1	ND	No	Discharge from petroleum factories
Trichloroethylene (ppb)	0	5	ND	No	Discharge from metal degreasing sites and other factories
Lead - source water (ppm)		MPL	ND	No	Corrosion of household plumbing systems; Erosion of natural deposits
Mercury [Inorganic] (ppb)	2	2	ND	No	Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills; runoff from cropland
Selenium (ppb)	50	50	ND	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
Thallium (ppb)	0.5	2	ND	No	Discharge from electronics, glass and Leaching from ore-processing sites; drug factories
Styrene (ppb)	100	100	ND	No	Discharge from rubber and plastic factories; Leaching from landfills
Dalapon (ppb)	200	200	ND	No	Runoff from herbicide used on rights of way
Nitrite [measures as Nitrogen] (ppm)	1	1	ND	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural

Contaminants	MCLG or MRDLG	MCL or MRDL	Your Water	Violation	Typical source
trans - 1,2 - Dichloroethylene (ppb)	100	100	ND	No	Discharge from industrial chemical factories
o-Dichlorobenzene (ppb)	600	600	ND	No	Discharge from industrial chemical factories
p-Dichlorobenzene (ppb)	75	75	ND	No	Discharge from industrial chemical factories

Unit Descriptions

Term	Definition
ppm	ppm: parts per million, or milligrams per liter (mg/L)
ppb	ppb: parts per billion, or micrograms per liter (µg/L)
NTU	Nephelometric Turbidity Unit. A measure of the visual clarity of water.
% positive samples/month	% positive samples / month: Percent of samples taken monthly that were positive
NA	NA: not applicable
ND	ND: Not detected
NR	NR: Monitoring not required, but recommended.

Important Drinking Water Definitions

Term	Definition
MCLG	MCLG: Maximum Contaminant Level Goal: 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.
MCL	MCL: Maximum Contaminant Level: 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.
TT	TT: Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
AL	AL: Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Variances and Exemptions	Variances and Exemptions: State or EPA permission not to meet an MCL or a treatment technique under certain conditions.
MRDLG	MRDLG: Maximum residual disinfection level goal. 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.
MRDL	MRDL: Maximum residual disinfectant level. 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.
MNR	MNR: Monitored Not Regulated
MPL	MPL: State Assigned Maximum Permissible Level
RAA	RAA: Running Annual Average. The average of analytical results for samples taken during the previous 4 calendar quarters.
Turbidity	A measurement of the cloudiness of water. It is a good indicator of the effectiveness of the filtration system.

For more information please contact:

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