

City of Gladstone 2015 Annual Water Quality Report

Where does my water come from?

The residents of Gladstone get their drinking water from Little Bay de Noc in Lake Michigan. The water is pumped into the City's water treatment plant. A chemical called polyaluminum chloride is added to the water to help remove color and particles that make the water cloudy or turbid. This allows particles to clump together and settle out in the clarifiers. A chemical called polymer is added to aid the polyaluminum chloride in this process. The water then passes through sand filters to remove more particles. Fluoride is added to the water daily to prevent tooth decay and cavities. Powdered activated carbon is added to control taste and odors and remove organic compounds. Chlorine is added at various stages in the treatment process to kill harmful bacteria. The State of Michigan completed our source water assessment in 2003. The assessment was to determine the susceptibility or the relative potential of contamination of our source water. The susceptibility rating is on a six-tiered scale from "very-low" to "high" based on geologic sensitivity, water chemistry and contaminant sources. The susceptibility of our source was determined to be "moderately high". If you would like more information on this report please call the Water Treatment Plant at 906-428-3460 or e-mail us at ebuckman@gladstonemi.org.

Is my water safe?

The City of Gladstone is pleased to present you this years Annual Water Quality Report. Our continuous goal is to provide you with a safe and dependable supply of drinking water. Last year, the City of Gladstone received two Maximum Contaminant Level (MCL) violations from the Michigan Department of Environmental Quality. Our Total Trihalomethane (TTHM) locational running annual averages exceeded the MCL of 80 parts per billion (ppb) in the first and second quarters. The annual average was 84 ppb at one of our first quarter sites and 82 ppb at both of our second quarter sites. Our annual running averages were back below the MCL by the third and fourth quarters.

What does this mean?

These MCL's were Tier 2 violations which meant that there was not any immediate risk. Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.

What happened?

Since locational running annual average is used to determine compliance with the standard, one quarter of elevated results can put us out of compliance. This is what happened in the fourth quarter of 2014. We saw significant increases of both color and total organic carbon (TOC) in our Little Bay de Noc source water. This was caused by an increase in precipitation which caused Lake Michigan's level to rise over 22 inches. This increase in TOC in the raw water caused our TTHM's and other disinfection by-products to increase to elevated levels.

What is being done?

In the first quarter of 2016 we added 1,600 cubic feet of granular activated carbon (GAC) to our filters. This new filter media is one of the best methods for the removal of organic compounds, many of which are responsible for the formation of TTHM's. So far this year (2016) the GAC has proven itself by removing almost 90% of the organic carbon and lowering the TTHM's significantly.

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 EPA's **Safe Drinking Water Hotline (800-426-4791)**. Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 (800-426-4791)**.

Gladstone's drinking water comes from Little Bay de Noc. In addition to naturally occurring minerals in the bay, erosion of the lake and connecting river banks and runoff from animal or human activity on the shore can cause contaminants to be present in the bay. Contaminant substances can include:

1. Microbial contaminants, such as viruses, bacteria and protozoan's, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
2. Inorganic contaminants, such as salts and metals, which can be natural or may result from storm runoff, wastewater discharges, oil and gas production, and farming.
3. Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, can also come from gas stations, stormwater runoff, and septic systems.
4. Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
5. Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to insure that tap water is safe to drink, EPA prescribes regulations which 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 that must provide the same protection for public health. The Gladstone Water Department staff collects and test water samples from the bay and throughout the treatment process ranging from several times a day to continuous monitoring. We also collect and test at least 5 samples from various locations in our distribution system each month. These tests ensure that the proper chemical levels are maintained and that any contaminants that cannot be removed by treatment are at safe levels.

Lead Information:

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 Gladstone Water Department 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>.

If you would like more information about your water, please call the Gladstone Water Plant at 428-3460 or e-mail us at ebuckman@gladstonemi.org

Gladstone Water Quality Data 2015

Each year, the City is required to sample the drinking water for various contaminants. The table below lists all of the drinking water contaminants that we detected this year. The presence of 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 in the calendar year of this report. The State allows us to monitor for certain contaminants less than annually because the concentrations of these contaminants are not expected to change frequently. The most recent results of these tests are also included in the table.

Terms and Abbreviations:

- ~ **MCL: Maximum Contaminant Level:** The highest level of a 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.
- ~ **MCLG: Maximum Contaminant Level Goal:** 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.
- ~ **MRDL: Maximum Residual Disinfectant Level:** 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.
- ~ **MRDLG: Maximum Residual Disinfectant Level Goal:** 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 the use of disinfectants to control microbial contaminants.
- ~ **AL: Action Level:** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- ~ **TT: Treatment Technique:** A required process intended to reduce the level of a contaminant in drinking water.
- ~ **N/A:** not applicable
- ~ **ND:** not detected
- ~ **ppm:** parts per million or milligrams per liter
- ~ **ppb:** parts per billion or micrograms per liter
- ~ **NTU:** Nephelometric Turbidity Units

Contaminant	MCL	MCLG	Gladstone Water	Range of Detections	Sample Date	Violation	Typical Source
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Microbial Contaminants

Turbidity (NTU)	TT ≤1.0 NTU	N/A	Annual Avg. = 0.04 NTU	0.03-0.09	2015	No	Soil Runoff
	TT ≤0.3 NTU (For ≥ 95% of samples)	N/A	Lowest monthly% of samples meeting turbidity limit = 100% Single highest measurement = 0.09 NTU			No	

*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.

Inorganic Contaminants

Fluoride (ppm)	4	4	0.73	N/A	07/29/15	No	Erosion of natural deposits; Water additive which promotes strong teeth Water additive used to control Microbes Runoff from fertilizer use; leaking from septic tanks; sewage; Erosion of natural deposits
Chlorine-Total (ppm)	MRDL=4	MRDLG=4	0.6	0.1-1.2	2015	No	
Nitrate Nitrogen (ppm)	10	10	0.25	N/A	07/29/15	No	

Organic Contaminants

Total Trihalomethanes (ppb)	80	N/A	84	59-76	2015	Yes	By-product of drinking water chlorination By-product of drinking water chlorination Naturally present in the environment
Haloacetic Acids (ppb)	60	N/A	47	18-54	2015	No	
Total Organic Carbon (TOC)	TT	N/A	50%	27%-77%	2015	No	

*The Total Organic Carbon (TOC) removal % is calculated by comparing our source water and filtered water TOC. The removal requirements are dependent on the source waters TOC and alkalinity. This year's monthly required removal varied from 25-35%. The % shown is the average and range of the monthly removals for the 12 months covered by this report. The TOC removal was measured each month and our system met yearly TOC removal requirements set by the State.

Unregulated Contaminants

Sulfate (ppm)	N/A	N/A	18	N/A	07/29/15	N/A	Erosion of natural deposits
Sodium (ppm)	N/A	N/A	7.9	N/A	07/29/15	N/A	Erosion of natural deposits
Chloride (ppm)	N/A	N/A	16	N/A	07/29/15	N/A	Erosion of natural deposits

*Unregulated contaminant monitoring helps EPA to determine where certain contaminants occur and whether future regulation is warranted.

Lead/Copper	AL	MCLG	Gladstone Water	Range of Detections	Sample Date	Violation	Typical Source
Lead (ppb)	15	0	4.6	<1.0-5.7	08/21/13	No	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppb)	1300	1300	160	20-580	08/20/13	No	Corrosion of household plumbing systems; Erosion of natural deposits

* 0 of 20 sites tested were above the AL's for Lead and Copper. Gladstone Water = 90th Percentile

If you would like more information about your water please contact:

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2015 CCR POSTING LIST

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|--------------------------------|--------------------|----------------|
| 1) GLADSTONE CITY HALL | DATE POSTED: _____ | REMARKS: _____ |
| 2) GLADSTONE SENIOR CENTER | DATE POSTED: _____ | REMARKS: _____ |
| 3) FAIRVIEW MANOR | DATE POSTED: _____ | REMARKS: _____ |
| 4) BAYVIEW MANOR | DATE POSTED: _____ | REMARKS: _____ |
| 5) JONES SCHOOL | DATE POSTED: _____ | REMARKS: _____ |
| 6) MIDDLE SCHOOL | DATE POSTED: _____ | REMARKS: _____ |
| 7) CAMERON SCHOOL | DATE POSTED: _____ | REMARKS: _____ |
| 8) GLADSTONE HIGH SCHOOL | DATE POSTED: _____ | REMARKS: _____ |
| 9) GLADSTONE WATER PLANT | DATE POSTED: _____ | REMARKS: _____ |
| 10) CITY OF GLADSTONE WEB PAGE | DATE POSTED: _____ | REMARKS: _____ |