

City of Gladstone 2010 Annual Water Quality Report

Is my water safe?

Last year, as in years past, your tap water met all U.S. Environmental Protection Agency (EPA) and State drinking water health standards. The City of Gladstone vigilantly safeguards its water supply and once again we are proud to report that our system has not violated a maximum contaminant level or any other water quality standard.

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 alum 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 alum 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. Soda ash is added daily to control corrosion. Corrosive water can cause lead and copper to leach out in pipes. Powdered activated carbon is added to control taste and odors and to 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 gwtp@gladstonemi.com.

In 2006 the Gladstone Water Department secured a MDEQ Emerging Issues Grant. The objective of the study was to test the waters of Little Bay de Noc for E. coli and the protozoan parasites Cryptosporidium and Giardia. Samples were collected monthly (10/06-8/08) from the five major rivers feeding the Bay (Whitefish, Rapid, Tacoosh, Days, and Escanaba Rivers) and the raw source water at the Gladstone Water Plant. These raw samples were collected from our lake intake prior to any treatment. Cryptosporidium and Giardia are microbial pathogens found in surface and well waters throughout the world. Although filtration removes them, the most commonly used filtration methods cannot guarantee 100% removal of Cryptosporidium Oocysts because of their very small size and resistance to chlorine. Both must be ingested to cause illness and may be spread through means other than drinking water. Other known sources include contaminated fruit ciders and juices, swimming in lakes and pools, and person-to-person contact in day-care centers, nursing homes and hospitals. A copy of the study is available at the Water Treatment Plant.

In 2010 we participated in an EPA study conducted by Lake Superior State University to see if there was evidence of blue-green algae (Cyanobacteria) in our source and finished water. All of our finished/treated water samples showed no evidence of blue-green algae or there associated toxins. A copy of the LSSU study will be available in the near future.

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. 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 (800-426-4791)**.

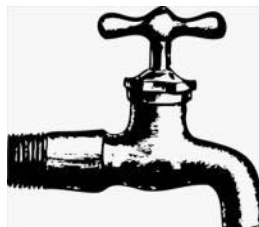
Gladstone's drinking water comes from Little Bay de Noc. In addition to naturally occurring minerals in the bay, erosion of the lake and connecting river banks and runoff from animal or human activity on the shore can cause contaminants to be present in the bay. Contaminant substances can include:

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 gwtp@gladstonemi.com

Gladstone Water Quality Data 2010

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:

- ~ **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.
- ~ **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.
- ~ **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
- ~ **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.
- ~ **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.

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. = 0.06 NTU	0.04-0.21	2010	No	Soil Runoff
	TT ≤0.3 NTU (For ≥ 95% of samples)	N/A	Lowest monthly% of samples meeting turbidity limit = 100% Single highest measurement = 0.21 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	0.88	N/A	09/07/10	No	Erosion of natural deposits; Water additive which promotes strong teeth
Chlorine-Total (ppm)	MRDL=4	MRDLG=4	0.8	0.1-1.6	2010	No	Water additive used to control microbes
Barium (ppm)	2	2	0.02	N/A	08/08/05	No	Erosion of natural deposits
Selenium (ppb)	50	50	2	N/A	08/08/05	No	Erosion of natural deposits

Organic Contaminants

Total Trihalomethanes (ppb)	80	N/A	76	36-96	09-10	No	By-product of drinking water chlorination
Haloacetic Acids (ppb)	60	N/A	33	8-64	2010	No	By-product of drinking water chlorination
Total Organic Carbon (TOC)	TT	N/A	51%	23%-68%	2010	No	Naturally present in the environment

*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 25-40%. 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	41	N/A	09/07/10	N/A	Erosion of natural deposits
Sodium (ppm)	N/A	N/A	21	N/A	09/07/10	N/A	Erosion of natural deposits
Chloride (ppm)	N/A	N/A	9	N/A	09/07/10	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
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Lead (ppb)	15	0	3.7	0 of 20 sites above AL	08/17/10	No	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppb)	1300	1300	150	0 of 20 sites above AL	08/17/10	No	Corrosion of household plumbing systems; Erosion of natural deposits

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

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Web Site: www.gladstonemi.org

2010 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: _____ |