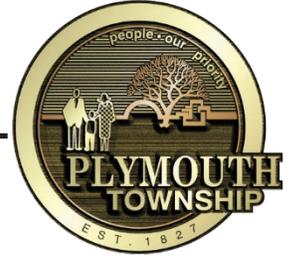


2021 water QUALITY report

CHARTER TOWNSHIP OF PLYMOUTH
DEPARTMENT OF PUBLIC WORKS



Plymouth Township's Annual Report

Drinking water quality is important to our community and the region. Plymouth Township and the Great Lakes Water Authority (GLWA) are committed to meeting state and federal water quality standards including the Lead and Copper Rule. With the Great Lakes as our water source and proven treatment technologies, the GLWA consistently delivers safe drinking water to our community. Plymouth Township operates the system of water mains that carry this water to your home's service line. This year's Water Quality Report highlights the performance of GLWA and Plymouth Township water professionals in delivering some of the nation's best drinking water. Together, we remain committed to protecting public health and maintaining open communication with the public about our drinking water.

The purpose of this report is to inform you about the source and quality of your drinking water. It is required as part of the annual Consumer Confidence Report (CCR) on water quality and illustrates that we are providing you with a safe and dependable water supply.

Source Water Assessment

Your source water comes from the Detroit River, situated within the Lake St. Clair, Clinton River, Detroit River, Rouge River, Ecorse River watersheds in the U.S. and parts of the Thames River, Little River, Turkey Creek and Sydenham watersheds in Canada. The Michigan Department of Environmental Quality in partnership with the U.S. Geological Survey, the Detroit Water and Sewerage Department, and the Michigan Public Health Institute performed a source water assessment in 2004 to determine the susceptibility of GLWA's Detroit River source water for potential contamination. The susceptibility rating is based on a seven-tiered scale and ranges from very low to very high determined primarily using geologic sensitivity, water chemistry, and potential contaminant sources. The report described GLWA's Detroit river intakes as highly susceptible to potential contamination. However, all four GLWA water treatment plants that service the city of Detroit and draw water from the Detroit River have historically provided satisfactory treatment and meet drinking water standards.

GLWA has initiated source-water protection activities that include chemical containment, spill response, and a mercury reduction program. GLWA participates in the National Pollutant Discharge Elimination System permit discharge program and has an emergency response management plan. In 2021, the Michigan Department of Environmental, Great Lakes and Energy approved GLWA's updated Fighting Island Surface Water Intake Protection plan. The plan has seven elements that include: roles and duties of government units and water supply agencies, delineation of a source water protection areas, identification of potential sources of contamination, management approaches for protection, contingency plans, siting of new water sources, public participation, and public education activities. If you would like to know more information about the Source Water Assessment Report, please contact GLWA at (313 926-8102).

The Safe Drinking Water Act –What's In It For You?

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 Safe Drinking Water Hotline at (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.

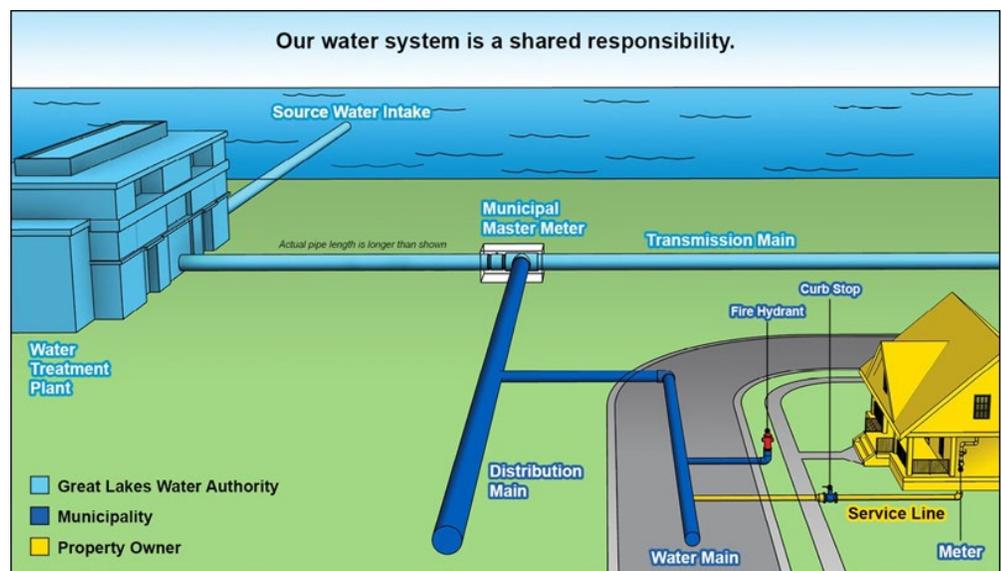
Contaminants that may be present in source water include:

- 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 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 organics, 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 which limit the amount of certain contaminants in the water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for human health.

Important Information about Lead in Drinking Water

Safe drinking water is a shared responsibility. The water that GLWA delivers to our community does not contain lead. Lead can leach into drinking water through home plumbing fixtures, and in some cases, customer service lines. Corrosion control reduces the risk of lead and copper from leaching into your water. Orthophosphates are added during the treatment process as a corrosion control method to create a protective coating in service pipes throughout the system, including in your home or business. Plymouth Township performs required lead and copper sampling and testing in our community. Water consumers also have a responsibility to maintain the plumbing in their homes and businesses, and can take steps to limit their exposure to lead.



If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. 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.

Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. GLWA 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 service line that is lead, galvanized previously connected to lead, or unknown but likely to be lead, 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 1-800-426-4791 or at <http://www.epa.gov/safewater/lead>.

GLWA Springwells Water Treatment Plant 2021 Regulated Detected Contaminants Tables

These tables are based on tests conducted in the year 2021 or the most recent testing done within the last five calendar years. Tests are conducted throughout the year and only tests that show the presence of a substance or require special monitoring are presented in these tables. The State allows monitoring 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 of the data is representative of the water quality, but some are more than one year old.

2021 Inorganic Chemicals - Annual Monitoring at Plant Finished Tap (GLWA)								
Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Allowed Level MCL	Highest Level Detected	Range of Detection	Violation	Major Sources in Drinking Water
Fluoride	04/13/2021	ppm	4	4	0.52	n/a	no	Erosion of natural deposit; Water additive, which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate	04/13/2021	ppm	10	10	0.34	n/a	no	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Barium	05/16/2017	ppm	2	2	0.01	n/a	no	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.

2021 Disinfection Residual - Monitoring in the Distribution System								
Regulated Contaminant	Test Date	Unit	Health Goal MRDLG	Allowed Level MRDL	Highest Level RAA	Range of Quarterly Results	Violation	Major Sources in Drinking Water
Total Chlorine Residual	2021	ppm	4	4	0.69	0.59-0.76	no	Water additive used to control microbes

See the “Key to the Detected Contaminants Tables” on Page 7

2021 Disinfection By-Products - Stage 2 Disinfection By-Products Monitoring in the Distribution System								
Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Allowed Level MCL	Highest Level LRAA	Range of Quarterly Results	Violation	Major Sources in Drinking Water
(TTHM) Total Trihalomethanes	2021	ppb	n/a	80	25.75	18-43	no	By-product of drinking water chlorination
(HAA5) Haloacetic Acids	2021	ppb	n/a	60	16.5	11-19	no	By-product of drinking water chlorination

2021 Turbidity - Monitored Every 4 Hours at the Plant Finished Water Tap			
Highest Single Measurement Cannot Exceed 1 NTU	Lowest Monthly % of Samples Meeting Turbidity Limit of 0.3 NTU (minimum 95%)	Violation	Major Sources in Drinking Water
0.20 NTU	100%	no	Soil Runoff

GLWA is required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether our drinking water meets health standards. GLWA routinely monitors your water for turbidity (cloudiness). This tells them whether they are effectively filtering the water supply. GLWA did not produce a filter profile for EGLE review within 7 days of an August 1, 2021, **individual filter** exceedance at the GLWA Springwells Water Treatment Plant as required by law. A filter profile is a summary of the turbidity and flow through the filter and is used to identify any trends in filter performance.

Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. These symptoms are not caused only by organisms in drinking water. If you experience any of these symptoms and they persist, you may want to seek medical advice.

What should I do? There is nothing you need to do currently. This is not an emergency. You do not need to boil water or use an alternative source of water currently. Even though this is not an emergency, as our customers, you have a right to know what happened and what GLWA did to correct the situation.

What happened? What is being done? The filter profile has since been produced and submitted to EGLE and additional response actions have been implemented at the plant. GLWA is making every effort to ensure this does not happen again.

2021 Special Monitoring						
Contaminant	Test Date	Unit	MCLG	MCL	Highest Level Detected	Source of Contaminant
Sodium	04/13/2021	ppm	n/a	n/a	4.36	Erosion of natural deposits

See the “Key to the Detected Contaminants Tables” on Page 7

Lead and Copper Monitoring at the Customer's Tap in 2021								
Regulated Contaminant	Unit	Year Sampled	Health Goal MCLG	Action Level AL	90 th Percentile Value*	Range of Individual Samples Results	Number of Samples Over AL	Major Sources in Drinking Water
Lead	ppb	2021	0	15	0	0-29	1	Lead services lines, corrosion of household, plumbing including fittings and fixtures; erosion of natural deposits.
Copper	ppm	2021	1.3	1.3	0.1	0.0-0.3	0	Corrosion of household plumbing system; Erosion of natural deposits; leaching from wood preservatives.

* The 90th percentile value means 90 percent of the homes tested have lead and copper levels below the given 90th percentile value. If the 90th percentile value is above the AL additional requirements must be met.

Water Service Line Inventory Status		
Number of Lead Service Lines	Number of Unknown Material Service Lines	Total Number of Service Lines
2	287	10,084

A service line includes any section of pipe from the water main to the building plumbing at the first shut-off valve inside the building, or 18 inches inside the building, whichever is shorter. The Township did not historically keep records of privately-owned service lines. The process of collecting data to update the service line inventory is ongoing.

Regulated Contaminant	Treatment Technique	Typical Source of Contaminant
Total Organic Carbon ppm	The Total Organic Carbon (TOC) removal ratio is calculated as the ratio between the actual TOC removal and the TOC removal requirements. The TOC is measured each quarter and because the level is low, there is no requirement for TOC removal.	Erosion of natural deposits

What Precautions Should You Consider?

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.

See the "Key to the Detected Contaminants Tables" on Page 7

2021 GLWA Springwells Water Treatment Plant Mineral Analysis

Parameter	Units	Max.	Min.	Avg.	Parameter	Units	Max.	Min.	Avg.
Turbidity	NTU	0.12	0.03	0.07	Phosphorus	ppm	0.67	0.37	0.50
Total Solids	ppm	174	94	135	Free Carbon Dioxide	ppm	12.1	8.8	10.2
Total Dissolved Solids	ppm	146	75	120	Total Hardness	ppm	106	82	99
Aluminum	ppm	0.082	0.012	0.037	Total Alkalinity	ppm	76	64	70
Iron	ppm	0.3	0.1	0.2	Carbonate Alkalinity	ppm	0	0	0
Copper	ppm	0.003	ND	0.000	Bi-Carbonate Alkalinity	ppm	76	64	70
Magnesium	ppm	8.3	6.1	7.3	Non-Carbonate Hardness	ppm	35	18	29
Calcium	ppm	29.1	21.3	25.1	Chemical Oxygen Demand	ppm	3.3	ND	1.5
Sodium	ppm	8.4	4.4	5.3	Dissolved Oxygen	ppm	13.4	8.9	10.9
Potassium	ppm	1.3	0.8	1.0	Nitrite Nitrogen	ppm	ND	ND	0.0
Manganese	ppm	0.004	ND	0.000	Nitrate Nitrogen	ppm	0.45	0.23	0.32
Lead	ppm	ND	ND	0.000	Fluoride	ppm	0.71	0.38	0.55
Zinc	ppm	0.001	ND	0.000	pH		7.20	7.07	6.54
Silica	ppm	2.8	1.8	2.2	Specific Conductance @ 25 °C	µmhos	238	191	224
Sulfate	ppm	32.0	22.6	25.9	Temperature	°C	24.3	3.7	14.5
Chloride	ppm	12.9	8.9	10.4					

Special Monitoring: Unregulated Contaminant Monitoring Rule (UCMR4)

Unregulated contaminants are those for which EPA has not established drinking water standards. Monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants.

Unregulated Contaminant	Test Date	Unit	Health Goal MCLG	Allowed Level MCL	Level Detected	Range of Detection	Major Sources in Drinking Water
Manganese	2019	ppb	n/a	n/a	0.41	n/a	Erosion of natural deposits.
HAA9 Group	2019	ppb	n/a	n/a	21.66	n/a	By-product of drinking water disinfection.
HAA9 Group	2018	ppb	n/a	n/a	20.04	n/a	By-product of drinking water disinfection.

See the “Key to the Detected Contaminants Tables” on Page 7

Key to the Detected Contaminants Tables

Symbol	Abbreviation	Definition/Explanation
AL	Action Level	The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
°C	Celsius	A scale of temperature in which water freezes at 0° and boils at 100° under standard conditions.
>	Greater than	
HAA5	Haloacetic Acids	HAA5 is the total of bromoacetic, chloroacetic, di-bromoacetic, dichloroacetic, and trichloroacetic acids. Compliance is based on the total.
LRAA	Locational Running Annual Average	The average of analytical results for samples at a particular monitoring location during the previous four quarters.
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.
MCLG	Maximum Contaminant Level Goal	The level of contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow a margin of safety.
MRDL	Maximum Residual Disinfectant Level	The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
MRDLG	Maximum Residual Disinfectant Level Goal	The level of a 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.
n/a	not applicable	
ND	Not Detected	
NTU	Nephelometric Turbidity Units	Measures the cloudiness of water.
pCi/L	Picocuries Per Liter	A measure of radioactivity
ppb	Parts Per Billion (one in one billion)	The ppb is equivalent to micrograms per liter. A microgram = 1/1000 milligram.
ppm	Parts Per Million (one in one million)	The ppm is equivalent to milligrams per liter. A milligram = 1/1000 gram.
RAA	Running Annual Average	The average of all analytical results for all samples during the previous four quarters.
TT	Treatment Technique	A required process intended to reduce the level of a contaminant in drinking water.
TTHM	Total Trihalomethanes	Total Trihalomethanes is the sum of chloroform, bromodichloromethane, dibromochloromethane and bromoform. Compliance is based on the total.
µmhos	Micromhos	Measure of electrical conductance of water

KEEP WATER RATES IN CHECK!

Don't get soaked on water bills!

By continuing to shift outdoor and indoor water usage activities to the non-peak hours of 12 to 6, you can help avoid large rate increases in the future.

Does 12 to 6 mean AM or PM?

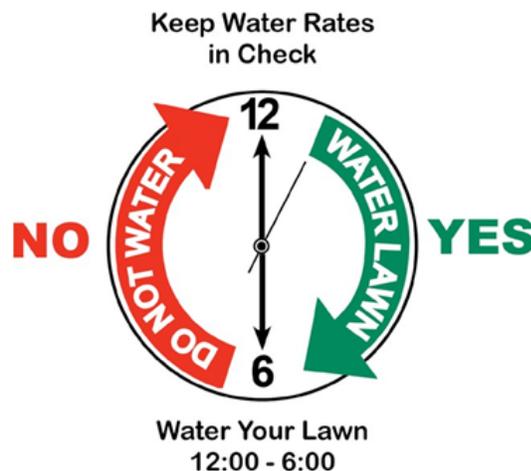
Both! 12 midnight to 6 am is a non-peak time period. If you need to use water during daylight hours, please use water between 12 noon and 6 pm, which is also a non-peak time period in Plymouth Township.

When should I water my lawn?

Set your irrigation systems to operate between the designated non-peak hours of 12 midnight and 6 am. If you manually water your lawn, the best time to water is between 12 noon and 6 pm.

Are there outdoor water use restrictions?

No. You are not being discouraged from outdoor water use. Just keep in mind that using water during non-peak hours can benefit everyone.



RESIDENTIAL WATER CROSS-CONNECTION PROGRAM UNDERWAY

Plymouth Township is required under the Michigan Safe Drinking Water Act (Public Act 399, Part 14) to maintain a water cross-connection control program to identify and eliminate any possible connections that could contaminate the public water system. The Township has implemented a program for its commercial and industrial customers for a number of years; however, in order to fully comply with the State mandate, the Township must now include residential customers as part of this program. Plymouth Township has contracted with HydroCorp of Troy, MI to assist with facilitating this program.

The residential program will consist of inspections of the exterior of homes and require periodic testing of backflow prevention assemblies, which are typically found on lawn irrigation systems.

The Township has proposed a five-year rotational schedule for inspections and testing. HydroCorp will begin inspections in Zone 1 this Spring. Homeowners will receive advance notice and all inspections will be done outside of the home.

To find out which inspection zone you reside in, and additional information about the residential program, please visit the Township's Water Cross-Connection Control Program website at <https://watercustomer.com/plymouth-township>.

Plymouth Township and the Great Lakes Water Authority are committed to safeguarding our water supply and delivering the highest quality drinking water to protect public health. Please contact Department of Public Works at (734) 354-3270 Ext. 3 with any questions or concerns about your water.