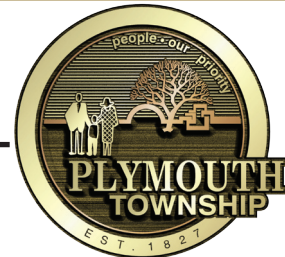


2016 water QUALITY report

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, formally Detroit Water and Sewerage Department) 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, 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, and several watersheds within U.S. and Canada. The Michigan Department of Environmental Quality in partnership with the GLWA and several other governmental agencies performed a source water assessment in 2004 to determine the susceptibility or relative potential of contamination. The susceptibility rating is on a seven-tiered scale from "very low" to "very high" based primarily on geologic sensitivity, water chemistry, and contamination sources. The susceptibility of our Detroit River source water intakes were determined to be highly susceptible to potential contamination. However, all four Detroit water treatment plants that use source water from Detroit River have historically provided satisfactory treatment of this source water to meet drinking water standards.

GLWA initiated source-water protection activities that include chemical containment, spill response, and a mercury reduction program. GLWA participates in a National Pollutant Discharge Elimination System permit discharge program and

has an emergency response management plan. GLWA voluntarily developed and receive approval in 2016 for a Source Water Protection Program (SWIPP) for the Detroit River intakes. The program includes seven elements that include the following: roles and duties of government units and water supply agencies, delineation of a source water protection area, identification of potential of source water protection area, management approaches for protection, contingency plans, siting of new sources and public participation and education. If you would like to know more information about the Source Water Assessment or SWIPP, 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.

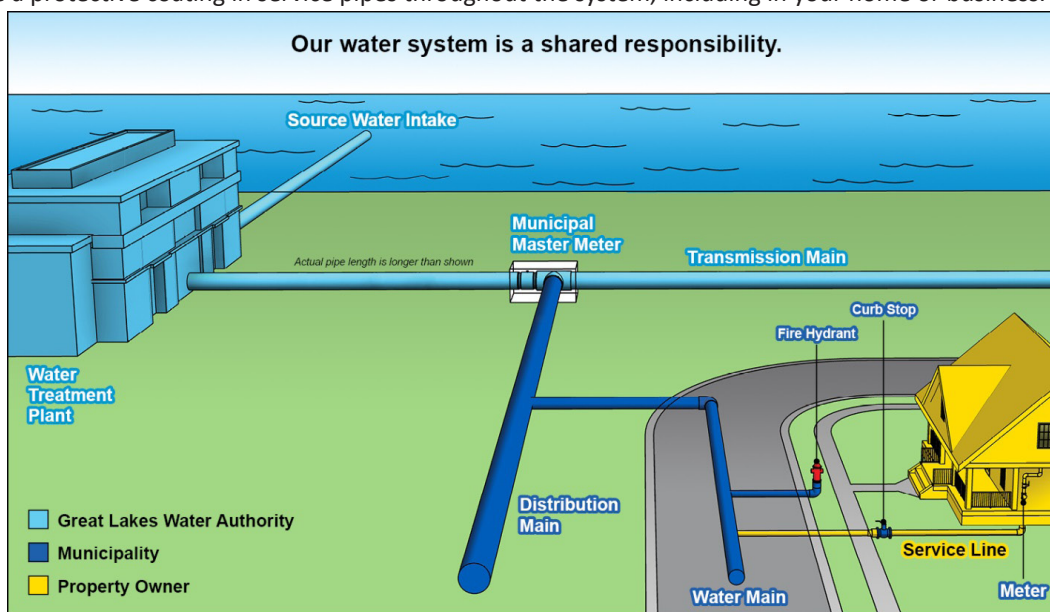
Contaminants that may be present in source water include:

- 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 water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public 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. 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 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 at <http://www.epa.gov/safewater/lead> or from the Safe Drinking Water Hotline (800-426-4791).

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 us with any questions or concerns about your water.

Key to the Detected Contaminants Tables

| Symbol | Abbreviation | Definition/Explanation |
|--------|--|---|
| > | Greater than | |
| °C | Celsius | A scale of temperature in which water freezes at 0° and boils at 100° under standard conditions. |
| AL | Action Level | The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements which a water system must follow. |
| HAA5 | Haloacetic Acids | HAA5 is the total of bromoacetic, chloroacetic, dibromoacetic, 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. |
| 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 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 |

Springwells Water Treatment Plant 2016 Regulated Detected Contaminants Tables

The Great Lakes Water Authority monitored for Cryptosporidium in our source water (Detroit River) from our Southwest Water Treatment Plant during 2016. Cryptosporidium was detected twice in our source water samples. A follow-up water sample was collected from the treated water and Cryptosporidium was not found to be present. Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Although filtration removes Cryptosporidium, the most commonly-used filtration methods cannot guarantee 100 percent removal. Our monitoring indicates the presence of these organisms in our source water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of Cryptosporidium may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immunocompromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immunocompromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water.

Inorganic Chemicals – Monitoring at the Plant Finished Water Tap

| Regulated Contaminant | Test Date | Unit | Health Goal MCLG | Allowed Level MCL | Highest Level Detected | Range of Detection | Violation yes/no | Major Sources in Drinking Water |
|-----------------------|-----------|------|---------------------|----------------------|---------------------------|-----------------------|---------------------|---|
| Fluoride | 5-10-16 | ppm | 4 | 4 | 0.50 | n/a | no | Erosion of natural deposits; Water additive, which promotes strong teeth; Discharge from fertilizer and aluminum factories. |
| Nitrate | 5-10-16 | ppm | 10 | 10 | 0.34 | n/a | no | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits. |

Disinfection By-Products – Monitoring in Distribution System, Stage 2 Disinfection By-Products

| Regulated Contaminant | Test Date | Unit | Health Goal MCLG | Allowed Level MCL | Highest LRAA | Range of Detection | Violation yes/no | Major Sources in Drinking Water |
|------------------------------|-----------|------|---------------------|----------------------|-----------------|-----------------------|---------------------|---|
| Total Trihalomethanes (TTHM) | 2016 | ppb | n/a | 80 | 26.5 | 19.0-34.0 | no | By-product of drinking water chlorination |
| Haloacetic Acids (HAA5) | 2016 | ppb | n/a | 60 | 17.3 | 13.0-24.0 | no | By-product of drinking water disinfection |

Disinfectant Residuals – Monitoring in Distribution System by Treatment Plant

| Regulated Contaminant | Test Date | Unit | Health Goal MRDLG | Allowed Level MRDL | Highest RAA | Quarterly Range of Detection | Violation yes/no | Major Sources in Drinking Water |
|-------------------------|--------------|------|----------------------|-----------------------|----------------|------------------------------------|---------------------|---|
| Total Chlorine Residual | Jan-Dec 2016 | ppm | 4 | 4 | 0.74 | 0.67-0.81 | no | Water additive used to control microbes |

What Precautions Should You Consider?

Some people may be more vulnerable to contaminants in drinking water than is 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).

| 2016 Turbidity – Monitored every 4 hours at Plant Finished Water | | | |
|--|--|------------------|---------------------------------|
| Highest Single Measurement Cannot exceed 1 NTU | Lowest Monthly % of Samples Meeting Turbidity Limit of 0.3 NTU (minimum 95%) | Violation yes/no | Major Sources in Drinking Water |
| 0.33 NTU | 99.7 % | no | Soil Runoff |

Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

| January – March 2016 Microbiological Contaminants – Monthly Monitoring in Distribution System | | | | | |
|---|------|---|-------------------------|------------------|--------------------------------------|
| Regulated Contaminant | MCLG | MCL | Highest Number Detected | Violation yes/no | Major Sources in Drinking Water |
| Total Coliform Bacteria | 0 | Presence of Coliform bacteria > 5% of monthly samples | 0 | no | Naturally present in the environment |
| E. coli Bacteria | 0 | A routine sample and a repeat sample are total coliform positive, and one is also fecal or E.coli positive. | 0 | no | Human waste and animal fecal waste. |

| 2014 Lead and Copper Monitoring at Customers' Tap | | | | | | | | |
|---|-----------|------|------------------|-----------------|------------------------------------|---------------------------|------------------|--|
| Regulated Contaminant | Test Date | Unit | Health Goal MCLG | Action Level AL | 90 th Percentile Value* | Number of Samples over AL | Violation yes/no | Major Sources in Drinking Water |
| Lead | 2014 | ppb | 0 | 15 | 0 | 0 | no | Corrosion of household plumbing system; Erosion of natural deposits. |
| Copper | 2014 | ppm | 1.3 | 1.3 | 0.102 | 0 | no | 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.

| 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 was measured each quarter and because the level was low, there is no TOC removal requirement | Erosion of natural deposits |

2016 Special Monitoring

| Contaminant | MCLG | MCL | Level Detected | Source of Contamination |
|--------------|------|-----|----------------|-----------------------------|
| Sodium (ppm) | n/a | n/a | 4.66 | Erosion of natural deposits |

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.

