

## Frequently Asked Questions

### Q. Is cloudy water safe?

A. Water that appears milky is usually the result of harmless tiny air bubbles (dissolved oxygen) trapped in the water, like gas bubbles in carbonated soft drinks. After a glass of this water sits for a few minutes, the water will become clear as the air bubbles float to the top. Since cold water can hold more dissolved oxygen than warm water, this type of cloudiness occurs more often in winter. As the water warms up in your household plumbing, the extra oxygen does not stay dissolved and is released; thus air bubbles. Air bubbles do not affect the safety of the water. If you experience cloudy water that does not clear after five minutes, call the Department of Public Works at (586) 446-2440.

### Q. Is the chlorine used to disinfect water harmful to my health?

A. The GLWA uses chlorine to disinfect our drinking water. Chlorine has been used to treat municipal water in the United States since 1908 and it is the most effective way to ensure that water stays disinfected as it travels through water delivery systems. Chlorine prevents waterborne epidemics such as cholera, typhoid and hepatitis. The amount of chlorine in the drinking water as it leaves the treatment plant is typically 1 milligram per liter (ppm). Chlorine in this quantity poses no known or expected health risk.

## Detected Contamination Tables

These tables are based on tests conducted by GLWA in 2016. Many tests are conducted throughout the year however, only tests that show the presence of a contaminant are shown here. Below is a key to the terms used in the tables throughout this report.

Symbol	Abbreviation for	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, 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 technologies.
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 a 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. MRDLGs 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	1 ppb = micrograms/liter. A microgram = 1/1000 milligram. (one in one billion)
ppm	Parts Per Million	1 ppm = 1 milligram/liter. A milligram = 1/1,000 gram. (one in one million)
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.
umhos	Micromhos	Measure of electrical conductance of water.

The state of Michigan allows communities, such as Sterling Heights, to monitor 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 in the charts below and to the right is representative of the water quality, but some testing data is more than one year old.

### 2016 Regulated Detected Contaminants Tables of Water Delivered from the Great Lakes Water Authority

Inorganic Chemicals – Monitoring at Plant Finished Water Tap								
Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Allowed Level MCL	Level Detected	Range of Detection	Violation yes/no	Major Sources in Drinking Water
Fluoride	May 10, 2016	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	May 10, 2016	ppm	10	10	0.48	n/a	no	Runoff from fertilizer use; Leaching from septic tanks & sewage; Erosion of natural deposits
Combined Radium	May 13, 2014	pCi/L	0	5	0.86 +/- 0.55	n/a	no	Erosion of natural Deposits; Radium 226 & 228
Disinfection By-Products – Monitoring in Distribution System Stage 2 Disinfection By-Products								
Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Allowed Level MCL	Highest RRA	Range of Detection	Violation yes/no	Major Sources in Drinking Water
Total TTHM	2016	ppb	n/a	80	32.1	15-60	no	By-product of drinking water chlorination
HAAS	2016	ppb	n/a	60	15.0	8-36	no	By-product of drinking water disinfection
Disinfectant Residual – Monitoring in Distribution System by Treatment Plant								
Regulated Contaminant	Test Date	Unit	Health Goal MRDGL	Allowed Level MRDL	Highest RAA	Range of Detection	Violation yes/no	Major Sources in Drinking Water
Total Chlorine Residual	Jan-Dec 2016	ppm	4	4	0.79	0.61-0.85	no	Water additive used to control microbes
Treatment Technique								Typical Source of Contaminant
The Total Organic Carbon (TOC) removal ratio is calculated as Total Organic ratio between the actual TOC and the TOC removal Carbon (ppm) requirements. The TOC was measured each month and because the level was low, there is no TOC removal requirement.								Erosion of natural deposits

### 2016 Turbidity – Monitored every four hours at 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 yes/no	Major Sources in Drinking Water
0.28 NTU		100%		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.

### 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 in > 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 Sterling Heights Lead and Copper Testing Results (testing performed every 3 years)

Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Action Level AL	90th 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	0.0261	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.

### 2016 Special Monitoring

Regulated Contaminant	Unit	Health Goal MCLG	Allowed Level MCL	Level Detected	Typical Source of Contaminant		
Sodium	ppm	n/a	n/a	4.96	Erosion of natural deposits		

Unrelated 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.



# 2016 Annual Water Quality Report

## Important Information on Sterling Heights Water Quality & Safety

### Sterling Heights City Council

Mayor Michael C. Taylor

Mayor Pro Tem Barbara A. Ziarko  
Councilwoman Deanna Koski

Councilman Gary Lusk  
Councilwoman Maria G. Schmidt  
Councilman Nate Shannon  
Councilwoman Liz Sierawski

### City Manager

Mark Vanderpool

### Public Works Director

Michael Moore



[www.sterling-heights.net](http://www.sterling-heights.net)

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## About Our System

Drinking water quality is important to our community and the region. The City of Sterling Heights and the Great Lakes Water Authority (GLWA) are committed to meeting state and federal water quality standards, including the Lead and Copper Rule.

The City of Sterling Heights purchases its drinking water from the GLWA, and with the Great Lakes as our water source and proven treatment technologies, the GLWA consistently delivers safe drinking water to our community. The City of Sterling Heights 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 the City of Sterling Heights 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.

## Source Water

Your source water comes from one of two sources:

- The Detroit River, within Lake St. Clair, and several watersheds within the United States and Canada, or
- The lower Lake Huron watershed which includes numerous short, seasonal streams that drain to Lake Huron.

The MDEQ in partnership with the Detroit Water and Sewerage Department 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 contaminant sources. The susceptibility of the Detroit River source water intakes were determined to be highly susceptible to potential contamination. The Lake Huron source water intake is categorized as having a moderately low susceptibility to potential contaminant sources.

However, all GLWA water treatment plants that use source water from the Detroit River and Lake Huron have historically provided satisfactory treatment of these sources to meet drinking water standards.

GLWA has initiated source-water protection activities that include chemical containment, spill response, and a mercury reduction plan. GLWA participates in a National Pollutant Discharge Elimination System permit discharge program and has an emergency response management plan. GLWA voluntarily developed and received approval for a Source Water Protection Program (SWIPP) for the Detroit River and Lake Huron intakes. This 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 source water protection area, management approaches for protection, contingency plans, citing of new sources, and public participation and education. For more information, contact the Sterling Heights Department of Public Works at (586) 446-2440.

## How Do We Know Our Water is Safe?

The GLWA treatment facilities operate 24 hours a day, seven days a week. The treatment process begins with disinfecting the source water with chlorine to kill harmful microorganisms that can cause illness.

Next, a chemical called Alum is mixed with the water to remove the fine particles that make the water cloudy or turbid. Alum causes the particles to clump together and settle to the bottom.

Fluoride is also added to protect our teeth from cavities and decay. The water then flows through fine sand filters called beds. These filters remove even more particles and certain microorganisms that are resistant to chlorine.

Finally, a small amount of orthophosphates and chlorine are added to the treated water just before it leaves the treatment plant. The orthophosphates helps control the lead that may dissolve in water from household plumbing systems. The chlorine keeps the water disinfected as it travels through the water mains to reach your home.

In addition to a carefully controlled and monitored treatment process, the water is tested for a variety of substances before treatment, during various stages of treatment, and throughout the distribution system.

GLWA tests hundreds of samples each week in their certified laboratories by a highly qualified, trained staff.

For more information about safe drinking water, visit the EPA at [www.epa.gov/safewater/](http://www.epa.gov/safewater/).

The City of Sterling Heights will notify you immediately if there is ever any reason for concern about our water.

## Additional Information

In order to ensure that tap water is safe to drink, the 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.

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 can be obtained by calling the EPA's 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. Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, 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, 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, naturally occurring or the result of oil and gas production and mining activities.

## Public Participation Opportunities

The City of Sterling Heights and the GLWA are committed to safeguarding our water supply and delivering the highest quality drinking water to protect public health. Please direct any questions or concerns to the Department of Public Works at (586) 446-2440.

## Health Information

### Lead

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. The City of Sterling Heights 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 women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Sterling Heights 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 (800) 426-4791 or at <http://www.epa.gov/safewater/lead>

### People With Special Health Concerns

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 may 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