



CITY OF RIVERVIEW

14100 Civic Park Drive
Riverview, MI 48193

WATER - IT'S OURS TO CONSERVE & PROTECT

WATER & SEWAGE DEPARTMENT 2018 Consumer's Annual Report on Water Safety

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Our 2018 Consumers' Annual Report on water Quality provides the sources of our water, test results, and important information about water and health. We will notify you immediately if there is ever any reason for concern about our water.

You will see as you review this report that your drinking water met or exceeded all government standards set for water quality and safety last year .The City of Riverview is proud of that fact.

The City of Riverview's goal is to continue the delivery of the highest quality water to all its customers by working closely with our supplier Great Lakes Water Authority (GLWA). In addition, the Michigan Department of Environmental Quality oversees the operation of municipal water systems.

This report covers the last complete year (2018) of water service to our community.

Drinking water quality is important to our community and the region. The City of Riverview 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. City of Riverview 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 City of Riverview's 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.

Drinking Water Regulations

• **Contaminants and their presence in 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).

• **Vulnerability of sub-populations:** 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 systems 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).

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 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 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

programs 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, contact your water department (734) 281-4270.

• **Sources of drinking water:** The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. Our water comes from the Detroit River. 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 stormwater 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 stormwater 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 stormwater 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.

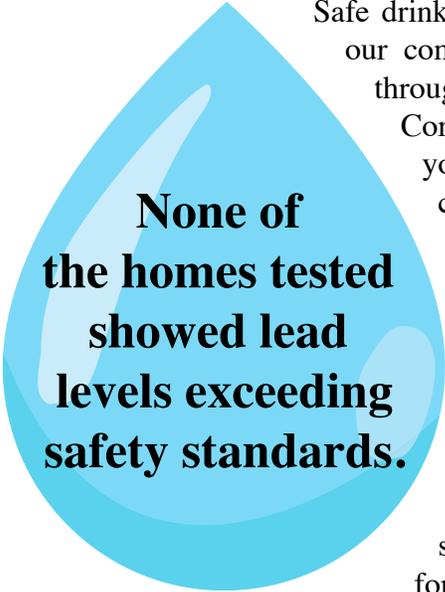
Lead in Drinking Water

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. The City of Riverview 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. The City of Riverview 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 www.epa.gov/safewater/lead. Since 1992, the City of Riverview has been testing homes with plumbing systems that could contribute to the household water supply. The City of Riverview tested five (5) homes in 2014 and seven (7) homes in 2017 for lead and copper, all results of water samples taken came back well below the allowable action levels of 15 ppb (parts per billion) for lead and 1300 ppb (parts per billion) for copper.



**None of
the homes tested
showed lead
levels exceeding
safety standards.**

Educational Information About Lead

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (800-426-4791).

Save Water and Money - Check for Leaks

Most of our newer style meters have a red triangular disc in the center of the meter that rotates to show when there is water passing through the meter. To check to see if you have any leaks in your home make sure all fixtures in your home are off and not drawing water. Then look at the red triangle-it should not be moving. If it is rotating you should check all fixtures (sink faucets, toilets, washers, water heaters, outside faucets, lawn sprinkler valves, etc.) at the home to make sure there are no streams or drips coming from them.

Be sure to check your toilets. Leaking toilets are the most common and hard to detect of water wasters. To check for a leaking toilet, put food coloring in the toilet tank and wait 10 minutes. Do not flush during this time. If the coloring appears in the water in the toilet bowl, there is a leak. Or if you notice the toilet running from time to time when no one has used it (the phantom flush) there is a leak. A toilet leak can waste gallons of water a day which will run up your water bill.

Cross Connections

A cross connection is an arrangement of piping which could allow undesirable water, sewage, or chemical solutions to enter your drinking (potable) water system as a result of backflow. Cross connections with potable piping systems have resulted in numerous causes of illness and even death.

Historically, cross connections have been one of the most serious public health threats to a drinking water supply system, and many times are present in a residential water system.

What is a Backflow and how can it occur?

Backflow is the reversal of normal flow in a system due to backsiphonage or back pressure.

Backsiphonage backflow occurs when a vacuum is induced on a piping system, just like drinking from a glass with a drinking straw. A garden hose or a hose connected to a laundry tub can act as a “drinking straw” allowing undesirable liquids to be drawn through it by backsiphonage. Some typical situation which cause backsiphonage action include:

- Water main breaks or repairs occurring in the system at a point of lower elevation than your service point;
- High water flow rates exerted on a watermain due to firefighting, hydrant flushing, large system demands or major piping breaks;
- Booster pumps taking direct suction from potable water supply piping; or
- Undersize piping.

When ever the drinking water supply system is directly connected to another piping system or process which operates at a higher system pressure, backpressure backflow can occur. Typical cause of backpressure backflow include:

- Non potable piping systems equipped with pumping equipment (irrigation well interconnected with potable system, for example);
- Steam or hot water boilers; or
- Heat exchangers.

What is the Law?

Cross connection with potable piping systems are prohibited by state plumbing codes. Additionally, Michigan water utilities are required to have a cross connection control inspection program of their water customers to eliminate and prevent cross connections. Common commercial and industrial users posing a public health threat include:

- Industries with chemically treated boilers;
- Plating operations, chemical processing plants;
- Funeral Homes, Mortuaries;
- Marine Facilities;
- Hospitals, nursing homes;
- Research laboratories;
- Car washes, laundromats; and
- School facilities

The City of Riverview makes routine inspections of these facilities to insure that corrective action is taken where necessary.

What Hazards threaten the Homeowner?

Many common household uses for water pose a public health threat to the potable water supply system whether the home is supplied by municipal water or by a private well. Principal areas of water use in the home that pose a threat due to cross connections are:

- A hose connection to a chemical solution aspirator to feed lawn/shrub herbicides, pesticides, and fertilizers;
- Lawn irrigation systems;
- Chemically treated heating systems;
- Water softeners;
- Hose connections to a water outlet or laundry tub;
- Swimming pools;
- Solar heating systems;
- Private non potable water supplies;
- Non-code (siphonable) ball cock assemblies in toilets; and
- Water-operated sump drain devices

This list of potential cross connection hazards is by no means complete. A private residence that has one or two of these situations is seriously jeopardizing its own potable water system and that of the community if it is served by a public water supply system.

Home Irrigation Backflow Prevention

All lawn irrigation systems in the City of Riverview are required to have an approved testable backflow device. The device is to be tested every three (3) years and the results of a passed test sent to the Public Works Department. Testing of the device must be completed by a licensed plumber with cross connection certification. A list of plumbers that are registered with the City can be obtained from the Public Works Department by calling (734) 281-4268.

The City of Riverview will mail out notices in the spring to known residents and businesses that have backflow devices due to be tested this year. Please note that the City of Riverview receives no revenue from backflow testing procedures. The City of Riverview is however mandated by the State of Michigan to enforce this program. Please remember this is just another step we take to protect the community's water supply. The City of Riverview would like to thank you for your compliance with this matter.

Help Keep Our Water Rates in Check

One of the main factors that determine the rate that the Great Lakes Water Authority (GLWA) charges the City of Riverview for water is Peak demand. Basically the peak demand is the rate we are charged for the amount of water used on our highest water usage day of the year (the more water used the higher the rate). The peak water demand periods are usually measured during hot dry days when outdoor water usage is at its highest resulting in our water rates from GLWA being calculated much higher than they would be. We can take voluntary steps to reduce the amount of water used during these peak periods, such as avoiding lawn watering during peak hours of 6:00 a.m. to 8:00 p.m. and by curbing outdoor water use like filling pools or washing cars during those peak periods. A little effort could help in keeping out water rates in check and saving you money.

Information From the Water Department

You may now pay your water bill by credit card at the City Hall Finance Department, or online at cityofriverview.com. Automatic bill pay is now available. You can find the registration form in the Finance Department or online at cityofriverview.com.

For your convenience the City has a drop box in the Police Department lobby where after hours water bill payments may be deposited. When you sell your home contact the Water Department to get a final bill and have the water taken out of your name. When you purchase a home contact the Water Department and provide your name and billing information. To avoid late payments and penalties seasonal residents should notify the Water Department with their forwarding address. Unpaid water and sewage bills will become a lien against the property and if not paid by the 15th of April will be placed on the succeeding year's city tax bill.

The City of Riverview 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.

**Water costs money...
don't waste it!**

A dripping faucet or fixture can waste 3 gallons a day...a total of **1095 gallons** a year.

Waste per quarter at 60 psi water pressure			
Diameter of stream	Gallons	Cubic Feet	Cubic Meters
 1/4"	1,181,500	158,000	4,475
 3/16"	666,000	89,031	2,521
 1/8"	296,000	39,400	1,115
 1/16"	74,000	9,850	280
	A continuous leak from a hole this size would, over a three month period, waste water in the amounts shown above.		

Southwest & Springwells Water Treatment Plants 2018 Regulated Detected Contaminants Table

Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Allowed Level MCL	Highest Level Detected	Range of Detections	Violation yes/no	Major Sources in Drinking Water
2018 INORGANIC CHEMICALS - MONITORING AT THE PLANT FINISHED WATER TAP								
Fluoride Southwest Plant Springwells Plant	6-12-2018	ppm ppm	4 4	4 4	0.66 0.67	n/a n/a	no no	Erosion of natural deposits; Water additive, which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate Southwest Plant Springwells Plant	6-12-2018	ppm ppm	10 10	10 10	0.41 0.34	n/a n/a	no no	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Barium Southwest Plant Springwells Plant	5-16-2017	ppm ppm	2 2	2 2	0.01 0.01	n/a n/a	no no	Discharge of drilling wastes; discharge from metal refineries; Erosion of natural deposits.
DISINFECTANT RESIDUALS AND DISINFECTION BY-PRODUCTS - MONITORING IN DISTRIBUTION SYSTEM BOTH PLANTS								
Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Allowed Level MCL	Highest LRAA	Range of Detections	Violation yes/no	Major Sources in Drinking Water
Total Trihalomethanes (TTHM)	2018	ppb	n/a	80	47.175	24.9-63.4	no	By-product of drinking water chlorination.
Haloacetic Acids (HAA5)	2018	ppb	n/a	60	10.5	2-14	no	By-product of drinking water disinfection.
DISINFECTANT RESIDUALS - MONITORING IN DISTRIBUTION SYSTEM SOUTHWEST PLANT								
Total Chlorine Residual	Jan-Dec 2018	ppm	MRDLG 4	MRDL 4	0.58	0.48-0.61	no	Water additive used to control microbes.
DISINFECTANT RESIDUALS - MONITORING IN DISTRIBUTION SYSTEM SPRINGWELLS PLANT								
Total Chlorine Residual	Jan-Dec 2018	ppm	MRDLG 4	MRDL 4	0.68	0.63-0.69	no	Water additive used to control microbes.
2018 TURBIDITY - MONITORED EVERY 4 HOURS AT PLANT FINISHED WATER TAP								
Cannot exceed 1 NTU	TU (minimum 95%)						Violation yes/no	Major Sources in Drinking Water
Southwest 0.19 NTU Springwells Plant 0.25 NTU	100%						no	Soil Runoff
Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indication of our filtration system.								
2018 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.		in one month 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 a fecal of E.coli positive.		in one year 0	no	Human waste and animal fecal waste.		
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 requirement for TOC removal.						Erosion of natural deposits.	
2017 Lead and Copper Monitoring at Customer's Tap								
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	2017	ppb	0	15	<2	0	no	Corrosion of household plumbing system; Erosion of natural deposits.
Copper	2017	ppb	1300	1300	195	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.								
2018 SPECIAL MONITORING								
CONTAMINANT	MCLG	MCL	LEVEL DETECTED				SOURCE OF CONTAMINATION	
Sodium (ppm) Southwest	n/a	n/a	6.36				Erosion of natural deposits.	
Sodium (ppm) Springwells	n/a	n/a	6.00				Erosion of natural deposits.	

Southwest Water Treatment Plant

2018 Regulated Detected Contaminants Tables

Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Allowed Level MCL	Level Detected	Violation Yes/No	Major Source in Drinking water
Combined Radium Radium 226 and 228	5/13/2014	pCi/L	0	5	0.65 + or - 0.54	no	Erosion of natural deposits

GLWA voluntarily monitors for Cryptosporidium and Giardia in our untreated source water monthly. The untreated water samples collected from our Southwest plant indicated the presence of one Giardia cyst in March. In addition, monitoring indicated the presence of one Giardia cyst and one Cryptosporidium oocyst in the untreated water from the Southwest plant in July. Additional testing was performed on the treated water at the Southwest plant and Cryptosporidium was absent. All other samples collected in the year 2018 were absent for the presence of Cryptosporidium and Giardia. Systems using surface water like GLWA must provide treatment so that 99.9 percent of Giardia lamblia is removed or inactivated.

Cryptosporidium is a microbial parasite found in surface water throughout the United States. Although Cryptosporidium can be removed by filtration, the most commonly used filtration cannot guarantee 100% removal. Current test methods do not enable us to determine if these organisms are dead or alive. Symptoms of infection include nausea, diarrhea and abdominal cramps. Most healthy persons can overcome the disease within a few weeks. However, immuno-compromised people (such as those with AIDS, undergoing chemotherapy or recent organ transplant recipients) are at a greater risk of developing a severe, life-threatening illness. Immuno-compromised persons should contact their doctor to learn about appropriate precautions to prevent infection. Cryptosporidium must be taken in through the mouth to cause disease and it may be passed by other means than drinking water.

GLWA voluntarily monitors for Cryptosporidium and Giardia in our untreated source water monthly. The March 2018 untreated water samples collected from the Belle Isle intake indicated the presence of one Giardia cyst. All other samples collected from the Belle Isle intake in the year 2018 were absent for the presence of Cryptosporidium and Giardia. Systems using surface water like GLWA must provide treatment so that 99.9 percent of Giardia lamblia is removed or inactivated.

Key to Detected Contaminants Table

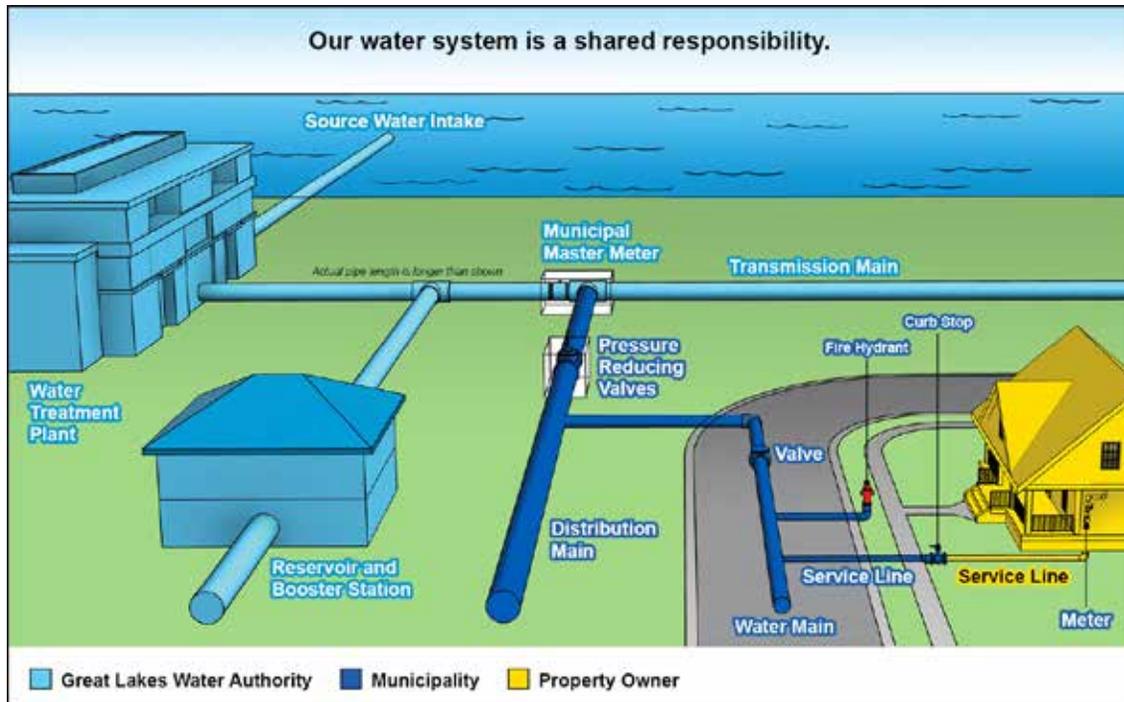
>	Greater than	
°C	Celsius	A scale of temperature in which water freezes at 0° and boils at 100° under standard conditions.
AL	Action Level	The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements which a water system must follow.
HAA5	Haloacetic Acids	HAA5 is 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. MRLDG'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.

The City of Riverview receives its water from the Southwest Water Treatment Plant, which receives its raw water from the Detroit River near Fighting Island. The actual Intake lies east of the international boundary between Canada and the United States. The intake is physically located on the Canadian side of the river. Raw water flows to the plant by gravity through a 12-foot diameter four mile long tunnel. Engineers deemed this site to be the prime spot for quality water within the Detroit River. The water plant is located at 14700 Moran in Allen Park.

Your source water comes from the Detroit River, situated within the Lake St. Clair, Clinton River, Detroit River, Rouge River, Ecorse River, 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 Great Lakes Water Authority, and the Michigan Public Health Institute performed a source water assessment in 2004 to determine the susceptibility of potential 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 our Detroit River source water intakes were determined to be highly susceptible to potential contamination. However, all four GLWA 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 has 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.

If you would like to know more information about this report or a complete copy of this report, please contact your local water department (734) 281-4270.

We at the Riverview Department of Public Works are committed to providing you safe, reliable, and healthy water. We have staff on call twenty-four-seven (24-7) that can be reached at (734) 281-4270 in case a water/sewer emergency should arise. We are pleased to provide you with this information to keep you fully informed about your water.



We welcome your comments and opinions about this report and will be happy to answer any questions you may have. Please direct your comments or questions to Ron Tabor at The City of Riverview Department of Public Works at (734) 281-4268.

**City of Riverview
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