

*2020 Annual Drinking Water Quality Report
For Ash Township and the Village of Carleton
March 5, 2021*

We're pleased to present to you this year's Annual Quality Water Report. This report is designed to inform you about the quality of water and the services we provide to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water.

Drinking water quality is important to our community and the region. Ash 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. Ash 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 Ash Township'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.

Your source of 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 a National Pollutant Discharge Elimination System permit discharge program and has an emergency response management plan. In 2016, The Michigan Department of Environmental Quality approved the GLWA Surface Water Intake Protection Program plan. The programs include seven elements that include the following: 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.

I'm pleased to report that our drinking water is safe and meets or exceeds federal and state requirements. 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. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Great Lakes Water Authority routinely monitors for contaminants in Ash Township's drinking water according to federal and state laws. The table provided shows the results of our monitoring for the period of January 1st to December 31st, 2020. The State allows us to monitor for certain contaminants less than once per year because the concentration 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.

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).

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. Ash Township 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>.

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.

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. Ash 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.

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 (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 agricultural, 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.

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.

Key to the Detected Contaminants Table

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.
Level 1	Level 1 Assessment	A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our system.
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.
SMCL	Secondary Maximum Contaminant Level	
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.
Mmhos	Micromhos	Measure of electrical conductance of water

2020 Southwest Regulated Detected Contaminants Table

2020 Inorganic Chemicals - Annual Monitoring at Plant Finished Tap

Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Allowed Level MCL	Highest Level Detected	Range of Detection	Violation	Major Sources in Drinking Water
Fluoride	3-10-2020	ppm	4	4	0.71	n/a	no	Erosion of natural deposit; Water additive, which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate	3-10-2020	ppm	10	10	0.61	n/a	no	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Barium	5-16-2017	ppm	2	2	0.01	n/a	no	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.

2020 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	2020	ppm	4	4	0.62	0.49-0.72	no	Water additive used to control microbes

2020 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	2020	ppb	n/a	80	35	24-59	no	By-product of drinking water chlorination
(HAA5) Haloacetic Acids	2020	ppb	n/a	60	28	11-28	no	By-product of drinking water chlorination

2020 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
0.13 NTU	100%	no	Soil Runoff

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.

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

Radionuclides - Monitored at the Plant Finished Tap in 2014

Regulated Contaminant	Test Date	Unit	MCLG	MCL	Level Detected	Violation	Major Sources in Drinking Water
Combined Radium Radium 226 and 228	5-13-14	pCi/L	0	5	0.65 ± 0.54	no	Erosion of natural deposits

Lead and Copper Monitoring at the Customer's Tap in 2020									
Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Action Level AL	90 th Percentile Value*	Number of Samples Over AL	Range of Individual Samples Results	Violation	Major Sources in Drinking Water
Lead	2020	ppb	0	15	0	0	0 - 2	no	Lead services lines, corrosion of household, plumbing including fittings and fixtures; erosion of natural deposits"
Copper	2020	ppm	1.3	1.3	.13	0	0 - .433	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.

- The number of lead service lines – 29.
- The number of service lines of unknown material – 71.
- The total number of service lines in the supply – 2315.

2020 Special Monitoring						
Contaminant	Test Date	Unit	MCLG	MCL	Highest Level Detected	Source of Contaminant
Sodium	3-10-2020	ppm	n/a	n/a	6.81	Erosion of natural deposits

These tables are based on tests conducted by GLWA in the year 2020 or the most recent testing done within the last five calendar years. GLWA conducts tests throughout the year only tests that show the presence of a substance or require special monitoring are presented in these tables. The State allows us 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 is representative of the water quality, but some are more than one year old.

About Unregulated Contaminant Monitoring

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

Unregulated Contaminant	Test date	Unit	Average Level Detected	Range of Detection	Major Sources in Drinking Water
Manganese	2019	ppb	.48	0.0 – 0.48	Erosion of natural deposits and corrosion of iron pipes

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 99.0 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, immune-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 be other means than drinking water.

2020 Southwest Mineral Analysis

Parameter	Units	Max.	Min.	Avg.
Turbidity	NTU	0.50	0.04	0.17
Total Solids	ppm	167	46	142
Total Dissolved Solids	ppm	162	89	127
Aluminum	ppm	0.17 2	0.02 2	0.072
Iron	ppm	0.18 3	ND	0.114
Copper	ppm	ND	ND	ND
Magnesium	ppm	8.36	6.88	7.54
Calcium	ppm	34.8	24.6	28.4
Sodium	ppm	7.78	4.51	5.35
Potassium	ppm	1.31	0.93	1.04
Manganese	ppm	ND	ND	ND
Lead	ppm	ND	ND	ND
Zinc	ppm	ND	ND	ND
Silica	ppm	2.7	1.6	2.0
Sulfate	ppm	37.5	19.7	26.1

Parameter	Units	Max	Min	Avg
Chloride	ppm	13. 9	8.3	9.6
Phosphorus	ppm	1.2 4	0.1 2	0.4 8
Free Carbon Dioxide	ppm	16. 7	6.0	8.6
Total Hardness	ppm	118	95	104
Total Alkalinity	ppm	78	66	73
Carbonate Alkalinity	ppm	ND	ND	ND
Bi-Carbonate Alkalinity	ppm	78	66	73
Non-Carbonate Hardness	ppm	40	25	31
Chemical Oxygen Demand	ppm	6.0	ND	2.7
Dissolved Oxygen	ppm	12. 6	7.8	10. 3
Nitrite Nitrogen	ppm	ND	ND	ND
Fluoride	ppm	0.7 6	0.5 6	0.6 8
pH		7.3 9	6.9 7	7.2 5
Specific Conductance @ 25 °C.	µohm s	274	21 3	231
Temperature	°C	24. 1	1.8	12. 6

Thank you for allowing us to continue providing your family with clean, quality water this year. In order to maintain a safe and dependable water supply we sometimes need to make improvements that will benefit all of our customers. These improvements are sometimes reflected as rate structure adjustments. Thank you for understanding.

If you have any questions about this report or concerning your water utility, please contact Matt Baker, Ash Township Water Manager (734) 654-6992 ext.7. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled meetings. They are held every month on the third Wednesday at 1677 Ready Road, Carleton, MI at 6:30 p.m.

Ash 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.

Copies of this report are available at Ash Township Office, 1677 Ready Road, Carleton, MI 48117, or www.ashtownship.org. Copies of this report will not be mailed.

