

2020 Water Quality Report for the City of Flushing WSSN 02340

This report covers the drinking water quality for the City of Flushing for the calendar year 2020. This information is a snapshot of the quality of the water that we provided to you in 2020. Included are details about where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and state standards.

The City of Flushing is supplied by surface water pumped from Lake Huron by Karegnondi Water Authority, treated by Genesee County and delivered to us by Genesee County water supply system.

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 some populations:

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 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).

Sources of drinking water:

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:

- T **Microbial contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- T **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.
- T **Pesticides and herbicides**, which may come from a variety of sources such as agriculture and residential uses.
- T **Radioactive contaminants**, which are naturally occurring or be the result of oil and gas production and mining activities.
- T **Organic chemical contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water, which provide the same protection for public health.

The table below lists all the drinking water contaminants that were detected during the 2020 calendar year. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done January 1 - December 31, 2020. 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.

This report is available for public review at the city offices, 725 E. Main Street, Flushing, Michigan 48433.

2020 Regulated Detected Contaminants Tables

Regulated Contaminant	Test Date	Units	Health Goal MCLG	Allowed Level MCL	Highest Level Detected	Range of Detection	Violation yes/no	Major Sources in Drinking Water
Inorganic Chemicals - Annual Monitoring at Plant Finished Water Tap								
Fluoride *	Daily	ppm	4	4	0.87	0.12-0.87	No	Erosion of natural deposits; Water additive, which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Arsenic	4/22/2020	ppb	0	10	0.46	n/a	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production waste.
Barium	4/22/2020	ppm	2	2	0.013	n/a	No	Erosion of natural deposits; discharge of drilling wastes; discharge from metal refineries.

* Fluoride is monitored daily in the finished water.

Radionuclides 2020 (tested in 2019)

Combined radium Radium 226 & 228	2/13/2019	pCi/L	0	5	1.0±0.50		No	Erosion of natural deposits
Gross Alpha	2/13/2019	pCi/L	0	15	2.0±1.0		No	Erosion of natural deposits

Disinfectant Residuals and Disinfection By-Products - Monitoring in Distribution System

Total Trihalomethanes (TTHM)	Jan-Dec 2020	ppb	n/a	80	49.1	28.8-49.1	no	By-product of drinking water chlorination
Haloacetic Acids (HAA5)	Jan-Dec 2020	ppb	n/a	60	36	12 - 36	No	By-product of drinking water disinfection
Disinfectant (Total Chlorine residual)	Jan-Dec 2020	ppm	MRDGL 4	MRDL 4	0.75	0.01-0.75	No	Water additive used to control microbes

2020 Turbidity - Monitored every 4 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
0.10 NTU	100.0%	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.

2020 Microbiological Contaminants-Monthly Monitoring in Distribution System

Regulated Contaminant	MCGL	MCL	Highest Number Detected	Violation yes/no	Major Sources in Drinking Water
Total Coliform Bacteria	0	>1 Positive Monthly Sample, or Presence of Coliform Bacteria > 5% of Monthly Samples	0	no	Naturally Present in Environment
E. Coli Bacteria	0	A routine sample and a repeat sample are total coliform positive, and one is fecal or E. coli positive.	0	no	Human waste and animal fecal waste

2020 Lead and Copper Monitoring at Customers' Tap

Contaminant	Test Date	Health Goal MCLG	Action Level AL	Range Detected ppb	90th Percentile Value*	Number of Samples Over AL	Violation yes/no	Major Sources in Drinking Water
Lead (ppb)	Jan.-June	0	15ppb	0-12 ppb	1 ppb	0	No	Lead service lines, corrosion of household plumbing including fittings and fixtures; Erosion of natural deposits.
Lead (ppb)	July-Dec.	0	15ppb	0-14 ppb	0.0 ppb	0	No	Lead service lines, corrosion of household plumbing including fittings and fixtures; Erosion of natural deposits.
Copper (ppm)	Jan.-June	0	1.3 ppm	0.0-0.1ppm	0.1 ppm	0	No	Corrosion of household plumbing system; Erosion of natural deposits; Leaching from wood preservatives.
Copper (ppm)	July-Dec.	0	1.3 ppm	0.0-0.1ppm	0.1 ppm	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	Running annual average	Monthly Ratio Range	Violation yes/no	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 month and because the level was low, there is no requirement for TOC removal.				Erosion of nature deposits

2020 Unregulated Parameters

Contaminant	MCLG	MCL	Level Detected	Source of Contamination
Sodium (ppm)	n/a	n/a	9.0	Erosion of natural deposits

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. Before EPA regulates a contaminant, it considers adverse health effects, the occurrence of the contaminant in the drinking water, and whether the regulation would reduce health risk. GCDC-WWS began monitoring for Unregulated contaminants in 2013. The following tables list the unregulated substance detected during the 2019 calendar year.

2020 Unregulated Contaminants- Monitored at the Primary Source (AMI: metals, pesticides, alcohols, SVOCs) tested 2019

Contaminant	Units	Result	Source
Bromide	ppm	ND-23.2	Naturally present in fossil fuels, coal and shale
Total Organic Carbon	ppm	2 - 2.4	Erosion of natural deposits

Metals

Manganese, Total	ug/l	2.1-10.6	Naturally present in fossil fuels, coal and shale
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Unregulated Contaminants-HAA's Monitored in the distribution system. Tested for in 2019 (AM2: DB 1 thru 8)

Contaminant	Units	Range	Source
Monochloroacetic acid (MCAA)	ug/l	ND	By-product of drinking water disinfection
Monobromoacetic acid (MBAA)	ug/l	ND	By-product of drinking water disinfection
Dichloroacetic acid (DCAA)	ug/l	1.2-13.2	By-product of drinking water disinfection
Trichloroacetic acid (TCAA)	ug/l	1.6-16.5	By-product of drinking water disinfection
Bromochloroacetic acid (BCAA)	ug/l	0.3-3.9	By-product of drinking water disinfection
Bromodichloroacetic acid (BDCAA)	ug/l	ND-3.1	By-product of drinking water disinfection
Dibromoacetic acid (DBAA)	ug/l	ND-0.8	By-product of drinking water disinfection
Chlorodibromoacetic (CCDBAA)	ug/l	ND-0.6	By-product of drinking water disinfection
Tribromoacetic acid (TBAA)	ug/l	ND	By-product of drinking water disinfection
HAA5 Group	ug/l	2.8-22.6	By-product of drinking water disinfection
HAA6Br Group	ug/l	0.6-8.1	By-product of drinking water disinfection
HAA9 Group	ug/l	3.7-29.9	By-product of drinking water disinfection

Tested for but not Detected Unregulated Contaminants:

Germanium, Chlorpyrifos, Dimethipin, Ethoprop, alpha-Hexachlorocyclohexane, Oxyfluorfen, Total Permethrin, Profenophos, Tebuconazole, Tribufos, butylated hydroxy anisole, o-toluidine, Quinoline, 1-butanol, 2-methoxyethanol, 2-propen-1-ol, MonoChloroacetic acid, MonoBromoAcetic acid, TriBromoAcetic acid, PFAS/PFOS

During the 2020 calendar year, the Unregulated Contaminants that were sampled for but not detected:

Anatoxin-a, Cylindrospermopsin, Total Microcystins, PFAS/PFOS

Per- and Polyfluoroalkyl Substances (PFAS):

Per and polyfluoroalkyl substances (PFAS) are a group of chemicals that are resistant to heat, water and oil. PFAS have been classified by the United States Environmental Agency (US EPA) as an emerging contaminant on the national landscape. For decades, they have been used in many industrial applications and consumer products such as carpeting, waterproof clothing, upholstery, food paper wrappings, fire-fighting foams and metal plating. They are still used today. PFAS have been found at low levels both in the environment and blood samples from the general US population.

These chemicals are persistent, which means they do not break down in the environment. They also accumulate, meaning the amount build up over time in the blood and organs. Although our understanding of these emerging contaminants is constantly evolving, elevated levels of PFAS have the potential to cause increased cholesterol, changes in the body's hormones and immune system, decreased fertility and increased risk of certain cancers. Links to these health effects in humans are supported by epidemiologic studies and by laboratory studies in animal models.

Are there health advisory levels?

The US EPA has not established enforceable drinking water standards, called maximum contaminant levels, for these chemicals. However, the US EPA has set a lifetime health advisory (LHA) level in drinking water for two PFAS: perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). The PFOA and PFOS LHA is the level or amount below which no harm is expected from these chemicals. The LHA level is 70 parts per trillion (ppt) for PFOA and 70 ppt for PFOS, If both PFOA and PFOS are present, the LHA is 70 ppt for the combined concentration.

The amount of PFOA and PFOS combined in the sample collected from our raw water intake was ND (NON-DETECTABLE) for these two chemicals. There are other PFAS compounds that currently do not have LHA level. For information on PFOA, PFOS and other PFAS, including possible health outcomes, you may visit these websites: <https://www.epa.gov/pfas>; <https://www.atsdr.cdc.gov/pfas>; or <http://michigan.gov/pfasresponse>. If any resident has any additional questions regarding this issue, the State of Michigan Environmental Assistance Center can be contacted at 800-662-9278. Representatives may be reached to assist you with your questions Mon-Fri 8:00am-4:30pm.

Key to Detected Contaminants Tables		
Symbol	Abbreviation for	Definition/Explanation
RAA	Running Annual Average	The average of analytical results for all samples taken during the previous twelve months.
LRAA	Locational Running Annual Average	The average of analytical results for samples at a particular monitoring location during the previous four quarters.
MCLG	Maximum Contaminant Level Goal	The level of contaminant in drinking water below which there is no known or expected risk to health.
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.
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.
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.
ND	Not Detected	Zero or the result is below the laboratory detection level.
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.
NTU	Nephelometric Turbidity Units	Measures the cloudiness of water.
TT	Treatment Technique	A required process intended to reduce the level of a contaminant in drinking water.
pCi/L	Picocuries per liter	A measure of radioactivity. Picocuries (pCi) means the quantity of radioactive material producing 2.22 nuclear transformations per minute.
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.
TTHM	Total Trihalomethanes	Total Trihalomethanes is the sum of chloroform, bromodichloromethane, dibromochloromethane, and bromoform. Compliance is based on the total.
ug/L	Micrograms per liter	A microgram = 1/1000 milligrams. 1 microgram per liter is equal to 1 part per billion (ppb).
n/a	Not applicable	
<	Less than	
>	Greater than	

The City of Flushing has 3204 water service connections. There are no known lead service lines.

Important Health Information - 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).

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 Flushing 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 at (800) 426-4791, or at <http://www.epa.gov/safewater/lead>.

Your source water continues to come from the lower Lake Huron watershed delivered to the Genesee County Water Treatment Plant by the KWA pipeline. The watershed includes numerous short, seasonal streams that drain to Lake Huron.

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 potential contamination. The susceptibility rating is a seven-tiered scale ranging from very low to very high based primarily on geologic sensitivity, water chemistry, and contaminant sources. The Lake Huron source water intake is categorized as having a moderately low susceptibility to potential contaminant sources.

If you would like more information about this report, or a copy of this report, please contact Anthony Nowiski at City of Flushing Water Department (810) 659-5665, as individual reports will not be mailed out.