

# 2022 Water Quality Report for The Village of Lake Orion

Water Supply Serial Number: 3740

This report covers the drinking water quality for [The Village of Lake Orion for the 2022 calendar year. This information is a snapshot of the quality of the water that we provided to you in 2022. Included are details about where your water comes from, what it contains, and how it compares to United States Environmental Protection Agency (U.S. EPA) and state standards.

Your water comes from the Detroit Water Treatment Plant north of Port Huron. The plant draws surface water from Lake Huron in the plant for treatment through a 16-foot diameter tunnel, which extends five miles out into Lake Huron. The average depth of the pipe is 190 feet, and at the intake it is 45 feet above the bottom of the lake. The State performed an assessment of our source water to determine the susceptibility or the relative potential of contamination. The susceptibility rating is on a seven-tiered scale from "very-low" to "very-high" based on geologic sensitivity, well construction, water chemistry and contamination sources.

There are no significant sources of contamination in our water supply.

If you would like to know more about this report, please contact: Darwin McClary at the Village of Lake Orion, 21 E. Church St., Lake Orion, MI 48462. Call by phone to, 248-693-8391. Email the Village Manager at [mcclaryd@lakeorion.org](mailto:mcclaryd@lakeorion.org), or visit our website at [lakeorion.org](http://lakeorion.org).

**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 U.S. 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 the general population. Immuno-compromised

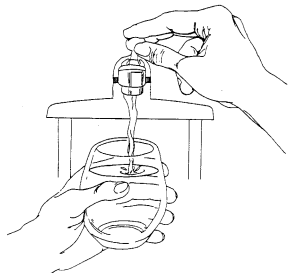
persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune systems disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. U.S. EPA/Center for Disease Control 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. Our water comes from 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 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 and residential uses.
- **Radioactive contaminants**, which can be naturally occurring or be the result of oil and gas production and mining activities.
- **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, the U.S. EPA prescribes regulations that limit the levels of certain contaminants in water provided by public water systems. Federal Food and Drug Administration regulations establish limits for contaminants in bottled water which provide the same protection for public health.

## Water Quality Data

The table below lists all the drinking water contaminants that we detected during the 2022 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 through December 31, 2022. 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 the data is representative of the water quality, but some are more than one year old.

### 2022 Lake Huron Regulated Detected Contaminants Table

2022 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	7-12-2022	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	7-12-2022	ppm	10	10	0.51	n/a	no	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Barium	05-16-2017	ppm	2	2	0.01	n/a	no	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.

Lead and Copper Monitoring at the Customer's Tap in 2022								
Regulated Contaminant	Unit	Year Sampled	Health Goal MCLG	Action Level AL	90 <sup>th</sup> Percentile Value*	Range of Individual Samples Results	Number of Samples Over AL	Major Sources in Drinking Water
Lead	ppb	2022	0	15	0 ppb	0	0 ppb – 0 ppb	Lead services lines, corrosion of household plumbing including fittings and fixtures; Erosion of natural deposits.
Copper	ppm	2022	1.3	1.3	0 ppm	0	0.0 ppm – 0.1 ppm	Corrosion of household plumbing systems; Erosion of natural deposits

\* The 90<sup>th</sup> percentile value means 90 percent of the homes tested have lead and copper levels below the given 90<sup>th</sup> percentile value. If the 90<sup>th</sup> percentile value is above the AL additional requirements must be met.

2022 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	2022	ppm	4	4	0.79	0.64-0.85	no	Water additive used to control microbes

2022 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	2022	ppb	n/a	80	59	31-59	yes	By-product of drinking water chlorination
(HAA5) Haloacetic Acids	2022	ppb	n/a	60	12	1.4-12	yes	By-product of drinking water chlorination

**2022 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
0.35 NTU	98.4%	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.

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	0.86 ± 0.55	NO	Erosion of natural deposits

**2022 Special Monitoring**

Contaminant	Test Date	Unit	MCLG	MCL	Highest Level Detected	Source of Contaminant
Sodium	7-12-2022	ppm	n/a	n/a	5.4	Erosion of natural deposits

*These tables are based on tests conducted by GLWA in the year 2022 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. The data is representative of the water quality, but some are more than one year old.*

## 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, Dibromoacetic, dichloroacetic, and trichloroacetic acids. Compliance is based on the total.
Level 1	Level 1 Assessment	A study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in the water 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.
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.
SMCL	Secondary Maximum Contaminant Level	An MCL which involves a biological, chemical or physical characteristic of water that may adversely affect the taste, odor, color or appearance (aesthetics), which may thereby affect public confidence or acceptance of the drinking water.
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

## 2022 Lake Huron Tap Water Mineral Analysis

Parameter	Units	Max.	Min.	Avg.	Parameter	Units	Max.	Min.	Avg.
Turbidity	N.T.U.	0.44	0.04	<b>0.11</b>	Phosphorus	mg/L	0.48	0.39	<b>0.43</b>
Total Solids	mg/L	156	98	<b>120</b>	Free Carbon Dioxide	mg/L	7.3	4.5	<b>5.7</b>
Total Dissolved Solids	mg/L	142	108	<b>120</b>	Total Hardness (3), (4), (5)	mg/L	104	80	<b>92</b>
Aluminum	mg/L	0.072	0.011	<b>0.033</b>	Total Alkalinity (3)	mg/L	90	74	<b>79</b>
Iron	mg/L	0.4	0.2	<b>0.3</b>	Carbonate Alkalinity (3)	mg/L	0	0	<b>0</b>
Copper	mg/L	0.008	ND	<b>0.001</b>	Bi-Carbonate Alkalinity (3)	mg/L	90	74	<b>79</b>
Magnesium	mg/L	8.4	7.2	<b>7.6</b>	Non-Carbonate Hardness (3)	mg/L	30	0	<b>13</b>
Calcium	mg/L	27.2	24.3	<b>25.5</b>	Chemical Oxygen Demand	mg/L	6.6	ND	<b>4.3</b>
Sodium	mg/L	5.3	4.5	<b>4.9</b>	Dissolved Oxygen	mg/L	14.0	9.2	<b>11.6</b>
Potassium	mg/L	1.1	0.9	<b>1.0</b>	Nitrite Nitrogen	mg/L	ND	ND	<b>0.0</b>
Manganese	mg/L	0.001	ND	<b>0.000</b>	Nitrate Nitrogen	mg/L	0.51	0.30	<b>0.37</b>
Lead	mg/L	ND	ND	<b>ND</b>	Fluoride	mg/L	0.79	0.62	<b>0.69</b>
Zinc	mg/L	0.070	ND	<b>0.009</b>	pH		7.60	7.36	<b>7.45</b>
Silica	mg/L	2.5	1.6	<b>2.2</b>	Specific Conductance @ 25 °C.	µmhos	228	159	<b>204</b>
Sulfate	mg/L	24.0	18.2	<b>21.3</b>	Temperature	°C	22.2	5.6	<b>13.0</b>
Chloride	mg/L	10.6	8.3	<b>9.5</b>					

**Information about 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 Village of Lake Orion 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 have a lead service line, it is recommended that you run your water for at least 5 minutes to flush water from both your home plumbing and the lead service line. 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 <http://www.epa.gov/safewater/lead>.

Infants and children who drink water containing lead could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

Our water supply has 1 confirmed lead service line, 1322 likely do not contain lead out of a total of 1652 service lines.

Monitoring and Reporting to the Michigan Department of Environment, Great Lakes, and Energy (EGLE)

Requirements: The State of Michigan and the USEPA require us to test our water on a regular basis to ensure its safety, we did not meet all the requirements for testing in 2022. This did not pose a risk to our customers and an explanation is available on the next page.

We will update this report annually and will keep you informed of any problems that may occur throughout the year as they happen. Copies are available at [Lakeorion.org](http://Lakeorion.org) and at Lake Orion Village Hall. This report will not be sent to you.

We invite public participation in decisions that affect drinking water quality. Council meetings are held the 2<sup>nd</sup> and 4th Monday of each month. Meetings begin at 7:30pm. For more information about your water, or the contents of this report, contact Joe Young, Village Manager, Lake Orion, MI. For more information about safe drinking water, visit the U.S. EPA at <http://www.epa.gov/safewater>.

## IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

### ***Monitoring Requirements Not Met for Village of Lake Orion***

The Village of Lake Orion is required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During the monitoring period of November 1, 2022, to November 30, 2022, we did not complete monitoring for total trihalomethanes (TTHM) and haloacetic acids five (HAA5) and therefore, cannot be sure of the quality of your drinking water during that time. The violation **does not** pose a threat to the quality of the supply's water.

**What should I do?** There is nothing you need to do at this time. This is not an emergency. You do not need to boil water or use an alternative source of water at this time. Even though this is not an emergency, as our customers, you have a right to know what happened and what we are doing to correct the situation.

The table below lists the contaminants we did not properly test for, how often we are supposed to sample for these contaminants, how many samples we are supposed to take, how many samples we took, when samples should have been taken, and the date follow-up samples will be collected.

Contaminants	Required sampling frequency	Number of samples taken	Date sample should have been collected	Date sample will be collected by
TTHM <sup>1</sup> and HAA5 <sup>2</sup>	2 Every Quarter	0	November 1, 2022 – November 30, 2022	February 1, 2023 – February 28, 2023

**What happened? What is being done?** We failed to collect our TTHM and HAA5 samples during the required monitoring period. Our staff are making every effort to assure this does not happen again. We did collect a TTHM and HAA5 sample one day early (on October 31, 2022), which showed results well below the health standards for each of these contaminant groups.

For more information, please contact Wesley Sanchez, Operator-in-Charge, at 248-693-8391.

*Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.*

More information about your drinking water is available from the U.S. Environmental Protection Agency Office of Water home page at: <http://www.epa.gov/safewater/dwinfo.htm>. This notice is being sent to you by the Village of Lake Orion.

<sup>1</sup> TTHMs are tested by collecting one sample and testing that sample for all the TTHMs. TTHMs include bromodichloromethane, bromoform, chlorodibromomethane, and chloroform.

<sup>2</sup> HAA5s are tested by collecting one sample and testing that sample for all the HAA5s. HAA5s include monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid.