Charter Township of Orion

PWS ID: 5035

WATER QUALITY REPORT

For Testing in 2023

www.oriontownship.org

(248) 391-0304 Ext. 8500

The Charter Township of Orion is proud to present its water customers with the Annual Water Quality Report. Testing is performed between January 1 and December 31, 2023.

If you should have any questions regarding this report, please contact William Basigkow, Director of the Department of Public Services at (248) 391-0304 ext. 8501.

Drinking water quality is important to our community and the region. The Charter Township of Orion 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. The Charter Township of Orion 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 Charter Township of Orion 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.

The Great Lakes Water Authority operates five water treatment plants that treat water drawn from Lake Huron and the Detroit River to meet Safe Drinking Water Act requirements. Our commitment to deliver the best water quality possible is evident in our use of proven treatment techniques and a comprehensive monitoring program. We set target treatment standards that are stricter than state regulatory requirements and test more frequently during treatment.

The 126 communities that receive drinking water from Great Lakes Water Authority operate a local distribution system that includes a network of water mains, fire hydrants and sometimes booster stations and pressure reducing valves. These communities keep water flowing through local piping at the right pressure, maintain pipes and valves, flush and maintain fire hydrants, monitor the distribution system for specific contaminants, and address customer concerns.

The nearly 4 million customers that receive GLWA water rely on this service each day to drink, cook, clean, flush toilets, wash clothes and water their lawns. Customers have a responsibility to maintain the plumbing in their homes and to follow steps to support good water quality. These steps include running water if it hasn't been used for a while, cleaning faucet aerators and shower heads, and flushing hot water heaters.

LAKE HURON INTAKE:

Your source water comes from the lower Lake Huron watershed. 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. The Lake Huron water treatment plant has 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 the National Pollutant Discharge Elimination System permit discharge program and has an emergency response management plan. The plan has seven elements: 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) 926-8127.

CONTAMINANTS IN DRINKING 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 Environmental Protection Agency's Safe Drinking Water Hotline at (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 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, 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."

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).

WE'VE MADE PAYING AND RECEIVING YOUR BILL EASIER!

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In Auto Pay (ACH) and
have your bill paid automatically
each month from your checking or savings account.

Visit Oriontownship.org/Department of Public Services for the 2024 ACH Enrollment Form!

GO PAPERLESS

Email **"Enroll me in paperless billing"** to meinheuser@oriontownship.org and get your bill emailed each month.

INFORMATION ABOUT 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 Charter Township of Orion performs required lead and copper sampling and testing in our community. Water customers also have a responsibility to maintain the plumbing in their homes and businesses, and can take steps to limit their exposure to lead.

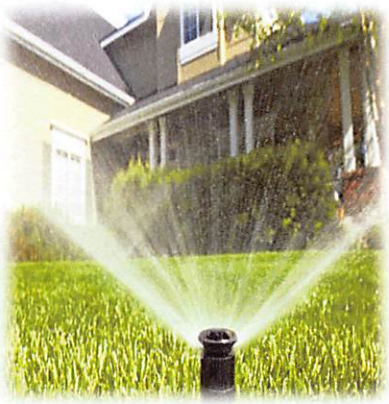
If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Orion Township is responsible for providing high quality drinking 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 have a service line that is lead, galvanized previously connected to lead, or unknown but likely to be lead, it is recommended that you run your water for 5 minutes to flush water from both your home plumbing and the lead service line.

Infants and children who drink water containing lead could experience delays in their physical and 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.

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.

Orion Township Lead Service Lines:

Total Number of Service Line Connections in Water Supply:	7,849
Number of Lead Service Lines:	0
Number of Service Lines of Unknown Material:	370



SUMMER WATERING RESTRICTIONS:

Watering restrictions have been adopted from the beginning of May until the end of September for all those connected to the Orion Township water system. This includes all commercial accounts, churches, homeowner association sprinkler accounts and residential accounts with automatic sprinkler systems. The following restrictions shall apply:

Watering may only be done between the hours of

12:00 a.m. (midnight) and 5:00 a.m.

We would appreciate everyone's help and cooperation in following the mandatory watering restrictions.

If the restrictions are not followed, your water service could be discontinued.

CROSS CONNECTION CONTROL:

The Charter Township of Orion Water & Sewer Division is responsible for providing safe drinking water to all Orion Township residents and businesses who are connected to our municipal water system. State and Federal laws (Safe Drinking Water Acts), the Plumbing Code, Michigan Residential Code, and the Charter Township of Orion Ordinances require Orion Township to verify that cross connections on private plumbing systems do not pose a contamination risk to the public water system through the enforcement of the Environment, Great Lakes and Energy (EGLE) Law and Rules for Cross Connection Control.

A cross connection is any arrangement of piping on a plumbing system that could allow a backflow of containments into the public drinking water supply. A backflow occurs when a reversal of the normal flow of water occurs. This could happen due to a drop in water pressure from a water main break or other failure system. Other examples of potential sources of pollution are garden hoses, sprinkler systems, swimming pools, hot tubs and boiler systems. Based on their frequency of use, garden hoses create the greatest concern for cross connections in the residential setting. Several cases of pollution/contamination have been caused by misuse of the garden hose - hoses left submerged in swimming pools, attached to chemical sprayers, and laying on the ground with exposure to cesspools, garden chemicals, and animal feces. Water softeners, solar heating systems, private wells, toilets, and water operated sump drain devices are also sources of cross connection.

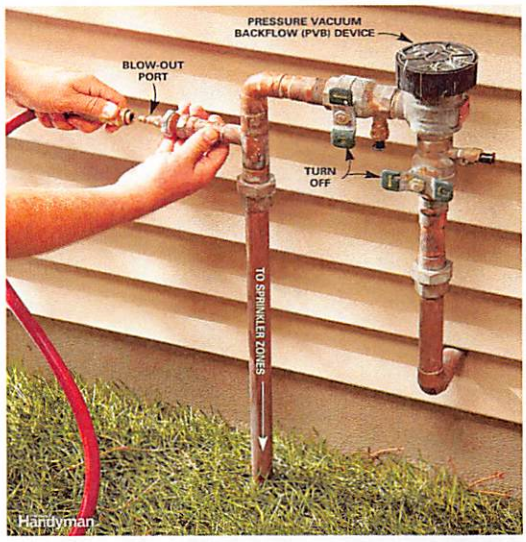
What is a Backflow Device?

Backflow Devices are installed on water lines to prevent backflows from occurring. There are many types of backflow devices and EGLE requires testing of these devices at a minimum of every three years. Testable devices include Pressure Vacuum Breakers (PVB), Reduced Pressure Principle Backflow Assemblies (RPZ), and Double Check Valve Assemblies (DCVA)

Testing and Inspections of Backflow Devices:

Orion Township's Cross Connection Control Program was approved by the State of Michigan in 1991.
Since then, commercial properties and subdivision irrigation accounts have had routine inspections of backflow devices and annual reports are submitted to the township on testable devices.

However, an EGLE mandate requires all testable backflow devices on residential homes be tested every 3 years.



A typical testable backflow device you will find on a residential property will be a Pressure Vacuum Breaker (PVB) installed on a lawn irrigation line. This device will be on the outside of the home and designed to prevent pesticides or herbicides from entering the water system.

All residential properties connected to the water system will receive a letter asking them to have their backflow device tested. Only licensed plumbing contractors can test, repair, and install backflow assemblies pursuant to State of Michigan Law – Public Act 733 (State Plumbing Act) of 2002. Further, effective January 1, 2018, the plumbing contractors **must** be ASSE 5110 certified through the State of Michigan. A list of certified testers is available on the township website at oriontownship.org. If a new backflow device is being installed, or a repair is needed, you must apply for a plumbing permit through the Building Department.

We appreciate everyone's help and cooperation abiding with the EGLE mandate.

2023 Lake Huron Regulated Detected Contaminants Table

2023 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	04-11-2023	ppm	4	4	0.70	n/a	no	Erosion of natural deposit; Water additive, which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate	04-11-2023	ppm	10	10	0.38	n/a	no	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.

Lead and Copper Monitoring at the Customer's Tap in 2023

Regulated Contaminant	Unit	Year Sampled	Health Goal MCLG	Action Level AL	90th Percentile Value*	Range of Individual Samples Results	Number of Samples Over AL	Major Sources in Drinking Water
Lead	ppb	2023	0	15	1	0-4.7	0	Lead services lines, corrosion of household plumbing including fittings and fixtures; Erosion of natural deposits.
Copper	ppm	2023	1.3	1.3	0.1	0-.1836	0	Corrosion of household plumbing systems; Erosion of natural deposits

* 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.

2023 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	2023	ppm	4	4	0.76	0.68 – 0.84	no	Water additive used to control microbes

2023 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	2023	ppb	n/a	80	40	24-40	no	By-product of drinking water chlorination
(HAA5) Haloacetic Acids	2023	ppb	n/a	60	25	11-25	no	By-product of drinking water chlorination

2023 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
0.14 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.

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

2023 Special Monitoring

Contaminant	Test Date	Unit	MCLG	MCL	Highest Level Detected	Source of Contaminant
Sodium	04-11-2023	ppm	n/a	n/a	4.8	Erosion of natural deposits

These tables are based on tests conducted by GLWA in the year 2023 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.

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	Average Level Detected	Range	Year Sampled	Comments
[Name of Unregulated Contaminant] (unit)	Perflourinated and Polyflourinated Alkyl Substances	0.0020 - 0.0200	2023	UCRM5 Testing
[Name of Unregulated Contaminant] (unit)	Lithium	<9	2023	UCRM5 Testing

2023 Lake Huron Tap Water Mineral Analysis

Parameter	Units	Max.	Min.	Avg.	Parameter	Units	Max.	Min.	Avg.
Turbidity	N.T.U.	0.09	0.05	0.07	Phosphorus	mg/L	0.56	0.40	0.45
Total Solids	mg/L	146	61	122	Free Carbon Dioxide	mg/L	8.4	4.4	6.2
Total Dissolved Solids	mg/L	153	103	123	Total Hardness (3), (4), (5)	mg/L	140	96	113
Aluminum	mg/L	0.071	0.018	0.042	Total Alkalinity (3)	mg/L	92	74	81
Iron	mg/L	0.4	0.2	0.3	Carbonate Alkalinity (3)	mg/L	ND	ND	ND
Copper	mg/L	0.001	ND	ND	Bi-Carbonate Alkalinity (3)	mg/L	92	74	81
Magnesium	mg/L	7.9	7.0	7.7	Non-Carbonate Hardness (3)	mg/L	58	16	31
Calcium	mg/L	27.2	25.0	25.9	Chemical Oxygen Demand	mg/L	12.8	ND	4.7
Sodium	mg/L	5.5	4.5	4.9	Dissolved Oxygen	mg/L	13.3	8.5	10.8
Potassium	mg/L	1.1	0.9	1.0	Nitrite Nitrogen	mg/L	ND	ND	ND
Manganese	mg/L	ND	ND	ND	Nitrate Nitrogen	mg/L	0.55	0.33	0.38
Lead	mg/L	ND	ND	ND	Fluoride	mg/L	0.79	0.59	0.73
Zinc	mg/L	0.008	ND	0.002	pH		7.56	7.34	7.43
Silica	mg/L	2.5	2.0	2.2	Specific Conductance @ 25 °C.	µmhos	210	166	197
Sulfate	mg/L	21.0	17.9	19.2	Temperature	°C	23.7	2.7	15.1
Chloride	mg/L	10.0	8.5	9.3					

KEY TO 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	Below the detection limit of the method
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

SUMMER WATER USAGE & OUTSIDE WATER LEAKS:

When warm weather arrives, and your outside water usage begins to increase you should anticipate a higher water bill for the bills that cover the summer months. Watering lawns and gardens, power washing such items as your house, lawn furniture, boats and also filling a pool will increase your water usage.

With increased water usage, there will also be the possibility of outdoor water leaks. Most common are irrigation leaks that can be hard to detect and most often are not discovered until a bill is received reflecting high usage. Our department is frequently asked if the water bill can be adjusted due to an outdoor water leak. **For any type of leak, once water has gone through the water meter, water billing cannot be adjusted.**

We recommend if you are concerned about how much water your household is using, monitor your water usage. This can be easily done by writing down all the numbers on your water meter before and after heavy water usage. You can call our office with those numbers and we can give you an estimate of how many units of water you have used. Because our department reads meters monthly in conjunction with billing, if you keep a diary of your water meter reads you can track your usage and possibly determine a leak before you receive a high bill.

The Charter Township of Orion 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 concerns about your water.

This report describing the source and quality of your drinking water is available online at www.oriontownship.org/WaterQualityReport2023 and is not mailed to individual properties. If you wish to obtain a paper copy of the report, please contact our office.

Contact the Charter Township of Orion Department of Public Services at (248) 391-0304 ext. 8500

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