CITY OF NOVI 2023 ANNUAL CONSUMER CONFIDENCE REPORT ON WATER QUALITY

Drinking water quality is important to our community and the region. The City of Novi 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, along with proven treatment technologies, the GLWA consistently delivers safe drinking water to our community. The City of Novi 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 City of Novi 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.

About our system

The City of Novi purchased 2,149,947,000 gallons of treated water from the Great Lakes Water Authority (GLWA) in 2023, and currently has approximately 15,400 customer accounts on the Novi water distribution system. GLWA withdraws source water from Lake Huron and the Detroit River. There are two intakes in the Detroit River: one near Belle Isle, and one at the south near Lake Erie. A third intake is located at the south end of Lake Huron. Intake water is conveyed to five large water treatment plants for physical and chemical treatment. The City receives most of its water from GLWA's Lake Huron Water Treatment Plant located in St. Clair County near Port Huron, with a smaller portion of water provided to the City from the Springwells Water Treatment Plant in Dearborn, which draws water from the Belle Isle intake. All GLWA treatment facilities operate year-round on a 24 hours a day, seven days a week basis. GLWA uses chlorine to disinfect source water and adds fluoride to improve drinking water customers' dental health. Novi and GLWA 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. Please be assured that if water quality is compromised, we will notify our customers immediately.

How do we know our water is safe?

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 can 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 human health.

DETECTED CONTAMINATION TABLES

The tables and information contained on the following pages are based on tests conducted by GLWA and the City of Novi of treated water supplied by the Lake Huron Water Treatment Plant and Springwells Water Treatment Plant. GLWA conducts many tests throughout the year; however, only tests that detect the presence of a contaminant are shown. The State does allow monitoring for certain contaminants at a frequency of less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. For this reason, although all of the data is representative of water quality, some data sets are more than one year old.

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.

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	**27.25**	**14 - 36**	**no**	By-product of drinking water chlorination
(HAA5) Haloacetic Acids	2023	ppb	n/a	60	**16.25**	**7.6 - 20**	**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.

2023 Lake Huron Tap Water Mineral Analysis

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

2023 Springwells 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	**0.86**	**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	**0.63**	**n/a**	**no**	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.

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
Chlorine Residual	2023	ppm	4	4	**0.74**	**0.67-0.81**	**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	**37.25**	**24 - 56**	**no**	By-product of drinking water chlorination
(HAA5) Haloacetic Acids	2023	ppb	n/a	60	**16.23**	**9.9 - 23**	**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
0.09 NTU	**100%**	**no**	Soil Runoff

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	**7.0**	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.

2023 Springwells Tap Water Mineral Analysis

Parameter	Units	Max.	Min.	Avg.		Parameter	Units	Max.	Min.	Avg.
Turbidity	NTU	1.08	0.03	0.14		Phosphorus	ppm	0.61	0.37	0.49
Total Solids	ppm	153	115	138		Free Carbon Dioxide	ppm	11.6	4.4	8.4
Total Dissolved Solids	ppm	156	102	129		Total Hardness	ppm	146	90	116
Aluminum	ppm	0.077	0.018	0.038		Total Alkalinity	ppm	94	70	77
Iron	ppm	0.4	0.2	0.3		Carbonate Alkalinity	ppm	ND	ND	ND
Copper	ppm	0.003	ND	0.001		Bi-Carbonate Alkalinity	ppm	94	70	77
Magnesium	ppm	8.4	7.2	7.9		Non-Carbonate Hardness	ppm	66	10	39
Calcium	ppm	28.5	25.3	26.9		Chemical Oxygen Demand	ppm	11.1	ND	4.5
Sodium	ppm	7.0	4.6	5.3		Dissolved Oxygen	ppm	20.0	7.2	11.4
Potassium	ppm	1.3	1.0	1.0		Nitrite Nitrogen	ppm	ND	ND	0.0
Manganese	ppm	0.001	ND	ND		Nitrate Nitrogen	ppm	0.63	0.32	0.38
Lead	ppm	ND	ND	ND		Fluoride	ppm	0.86	0.10	0.59
Zinc	ppm	0.003	ND	0.001		pH		7.52	7.09	7.28
Silica	ppm	2.9	1.1	2.1		Specific Conductance @ 25 °C	µmhos	219	180	191
Sulfate	ppm	32.3	22.5	25.0		Temperature	°C	23.4	3.4	13.2
Chloride	ppm	11.5	9.5	10.4						

2023 Lead and Copper Monitoring at Customer's Tap								
Regulated Contaminant	**Year Sampled**	**Unit**	**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	2023	ppb	0	15	**0**	0 - 1	**0**	Lead services lines, corrosion of household plumbing, including fittings and fixtures; erosion of natural deposits.
Copper	2023	ppm	1.3	1.3	**0.0**	0.0 – 0.1	**0**	Corrosion of household plumbing system; Erosion of natural deposits; Leaching from wood preservattives

* 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.

In 1992, the City of Novi began testing homes with plumbing systems that may contribute lead and copper to the household's tap water. The results of lead and copper testing have all been below EPA-prescribed action levels. Additional information is available from the **Safe Drinking Water Hotline (800) 426-4791.**

Treatment Technique							
Regulated Contaminant	**MCL**	**Treatment Technique (TT) Standard**	**Treatment Technique (TT) Violation yes/no**	**Reason for violation**	**Action Taken**	**Major Sources in Drinking Water**	**Health Effects**
Lead	TT	No more than (9) days in a six (6) month period below the established minimum.	No	n/a	n/a	Corrosion of household plumbing system; Erosion of natural deposits.	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	TT	No more than (9) days in a six (6) month period below the established minimum	No	n/a	n/a	Corrosion of household plumbing system; Erosion of natural deposits; Leaching from wood preservatives.	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.

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 Novi 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 at 800-426-4791 or at http://www.epa.gov/safewater/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 City of Novi 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.

The City of Novi is not aware of any lead service lines existing within the water distribution system. There are 15,442 service lines in the distribution system, with approximately 6,000 of unknown material, but none of them are known to contain lead or galvanized pipe previously connected to a lead service line. A distribution system material inventory is currently underway to verify the material of a randomly selected subset of the City's service lines.

Unregulated Contaminant Monitoring Rule (UCMR)

Unregulated contaminants are those for which the EPA has not established drinking water standards. Monitoring helps the EPA determine where certain contaminants occur and whether those contaminants need to be regulated. Beginning in July of 2008 - April 2009, The Great Lakes Water Authority began monitoring quarterly for unregulated contaminants under the Unregulated Contaminant Monitoring Rule 2 (UCMR 2). More information about this program is available at the following link, https://www.epa.gov/dwucmr/fifth-unregulated-contaminant-monitoring-rule.

Beginning in February 2015, the City of Novi began monitoring quarterly for unregulated contaminants under the Unregulated Contaminant Monitoring Rule. Below is a summary of the results for the most recent UCMR 5 completed in 2023 for any contaminant above the detection level (none detected).

UCMR 5 Unregulated Contaminant Monitoring Rule (2023)

Unregulated Contaminant	Test Dates	Unit	MRL	Range of Detection	Average Result
Twenty-nine (29) Per- and Polyfluoroalkyl Substances (PFAS)	2023 (Mar, Apr, Sept, Dec)	ppb	0.3	**Not Detected**	**0**
Lithium	2023 (Mar, Apr, Sept, Dec)	ppb	0.5	**Not Detected**	**0**

More information about contaminants and potential health effects can be obtained by visiting the EPA's website at http://www.epa.gov/dwucmr/third-unregulated-contaminant-monitoring-rule or by calling the **Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).**

Key to Detected Contaminants Tables

Symbol	Abbreviation	Definition/Explanation
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.
µmhos	Microohms	Measure of electrical conductance of water

As part of the 1998 Amendment to the Federal Safe Drinking Water Act, the Consumer Confidence Report (CCR) Rule became effective September 1998. The CCR Rule requires all community water systems in the United States to prepare an annual water quality report and to deliver it to all of the water system's customers. The CCR Rule was published in the Federal Register August 19, 1998 and can be found at the U.S. EPA's website: http://water.epa.gov/drink/info/ccr/regulations.cfm

Special Heath Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as person 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).

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).

Information on Source Water

A majority of Novi's 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. GLWA has a Surface Water Intake Protection plan for the Lake Huron water intake. 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).

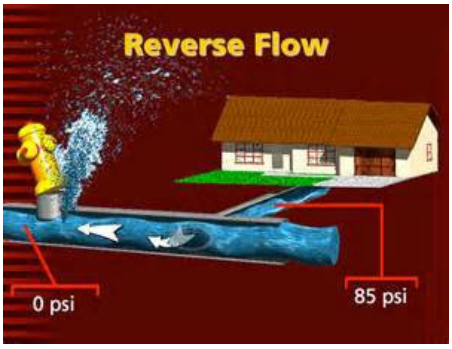
A smaller portion of Novi's source water comes from the Detroit River, situated within the Lake St. Clair, Clinton River, Detroit River, Rouge River, Ecorse River, watersheds in the U.S. and parts of the Thames River, Little River, Turkey Creek, and Sydenham watersheds in Canada. The Michigan Department 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. GLWA's Springwells water treatment plant that draws water from the Detroit River has historically provided satisfactory treatment and meets 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. In 2021, the Michigan Department of Environmental, Great Lakes and Energy approved the GLWA's Updated Surface Water Intake Protection plan for the Belle Isle intake. The plan has seven elements that include: 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).

News from Novi's Water & Sewer Division

Cross Connection Control Program

The City of Novi has a commercial and residential Cross Connection Control Program (CCCP) in place to protect the drinking water supply by eliminating the risk of contamination through connections to private plumbing systems. Without proper protection, water can be forced to flow backwards into the public water supply in certain situations, such as a fire fighting event or water main break that creates an abnormally low pressure in the water main. This is a requirement of the Michigan Department of Environment, Great Lakes & Energy (EGLE), and is in place to protect the public drinking water supply. Per the guidelines of the EGLE, the City has established a residential CCCP that is being implemented throughout five districts throughout the City. As a resident of the City, you or your property manager, if applicable, will be contacted to provide information as required to fulfill the requirements of the program. For further information, please visit the City's website at http://cityofnovi.org/services/public-works/cross-connection-control



We invite public participation in decisions that affect drinking water quality. The Novi City Council occasionally takes action regarding the City's water distribution system, and City Council meetings are held twice a month on Monday nights at 7:00 pm in the Council Chambers located in the Novi Civic Center, 45175 W Ten Mile Rd., Novi, MI 48375. Contact the City Clerk's office at 248-347-0456 or visit the City's website at www.cityofnovi.org for specific Council meeting dates and agendas.

If you would like to know more about this report, please contact Scott Roselle, Water & Sewer Manager, (248) 735-5661 or sroselle@cityofnovi.org Additional copies of this report are available online and at the Novi Civic Center and Novi Public Library.

City of Novi Water Division (248) 735-5661
EPA Safe Drinking Water Hotline: (800) 426-4791
United States Environmental Protection Agency website: www.epa.gov/safewater/

DISTRIBUTION & BRACKETING - ALL SAMPLE POINTS

Town: Novi

Date Removed	Pt.	Location	Address
	1	City Hall- between Novi Rd. & Taft - Kitchen	45175 W.10 Mile
	2	Sovel's Service Center (Marathon) - Utility sink	41425 10 Mile Road @ Meadowbrook
11/06/2007	3	Mc Donald's Hamburgers - Restroom	Haggerty, North Of 8 Mile Rd.
	4	Fire Station #1 - Sample box at rear of bldg., E/O Novi Rd	42975 Grand River Avenue
12/07/2022	5	Novi Bowl-Bar sink	21700 Novi Road
04/01/2008	6	Speedway Gas Station - Restroom	24141 Novi Rd.
03/25/2017	7	Denny's Restaurant	27750 Novi Road
06/01/2009	8	Jck & Associates	45650 Grand River Ave. Btwn Taft & Beck Roads
	9	Fire Hall #2- Sample box near generator	1919 Paramount at 13 mile
	10	Lakewood Condos Clubhouse- Kitchen	23131 Cranbrook Drive Btwn 9 & 10 Mile Roads
	11	Sample Station	N. of 22775 Mondavi
	12	Extended Stay-Employee Break Rm	39640 Orchard Hill Place
	13	Secretary of State	31164 Beck Rd.
	14	Stay Bridge Suites- Kitchen	27000 Providence Parkway
	15	Residence Inn - Kitchen hand sink	27477 Cabaret Dr.
	16	Sample Station	Across from 46155 White Pines
	17	Sample Station	12 Mile E. of Albert St.
	18	Sample Station	Near 30001 Cabot
	19	Golden Oaks Convenience Store	24185 Haggerty
	20	Booster Station Sample Station in back	26003 Wixom Rd

DISTRIBUTION & BRACKETING - ALL SAMPLE POINTS

Town: Novi

Date Removed	Pt.	Location	Address
	21	DPW	26300 Lee BeGole Dr.
	22	Pump Station-Sample box	27852 West Park Dr.
	23	Holiday Inn Express & Suites	39675- 12 Mile
	24	Northville Lumber's Novi Home Design Ctr-Utility sink	22264 Novi Rd.

Total Number of Distribution Points:	**24**
Total Number of Distribution Points in Service:	**19**

DISTRIBUTION & BRACKETING - ALL SAMPLE POINTS

Great Lakes Water Authority
Water Quality

RESULTS (BY TOWN) (01/01/2023 To 12/31/2023)

Town Name: Novi

Date	Pt.	Br.	Sample #	T.Coliform	E.Coli	Cl2	Need Recheck	Reckeck Date
Town Name: Novi								
01/04/2023	1		133	-	-	0.29		
01/04/2023	2		134	-	-	0.52		
01/04/2023	4		132	-	-	0.88		
01/04/2023	9		129	-	-	0.89		
01/04/2023	10		135	-	-	0.24		
01/04/2023	11		122	-	-	0.51		
01/04/2023	12		136	-	-	0.73		
01/04/2023	14		126	-	-	0.83		
01/04/2023	15		130	-	-	0.80		
01/04/2023	16		125	-	-	0.74		
01/04/2023	17		123	-	-	0.78		
01/04/2023	18		128	-	-	0.25		
01/04/2023	20		124	-	-	0.85		
01/04/2023	21		131	-	-	0.67		
01/04/2023	22		127	-	-	0.87		
01/20/2023	1		65	-	-	0.59		
01/20/2023	2		66	-	-	0.57		
01/20/2023	4		64	-	-	0.92		
01/20/2023	9		60	-	-	0.92		
01/20/2023	10		67	-	-	0.22		
01/20/2023	11		54	-	-	0.54		
01/20/2023	12		68	-	-	0.87		
01/20/2023	14		58	-	-	0.90		
01/20/2023	15		62	-	-	0.96		
01/20/2023	16		57	-	-	0.76		
01/20/2023	17		55	-	-	0.81		
01/20/2023	18		61	-	-	0.45		
01/20/2023	20		56	-	-	0.88		
01/20/2023	21		63	-	-	0.58		

RESULTS (BY TOWN) (01/01/2023 To 12/31/2023)

Date	Pt.	Br.	Sample #	T.Coliform	E.Coli	Cl2	Need Recheck	Reckeck Date
01/20/2023	22		59	-	-	0.97		
01/24/2023	1		104	-	-	0.48		
01/24/2023	2		105	-	-	0.43		
01/24/2023	4		103	-	-	0.91		
01/24/2023	9		99	-	-	0.87		
01/24/2023	10		106	-	-	0.20		
01/24/2023	11		93	-	-	0.58		
01/24/2023	12		107	-	-	0.73		
01/24/2023	14		97	-	-	0.91		
01/24/2023	15		101	-	-	0.97		
01/24/2023	16		96	-	-	0.77		
01/24/2023	17		94	-	-	0.78		
01/24/2023	18		100	-	-	0.13		
01/24/2023	20		95	-	-	0.86		
01/24/2023	21		102	-	-	0.45		
01/24/2023	22		98	-	-	0.94		
01/31/2023	1		62	-	-	0.60		
01/31/2023	4		61	-	-	0.90		
01/31/2023	9		59	-	-	0.93		
01/31/2023	14		58	-	-	0.98		
01/31/2023	21		60	-	-	0.50		
02/03/2023	1		95	-	-	0.59		
02/03/2023	2		96	-	-	0.53		
02/03/2023	4		94	-	-	0.92		
02/03/2023	9		90	-	-	0.93		
02/03/2023	10		97	-	-	0.11		
02/03/2023	11		84	-	-	0.60		
02/03/2023	12		98	-	-	0.70		
02/03/2023	14		88	-	-	0.88		
02/03/2023	15		92	-	-	0.95		
02/03/2023	16		87	-	-	0.49		
02/03/2023	17		85	-	-	0.71		

RESULTS (BY TOWN) (01/01/2023 To 12/31/2023)

Date	Pt.	Br.	Sample #	T.Coliform	E.Coli	Cl2	Need Recheck	Reckeck Date
02/03/2023	18		91	-	-	0.19		
02/03/2023	19		99	-	-	0.90		
02/03/2023	20		86	-	-	0.90		
02/03/2023	21		93	-	-	0.51		
02/03/2023	22		89	-	-	0.90		
02/10/2023	1		63	-	-	0.64		
02/10/2023	2		64	-	-	0.23		
02/10/2023	4		62	-	-	0.88		
02/10/2023	9		58	-	-	0.93		
02/10/2023	10		65	-	-	0.14		
02/10/2023	11		52	-	-	0.60		
02/10/2023	12		67	-	-	1.01		
02/10/2023	14		55	-	-	0.77		
02/10/2023	15		60	-	-	0.90		
02/10/2023	16		56	-	-	0.74		
02/10/2023	17		53	-	-	0.84		
02/10/2023	18		59	-	-	0.55		
02/10/2023	19		66	-	-	0.96		
02/10/2023	20		54	-	-	0.88		
02/10/2023	21		61	-	-	0.42		
02/10/2023	22		57	-	-	0.85		
02/17/2023	1		135	-	-	0.70		
02/17/2023	2		132	-	-	0.75		
02/17/2023	4		131	-	-	0.78		
02/17/2023	9		130	-	-	0.92		
02/17/2023	10		133	-	-	0.42		
02/17/2023	13		129	-	-	0.98		
02/17/2023	14		128	-	-	0.89		
02/17/2023	15		125	-	-	0.95		
02/17/2023	17		122	-	-	0.84		
02/17/2023	18		127	-	-	0.52		
02/17/2023	20		123	-	-	0.82		

RESULTS (BY TOWN) (01/01/2023 To 12/31/2023)

Date	Pt.	Br.	Sample #	T.Coliform	E.Coli	Cl2	Need Recheck	Reckeck Date
02/17/2023	21		126	-	-	0.95		
02/17/2023	22		124	-	-	0.89		
02/21/2023	15		143	-	-	0.98		
02/21/2023	16		141	-	-	0.73		
02/21/2023	17		139	-	-	0.79		
02/21/2023	20		140	-	-	0.86		
02/21/2023	22		142	-	-	0.92		
03/03/2023	1		80	-	-	0.60		
03/03/2023	2		81	-	-	0.90		
03/03/2023	4		79	-	-	0.80		
03/03/2023	9		75	-	-	0.87		
03/03/2023	10		82	-	-	0.31		
03/03/2023	11		69	-	-	0.60		
03/03/2023	12		83	-	-	0.86		
03/03/2023	14		73	-	-	0.79		
03/03/2023	15		77	-	-	0.87		
03/03/2023	16		72	-	-	0.73		
03/03/2023	17		70	-	-	0.71		
03/03/2023	18		76	-	-	0.41		
03/03/2023	20		71	-	-	0.78		
03/03/2023	21		78	-	-	0.49		
03/03/2023	22		74	-	-	0.85		
03/08/2023	1		108	-	-	0.56		
03/08/2023	4		107	-	-	0.73		
03/08/2023	9		103	-	-	0.88		
03/08/2023	10		109	-	-	0.43		
03/08/2023	11		97	-	-	0.57		
03/08/2023	12		111	-	-	0.89		
03/08/2023	13		104	-	-	0.38		
03/08/2023	14		101	-	-	1.04		
03/08/2023	15		105	-	-	0.97		
03/08/2023	16		100	-	-	0.75		

RESULTS (BY TOWN) (01/01/2023 To 12/31/2023)

Date	Pt.	Br.	Sample #	T.Coliform	E.Coli	Cl2	Need Recheck	Reckeck Date
03/08/2023	17		98	-	-	0.77		
03/08/2023	19		110	-	-	0.94		
03/08/2023	20		99	-	-	0.82		
03/08/2023	21		106	-	-	0.55		
03/08/2023	22		102	-	-	0.89		
03/15/2023	4		93	-	-	0.90		
03/15/2023	14		90	-	-	0.84		
03/15/2023	15		92	-	-	0.84		
03/15/2023	20		89	-	-	0.85		
03/15/2023	22		91	-	-	0.95		
03/22/2023	1		78	-	-	0.65		
03/22/2023	2		79	-	-	1.01		
03/22/2023	4		77	-	-	0.88		
03/22/2023	9		73	-	-	0.91		
03/22/2023	10		80	-	-	0.56		
03/22/2023	11		67	-	-	0.58		
03/22/2023	12		81	-	-	0.98		
03/22/2023	14		71	-	-	0.84		
03/22/2023	15		75	-	-	0.88		
03/22/2023	16		70	-	-	0.75		
03/22/2023	17		68	-	-	0.81		
03/22/2023	18		74	-	-	0.36		
03/22/2023	20		69	-	-	0.83		
03/22/2023	21		76	-	-	0.30		
03/22/2023	22		72	-	-	0.96		
04/04/2023	1		167	-	-	0.73		
04/04/2023	2		164	-	-	0.67		
04/04/2023	4		165	-	-	0.82		
04/04/2023	9		175	-	-	0.95		
04/04/2023	10		163	-	-	0.38		
04/04/2023	12		162	-	-	0.50		
04/04/2023	13		172	-	-	0.92		

RESULTS (BY TOWN) (01/01/2023 To 12/31/2023)

Date	Pt.	Br.	Sample #	T.Coliform	E.Coli	Cl2	Need Recheck	Reckeck Date
04/04/2023	15		173	-	-	0.88		
04/04/2023	16		168	-	-	0.84		
04/04/2023	17		170	-	-	0.83		
04/04/2023	18		174	-	-	0.93		
04/04/2023	20		169	-	-	0.99		
04/04/2023	21		166	-	-	0.67		
04/04/2023	22		171	-	-	0.98		
04/17/2023	1		134	-	-	0.77		
04/17/2023	2		137	-	-	0.89		
04/17/2023	4		135	-	-	0.91		
04/17/2023	9		141	-	-	1.12		
04/17/2023	10		138	-	-	0.76		
04/17/2023	11		132	-	-	0.67		
04/17/2023	12		139	-	-	1.01		
04/17/2023	14		142	-	-	0.99		
04/17/2023	15		140	-	-	0.97		
04/17/2023	16		133	-	-	0.84		
04/17/2023	21		136	-	-	0.64		
04/21/2023	1		115	-	-	0.76		
04/21/2023	2		113	-	-	0.93		
04/21/2023	4		111	-	-	1.05		
04/21/2023	9		109	-	-	1.07		
04/21/2023	10		114	-	-	0.64		
04/21/2023	11		104	-	-	0.67		
04/21/2023	12		116	-	-	0.95		
04/21/2023	13		107	-	-	0.97		
04/21/2023	14		106	-	-	0.97		
04/21/2023	15		110	-	-	0.87		
04/21/2023	16		105	-	-	0.81		
04/21/2023	17		103	-	-	0.89		
04/21/2023	18		108	-	-	0.58		
04/21/2023	21		112	-	-	0.26		

RESULTS (BY TOWN) (01/01/2023 To 12/31/2023)

Date	Pt.	Br.	Sample #	T.Coliform	E.Coli	Cl2	Need Recheck	Reckeck Date
04/25/2023	4		107	-	-	0.97		
04/25/2023	14		105	-	-	0.92		
04/25/2023	21		106	-	-	0.51		
04/26/2023	9		72	-	-	1.06		
04/26/2023	10		77	-	-	0.67		
04/26/2023	12		78	-	-	0.87		
04/26/2023	14		75	-	-	0.96		
04/26/2023	15		73	-	-	0.67		
04/26/2023	16		76	-	-	0.86		
04/26/2023	17		74	-	-	0.87		
04/26/2023	18		71	-	-	0.67		
05/09/2023	1		110	-	-	0.99		
05/09/2023	2		111	-	-	0.92		
05/09/2023	4		108	-	-	0.99		
05/09/2023	9		100	-	-	1.08		
05/09/2023	10		112	-	-	0.65		
05/09/2023	11		104	-	-	0.67		
05/09/2023	12		113	-	-	0.89		
05/09/2023	13		101	-	-	0.87		
05/09/2023	14		102	-	-	0.92		
05/09/2023	15		106	-	-	1.04		
05/09/2023	16		105	-	-	0.86		
05/09/2023	17		103	-	-	0.87		
05/09/2023	18		99	-	-	0.82		
05/09/2023	21		109	-	-	0.71		
05/09/2023	22		107	-	-	0.94		
05/15/2023	1		87	-	-	0.54		
05/15/2023	2		88	-	-	0.93		
05/15/2023	4		86	-	-	0.97		
05/15/2023	9		83	-	-	0.86		
05/15/2023	10		89	-	-	0.46		
05/15/2023	12		75	-	-	0.85		

RESULTS (BY TOWN) (01/01/2023 To 12/31/2023)

Date	Pt.	Br.	Sample #	T.Coliform	E.Coli	Cl2	Need Recheck	Reckeck Date
05/15/2023	13		80	-	-	0.93		
05/15/2023	14		79	-	-	0.87		
05/15/2023	15		82	-	-	0.91		
05/15/2023	16		76	-	-	0.77		
05/15/2023	17		78	-	-	0.88		
05/15/2023	18		84	-	-	0.92		
05/15/2023	20		77	-	-	0.99		
05/15/2023	21		85	-	-	0.33		
05/15/2023	22		81	-	-	0.91		
05/18/2023	2		153	-	-	0.90		
05/18/2023	4		151	-	-	0.90		
05/18/2023	9		148	-	-	0.98		
05/18/2023	10		154	-	-	0.80		
05/18/2023	11		145	-	-	0.76		
05/18/2023	12		155	-	-	0.84		
05/18/2023	13		152	-	-	0.97		
05/18/2023	14		141	-	-	0.90		
05/18/2023	15		147	-	-	0.98		
05/18/2023	16		144	-	-	0.82		
05/18/2023	17		142	-	-	0.88		
05/18/2023	18		149	-	-	0.96		
05/18/2023	20		143	-	-	0.95		
05/18/2023	21		150	-	-	0.55		
05/18/2023	22		146	-	-	1.01		
05/20/2023	4		47	-	-	0.82		
05/20/2023	11		45	-	-	0.88		
05/20/2023	16		46	-	-	0.81		
05/20/2023	17		44	-	-	0.87		
05/20/2023	18		43	-	-	0.80		
06/02/2023	1		94	-	-	0.94		
06/02/2023	2		93	-	-	0.90		
06/02/2023	4		101	-	-	0.94		

RESULTS (BY TOWN) (01/01/2023 To 12/31/2023)

Date	Pt.	Br.	Sample #	T.Coliform	E.Coli	Cl2	Need Recheck	Reckeck Date
06/02/2023	9		100	-	-	0.91		
06/02/2023	12		107	-	-	0.75		
06/02/2023	14		97	-	-	0.87		
06/02/2023	15		99	-	-	0.98		
06/02/2023	16		95	-	-	0.89		
06/02/2023	18		104	-	-	0.93		
06/02/2023	19		105	-	-	0.95		
06/02/2023	20		96	-	-	0.88		
06/02/2023	21		102	-	-	0.56		
06/02/2023	22		98	-	-	1.02		
06/02/2023	23		103	-	-	0.66		
06/02/2023	24		106	-	-	0.60		
06/10/2023	4		67	-	-	1.07		
06/10/2023	9		68	-	-	1.10		
06/10/2023	11		66	-	-	0.87		
06/10/2023	17		65	-	-	0.97		
06/10/2023	18		69	-	-	0.98		
06/14/2023	2		117	-	-	0.96		
06/14/2023	4		115	-	-	1.01		
06/14/2023	9		116	-	-	0.95		
06/14/2023	10		118	-	-	1.01		
06/14/2023	11		111	-	-	1.08		
06/14/2023	12		119	-	-	0.97		
06/14/2023	14		63	-	-	0.98		
06/14/2023	15		113	-	-	1.07		
06/14/2023	16		110	-	-	0.88		
06/14/2023	17		108	-	-	0.97		
06/14/2023	20		109	-	-	1.00		
06/14/2023	21		114	-	-	0.68		
06/14/2023	22		112	-	-	1.03		
06/20/2023	1		35	-	-	1.05		
06/20/2023	2		33	-	-	0.80		

RESULTS (BY TOWN) (01/01/2023 To 12/31/2023)

Date	Pt.	Br.	Sample #	T.Coliform	E.Coli	Cl2	Need Recheck	Reckeck Date
06/20/2023	4		34	-	-	1.05		
06/20/2023	9		44	-	-	0.97		
06/20/2023	10		32	-	-	0.61		
06/20/2023	11		37	-	-	0.92		
06/20/2023	12		31	-	-	0.63		
06/20/2023	13		41	-	-	0.94		
06/20/2023	14		39	-	-	0.95		
06/20/2023	15		43	-	-	0.96		
06/20/2023	16		36	-	-	0.89		
06/20/2023	17		38	-	-	0.97		
06/20/2023	18		42	-	-	0.99		
06/20/2023	22		40	-	-	0.92		
06/27/2023	1		159	-	-	0.60		
06/27/2023	2		160	-	-	0.84		
06/27/2023	12		158	-	-	0.74		
07/05/2023	1		12	-	-	0.40		
07/05/2023	2		13	-	-	0.88		
07/05/2023	4		14	-	-	0.78		
07/05/2023	9		15	-	-	0.92		
07/05/2023	10		16	-	-	0.78		
07/05/2023	11		17	-	-	0.59		
07/05/2023	12		18	-	-	0.59		
07/05/2023	14		19	-	-	0.75		
07/05/2023	15		20	-	-	0.87		
07/05/2023	16		21	-	-	0.63		
07/05/2023	17		22	-	-	0.75		
07/05/2023	18		23	-	-	0.79		
07/05/2023	20		24	-	-	0.78		
07/05/2023	21		25	-	-	0.37		
07/05/2023	22		26	-	-	0.95		
07/18/2023	1		42	-	-	0.53		
07/18/2023	4		43	-	-	0.81		

RESULTS (BY TOWN) (01/01/2023 To 12/31/2023)

Date	Pt.	Br.	Sample #	T.Coliform	E.Coli	Cl2	Need Recheck	Reckeck Date
07/18/2023	9		44	-	-	0.86		
07/18/2023	10		45	-	-	0.70		
07/18/2023	11		46	-	-	0.56		
07/18/2023	12		47	-	-	0.68		
07/18/2023	13		48	-	-	0.88		
07/18/2023	14		49	-	-	0.72		
07/18/2023	15		50	-	-	0.86		
07/18/2023	16		51	-	-	0.65		
07/18/2023	17		52	-	-	0.72		
07/18/2023	18		53	-	-	0.55		
07/18/2023	20		54	-	-	0.80		
07/18/2023	21		55	-	-	0.42		
07/18/2023	22		56	-	-	0.96		
07/20/2023	1		14	-	-	0.85		
07/20/2023	2		15	-	-	0.75		
07/20/2023	4		16	-	-	0.60		
07/20/2023	9		17	-	-	0.88		
07/20/2023	11		18	-	-	0.67		
07/20/2023	12		19	-	-	0.85		
07/20/2023	13		20	-	-	0.53		
07/20/2023	14		21	-	-	0.85		
07/20/2023	15		22	-	-	0.93		
07/20/2023	16		23	-	-	0.71		
07/20/2023	17		24	-	-	0.68		
07/20/2023	18		25	-	-	0.78		
07/20/2023	20		26	-	-	0.77		
07/20/2023	21		27	-	-	0.50		
07/24/2023	1		64	-	-	0.35		
07/24/2023	2		63	-	-	0.64		
07/24/2023	4		61	-	-	0.75		
07/24/2023	14		59	-	-	0.67		
07/24/2023	15		60	-	-	0.79		

RESULTS (BY TOWN) (01/01/2023 To 12/31/2023)

Date	Pt.	Br.	Sample #	T.Coliform	E.Coli	Cl2	Need Recheck	Reckeck Date
07/24/2023	21		62	-	-	0.11		
07/27/2023	1		319					
07/27/2023	2		320					
07/27/2023	4		321					
07/27/2023	9		322					
07/27/2023	10		323					
07/27/2023	12		324					
07/27/2023	14		325					
07/27/2023	15		326					
07/27/2023	21		327					
07/27/2023	22		328					
08/03/2023	1		124	-	-	0.70		
08/03/2023	2		121	-	-	0.70		
08/03/2023	4		123	-	-	0.78		
08/03/2023	9		131	-	-	0.77		
08/03/2023	10		119	-	-	0.49		
08/03/2023	11		126	-	-	0.59		
08/03/2023	12		118	-	-	0.72		
08/03/2023	14		128	-	-	0.67		
08/03/2023	15		130	-	-	0.78		
08/03/2023	16		125	-	-	0.69		
08/03/2023	17		127	-	-	0.69		
08/03/2023	18		132	-	-	0.72		
08/03/2023	19		120	-	-	0.75		
08/03/2023	21		122	-	-	0.13		
08/03/2023	22		129	-	-	0.78		
08/14/2023	1		6	-	-	0.27		
08/14/2023	2		7	-	-	0.74		
08/14/2023	9		4	-	-	0.75		
08/14/2023	10		8	-	-	0.62		
08/14/2023	15		5	-	-	0.80		
08/17/2023	1		141	-	-	0.32		

RESULTS (BY TOWN) (01/01/2023 To 12/31/2023)

Date	Pt.	Br.	Sample #	T.Coliform	E.Coli	Cl2	Need Recheck	Reckeck Date
08/17/2023	2		138	-	-	0.43		
08/17/2023	4		140	-	-	0.73		
08/17/2023	9		150	-	-	0.56		
08/17/2023	11		143	-	-	0.27		
08/17/2023	12		137	-	-	0.37		
08/17/2023	13		147	-	-	0.70		
08/17/2023	14		146	-	-	0.66		
08/17/2023	15		149	-	-	0.62		
08/17/2023	16		142	-	-	0.40		
08/17/2023	17		145	-	-	0.53		
08/17/2023	18		151	-	-	0.46		
08/17/2023	20		144	-	-	0.64		
08/17/2023	21		139	-	-	0.02		
08/17/2023	22		148	-	-	0.71		
08/22/2023	1		90	-	-	0.61		
08/22/2023	2		88	-	-	0.54		
08/22/2023	4		89	-	-	0.70		
08/22/2023	9		99	-	-	0.74		
08/22/2023	10		87	-	-	0.76		
08/22/2023	11		92	-	-	0.35		
08/22/2023	12		86	-	-	0.68		
08/22/2023	13		96	-	-	0.81		
08/22/2023	14		95	-	-	0.62		
08/22/2023	15		98	-	-	0.78		
08/22/2023	16		91	-	-	0.48		
08/22/2023	17		94	-	-	0.59		
08/22/2023	18		100	-	-	0.60		
08/22/2023	20		93	-	-	0.65		
08/22/2023	22		97	-	-	0.77		
09/07/2023	1		112	-	-	0.50		
09/07/2023	2		111	-	-	0.92		
09/07/2023	4		109	-	-	0.97		

RESULTS (BY TOWN) (01/01/2023 To 12/31/2023)

Date	Pt.	Br.	Sample #	T.Coliform	E.Coli	Cl2	Need Recheck	Reckeck Date
09/07/2023	9		116	-	-	0.91		
09/07/2023	10		113	-	-	0.45		
09/07/2023	11		104	-	-	0.60		
09/07/2023	12		114	-	-	0.62		
09/07/2023	13		118	-	-	1.01		
09/07/2023	14		106	-	-	0.60		
09/07/2023	15		108	-	-	0.97		
09/07/2023	16		107	-	-	0.50		
09/07/2023	17		105	-	-	0.69		
09/07/2023	18		115	-	-	0.95		
09/07/2023	21		110	-	-	0.40		
09/07/2023	22		117	-	-	1.00		
09/14/2023	1		74	-	-	0.25		
09/14/2023	4		75	-	-	0.74		
09/14/2023	9		76	-	-	0.71		
09/14/2023	10		77	-	-	0.39		
09/14/2023	11		78	-	-	0.18		
09/14/2023	12		79	-	-	0.28		
09/14/2023	13		80	-	-	0.69		
09/14/2023	14		81	-	-	0.45		
09/14/2023	15		82	-	-	0.45		
09/14/2023	16		83	-	-	0.38		
09/14/2023	17		84	-	-	0.41		
09/14/2023	18		85	-	-	0.56		
09/14/2023	20		86	-	-	0.57		
09/14/2023	21		87	-	-	0.14		
09/14/2023	22		88	-	-	0.78		
09/19/2023	2		92	-	-	1.08		
09/19/2023	10		91	-	-	0.75		
09/19/2023	12		94	-	-	0.65		
09/19/2023	15		93	-	-	0.94		
09/19/2023	23		95	-	-	0.70		

RESULTS (BY TOWN) (01/01/2023 To 12/31/2023)

Date	Pt.	Br.	Sample #	T.Coliform	E.Coli	Cl2	Need Recheck	Reckeck Date
09/28/2023	1		36	-	-	0.30		
09/28/2023	2		35	-	-	0.86		
09/28/2023	4		37	-	-	0.85		
09/28/2023	9		38	-	-	0.77		
09/28/2023	11		40	-	-	0.26		
09/28/2023	12		34	-	-	0.38		
09/28/2023	13		39	-	-	0.81		
09/28/2023	14		1	-	-	0.45		
09/28/2023	15		2	-	-	0.90		
09/28/2023	16		3	+	-	0.44	NO	09/29/2023
09/28/2023	17		4	-	-	0.41		
09/28/2023	18		5	-	-	0.60		
09/28/2023	19		6	-	-	0.75		
09/28/2023	20		7	-	-	0.64		
09/28/2023	21		8	-	-	0.25		
09/29/2023	16		5	-	-	0.35		
09/29/2023	16	A	6	-	-	0.33		
09/29/2023	16	B	7	-	-	0.47		
10/03/2023	1		100	-	-	0.59		
10/03/2023	2		99	-	-	0.83		
10/03/2023	4		97	-	-	0.82		
10/03/2023	9		93	-	-	0.66		
10/03/2023	10		98	-	-	0.44		
10/03/2023	11		91	-	-	0.25		
10/03/2023	13		92	-	-	0.83		
10/03/2023	14		89	-	-	0.62		
10/03/2023	15		95	-	-	0.84		
10/03/2023	16		90	-	-	0.44		
10/03/2023	17		87	-	-	0.46		
10/03/2023	18		94	-	-	0.60		
10/03/2023	20		88	-	-	0.50		
10/03/2023	21		96	-	-	0.18		

RESULTS (BY TOWN) (01/01/2023 To 12/31/2023)

Date	Pt.	Br.	Sample #	T.Coliform	E.Coli	Cl2	Need Recheck	Reckeck Date
10/04/2023	1		138	-	-	0.25		
10/04/2023	2		135	-	-	0.71		
10/04/2023	4		137	-	-	0.46		
10/04/2023	9		142	-	-	0.74		
10/04/2023	10		134	-	-	0.71		
10/04/2023	11		143	-	-	0.59		
10/04/2023	12		133	-	-	0.31		
10/04/2023	14		139	-	-	0.61		
10/04/2023	15		141	-	-	0.67		
10/04/2023	16		144	-	-	0.61		
10/04/2023	17		145	-	-	0.42		
10/04/2023	18		146	-	-	0.37		
10/04/2023	20		147	-	-	0.42		
10/04/2023	21		136	-	-	0.14		
10/04/2023	22		140	-	-	0.82		
10/09/2023	1		137	-	-	0.16		
10/09/2023	2		135	-	-	0.68		
10/09/2023	4		136	-	-	0.75		
10/09/2023	9		146	-	-	0.68		
10/09/2023	10		134	-	-	0.21		
10/09/2023	11		139	-	-	0.15		
10/09/2023	12		133	-	-	0.31		
10/09/2023	13		143	-	-	0.78		
10/09/2023	14		142	-	-	0.65		
10/09/2023	15		145	-	-	0.81		
10/09/2023	16		138	-	-	0.36		
10/09/2023	17		141	-	-	0.44		
10/09/2023	18		147	-	-	0.49		
10/09/2023	20		140	-	-	0.63		
10/09/2023	22		144	-	-	0.79		
10/12/2023	1		124	-	-	0.72		
10/12/2023	2		125	-	-	0.72		

RESULTS (BY TOWN) (01/01/2023 To 12/31/2023)

Date	Pt.	Br.	Sample #	T.Coliform	E.Coli	Cl2	Need Recheck	Reckeck Date
10/12/2023	4		123	-	-	0.80		
10/12/2023	9		119	-	-	0.70		
10/12/2023	10		126	-	-	0.61		
10/12/2023	11		113	-	-	0.14		
10/12/2023	12		127	-	-	0.62		
10/12/2023	14		117	-	-	0.58		
10/12/2023	15		121	-	-	0.84		
10/12/2023	16		116	-	-	0.36		
10/12/2023	17		114	-	-	0.50		
10/12/2023	18		120	-	-	0.57		
10/12/2023	20		115	-	-	0.66		
10/12/2023	21		122	-	-	0.32		
10/12/2023	22		118	-	-	0.84		
11/01/2023	1		165	-	-	0.31		
11/01/2023	2		167	-	-	0.64		
11/01/2023	4		153	-	-	0.75		
11/01/2023	9		157	-	-	0.79		
11/01/2023	10		169	-	-	0.47		
11/01/2023	11		163	-	-	0.11		
11/01/2023	12		170	-	-	0.42		
11/01/2023	13		160	-	-	0.82		
11/01/2023	14		161	-	-	0.74		
11/01/2023	15		158	-	-	0.75		
11/01/2023	16		164	-	-	0.47		
11/01/2023	18		156	-	-	0.46		
11/01/2023	19		168	-	-	1.06		
11/01/2023	20		162	-	-	0.67		
11/01/2023	21		154	-	-	0.07		
11/01/2023	22		159	-	-	0.70		
11/01/2023	23		155	-	-	0.63		
11/01/2023	24		166	-	-	0.47		
11/07/2023	1		128	-	-	0.20		

RESULTS (BY TOWN) (01/01/2023 To 12/31/2023)

Date	Pt.	Br.	Sample #	T.Coliform	E.Coli	Cl2	Need Recheck	Reckeck Date
11/07/2023	2		127	-	-	0.74		
11/07/2023	4		129	-	-	0.71		
11/07/2023	9		133	-	-	0.65		
11/07/2023	10		126	-	-	0.32		
11/07/2023	12		125	-	-	0.54		
11/07/2023	14		136	-	-	0.92		
11/07/2023	15		134	-	-	0.76		
11/07/2023	16		139	-	-	0.31		
11/07/2023	17		137	-	-	0.42		
11/07/2023	18		132	-	-	0.21		
11/07/2023	20		138	-	-	0.15		
11/07/2023	21		130	-	-	0.11		
11/07/2023	22		135	-	-	0.37		
11/07/2023	23		131	-	-	0.42		
11/16/2023	1		34	-	-	0.62		
11/16/2023	2		33	-	-	0.92		
11/16/2023	4		35	-	-	0.78		
11/16/2023	9		36	-	-	0.86		
11/16/2023	10		32	-	-	0.47		
11/16/2023	11		40	-	-	0.67		
11/16/2023	12		31	-	-	0.66		
11/16/2023	13		38	-	-	0.64		
11/16/2023	14		39	-	-	0.78		
11/16/2023	15		37	-	-	0.97		
11/16/2023	16		43	-	-	0.73		
11/16/2023	17		41	-	-	0.54		
11/16/2023	18		45	-	-	0.98		
11/16/2023	19		44	-	-	0.95		
11/16/2023	20		42	-	-	0.52		
11/27/2023	1		1	-	-	0.11		
11/27/2023	2		2	-	-	0.57		
12/02/2023	4		11	-	-	0.72		

RESULTS (BY TOWN) (01/01/2023 To 12/31/2023)

Date	Pt.	Br.	Sample #	T.Coliform	E.Coli	Cl2	Need Recheck	Reckeck Date
12/02/2023	9		7	-	-	0.88		
12/02/2023	11		1	-	-	0.25		
12/02/2023	12		14	-	-	0.74		
12/02/2023	14		5	-	-	0.73		
12/02/2023	15		10	-	-	0.92		
12/02/2023	16		4	-	-	0.56		
12/02/2023	17		2	-	-	0.63		
12/02/2023	18		8	-	-	0.26		
12/02/2023	19		13	-	-	0.78		
12/02/2023	20		3	-	-	0.74		
12/02/2023	22		6	-	-	0.87		
12/02/2023	23		9	-	-	0.54		
12/02/2023	24		12	-	-	0.38		
12/05/2023	1		195	-	-	0.38		
12/05/2023	2		192	-	-	1.07		
12/05/2023	4		193	-	-	0.90		
12/05/2023	9		245	-	-	0.88		
12/05/2023	10		191	-	-	0.81		
12/05/2023	11		197	-	-	0.50		
12/05/2023	12		190	-	-	1.09		
12/05/2023	13		201	-	-	0.94		
12/05/2023	15		202	-	-	0.88		
12/05/2023	16		196	-	-	0.65		
12/05/2023	17		199	-	-	0.83		
12/05/2023	18		244	-	-	0.79		
12/05/2023	19		243	-	-	1.22		
12/05/2023	20		198	-	-	0.90		
12/05/2023	21		194	-	-	0.33		
12/05/2023	22		200	-	-	0.91		
12/05/2023	23		203	-	-	0.88		
12/06/2023	14		54	-	-	0.75		
12/06/2023	17		55	-	-	0.69		

Great Lakes Water Authority
Water Quality

RESULTS (BY TOWN) (01/01/2023 To 12/31/2023)

Date	Pt.	Br.	Sample #	T.Coliform	E.Coli	Cl2	Need Recheck	Reckeck Date
12/06/2023	20		56	-	-	0.77		
12/11/2023	1		100	-	-	0.19		
12/11/2023	2		97	-	-	0.78		
12/11/2023	4		99	-	-	0.80		
12/11/2023	9		107	-	-	0.79		
12/11/2023	10		111	-	-	0.52		
12/11/2023	11		101	-	-	0.28		
12/11/2023	12		96	-	-	0.89		
12/11/2023	14		104	-	-	0.75		
12/11/2023	15		106	-	-	0.86		
12/11/2023	17		103	-	-	0.61		
12/11/2023	18		108	-	-	0.03		
12/11/2023	19		110	-	-	0.97		
12/11/2023	20		102	-	-	0.68		
12/11/2023	21		98	-	-	0.31		
12/11/2023	22		105	-	-	0.78		
12/11/2023	23		109	-	-	0.62		
12/11/2023	24		112	-	-	0.32		

Total No. of Samples Collected: 623

WATER OPERATING SERVICES
WATER QUALITY
10100 EAST JEFFERSON AVENUE
DETROIT, MICHIGAN 48214
PHONE: 313-926-8127 / 313-926-8102

Water Quality Parameters

40 Samples **Report Date: 03/14/2024**

Sample Location				Field Data				Laboratory Analyses (All Sites)					Laboratory Analyses (Exceedance Sites)		Calc.
			01/04/2023 to 10/04/2023	Date		Temp.			T. Alkalinity	PO_4^{3-}	Chloride	Sulfate	Conductivity	Calcium	CSMR
Rte#	Town Name	Pt.	Address	mm/dd/yyyy	Time	°C	$pH_{meas.}$	Lab#	mg/L	mg/L	mg/L	mg/L	µmho/cm	mg/L	Index
	Novi	1	45175 W. 10 Mile	01/04/2023	1:22	11.6	7.9	133	73	1.6	12.5	20.2	NR	NR	0.619
	Novi	1	45175 W. 10 Mile	04/17/2023	10:30	12.0	7.9	134	83	1.3	9.0	20.5	NR	NR	0.438
	Novi	1	45175 W. 10 Mile	07/27/2023	11:22	20.9	7.7	319	78	1.3	11.5	21.6	NR	NR	0.532
	Novi	1	45175 W. 10 Mile	10/04/2023	10:30	22.3	7.9	138	80	1.4	11.0	20.0	NR	NR	0.550
	Novi	2	41425 10 Mile	01/04/2023	1:46	12.3	7.6	134	72	1.2	9.0	19.7	NR	NR	0.457
	Novi	2	41425 10 Mile	04/17/2023	12:06	14.6	7.3	137	75	1.3	9.5	21.1	NR	NR	0.450
	Novi	2	41425 10 Mile	07/27/2023	11:40	24.4	7.5	320	78	1.3	11.5	21.4	NR	NR	0.537
	Novi	2	41425 10 Mile	10/04/2023	9:25	21.2	7.5	135	76	1.3	11.0	19.3	NR	NR	0.570
	Novi	4	42975 Grand River	01/04/2023	12:54	10.3	7.7	132	74	1.3	9.0	19.5	NR	NR	0.461
	Novi	4	42975 Grand River	04/17/2023	11:06	9.8	7.4	135	76	1.4	9.0	21.3	NR	NR	0.422
	Novi	4	42975 Grand River	07/27/2023	11:00	21.7	7.4	321	78	1.3	11.5	20.5	NR	NR	0.562
	Novi	4	42975 Grand River	10/04/2023	10:10	19.2	7.4	137	74	1.3	10.0	18.7	NR	NR	0.536
	Novi	9	1919 Paramount	01/04/2023	11:08	9.5	7.9	129	74	1.2	9.0	19.5	NR	NR	0.461
	Novi	9	1919 Paramount	04/17/2023	2:08	11.4	7.3	141	73	1.3	8.5	20.7	NR	NR	0.410
	Novi	9	1919 Paramount	07/27/2023	9:40	22.1	7.4	322	78	1.3	11.5	21.7	NR	NR	0.531
	Novi	9	1919 Paramount	10/04/2023	12:15	23.9	7.5	142	76	1.4	10.5	19.5	NR	NR	0.539
	Novi	10	23131 Cranbrook Drive	01/04/2023	2:09	11.9	8.0	135	74	1.0	11.0	19.3	NR	NR	0.571
	Novi	10	23131 Cranbrook Drive	04/17/2023	12:31	16.0	7.2	138	75	1.2	9.5	20.8	NR	NR	0.456

mg/L = milligrams per liter, umho/cm = micromho per centimeter, CSMR = chloride sulfate mass ratio, NR = Not Required

Created by: Patrick Williford

Water Quality Parameters

WATER OPERATING SERVICES
WATER QUALITY
10100 EAST JEFFERSON AVENUE
DETROIT, MICHIGAN 48214
PHONE: 313-926-8127 / 313-926-8102

40 Samples **Report Date: 03/14/2024**

Sample Location				Field Data				Laboratory Analyses (All Sites)					Laboratory Analyses (Exceedance Sites)		Calc.
			01/04/2023 to 10/04/2023	Date		Temp.			T. Alkalinity	PO_4^{3-}	Chloride	Sulfate	Conductivity	Calcium	CSMR
Rte#	Town Name	Pt.	Address	mm/dd/yyyy	Time	°C	$pH_{meas.}$	Lab#	mg/L	mg/L	mg/L	mg/L	µmho/cm	mg/L	Index
	Novi	10	23131 Cranbrook Drive	07/27/2023	12:15	23.1	7.4	323	78	1.3	11.5	21.6	NR	NR	0.533
	Novi	10	23131 Cranbrook Drive	10/04/2023	9:10	23.0	7.6	134	78	1.3	10.5	20.5	NR	NR	0.512
	Novi	12	39640 Orchard Hill Place	01/04/2023	2:29	10.7	7.3	136	73	1.4	9.0	19.5	NR	NR	0.462
	Novi	12	39640 Orchard Hill Place	04/17/2023	1:06	14.2	7.5	139	75	1.4	9.0	19.6	NR	NR	0.459
	Novi	12	39640 Orchard Hill Place	07/27/2023	12:40	22.9	7.5	324	80	1.3	11.5	21.5	NR	NR	0.535
	Novi	12	39640 Orchard Hill Place	10/04/2023	8:55	22.1	7.8	133	76	1.3	10.5	19.9	NR	NR	0.527
	Novi	14	27000 Providence Parkway	01/04/2023	10:20	13.3	7.8	126	74	1.2	10.0	19.6	NR	NR	0.511
	Novi	14	27000 Providence Parkway	04/17/2023	2:36	16.6	7.3	142	74	1.4	9.0	21.6	NR	NR	0.416
	Novi	14	27000 Providence Parkway	07/27/2023	9:13	21.1	7.6	325	78	1.3	11.5	22.0	NR	NR	0.523
	Novi	14	27000 Providence Parkway	10/04/2023	11:10	23.3	7.5	139	80	1.3	10.5	19.1	NR	NR	0.551
	Novi	15	27477 Cabaret Drive	01/04/2023	12:02	10.9	7.7	130	72	1.2	9.5	19.9	NR	NR	0.476
	Novi	15	27477 Cabaret Drive	04/17/2023	1:42	13.4	7.3	140	75	1.3	8.5	20.8	NR	NR	0.408
	Novi	15	27477 Cabaret Drive	07/27/2023	10:25	20.5	7.4	326	78	1.4	10.5	19.9	NR	NR	0.528
	Novi	15	27477 Cabaret Drive	10/04/2023	11:47	27.2	7.4	141	74	1.4	10.5	25.4	NR	NR	0.414
	Novi	21	26300 Lee BeGole Drive	01/04/2023	12:28	12.5	7.6	131	73	1.4	9.5	19.4	NR	NR	0.490
	Novi	21	26300 Lee BeGole Drive	04/17/2023	11:25	13.5	7.5	136	78	1.3	11.5	20.4	NR	NR	0.565
	Novi	21	26300 Lee BeGole Drive	07/27/2023	10:45	23.3	7.6	327	78	1.3	12.0	22.6	NR	NR	0.530
	Novi	21	26300 Lee BeGole Drive	10/04/2023	9:50	21.5	7.7	136	76	1.3	10.5	19.9	NR	NR	0.528

mg/L = milligrams per liter, umho/cm = micromho per centimeter, CSMR = chloride sulfate mass ratio, NR = Not Required

Created by: Patrick Williford

WATER OPERATING SERVICES
WATER QUALITY
10100 EAST JEFFERSON AVENUE
DETROIT, MICHIGAN 48214
PHONE: 313-926-8127 / 313-926-8102

Water Quality Parameters

40 Samples **Report Date: 03/14/2024**

Sample Location				Field Data				Laboratory Analyses (All Sites)					Laboratory Analyses (Exceedance Sites)		Calc.
			01/04/2023 to 10/04/2023	Date		Temp.			T. Alkalinity	PO_4^{3-}	Chloride	Sulfate	Conductivity	Calcium	CSMR
Rte#	Town Name	Pt.	Address	mm/dd/yyyy	Time	°C	$pH_{meas.}$	Lab#	mg/L	mg/L	mg/L	mg/L	µmho/cm	mg/L	Index
	Novi	22	27825 West Park Drive	01/04/2023	10:45	9.1	7.8	127	73	1.2	8.5	19.5	NR	NR	0.437
	Novi	22	27825 West Park Drive	05/09/2023	11:52	14.4	7.4	107	72	1.4	8.5	20.6	NR	NR	0.414
	Novi	22	27825 West Park Drive	07/27/2023	9:55	21.1	7.4	328	76	1.3	11.0	21.1	NR	NR	0.522
	Novi	22	27825 West Park Drive	10/04/2023	11:27	24.2	7.5	140	74	1.3	10.5	19.0	NR	NR	0.552

mg/L = milligrams per liter, umho/cm = micromho per centimeter, CSMR = chloride sulfate mass ratio, NR = Not Required

Created by: Patrick Williford

GLWA
Great Lakes Water Authority

Water: RAW
Year: 2023

Plant Name: Lake Huron (LH)

WATER QUALITY DEPARTMENT
10100 EAST JEFFERSON AVENUE
DETROIT, MICHIGAN 48214
PHONE: 313-926-8102 / 313-926-8127

Yearly Summary

Monthly Mineral Analyses Annual Averages

Parameter	Units	Max.	Min.	Avg.	01/10/2023 Jan	02/14/2023 Feb	03/14/2023 Mar	04/11/2023 Apr	05/16/2023 May	06/13/2023 Jun	07/11/2023 Jul	08/15/2024 Aug	09/12/2024 Sep	10/10/2024 Oct	11/06/2024 Nov	12/12/2024 Dec	← Sample Dates MCL	Sec.Std	RL	STDEV
Turbidity	N.T.U.	3.68	0.22	**0.93**	0.24	1.10	3.68	3.10	0.33	0.33	0.76	0.35	0.54	0.25	0.22	0.24	*0.3/95% (1)*			**1.19**
Total Solids	mg/L	146	103	**126**	127	120	135	130	146	131	129	127	135	124	110	103		*500*	*10*	**11**
Total Dissolved Solids	mg/L	151	93	**121**	126	126	113	131	151	124	135	124	110	113	107	93		*500*	*10*	**15**
Aluminum	mg/L	0.217	0.004	**0.027**	0.005	0.014	0.217	0.010	0.012	0.009	0.015	0.008	0.019	0.009	0.004	0.005		*0.05-0.2*	*0.001*	**0.060**
Iron	mg/L	0.7	0.2	**0.3**	0.4	0.4	0.7	0.3	0.2	0.2	0.2	0.4	0.3	0.3	0.3	0.2		*0.3*	*0.1*	**0.141**
Copper	mg/L	0.010	0.005	**0.007**	0.006	0.005	0.010	0.006	0.006	0.005	0.005	0.008	0.009	0.008	0.009	0.007	*1.3 (AL)*		*0.001*	**0.002**
Magnesium	mg/L	8.1	7.3	**7.6**	7.7	7.8	7.3	7.7	7.8	8.1	7.8	7.6	7.5	7.5	7.5	7.4			*0.1*	**0.21**
Calcium	mg/L	27.4	24.8	**25.8**	25.0	25.9	25.2	24.8	26.9	27.4	26.6	25.5	25.6	25.1	25.2	26.5			*0.1*	**0.8**
Sodium	mg/L	5.6	4.6	**4.9**	4.8	5.6	4.7	4.8	5.1	5.4	5.1	4.7	4.6	4.6	4.9	4.8		*20 (2)*	*0.1*	**0.32**
Potassium	mg/L	1.1	0.9	**1.0**	1.0	1.0	1.0	0.9	1.0	1.1	1.0	1.0	1.0	1.0	1.0	0.9			*0.1*	**0.05**
Manganese	mg/L	0.016	ND	**0.002**	<0.001	0.002	0.016	<0.001	<0.001	<0.001	0.001	< 0.001	0.002	< 0.001	< 0.001	<0.001		*0.05*	*0.001*	**0.007**
Lead	mg/L	ND	ND	**0.000**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001	<0.001	< 0.001	< 0.001	<0.001	*0.015 (AL)*		*0.001*	
Zinc	mg/L	0.013	0.003	**0.007**	0.008	0.006	0.012	0.008	0.008	0.008	0.003	0.007	0.006	0.005	0.004	0.013		*5*	*0.001*	**0.00**
Silica	mg/L	18.5	1.7	**3.4**	2.1	AE	2.4	2.2	1.7	1.9	1.7	1.8	1.7	18.5	1.9	1.9			*0.4*	**5.0**
Sulfate	mg/L	16.9	15.3	**16.1**	16.4	15.9	15.7	15.8	16.9	16.0	16.2	16.7	16.6	15.7	15.3	16.6				**0.5**
Chloride	mg/L	9.0	7.0	**8.1**	9.0	8.0	8.0	7.5	9.0	7.0	9.0	7.9	8.0	8.0	8.0	8.0		*250*	*5*	**0.6**
Phosphorus	mg/L	ND	ND	**0.00**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.05	<0.05	< 0.05	< 0.05	<0.05			*0.05*	
Free Carbon Dioxide	mg/L	1.4	0.8	**1.1**	1.1	1.4	1.3	1.4	1.1	1.4	0.8	0.8	1.0	1.0	1.0	1.3				**0.2**
Total Hardness (3), (4), (5)	mg/L	144	84	**112**	84	116	108	122	120	144	136	123	100	100	100	96				**18**
Total Alkalinity (3)	mg/L	102	81	**87**	82	90	92	88	92	102	84	83	84	83	84	81				**6**
Carbonate Alkalinity (3)	mg/L	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0				**0**
Bi-Carbonate Alkalinity (3)	mg/L	101	80	**86**	81	89	91	87	91	101	82	81	83	82	83	80				**6**
Non-Carbonate Hardness (3)	mg/L	52	2	**25**	2	26	16	34	28	42	52	40	16	17	16	15				**14**
Chemical Oxygen Demand	mg/L	16.3	3.2	**6.5**	6.6	3.2	16.3	7.2	AE	11.8	3.8	5.5	4.2	4.3	4.6	4.2			*2*	**4.0**
Dissolved Oxygen	mg/L	12.8	8.5	**10.5**	12.0	12.8	AE	12.7	11.2	9.9	10.5	8.5	8.9	8.9	9.6	10.8				**1.5**
Nitrite Nitrogen	mg/L	ND	ND	**0.0**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	<0.1	< 0.1	< 0.1	<0.1	*1*		*0.1*	
Nitrate Nitrogen	mg/L	0.53	0.33	**0.38**	0.33	0.36	0.42	0.37	0.53	0.45	0.36	0.37	0.37	0.35	0.34	0.35	*10*	*10*	*0.1*	**0.06**
Fluoride	mg/L	0.43	0.07	**0.11**	0.07	0.07	0.12	0.08	0.08	0.10	0.08	0.08	0.08	0.08	0.08	0.43	*4*		*0.5*	**0.10**
pH		8.31	8.10	**8.18**	8.17	8.10	8.14	8.10	8.20	8.17	8.31	8.30	8.20	8.20	8.20	8.10	*6.5-8.5*	*6.5-8.5*		**0.07**
Specific Conductance @ 25 °C.	µmhos	212	166	**178**	212	206	NA	196	166	194	203	185	201	206	198	174				**14**
Temperature	°C	23.0	9.0	**17.4**	15.6	14.2	9.0	15.5	17.5	18.3	20.7	23.0	21.7	19.9	18.2	14.6				**3.9**

Legend	Notes:
MCL: Maximum Contaminant Level	(1) Turbidity must not exceed 0.3 NTU in 95% of daily samples in any month
Sec.Std: Secondary Standard	(2) EPA Guidance Level
NTU: Nephelometric Turbidity Unit	(3) As Calcium Carbonate
mg/L: Milligram Per Liter (ppm)	(4) By Titration
AL: Action Level	(5) Tap Water Hardnessin in Grains per Gallon multiply value by 0.058 (Grains/Gallon)/(mg/L) -->
RL: Reporting Limit	(6) Reported results are below the low calibration standard but above the instrument detection limit.
< : Less than	NA = Not available
AE: Analytical Error	ND = Not detected above the reporting limit
IN: Invalid Sample	

Maximum	Minimum	Average	
8.4	4.9	6.5	GPG

Modified: 03/05/2024, 17:26

Chemist II: Patrick Williford

GLWA
Great Lakes Water Authority

Water: TAP
Year: 2023

Plant Name: Lake Huron (LH)

WATER OPERATING SERVICES
WATER QUALITY
10100 EAST JEFFERSON AVENUE
DETROIT, MICHIGAN 48214
PHONE: 313-926-8102 / 313-926-8127

Yearly Summary

Monthly Mineral Analyses Annual Averages

Parameter	Units	Max.	Min.	Avg.	01/10/2023 Jan	02/14/2023 Feb	03/14/2023 Mar	04/11/2023 Apr	05/16/2023 May	06/13/2023 Jun	07/11/2023 Jul	08/15/2024 Aug	09/12/2024 Sep	10/10/2024 Oct	11/06/2024 Nov	12/12/2024 Dec	← Sample Dates MCL	Sec.Std	RL	STDEV
Turbidity	N.T.U.	0.09	0.05	**0.07**	0.08	0.06	0.08	0.05	0.09	0.05	0.07	0.09	0.09	0.05	0.08	0.06	*0.3/95% (1)*			**0.02**
Total Solids	mg/L	146	61	**122**	61	126	128	133	146	133	134	134	141	119	113	92		*500*	*10*	**24**
Total Dissolved Solids	mg/L	153	103	**123**	132	124	115	133	153	126	130	131	112	113	110	103		*500*	*10*	**14**
Aluminum	mg/L	0.071	0.018	**0.042**	0.044	0.033	0.018	0.027	0.037	0.033	0.068	0.071	0.066	0.039	0.046	0.026		*0.05-0.2*	*0.001*	**0.018**
Iron	mg/L	0.4	0.2	**0.3**	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.3	0.4	0.2	0.3	0.2		*0.3*	*0.1*	**0.065**
Copper	mg/L	0.001	ND	**0.000**	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	0.001	*1.3 (AL)*		*0.001*	**0.000**
Magnesium	mg/L	7.9	7.0	**7.7**	7.7	7.8	7.8	7.6	7.9	7.9	7.9	7.6	7.8	7.6	7.5	7.0			*0.1*	**0.25**
Calcium	mg/L	27.2	25.0	**25.9**	25.1	25.9	25.9	25.0	27.0	26.8	27.2	25.4	25.8	25.5	25.0	26.2			*0.1*	**0.8**
Sodium	mg/L	5.5	4.5	**4.9**	4.7	5.0	4.9	4.8	5.1	5.5	5.1	4.7	4.5	4.6	5.0	5.0		*20 (2)*	*0.1*	**0.27**
Potassium	mg/L	1.1	0.9	**1.0**	1.0	1.0	0.9	0.9	1.0	1.1	1.1	1.0	1.0	1.0	1.0	0.9			*0.1*	**0.05**
Manganese	mg/L	ND	ND	**0.000**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001	<0.001	< 0.001	< 0.001	<0.001		*0.05*	*0.001*	
Lead	mg/L	ND	ND	**0.000**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001	<0.001	< 0.001	< 0.001	<0.001	*0.015 (AL)*		*0.001*	
Zinc	mg/L	0.008	ND	**0.002**	0.003	0.002	0.001	0.002	0.002	0.003	0.002	0.002	0.002	0.002	< 0.001	0.008		*5*	*0.001*	**0.00**
Silica	mg/L	2.5	2.0	**2.2**	2.3	AE	2.5	2.4	2.0	2.2	2.0	2.0	2.1	2.2	2.3	2.3			*0.4*	**0.2**
Sulfate	mg/L	21.0	17.9	**19.2**	19.9	21.0	20.4	20.7	19.5	20.0	17.9	18.3	18.4	17.9	17.9	18.3				**1.2**
Chloride	mg/L	10.0	8.5	**9.3**	8.5	8.5	9.0	8.5	9.5	9.0	10.0	9.3	9.5	10.0	9.5	10.0		*250*	*5*	**0.6**
Phosphorus	mg/L	0.56	0.40	**0.45**	0.42	0.56	0.46	0.40	0.47	0.42	0.41	0.44	0.43	0.46	0.43	0.43			*0.05*	**0.04**
Free Carbon Dioxide	mg/L	8.4	4.4	**6.2**	4.4	6.0	7.5	6.8	6.7	8.4	5.9	4.7	6.1	4.9	6.0	6.4				**1.2**
Total Hardness (3), (4), (5)	mg/L	140	96	**113**	96	106	126	114	120	140	140	109	100	101	98	100				**16**
Total Alkalinity (3)	mg/L	92	74	**81**	80	76	84	86	90	92	82	74	77	77	76	80				**6**
Carbonate Alkalinity (3)	mg/L	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0				**0**
Bi-Carbonate Alkalinity (3)	mg/L	92	74	**81**	80	76	84	86	90	92	82	74	77	77	76	80				**6**
Non-Carbonate Hardness (3)	mg/L	58	16	**31**	16	30	42	28	30	48	58	35	23	24	22	20				**12**
Chemical Oxygen Demand	mg/L	12.8	ND	**4.7**	2.7	2.2	11.6	5.8	AE	12.8	4.9	< 2	2.1	3.3	3.5	2.6			*2*	**3.9**
Dissolved Oxygen	mg/L	13.3	8.5	**10.8**	12.2	13.3	13.0	12.8	11.7	10.0	9.0	8.6	9.2	8.5	9.8	11.3				**1.8**
Nitrite Nitrogen	mg/L	ND	ND	**0.0**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	<0.1	< 0.1	< 0.1	<0.1	*1*		*0.1*	
Nitrate Nitrogen	mg/L	0.55	0.33	**0.38**	0.34	0.34	0.41	0.38	0.55	0.41	0.35	0.37	0.37	0.35	0.33	0.34	*10*	*10*	*0.1*	**0.06**
Fluoride	mg/L	0.79	0.59	**0.73**	0.59	0.68	0.67	0.70	0.78	0.78	0.71	0.74	0.79	0.77	0.75	0.76	*4*		*0.5*	**0.06**
pH		7.56	7.34	**7.43**	7.56	7.40	7.35	7.40	7.43	7.34	7.44	7.50	7.40	7.50	7.40	7.40	*6.5-8.5*	*6.5-8.5*		**0.06**
Specific Conductance @ 25 °C.	µmhos	210	166	**197**	202	204	210	193	166	202	207	193	201	208	200	181				**13**
Temperature	°C	23.7	2.7	**15.1**	10.5	9.2	2.7	11.3	16.6	17.6	20.6	23.7	21.7	18.4	16.2	13.0				**6.0**

Legend	Notes:
MCL: Maximum Contaminant Level	(1) Turbidity must not exceed 0.3 NTU in 95% of daily samples in any month
Sec.Std: Secondary Standard	(2) EPA Guidance Level
NTU: Nephelometric Turbidity Unit	(3) As Calcium Carbonate
mg/L: Milligram Per Liter (ppm)	(4) By Titration
AL: Action Level	(5) Tap Water Hardnessin in Grains per Gallon multiply value by 0.058 (Grains/Gallon)/(mg/L) -->
RL: Reporting Limit	(6) Reported results are below the low calibration standard but above the instrument detection limit.
< : Less than	NA = Not available
AE: Analytical Error	ND = Not detected above the reporting limit
IN: Invalid Sample	

Maximum	Minimum	Average	
8.1	5.6	6.5	GPG

Modified: 03/05/2024, 17:26

Chemist II: Patrick Williford

GLWA
Great Lakes Water Authority

Water: RAW
Year: 2023

Plant Name: Southwest (SW)

WATER OPERATING SERVICES
WATER QUALITY
10100 EAST JEFFERSON AVENUE
DETROIT, MICHIGAN 48214
PHONE: 313-926-8102 / 313-926-8127

Yearly Summary

Monthly Mineral Analyses Annual Averages

Parameter	Units	Max.	Min.	Avg.	01/10/2023 Jan	02/14/2023 Feb	03/14/2023 Mar	04/11/2023 Apr	05/16/2023 May	06/13/2023 Jun	07/11/2023 Jul	08/15/2024 Aug	09/12/2024 Sep	10/10/2024 Oct	11/06/2024 Nov	12/12/2024 Dec	← Sample Dates MCL	Sec.Std	RL	STDEV
Turbidity	N.T.U.	21.00	1.20	**3.78**	1.50	1.30	21.00	5.10	4.00	2.30	1.70	1.60	2.00	2.30	1.20	1.40	*0.3/95% (1)*			**5.55**
Total Solids	mg/L	178	107	**133**	128	123	178	150	157	136	132	107	141	120	115	113		*500*	*10*	**21**
Total Dissolved Solids	mg/L	167	64	**113**	133	64	136	142	167	109	123	102	105	103	93	79		*500*	*10*	**29**
Aluminum	mg/L	0.447	0.034	**0.096**	0.049	0.035	0.447	0.163	0.114	0.053	0.042	0.067	0.042	0.060	0.034	0.049		*0.05-0.2*	*0.001*	**0.117**
Iron	mg/L	1.0	0.2	**0.4**	0.4	0.4	1.0	0.6	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.2	*12.000*	*0.3*	*0.1*	**0.207**
Copper	mg/L	0.060	0.021	**0.038**	0.045	0.047	0.049	0.060	0.045	0.037	0.021	0.030	0.031	0.033	0.031	0.030	*1.3 (AL)*		*0.001*	**0.011**
Magnesium	mg/L	8.1	7.1	**7.4**	7.7	7.6	8.1	7.4	7.3	7.3	7.1	7.9	7.1	7.1	7.1	7.3			*0.1*	**0.34**
Calcium	mg/L	31.0	24.4	**26.3**	25.8	25.7	31.0	26.8	27.9	25.8	24.4	25.8	25.4	25.1	24.8	27.4			*0.1*	**1.8**
Sodium	mg/L	8.9	4.6	**5.5**	4.7	5.1	8.9	6.2	6.2	5.5	5.1	5.1	4.6	4.6	4.9	5.1		*20 (2)*	*0.1*	**1.20**
Potassium	mg/L	1.3	0.9	**1.0**	1.0	1.0	1.3	1.1	1.1	1.0	0.9	1.0	1.0	1.0	1.0	1.0			*0.1*	**0.10**
Manganese	mg/L	0.009	0.001	**0.003**	0.002	0.001	0.009	0.003	0.003	0.002	0.002	0.003	0.002	0.002	0.002	0.001		*0.05*	*0.001*	**0.002**
Lead	mg/L	ND	ND	**0.000**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001	<0.001	< 0.001	< 0.001	<0.001	*0.015 (AL)*		*0.001*	
Zinc	mg/L	0.010	ND	**0.003**	0.006	0.002	0.004	0.005	0.003	0.001	0.001	< 0.001	<0.001	< 0.001	< 0.001	0.010		*5*	*0.001*	**0.00**
Silica	mg/L	3.9	1.2	**2.0**	2.1	AE	3.9	2.4	1.9	1.2	1.4	1.6	1.7	2.1	1.9	1.9			*0.4*	**0.7**
Sulfate	mg/L	22.1	15.7	**17.2**	16.3	16.2	22.1	17.6	18.4	16.8	16.0	16.6	16.3	16.6	15.7	17.4				**1.7**
Chloride	mg/L	15.5	7.5	**9.1**	7.5	8.0	15.5	9.5	11.0	8.0	9.0	8.6	7.5	8.0	8.5	8.5		*250*	*5*	**2.2**
Phosphorus	mg/L	ND	ND	**0.00**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.05	<0.05	< 0.05	< 0.05	<0.05			*0.05*	
Free Carbon Dioxide	mg/L	1.5	0.5	**1.1**	1.1	1.3	1.5	1.2	1.0	1.4	0.7	0.5	0.7	1.1	1.1	1.2				**0.3**
Total Hardness (3), (4), (5)	mg/L	200	94	**120**	94	108	134	112	110	170	200	101	102	104	102	106				**32**
Total Alkalinity (3)	mg/L	130	84	**93**	86	92	110	86	94	130	92	84	87	86	86	86				**14**
Carbonate Alkalinity (3)	mg/L	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0				**0**
Bi-Carbonate Alkalinity (3)	mg/L	128	81	**92**	85	91	108	85	92	128	90	81	85	85	85	85				**13**
Non-Carbonate Hardness (3)	mg/L	108	8	**27**	8	16	24	26	16	40	108	17	15	18	16	20				**27**
Chemical Oxygen Demand	mg/L	16.8	3.3	**6.6**	3.7	5.4	14.6	4.7	AE	16.8	6.3	4.2	4.6	4.8	3.3	4.7			*2*	**4.6**
Dissolved Oxygen	mg/L	13.4	8.0	**10.7**	12.6	13.4	10.6	11.8	11.0	8.8	9.4	8.0	AE	8.7	11.1	12.2				**1.7**
Nitrite Nitrogen	mg/L	ND	ND	**0.0**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	<0.1	< 0.1	< 0.1	<0.1	*1*		*0.1*	
Nitrate Nitrogen	mg/L	1.49	0.31	**0.53**	0.44	0.34	1.49	0.72	0.89	0.43	0.31	0.42	0.34	0.33	0.34	0.37	*10*	*10*	*0.1*	**0.35**
Fluoride	mg/L	0.40	0.07	**0.11**	0.08	0.07	0.09	0.08	0.11	0.12	0.07	0.08	0.08	0.08	0.08	0.40	*4*		*0.5*	**0.09**
pH		8.52	8.14	**8.25**	8.20	8.14	8.15	8.15	8.28	8.27	8.39	8.52	8.38	8.17	8.19	8.15	*6.5-8.5*	*6.5-8.5*		**0.12**
Specific Conductance @ 25 °C.	µmhos	212	179	**183**	201	200	NA	210	183	207	202	194	200	212	203	179				**10**
Temperature	°C	23.5	3.6	**13.0**	3.6	3.7	4.0	8.0	14.3	17.5	23.0	23.5	22.1	16.9	11.3	7.6				**7.6**

Legend	Notes:
MCL: Maximum Contaminant Level	(1) Turbidity must not exceed 0.3 NTU in 95% of daily samples in any month
Sec.Std: Secondary Standard	(2) EPA Guidance Level
NTU: Nephelometric Turbidity Unit	(3) As Calcium Carbonate
mg/L: Milligram Per Liter (ppm)	(4) By Titration
AL: Action Level	(5) Tap Water Hardnessin in Grains per Gallon multiply value by 0.058 (Grains/Gallon)/(mg/L) -->
RL: Reporting Limit	(6) Reported results are below the low calibration standard but above the instrument detection limit.
< : Less than	NA = Not available
AE: Analytical Error	ND = Not detected above the reporting limit
IN: Invalid Sample	

Maximum	Minimum	Average	
11.6	5.5	7.0	GPG

Modified: 03/05/2024, 17:26

Chemist II: Patrick Williford

GLWA
Great Lakes Water Authority

Water: TAP
Year: 2023

Plant Name: Southwest (SW)

WATER OPERATING SERVICES
WATER QUALITY
10100 EAST JEFFERSON AVENUE
DETROIT, MICHIGAN 48214
PHONE: 313-926-8102 / 313-926-8127

Yearly Summary

Monthly Mineral Analyses Annual Averages

Parameter	Units	Max.	Min.	Avg.	01/10/2023 Jan	02/14/2023 Feb	03/14/2023 Mar	04/11/2023 Apr	05/16/2023 May	06/13/2023 Jun	07/11/2023 Jul	08/15/2024 Aug	09/12/2024 Sep	10/10/2024 Oct	11/06/2024 Nov	12/12/2024 Dec	← Sample Dates MCL	Sec.Std	RL	STDEV
Turbidity	N.T.U.	1.80	0.01	**0.22**	0.20	0.12	0.04	0.05	0.04	0.04	1.80	0.05	AE	0.04	0.05	0.01	*0.3/95% (1)*			**0.51**
Total Solids	mg/L	174	120	**139**	139	132	174	136	158	133	127	137	148	131	120	128		*500*	*10*	**15**
Total Dissolved Solids	mg/L	165	97	**127**	136	132	136	146	165	126	135	111	97	112	120	110		*500*	*10*	**19**
Aluminum	mg/L	0.084	0.021	**0.045**	0.021	0.030	0.039	0.024	0.066	0.047	0.061	0.084	0.065	0.046	0.026	0.026		*0.05-0.2*	*0.001*	**0.020**
Iron	mg/L	0.5	0.2	**0.3**	0.4	0.4	0.5	0.4	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2		*0.3*	*0.1*	**0.074**
Copper	mg/L	0.001	ND	**0.001**	< 0.001	0.001	0.001	< 0.001	0.001	0.001	< 0.001	< 0.001	0.001	< 0.001	0.001	0.001	*1.3 (AL)*		*0.001*	**0.000**
Magnesium	mg/L	8.8	7.4	**7.9**	7.5	7.7	8.8	7.9	8.0	8.2	7.9	7.8	7.9	7.8	7.7	7.4			*0.1*	**0.37**
Calcium	mg/L	33.3	25.2	**27.4**	25.2	25.6	33.3	27.6	29.7	28.0	26.1	25.4	27.0	26.8	26.7	27.5			*0.1*	**2.2**
Sodium	mg/L	9.4	4.7	**5.6**	4.8	5.2	9.4	6.3	6.2	5.6	5.3	5.2	4.7	4.7	5.2	5.2		*20 (2)*	*0.1*	**1.30**
Potassium	mg/L	1.3	0.9	**1.1**	0.9	1.0	1.3	1.0	1.2	1.1	1.0	1.0	1.1	1.0	1.1	1.0			*0.1*	**0.10**
Manganese	mg/L	0.002	ND	**0.000**	<0.001	<0.001	0.001	0.002	<0.001	<0.001	<0.001	< 0.001	<0.001	< 0.001	< 0.001	<0.001		*0.05*	*0.001*	**0.000**
Lead	mg/L	ND	ND	**0.000**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001	<0.001	< 0.001	< 0.001	<0.001	*0.015 (AL)*		*0.001*	
Zinc	mg/L	0.002	ND	**0.000**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001	<0.001	< 0.001	< 0.001	0.002		*5*	*0.001*	
Silica	mg/L	2.7	1.3	**2.0**	2.3	AE	2.7	2.3	1.9	1.3	1.6	1.8	1.9	2.2	2.2	2.2			*0.4*	**0.4**
Sulfate	mg/L	36.0	23.4	**26.3**	26.0	25.6	36.0	29.4	27.3	25.8	24.3	24.1	23.5	23.4	23.8	26.6				**3.5**
Chloride	mg/L	14.5	7.5	**10.3**	9.0	7.5	14.5	11.0	12.5	9.5	8.5	10.2	10.0	10.0	10.5	10.5		*250*	*5*	**1.8**
Phosphorus	mg/L	0.73	0.41	**0.52**	0.46	0.50	0.52	0.52	0.48	0.55	0.47	0.46	0.41	0.73	0.51	0.63			*0.05*	**0.09**
Free Carbon Dioxide	mg/L	13.9	6.0	**9.5**	7.8	9.6	13.9	11.1	10.3	9.2	10.0	6.0	8.4	8.6	9.1	9.9				**1.9**
Total Hardness (3), (4), (5)	mg/L	166	103	**120**	110	118	128	134	130	166	130	103	103	104	104	114				**19**
Total Alkalinity (3)	mg/L	94	70	**80**	74	94	78	80	90	94	76	71	84	73	74	70				**9**
Carbonate Alkalinity (3)	mg/L	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0				**0**
Bi-Carbonate Alkalinity (3)	mg/L	94	70	**80**	74	94	78	80	90	94	76	71	84	73	74	70				**9**
Non-Carbonate Hardness (3)	mg/L	72	19	**41**	36	24	50	54	40	72	54	32	19	31	30	44				**15**
Chemical Oxygen Demand	mg/L	11.7	2.0	**4.4**	3.5	2.0	11.7	5.0	AE	7.2	5.2	3.2	2.4	3.8	2.1	2.6			*2*	**2.9**
Dissolved Oxygen	mg/L	14.9	8.0	**10.5**	12.8	13.1	8.9	11.6	11.3	9.1	8.7	8.0	8.7	8.4	10.9	14.9				**2.2**
Nitrite Nitrogen	mg/L	ND	ND	**0.0**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	<0.1	< 0.1	< 0.1	<0.1	*1*		*0.1*	
Nitrate Nitrogen	mg/L	1.47	0.29	**0.50**	0.34	0.37	1.47	0.63	0.76	0.45	0.29	0.38	0.33	0.32	0.34	0.38	*10*	*10*	*0.1*	**0.33**
Fluoride	mg/L	0.84	0.10	**0.62**	0.53	0.70	0.59	0.46	0.69	0.70	0.62	0.84	0.73	0.73	0.70	0.10	*4*		*0.5*	**0.19**
pH		7.37	7.05	**7.23**	7.28	7.29	7.05	7.16	7.24	7.31	7.18	7.37	7.30	7.23	7.21	7.15	*6.5-8.5*	*6.5-8.5*		**0.09**
Specific Conductance @ 25 °C.	µmhos	297	182	**213**	211	211	297	214	182	208	210	203	205	216	210	188				**28**
Temperature	°C	23.2	2.3	**12.6**	2.3	3.0	3.3	7.3	13.3	17.5	22.7	23.2	51.5	19.8	10.2	6.5				**13.8**

Legend	Notes:
MCL: Maximum Contaminant Level	(1) Turbidity must not exceed 0.3 NTU in 95% of daily samples in any month
Sec.Std: Secondary Standard	(2) EPA Guidance Level
NTU: Nephelometric Turbidity Unit	(3) As Calcium Carbonate
mg/L: Milligram Per Liter (ppm)	(4) By Titration
AL: Action Level	(5) Tap Water Hardnessin in Grains per Gallon multiply value by 0.058 (Grains/Gallon)/(mg/L) -->
RL: Reporting Limit	(6) Reported results are below the low calibration standard but above the instrument detection limit.
< : Less than	NA = Not available
AE: Analytical Error	ND = Not detected above the reporting limit
IN: Invalid Sample	

Maximum	Minimum	Average	
9.6	6.0	7.0	GPG

Modified: 03/05/2024, 17:26

Chemist II: Patrick Williford

GLWA
Great Lakes Water Authority

Water: RAW
Year: 2023

Plant Name: **Belle Isle (WWP-SPW-NE)**

WATER OPERATING SERVICES
WATER QUALITY
10100 EAST JEFFERSON AVENUE
DETROIT, MICHIGAN 48214
PHONE: 313-926-8102 / 313-926-8127

Yearly Summary

Monthly Mineral Analyses Annual Averages

Parameter	Units	Max.	Min.	Avg.	01/10/2023 Jan	02/14/2023 Feb	03/14/2023 Mar	04/11/2023 Apr	05/16/2023 May	06/13/2023 Jun	07/11/2023 Jul	08/15/2024 Aug	09/12/2024 Sep	10/10/2024 Oct	11/06/2024 Nov	12/12/2024 Dec	← Sample Dates MCL	Sec.Std	RL	STDEV
Turbidity	N.T.U.	8.00	0.53	**1.98**	0.96	1.47	2.70	8.00	0.87	0.53	0.55	0.62	1.02	2.92	1.80	2.36	*0.3/95% (1)*			**2.07**
Total Solids	mg/L	147	114	**130**	127	125	130	143	147	134	130	125	130	128	114	132		*500*	*10*	**9**
Total Dissolved Solids	mg/L	149	96	**123**	129	130	123	140	149	124	134	122	107	108	114	96		*500*	*10*	**15**
Aluminum	mg/L	0.224	0.020	**0.060**	0.030	0.048	0.066	0.224	0.036	0.048	0.037	0.053	0.020	AE	0.040	AE		*0.05-0.2*	*0.001*	**0.059**
Iron	mg/L	0.7	0.3	**0.4**	0.4	0.4	0.5	0.7	0.3	0.3	0.3	0.5	0.3	0.4	0.3	0.3		*0.3*	*0.1*	**0.121**
Copper	mg/L	0.003	ND	**0.001**	< 0.001	0.001	0.001	0.001	0.002	0.003	0.001	0.001	< 0.001	< 0.001	0.001	0.003	*1.3 (AL)*		*0.001*	**0.001**
Magnesium	mg/L	8.4	7.1	**7.6**	7.7	7.3	7.7	7.3	7.7	8.4	7.9	7.7	7.9	7.2	7.1	7.1			*0.1*	**0.41**
Calcium	mg/L	29.0	24.5	**26.3**	25.7	25.5	26.6	26.0	26.7	29.0	26.7	25.9	27.2	25.3	24.5	26.6			*0.1*	**1.1**
Sodium	mg/L	5.7	4.2	**5.1**	4.8	5.5	5.4	5.6	5.5	5.7	5.2	4.8	4.6	4.5	5.0	4.2		*20 (2)*	*0.1*	**0.49**
Potassium	mg/L	1.2	1.0	**1.0**	1.0	1.0	1.0	1.2	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0			*0.1*	**0.07**
Manganese	mg/L	0.005	0.001	**0.003**	0.002	0.002	0.002	0.004	0.002	0.002	0.005	0.005	0.002	0.005	0.001	0.002		*0.05*	*0.001*	**0.002**
Lead	mg/L	ND	ND	**0.000**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001	<0.001	< 0.001	< 0.001	<0.001	*0.015 (AL)*		*0.001*	
Zinc	mg/L	0.006	ND	**0.002**	<0.001	0.002	0.002	0.002	0.006	0.002	<0.001	< 0.001	<0.001	0.001	< 0.001	0.004		*5*	*0.001*	**0.00**
Silica	mg/L	2.7	1.5	**1.9**	2.2	AE	2.2	2.7	1.5	1.5	1.7	1.8	1.7	2.0	2.0	2.0			*0.4*	**0.3**
Sulfate	mg/L	19.9	15.6	**16.8**	16.3	16.5	15.8	18.1	16.3	16.7	15.7	16.7	19.9	15.6	16.7	17.1				**1.2**
Chloride	mg/L	11.5	7.5	**8.5**	7.5	11.5	8.5	9.5	8.5	8.0	8.5	7.9	8.0	7.5	8.0	8.5		*250*	*5*	**1.1**
Phosphorus	mg/L	ND	ND	**0.00**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.05	<0.05	< 0.05	< 0.05	<0.05			*0.05*	
Free Carbon Dioxide	mg/L	5.4	0.6	**1.4**	1.5	1.1	1.3	1.4	0.8	1.3	0.7	0.6	1.0	1.1	5.4	0.9				**1.3**
Total Hardness (3), (4), (5)	mg/L	136	96	**114**	100	110	136	114	130	134	132	102	103	102	104	96				**15**
Total Alkalinity (3)	mg/L	130	82	**92**	94	92	88	92	98	130	88	85	86	85	86	82				**13**
Carbonate Alkalinity (3)	mg/L	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0				**0**
Bi-Carbonate Alkalinity (3)	mg/L	128	81	**91**	93	91	87	91	96	128	86	83	84	84	86	81				**12**
Non-Carbonate Hardness (3)	mg/L	48	4	**21**	6	18	48	22	32	4	44	17	17	17	18	14				**14**
Chemical Oxygen Demand	mg/L	15.7	2.4	**6.5**	7.6	2.4	10.5	5.2	AE	15.7	5.0	4.5	4.3	6.0	5.8	4.5			*2*	**3.7**
Dissolved Oxygen	mg/L	13.8	8.1	**10.4**	12.4	13.4	13.8	11.0	11.4	9.7	10.2	8.1	8.2	9.1	8.7	9.1				**2.0**
Nitrite Nitrogen	mg/L	ND	ND	**0.0**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	<0.1	< 0.1	< 0.1	<0.1	*1*		*0.1*	
Nitrate Nitrogen	mg/L	0.68	0.31	**0.39**	0.32	0.35	0.41	0.68	0.37	0.49	0.32	0.34	0.37	0.31	0.36	0.37	*10*	*10*	*0.1*	**0.10**
Fluoride	mg/L	0.75	0.07	**0.14**	0.07	0.08	0.07	0.08	0.08	0.12	0.08	0.08	0.08	0.08	0.08	0.75	*4*		*0.5*	**0.19**
pH		8.43	7.50	**8.19**	8.10	8.21	8.14	8.11	8.38	8.29	8.42	8.43	8.25	8.20	7.50	8.26	*6.5-8.5*	*6.5-8.5*		**0.24**
Specific Conductance @ 25 °C.	µmhos	222	145	**193**	222	200	145	206	169	192	201	187	201	211	205	180				**21**
Temperature	°C	22.9	5.4	**13.6**	5.4	5.5	7.4	8.9	13.3	18.4	22.9	22.8	22.0	17.0	11.9	8.0				**6.8**

Legend	Notes:
MCL: Maximum Contaminant Level	(1) Turbidity must not exceed 0.3 NTU in 95% of daily samples in any month
Sec.Std: Secondary Standard	(2) EPA Guidance Level
NTU: Nephelometric Turbidity Unit	(3) As Calcium Carbonate
mg/L: Milligram Per Liter (ppm)	(4) By Titration
AL: Action Level	(5) Tap Water Hardnessin in Grains per Gallon multiply value by 0.058 (Grains/Gallon)/(mg/L) -->
RL: Reporting Limit	(6) Reported results are below the low calibration standard but above the instrument detection limit.
< : Less than	NA = Not available
AE: Analytical Error	ND = Not detected above the reporting limit
IN: Invalid Sample	

Maximum	Minimum	Average	
7.9	5.6	6.6	GPG

Modified: 03/05/2024, 17:26

Chemist II: Patrick Williford

GLWA
Great Lakes Water Authority

Water: TAP
Year: 2023

Plant Name: Water Works Park (WWP)

WATER OPERATING SERVICES
WATER QUALITY
10100 EAST JEFFERSON AVENUE
DETROIT, MICHIGAN 48214
PHONE: 313-926-8102 / 313-926-8127

Yearly Summary

Monthly Mineral Analyses Annual Averages

Parameter	Units	Max.	Min.	Avg.	01/10/2023 Jan	02/14/2023 Feb	03/14/2023 Mar	04/11/2023 Apr	05/16/2023 May	06/13/2023 Jun	07/11/2023 Jul	08/15/2024 Aug	09/12/2024 Sep	10/10/2024 Oct	11/06/2024 Nov	12/12/2024 Dec	← Sample Dates MCL	Sec.Std	RL	STDEV
Turbidity	N.T.U.	0.17	0.04	**0.09**	0.06	0.05	0.06	0.07	0.07	0.12	0.17	0.14	0.12	0.08	0.06	0.04	*0.3/95% (1)*			**0.04**
Total Solids	mg/L	158	119	**136**	139	128	129	158	153	138	134	143	136	127	119	131		*500*	*10*	**11**
Total Dissolved Solids	mg/L	150	105	**127**	132	133	117	150	148	133	133	118	109	128	121	105		*500*	*10*	**14**
Aluminum	mg/L	0.160	0.021	**0.074**	0.026	0.025	0.025	0.021	0.085	0.109	0.160	0.153	0.148	0.068	0.042	0.032		*0.05-0.2*	*0.001*	**0.055**
Iron	mg/L	0.4	0.2	**0.3**	0.4	0.4	0.4	0.4	0.2	0.2	0.2	0.4	0.3	0.3	0.3	0.2		*0.3*	*0.1*	**0.068**
Copper	mg/L	0.001	ND	**0.000**	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	*1.3 (AL)*		*0.001*	
Magnesium	mg/L	8.3	7.4	**7.8**	7.7	7.7	8.0	7.9	7.7	8.3	7.9	7.8	7.7	7.6	7.8	7.4			*0.1*	**0.22**
Calcium	mg/L	28.4	25.4	**26.6**	25.6	25.4	26.9	26.9	26.6	28.2	26.0	26.2	26.4	26.0	26.7	28.4			*0.1*	**0.9**
Sodium	mg/L	7.1	4.6	**5.3**	4.8	5.3	5.6	7.1	5.9	5.7	5.3	4.8	4.6	4.6	5.2	5.0		*20 (2)*	*0.1*	**0.70**
Potassium	mg/L	1.3	1.0	**1.0**	1.0	1.0	1.0	1.3	1.0	1.1	1.0	1.0	1.0	1.0	1.1	1.0			*0.1*	**0.08**
Manganese	mg/L	ND	ND	**0.000**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001	<0.001	< 0.001	< 0.001	<0.001		*0.05*	*0.001*	
Lead	mg/L	ND	ND	**0.000**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001	<0.001	< 0.001	< 0.001	<0.001	*0.015 (AL)*		*0.001*	
Zinc	mg/L	0.022	ND	**0.002**	<0.001	<0.001	<0.001	<0.001	0.002	0.001	<0.001	< 0.001	<0.001	0.002	< 0.001	0.022		*5*	*0.001*	**0.01**
Silica	mg/L	2.6	1.6	**2.1**	2.5	AE	2.4	2.6	1.7	1.6	1.9	2.0	2.0	2.2	2.2	2.3			*0.4*	**0.3**
Sulfate	mg/L	28.0	20.1	**22.5**	23.3	22.0	23.4	28.0	22.5	22.3	20.3	20.3	20.1	22.2	22.1	23.3				**2.1**
Chloride	mg/L	15.0	8.5	**10.8**	8.5	9.5	15.0	13.0	11.0	10.0	11.0	9.8	10.0	10.0	11.0	10.5		*250*	*5*	**1.7**
Phosphorus	mg/L	0.56	0.35	**0.46**	0.49	0.49	0.47	0.43	0.56	0.49	0.35	0.45	0.41	0.50	0.44	0.49			*0.05*	**0.05**
Free Carbon Dioxide	mg/L	11.3	5.5	**7.0**	10.6	6.7	8.0	11.3	6.5	6.1	5.5	5.6	5.7	5.9	6.0	5.7				**2.0**
Total Hardness (3), (4), (5)	mg/L	152	96	**114**	96	124	108	114	128	138	152	102	102	104	105	100				**17**
Total Alkalinity (3)	mg/L	90	72	**80**	90	80	82	84	82	90	80	75	77	74	77	72				**6**
Carbonate Alkalinity (3)	mg/L	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0				**0**
Bi-Carbonate Alkalinity (3)	mg/L	90	72	**80**	90	80	82	84	82	90	80	75	77	74	77	72				**6**
Non-Carbonate Hardness (3)	mg/L	72	6	**34**	6	44	26	30	46	48	72	27	25	30	28	28				**16**
Chemical Oxygen Demand	mg/L	11.5	ND	**3.6**	3.4	3.5	11.5	6.4	AE	<2	4.2	2.8	<2	< 2	4.8	2.7			*2*	**2.9**
Dissolved Oxygen	mg/L	13.9	8.3	**10.3**	12.4	13.1	13.9	10.9	9.8	9.9	8.9	8.3	8.6	9.3	9.0	9.4				**1.9**
Nitrite Nitrogen	mg/L	ND	ND	**0.0**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	<0.1	< 0.1	< 0.1	<0.1	*1*		*0.1*	
Nitrate Nitrogen	mg/L	0.66	0.32	**0.39**	0.33	0.33	0.39	0.66	0.37	0.45	0.32	0.34	0.35	0.33	0.36	0.40	*10*	*10*	*0.1*	**0.10**
Fluoride	mg/L	0.86	0.13	**0.58**	0.73	0.86	0.57	0.60	0.77	0.74	0.64	0.76	0.56	0.64		0.13	*4*		*0.5*	**0.19**
pH		7.47	7.17	**7.37**	7.23	7.38	7.31	7.17	7.40	7.47	7.46	7.43	7.43	7.40	7.41	7.40	*6.5-8.5*	*6.5-8.5*		**0.09**
Specific Conductance @ 25 °C.	µmhos	221	161	**199**	206	203	161	221	175	207	206	196	203	215	211	189				**17**
Temperature	°C	23.0	6.7	**14.0**	6.7	8.1	6.9	9.4	14.0	18.5	23.0	23.0	21.7	17.0	11.2	8.5				**6.4**

Legend	Notes:
MCL: Maximum Contaminant Level	(1) Turbidity must not exceed 0.3 NTU in 95% of daily samples in any month
Sec.Std: Secondary Standard	(2) EPA Guidance Level
NTU: Nephelometric Turbidity Unit	(3) As Calcium Carbonate
mg/L: Milligram Per Liter (ppm)	(4) By Titration
AL: Action Level	(5) Tap Water Hardnessin in Grains per Gallon multiply value by 0.058 (Grains/Gallon)/(mg/L) -->
RL: Reporting Limit	(6) Reported results are below the low calibration standard but above the instrument detection limit.
< : Less than	NA = Not available
AE: Analytical Error	ND = Not detected above the reporting limit
IN: Invalid Sample	

Maximum	Minimum	Average	
8.8	5.6	6.6	GPG

Modified: 03/05/2024, 17:26

Chemist II: Patrick Williford

GLWA
Great Lakes Water Authority

Water: TAP
Year: 2023

Plant Name: Northeast (NE)

WATER OPERATING SERVICES
WATER QUALITY
10100 EAST JEFFERSON AVENUE
DETROIT, MICHIGAN 48214
PHONE: 313-926-8102 / 313-926-8127

Yearly Summary

Monthly Mineral Analyses Annual Averages

Parameter	Units	Max.	Min.	Avg.	Jan 01/10/2023	Feb 02/14/2023	Mar 03/14/2023	Apr 04/11/2023	May 05/16/2023	Jun 06/13/2023	Jul 07/11/2023	Aug 08/15/2024	Sep 09/12/2024	Oct 10/10/2024	Nov 11/06/2024	Dec 12/12/2024	MCL	Sec.Std	RL	STDEV
					← Sample Dates															
Turbidity	N.T.U.	3.00	0.03	**0.30**	0.08	0.06	3.00	0.08	0.04	0.04	0.04	0.05	0.03	0.04	0.06	0.05	*0.3/95% (1)*			**0.85**
Total Solids	mg/L	157	113	**133**	136	119	127	157	143	136	135	113	152	129	117	128		*500*	*10*	**13**
Total Dissolved Solids	mg/L	159	101	**129**	137	126	135	159	155	132	136	122	114	121	115	101		*500*	*10*	**17**
Aluminum	mg/L	0.071	0.018	**0.038**	0.034	0.030	0.028	0.042	0.037	0.042	0.054	0.071	0.045	0.018	0.021	0.032		*0.05-0.2*	*0.001*	**0.015**
Iron	mg/L	0.4	0.2	**0.3**	0.4	0.3	0.4	0.4	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2		*0.3*	*0.1*	**0.059**
Copper	mg/L	0.003	0.001	**0.001**	0.001	0.001	0.001	0.002	0.002	0.003	0.001	0.001	0.001	0.001	0.001	0.001	*1.3 (AL)*		*0.001*	**0.001**
Magnesium	mg/L	8.3	6.7	**7.7**	7.6	7.6	7.8	7.8	7.8	8.3	7.9	7.8	7.9	7.7	7.8	6.7			*0.1*	**0.38**
Calcium	mg/L	28.6	24.9	**26.6**	25.4	24.9	26.8	26.7	27.8	28.6	26.5	25.4	26.7	26.2	26.6	27.5			*0.1*	**1.1**
Sodium	mg/L	7.3	4.6	**5.4**	5.0	5.1	5.8	7.3	5.7	5.8	5.4	4.9	4.7	4.6	5.2	5.1		*20 (2)*	*0.1*	**0.72**
Potassium	mg/L	1.3	0.9	**1.0**	1.0	0.9	1.0	1.3	1.1	1.1	1.0	1.0	1.0	1.0	1.1	0.9			*0.1*	**0.09**
Manganese	mg/L	ND	ND	**0.000**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001	<0.001	< 0.001	< 0.001	<0.001		*0.05*	*0.001*	
Lead	mg/L	ND	ND	**0.000**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001	<0.001	< 0.001	< 0.001	<0.001	*0.015 (AL)*		*0.001*	
Zinc	mg/L	0.003	ND	**0.000**	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	< 0.001	<0.001	< 0.001	< 0.001	0.002		*5*	*0.001*	**0.00**
Silica	mg/L	2.8	1.6	**2.1**	2.4	AE	2.3	2.8	2.0	1.6	1.8	2.0	2.0	2.2	2.2	2.1			*0.4*	**0.3**
Sulfate	mg/L	34.9	22.3	**25.8**	24.3	23.7	27.4	34.9	23.7	24.3	22.6	22.3	25.6	26.7	26.5	27.9				**3.4**
Chloride	mg/L	14.0	7.5	**10.4**	10.5	7.5	10.5	14.0	11.0	10.5	10.5	10.0	10.0	9.5	10.5	10.5		*250*	*5*	**1.4**
Phosphorus	mg/L	0.66	0.36	**0.47**	0.45	0.49	0.48	0.49	0.41	0.51	0.36	0.37	0.39	0.51	0.52	0.66			*0.05*	**0.08**
Free Carbon Dioxide	mg/L	16.4	6.7	**10.0**	8.0	7.4	11.3	16.4	9.0	9.9	8.6	6.7	10.3	10.9	11.2	10.5				**2.5**
Total Hardness (3), (4), (5)	mg/L	138	98	**113**	98	110	110	120	136	130	138	102	102	104	104	100				**14**
Total Alkalinity (3)	mg/L	94	68	**81**	90	74	86	88	88	90	94	73	73	70	72	68				**10**
Carbonate Alkalinity (3)	mg/L	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0				**0**
Bi-Carbonate Alkalinity (3)	mg/L	94	68	**80**	90	74	86	88	88	90	94	73	73	70	72	68				**10**
Non-Carbonate Hardness (3)	mg/L	48	8	**32**	8	36	24	32	48	40	44	29	29	34	32	32				**10**
Chemical Oxygen Demand	mg/L	9.2	ND	**4.6**	4.2	<2	9.2	5.6	AE	8.6	5.9	4.4	2.5	4.6	2.9	2.8			*2*	**2.3**
Dissolved Oxygen	mg/L	13.5	7.3	**10.2**	12.6	13.5	11.6	11.7	11.6	9.5	8.1	7.3	8.1	8.4	9.8	10.1				**2.0**
Nitrite Nitrogen	mg/L	ND	ND	**0.0**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	<0.1	< 0.1	< 0.1	<0.1	*1*		*0.1*	
Nitrate Nitrogen	mg/L	0.64	0.30	**0.38**	0.32	0.33	0.40	0.64	0.40	0.45	0.30	0.32	0.33	0.32	0.35	0.39	*10*	*10*	*0.1*	**0.09**
Fluoride	mg/L	0.86	0.50	**0.63**	0.62	0.61	0.63	0.65	0.64	0.62	0.54	0.66	0.62	0.56	0.50	0.86	*4*		*0.5*	**0.09**
pH		7.35	7.03	**7.21**	7.35	7.30	7.18	7.03	7.29	7.26	7.34	7.34	7.15	7.11	7.11	7.11	*6.5-8.5*	*6.5-8.5*		**0.11**
Specific Conductance @ 25 °C.	µmhos	262	177	**213**	209	214	262	228	177	212	213	200	219	218	212	191				**21**
Temperature	°C	23.2	6.7	**15.0**	8.0	6.7	8.4	10.9	15.5	17.6	23.1	23.2	21.0	17.9	14.4	12.9				**5.8**

Legend	Notes:
MCL: Maximum Contaminant Level	(1) Turbidity must not exceed 0.3 NTU in 95% of daily samples in any month
Sec.Std: Secondary Standard	(2) EPA Guidance Level
NTU: Nephelometric Turbidity Unit	(3) As Calcium Carbonate
mg/L: Milligram Per Liter (ppm)	(4) By Titration
AL: Action Level	(5) Tap Water Hardnessin in Grains per Gallon multiply value by 0.058 (Grains/Gallon)/(mg/L) -->
RL: Reporting Limit	(6) Reported results are below the low calibration standard but above the instrument detection limit.
< : Less than	NA = Not available
AE: Analytical Error	ND = Not detected above the reporting limit
IN: Invalid Sample	

Maximum	Minimum	Average	
8.0	5.7	6.5	GPG

Modified: 03/05/2024, 17:26

Chemist II: Patrick Williford

GLWA
Great Lakes Water Authority

Water: TAP
Year: 2023

Plant Name: **Springwells (SPW)**

WATER OPERATING SERVICES
WATER QUALITY
10100 EAST JEFFERSON AVENUE
DETROIT, MICHIGAN 48214
PHONE: 313-926-8102 / 313-926-8127

Yearly Summary

Monthly Mineral Analyses Annual Averages

Parameter	Units	Max.	Min.	Avg.	01/10/2023 Jan	02/14/2023 Feb	03/14/2023 Mar	04/11/2023 Apr	05/16/2023 May	06/13/2023 Jun	07/11/2023 Jul	08/15/2024 Aug	09/12/2024 Sep	10/10/2024 Oct	11/06/2024 Nov	12/12/2024 Dec	← Sample Dates MCL	Sec.Std	RL	STDEV
Turbidity	N.T.U.	1.08	0.03	**0.14**	0.09	0.10	1.08	0.04	0.04	0.05	0.04	0.05	0.08	0.08	0.03	0.05	*0.3/95% (1)*			**0.30**
Total Solids	mg/L	153	115	**138**	145	129	140	153	150	135	131	142	152	129	115	130		*500*	*10*	**11**
Total Dissolved Solids	mg/L	156	102	**129**	140	124	125	156	144	128	138	124	127	129	114	102		*500*	*10*	**14**
Aluminum	mg/L	0.077	0.018	**0.038**	0.024	0.021	0.020	0.056	0.056	0.030	0.046	0.077	0.046	0.045	0.023	0.018		*0.05-0.2*	*0.001*	**0.019**
Iron	mg/L	0.4	0.2	**0.3**	0.4	0.4	0.4	0.4	0.3	0.2	0.2	0.3	0.3	0.2	0.3	0.2		*0.3*	*0.1*	**0.062**
Copper	mg/L	0.003	ND	**0.001**	0.001	< 0.001	< 0.001	0.002	0.003	0.002	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	*1.3 (AL)*		*0.001*	**0.001**
Magnesium	mg/L	8.4	7.2	**7.9**	7.7	8.0	8.4	8.1	7.8	8.4	7.9	7.7	7.8	7.7	7.8	7.2			*0.1*	**0.33**
Calcium	mg/L	28.5	25.3	**26.9**	25.3	25.9	27.6	27.7	27.1	28.5	26.5	25.9	26.8	26.1	27.0	27.9			*0.1*	**1.0**
Sodium	mg/L	7.0	4.6	**5.3**	4.9	5.0	5.6	7.0	5.6	5.7	5.4	4.9	4.7	4.6	5.2	5.0		*20 (2)*	*0.1*	**0.64**
Potassium	mg/L	1.3	1.0	**1.0**	1.0	1.0	1.1	1.3	1.1	1.1	1.0	1.0	1.0	1.0	1.1	1.0			*0.1*	**0.08**
Manganese	mg/L	0.001	ND	**0.000**	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	< 0.001	<0.001	< 0.001	< 0.001	<0.001		*0.05*	*0.001*	
Lead	mg/L	ND	ND	**0.000**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	< 0.001	<0.001	< 0.001	< 0.001	<0.001	*0.015 (AL)*		*0.001*	
Zinc	mg/L	0.003	ND	**0.001**	0.001	<0.001	<0.001	0.001	0.003	0.002	<0.001	< 0.001	<0.001	< 0.001	< 0.001	<0.001		*5*	*0.001*	**0.00**
Silica	mg/L	2.9	1.1	**2.1**	2.4	AE	2.4	2.9	1.8	1.1	1.9	1.9	2.0	2.3	2.2	2.1			*0.4*	**0.4**
Sulfate	mg/L	32.3	22.5	**25.0**	27.8	24.2	25.6	32.3	25.3	24.9	23.6	23.5	24.9	22.6	22.5	22.7				**2.8**
Chloride	mg/L	11.5	9.5	**10.4**	9.5	10.0	10.0	11.5	10.0	10.5	11.5	9.8	10.5	10.0	11.0	11.0		*250*	*5*	**0.7**
Phosphorus	mg/L	0.61	0.37	**0.49**	0.52	0.49	0.61	0.42	0.55	0.50	0.37	0.49	0.51	0.50	0.44	0.52			*0.05*	**0.06**
Free Carbon Dioxide	mg/L	11.6	4.4	**8.4**	11.6	7.8	9.3	11.4	11.1	11.6	5.7	5.8	6.7	4.4	9.1	7.0				**2.6**
Total Hardness (3), (4), (5)	mg/L	146	90	**116**	90	122	124	136	134	146	132	102	102	102	104	100				**18**
Total Alkalinity (3)	mg/L	94	70	**77**	80	74	74	70	92	94	80	71	73	73	74	72				**8**
Carbonate Alkalinity (3)	mg/L	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0				**0**
Bi-Carbonate Alkalinity (3)	mg/L	94	70	**77**	80	74	74	70	92	94	80	71	73	73	74	72				**8**
Non-Carbonate Hardness (3)	mg/L	66	10	**39**	10	48	50	66	42	52	52	31	29	29	30	28				**15**
Chemical Oxygen Demand	mg/L	11.1	ND	**4.5**	3.4	4.4	11.1	4.0	AE	9.2	4.2	3.9	<2	3.2	3.1	2.8			*2*	**2.8**
Dissolved Oxygen	mg/L	20.0	7.2	**11.4**	13.0	13.8	20.0	12.5	11.7	10.1	7.2	7.7	7.9	9.9	10.3	13.3				**3.5**
Nitrite Nitrogen	mg/L	ND	ND	**0.0**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	<0.1	< 0.1	< 0.1	<0.1	*1*		*0.1*	
Nitrate Nitrogen	mg/L	0.63	0.32	**0.38**	0.35	0.33	0.39	0.63	0.39	0.46	0.32	0.33	0.33	0.32	0.36	0.39	*10*	*10*	*0.1*	**0.09**
Fluoride	mg/L	0.86	0.10	**0.59**	0.61	0.59	0.66	0.86	0.65	0.74	0.48	0.65	0.64	0.62	0.52	0.10	*4*		*0.5*	**0.18**
pH		7.52	7.09	**7.28**	7.14	7.28	7.20	7.09	7.22	7.21	7.45	7.39	7.34	7.52	7.21	7.31	*6.5-8.5*	*6.5-8.5*		**0.13**
Specific Conductance @ 25 °C.	µmhos	219	180	**191**	215	209	NA	219	180	214	214	211	208	217	212	192				**12**
Temperature	°C	23.4	3.4	**13.2**	4.5	4.9	3.4	7.7	17.3	17.9	23.0	23.4	22.0	16.5	10.3	7.0				**7.7**

Legend
MCL: Maximum Contaminant Level
Sec.Std: Secondary Standard
NTU: Nephelometric Turbidity Unit
mg/L: Milligram Per Liter (ppm)
AL: Action Level
RL: Reporting Limit
< : Less than
AE: Analytical Error
IN: Invalid Sample

Notes:

(1) Turbidity must not exceed 0.3 NTU in 95% of daily samples in any month
(2) EPA Guidance Level
(3) As Calcium Carbonate
(4) By Titration
(5) Tap Water Hardnessin in Grains per Gallon multiply value by 0.058 (Grains/Gallon)/(mg/L) -->
(6) Reported results are below the low calibration standard but above the instrument detection limit.
NA = Not available
ND = Not detected above the reporting limit

Maximum	Minimum	Average	
8.5	5.2	6.7	GPG

Modified: 03/05/2024, 17:26

Chemist II: Patrick Williford

GLWA
Great Lakes Water Authority

Water: TAP
Year: 2023

Plant Name: Detroit (WWP-SPW-NE-SW)

WATER OPERATING SERVICES
WATER QUALITY
10100 EAST JEFFERSON AVENUE
DETROIT, MICHIGAN 48214
PHONE: 313-926-8102 / 313-926-8127

Yearly Summary

Monthly Mineral Analyses Annual Averages

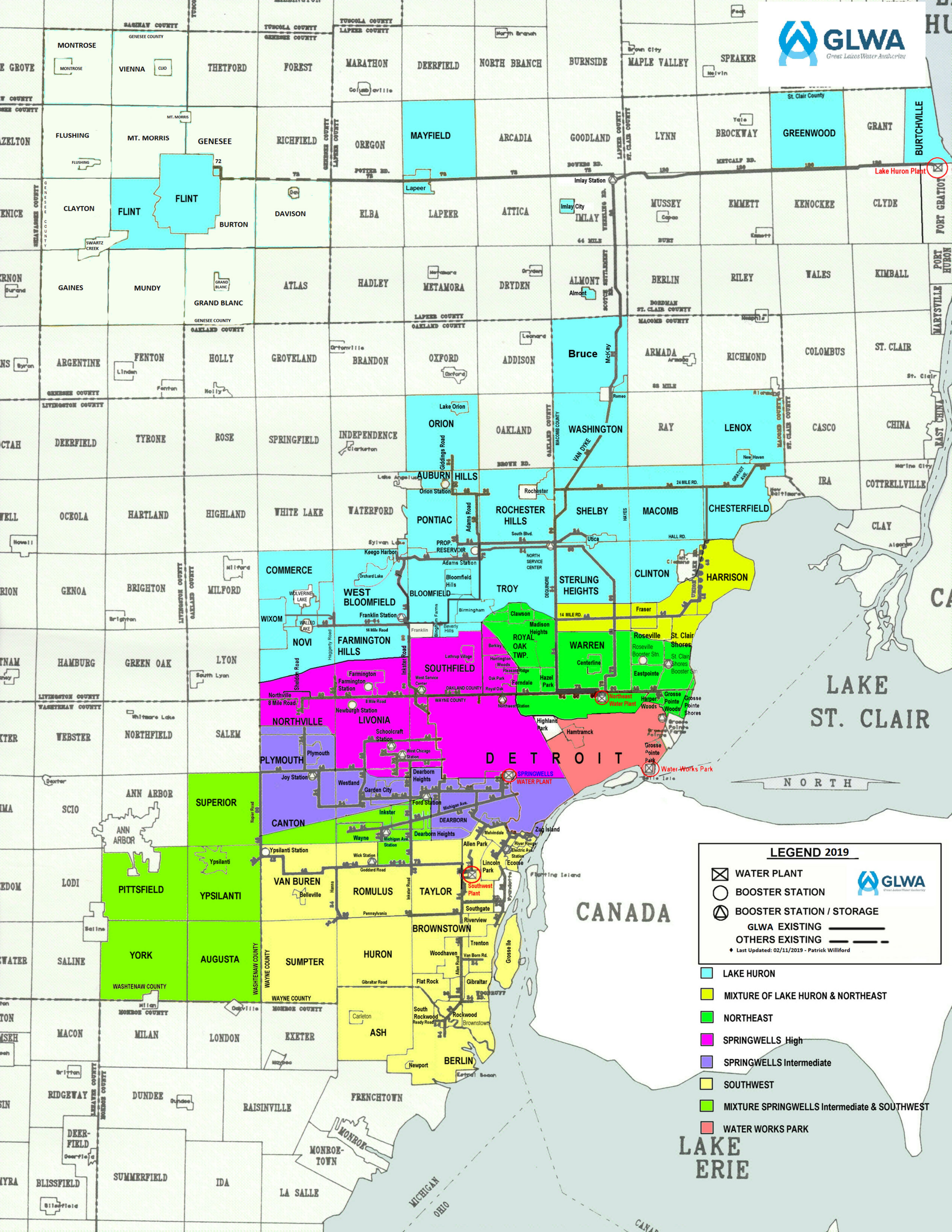
Parameter	Units	Max.	Min.	Avg.	01/10/2023 Jan	02/14/2023 Feb	03/14/2023 Mar	04/11/2023 Apr	05/16/2023 May	06/13/2023 Jun	07/11/2023 Jul	08/15/2024 Aug	09/12/2024 Sep	10/10/2024 Oct	11/06/2024 Nov	12/12/2024 Dec	*MCL*	*Sec.Std*	*RL*	*STDEV*
					← *Sample Dates*															
Turbidity	N.T.U.	3.00	0.01	**0.19**	0.11	0.08	1.05	0.06	0.05	0.06	0.51	0.07	0.06	0.06	0.05	0.04	*0.3/95% (1)*			**0.30**
Total Solids	mg/L	174	113	**136**	140	127	143	151	151	136	132	134	147	129	118	129		*500*	*10*	**10**
Total Dissolved Solids	mg/L	165	97	**128**	136	129	128	153	153	130	135	119	112	122	117	105		*500*	*10*	**15**
Aluminum	mg/L	0.160	0.018	**0.049**	0.026	0.026	0.028	0.036	0.061	0.057	0.080	0.096	0.076	0.044	0.028	0.027		*0.05-0.2*	*0.001*	**0.025**
Iron	mg/L	0.5	0.2	**0.3**	0.4	0.4	0.4	0.4	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2		*0.3*	*0.1*	**0.064**
Copper	mg/L	0.003	ND	**0.001**	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.000	0.001	0.000	0.001	0.001	*1.3 (AL)*		*0.001*	**0.000**
Magnesium	mg/L	8.8	6.7	**7.8**	7.6	7.7	8.3	7.9	7.8	8.3	7.9	7.8	7.8	7.7	7.8	7.2			*0.1*	**0.29**
Calcium	mg/L	33.3	24.9	**26.9**	25.4	25.5	28.7	27.2	27.8	28.3	26.3	25.7	26.7	26.3	26.8	27.8			*0.1*	**1.1**
Sodium	mg/L	9.4	4.6	**5.4**	4.9	5.1	6.6	6.9	5.8	5.7	5.4	4.9	4.7	4.6	5.2	5.1		*20 (2)*	*0.1*	**0.73**
Potassium	mg/L	1.3	0.9	**1.0**	1.0	1.0	1.1	1.2	1.1	1.1	1.0	1.0	1.0	1.0	1.1	1.0			*0.1*	**0.07**
Manganese	mg/L	0.002	ND	**0.000**	ND	ND	0.000	0.000	0.000	ND	ND	ND	ND	ND	ND	ND		*0.05*	*0.001*	**0.000**
Lead	mg/L	ND	ND	**0.000**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	*0.015 (AL)*		*0.001*	
Zinc	mg/L	0.022	ND	**0.001**	0.000	ND	ND	0.000	0.001	0.002	ND	ND	ND	0.000	ND	0.006		*5*	*0.001*	**0.00**
Silica	mg/L	2.9	1.1	**2.1**	2.4	AE	2.4	2.6	1.9	1.4	1.8	1.9	2.0	2.2	2.2	2.2			*0.4*	**0.3**
Sulfate	mg/L	36.0	20.1	**24.9**	25.3	23.9	28.1	31.1	24.7	24.3	22.7	22.6	23.5	23.7	23.8	25.1				**2.4**
Chloride	mg/L	15.0	7.5	**10.5**	9.4	8.6	12.5	12.4	11.1	10.1	10.4	9.9	10.1	9.9	10.7	10.6		*250*	*5*	**1.1**
Phosphorus	mg/L	0.73	0.35	**0.49**	0.48	0.49	0.52	0.46	0.50	0.51	0.39	0.44	0.43	0.56	0.47	0.57			*0.05*	**0.05**
Free Carbon Dioxide	mg/L	16.4	4.4	**8.7**	9.5	7.9	10.6	12.5	9.2	9.2	7.4	6.0	7.8	7.4	8.8	8.3				**1.7**
Total Hardness (3), (4), (5)	mg/L	166	90	**116**	99	119	118	126	132	145	138	102	102	104	104	104				**16**
Total Alkalinity (3)	mg/L	94	68	**79**	84	81	80	81	88	92	83	73	77	73	74	71				**7**
Carbonate Alkalinity (3)	mg/L	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0				**0**
Bi-Carbonate Alkalinity (3)	mg/L	94	68	**79**	83	80	80	80	88	92	82	72	77	72	74	70				**7**
Non-Carbonate Hardness (3)	mg/L	72	6	**36**	15	38	38	46	44	53	56	30	26	31	30	33				**12**
Chemical Oxygen Demand	mg/L	11.7	ND	**4.3**	3.6	2.5	10.9	5.3	AE	6.3	4.9	3.6	1.2	2.9	3.2	2.7			*2*	**2.6**
Dissolved Oxygen	mg/L	20.0	7.2	**10.6**	12.7	13.4	13.6	11.7	11.1	9.6	8.2	7.8	8.3	9.0	10.0	11.9				**2.1**
Nitrite Nitrogen	mg/L	ND	ND	**0.0**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	*1*		*0.1*	
Nitrate Nitrogen	mg/L	1.47	0.29	**0.41**	0.34	0.34	0.66	0.64	0.48	0.45	0.31	0.34	0.34	0.32	0.35	0.39	*10*	*10*	*0.1*	**0.12**
Fluoride	mg/L	0.86	0.10	**0.60**	0.62	0.69	0.61	0.64	0.69	0.70	0.57	0.73	0.64	0.64	0.43	0.30	*4*		*0.5*	**0.12**
pH		7.52	7.03	**7.27**	7.25	7.31	7.19	7.11	7.29	7.31	7.36	7.38	7.31	7.32	7.24	7.24	*6.5-8.5*	*6.5-8.5*		**0.07**
Specific Conductance @ 25 °C.	µmhos	297	161	**204**	210	209	180	221	179	210	211	203	209	217	211	190				**14**
Temperature	°C	23.4	2.3	**13.7**	5.4	5.7	5.5	8.8	15.0	17.9	22.9	23.2	29.0	17.8	11.5	8.7				**8.0**

Legend	Notes:
MCL: Maximum Contaminant Level	(1) Turbidity must not exceed 0.3 NTU in 95% of daily samples in any month
Sec.Std: Secondary Standard	(2) EPA Guidance Level
NTU: Nephelometric Turbidity Unit	(3) As Calcium Carbonate
mg/L: Milligram Per Liter (ppm)	(4) By Titration
AL: Action Level	(5) Tap Water Hardnessin in Grains per Gallon multiply value by 0.058 (Grains/Gallon)/(mg/L) -->
RL: Reporting Limit	(6) Reported results are below the low calibration standard but above the instrument detection limit.
< : Less than	NA = Not available
AE: Analytical Error	ND = Not detected above the reporting limit
IN: Invalid Sample	

Maximum	Minimum	Average	
9.6	5.2	6.7	GPG

Modified: 03/05/2024, 17:26

Chemist II: Patrick Williford


GLWA
Great Lakes Water Authority
LEGEND 2019
WATER PLANT
BOOSTER STATION
BOOSTER STATION / STORAGE
GLWA EXISTING
OTHERS EXISTING
Last Updated: 02/11/2019 - Patrick Williford
LAKE HURON
MIXTURE OF LAKE HURON & NORTHEAST
NORTHEAST
SPRINGWELLS High
SPRINGWELLS Intermediate
SOUTHWEST
MIXTURE SPRINGWELLS Intermediate & SOUTHWEST
WATER WORKS PARK
Lake Huron Plant
Imlay Station
Northeast Water Plant
SPRINGWELLS WATER PLANT
Water Works Park
Southwest Plant
LAKE ST. CLAIR
CANADA
LAKE ERIE
DETROIT
MONTROSE
VIENNA
THETFORD
FOREST
MARATHON
DEERFIELD
NORTH BRANCH
BURNSIDE
MAPLE VALLEY
SPEAKER
FLUSHING
MT. MORRIS
GENESEE
RICHFIELD
OREGON
MAYFIELD
ARCADIA
GOODLAND
LYNN
BROCKWAY
GREENWOOD
GRANT
BURTCHVILLE
CLAYTON
FLINT
BURTON
DAVISON
ELBA
LAPEER
ATTICA
IMLAY
MUSSEY
EMMETT
KENOCKEE
CLYDE
FORT GRATIOT
GAINES
MUNDY
GRAND BLANC
ATLAS
HADLEY
METAMORA
DRYDEN
ALMONT
BERLIN
RILEY
WALES
KIMBALL
PORT HURON
ARGENTINE
FENTON
HOLLY
GROVELAND
BRANDON
OXFORD
ADDISON
Bruce
ARMADA
RICHMOND
COLUMBUS
ST. CLAIR
DEERFIELD
TYRONE
ROSE
SPRINGFIELD
INDEPENDENCE
ORION
OAKLAND
WASHINGTON
RAY
LENOX
CASCO
CHINA
EAST CHINA
MARYSVILLE
OCEOLA
HARTLAND
HIGHLAND
WHITE LAKE
WATERFORD
AUBURN HILLS
PONTIAC
ROCHESTER HILLS
SHELBY
MACOMB
CHESTERFIELD
IRA
COTTRELLVILLE
CLAY
GENOA
BRIGHTON
MILFORD
COMMERCE
WEST BLOOMFIELD
BLOOMFIELD
TROY
STERLING HEIGHTS
CLINTON
HARRISON
WIXOM
NOVI
FARMINGTON HILLS
SOUTHFIELD
ROYAL OAK TWP.
WARREN
Roseville
St. Clair Shores
HAMBURG
GREEN OAK
LYON
NORTHVILLE
LIVONIA
WEBSTER
NORTHFIELD
SALEM
PLYMOUTH
ANN ARBOR
SCIO
SUPERIOR
CANTON
DEARBORN
Dearborn Heights
Hamtramck
Highland Park
Grosse Pointe
LODI
PITTSFIELD
YPSILANTI
VAN BUREN
ROMULUS
TAYLOR
BROWNSTOWN
SALINE
YORK
AUGUSTA
SUMPTER
HURON
WASHTENAW COUNTY
WAYNE COUNTY
MONROE COUNTY
MACON
MILAN
LONDON
EXETER
ASH
BERLIN
RIDGEWAY
DUNDEE
RAISINVILLE
FRENCHTOWN
DEERFIELD
MONROE
MONROE-TOWN
BLISSFIELD
SUMMERFIELD
IDA
LA SALLE
MICHIGAN
OHIO
NORTH