



Water: RAW
Year: 2022

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															
					01/11/2022	02/15/2022	03/15/2022										← Sample Dates			
Parameter	Units	Max.	Min.	Avg.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MCL	Sec.Std	RL	STDEV
Turbidity	N.T.U.	1.53	0.50	0.89	0.50	0.65	1.53										0.3/95% (1)			0.47
Total Solids	mg/L	119	115	117	118	119	115											500	10	2
Total Dissolved Solids	mg/L	110	109	109	109	109	110											500	10	1
Aluminum	mg/L	0.022	0.010	0.016	0.015	0.010	0.022											0.05-0.2	0.001	0.006
Iron	mg/L	0.3	0.2	0.2	0.2	0.2	0.3											0.3	0.1	0.032
Copper	mg/L	0.006	0.005	0.006	0.006	0.005	0.006										1.3 (AL)		0.001	0.001
Magnesium	mg/L	7.5	7.3	7.4	7.3	7.5	7.4												0.1	0.09
Calcium	mg/L	25.4	24.9	25.1	24.9	25.4	25.0												0.1	0.3
Sodium	mg/L	4.9	4.6	4.7	4.6	4.9	4.7											20 (2)	0.1	0.18
Potassium	mg/L	1.0	1.0	1.0	1.0	1.0	1.0												0.1	0.01
Manganese	mg/L	0.002	ND	0.001	0.002	< 0.001	0.002											0.05	0.001	0.000
Lead	mg/L	ND	ND	0.000	< 0.001	< 0.001	< 0.001										0.015 (AL)		0.001	
Zinc	mg/L	0.002	ND	0.001	0.002	< 0.001	0.002											5	0.001	0.00
Silica	mg/L	2.2	2.1	2.2	2.1	2.1	2.2												0.4	0.1
Sulfate	mg/L	19.4	15.8	18.1	15.8	19.4	19.3													2.1
Chloride	mg/L	9.4	8.3	9.0	9.4	8.3	9.4											250	5	0.6
Phosphorus	mg/L	ND	ND	0.00	< 0.05	< 0.05	< 0.05												0.05	
Free Carbon Dioxide	mg/L	1.6	1.3	1.4	1.3	1.6	1.3													0.2
Total Hardness (3), (4), (5)	mg/L	94	74	83	80	94	74													10
Total Alkalinity (3)	mg/L	84	82	83	82	84	84													1
Carbonate Alkalinity (3)	mg/L	0	0	0	0	0	0													0
Bi-Carbonate Alkalinity (3)	mg/L	83	81	82	81	83	83													1
Non-Carbonate Hardness (3)	mg/L	10	-10	-1	-2	10	-10													10
Chemical Oxygen Demand	mg/L	7.1	4.0	5.6	4.0	5.8	7.1												2	1.6
Dissolved Oxygen	mg/L	13.6	10.8	12.3	10.8	12.4	13.6													1.4
Nitrite Nitrogen	mg/L	ND	ND	0.0	< 0.1	< 0.1	< 0.1										1		0.1	
Nitrate Nitrogen	mg/L	0.37	0.33	0.35	0.33	0.35	0.37										10	10	0.1	0.02
Fluoride	mg/L	0.11	0.08	0.09	0.11	0.09	0.08										4		0.5	0.02
pH		8.10	8.01	8.07	8.10	8.01	8.10										6.5-8.5	6.5-8.5		0.05
Specific Conductance @ 25 °C.	µmhos	195	153	174	173	195	153													21
Temperature	°C	9.9	4.6	8.0	9.9	4.6	9.4													2.9

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
5.5	4.3	4.8

GPG



Water: TAP
Year: 2022

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															
					01/11/2022	02/15/2022	03/15/2022										← Sample Dates			
Parameter	Units	Max.	Min.	Avg.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MCL	Sec.Std	RL	STDEV
Turbidity	N.T.U.	0.44	0.04	0.17	0.05	0.04	0.44										0.3/95% (1)			0.12
Total Solids	mg/L	122	115	119	115	122	121											500	10	4
Total Dissolved Solids	mg/L	113	108	111	111	113	108											500	10	3
Aluminum	mg/L	0.030	0.019	0.023	0.030	0.021	0.019											0.05-0.2	0.001	0.006
Iron	mg/L	0.3	0.2	0.2	0.2	0.2	0.3											0.3	0.1	0.030
Copper	mg/L	ND	ND	0.000	< 0.001	< 0.001	< 0.001										1.3 (AL)		0.001	
Magnesium	mg/L	7.5	7.2	7.3	7.2	7.4	7.5												0.1	0.17
Calcium	mg/L	25.4	24.7	25.1	24.7	25.1	25.4												0.1	0.4
Sodium	mg/L	4.9	4.5	4.7	4.5	4.9	4.8											20 (2)	0.1	0.20
Potassium	mg/L	1.0	0.9	1.0	0.9	1.0	1.0												0.1	0.03
Manganese	mg/L	ND	ND	0.000	< 0.001	< 0.001	< 0.001											0.05	0.001	
Lead	mg/L	ND	ND	0.000	< 0.001	< 0.001	< 0.001										0.015 (AL)		0.001	
Zinc	mg/L	0.003	ND	0.001	< 0.001	< 0.001	0.003											5	0.001	
Silica	mg/L	2.5	2.4	2.5	2.5	2.4	2.5												0.4	0.1
Sulfate	mg/L	24.0	18.2	21.5	18.2	24.0	22.2													2.9
Chloride	mg/L	10.6	10.0	10.2	10.0	10.0	10.6											250	5	0.4
Phosphorus	mg/L	0.42	0.39	0.41	0.39	0.42	0.42												0.05	0.02
Free Carbon Dioxide	mg/L	5.9	4.8	5.3	4.8	5.9	5.1													0.6
Total Hardness (3), (4), (5)	mg/L	90	80	85	86	80	90													5
Total Alkalinity (3)	mg/L	76	74	75	76	74	74													1
Carbonate Alkalinity (3)	mg/L	0	0	0	0	0	0													0
Bi-Carbonate Alkalinity (3)	mg/L	76	74	74	76	74	74													1
Non-Carbonate Hardness (3)	mg/L	16	6	11	10	6	16													5
Chemical Oxygen Demand	mg/L	5.9	4.7	5.1	5.9	4.7	4.7												2	0.7
Dissolved Oxygen	mg/L	14.0	12.6	13.2	13.0	12.6	14.0													0.7
Nitrite Nitrogen	mg/L	ND	ND	0.0	< 0.1	< 0.1	< 0.1										1		0.1	
Nitrate Nitrogen	mg/L	0.36	0.32	0.34	0.32	0.34	0.36										10	10	0.1	0.02
Fluoride	mg/L	0.67	0.62	0.65	0.62	0.66	0.67										4		0.5	0.03
pH		7.50	7.40	7.45	7.50	7.40	7.46										6.5-8.5	6.5-8.5		0.05
Specific Conductance @ 25 °C.	µmhos	202	159	176	168	202	159													23
Temperature	°C	8.5	5.6	7.1	8.5	5.6	7.2													1.5

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) -->
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IN: Invalid Sample	

Maximum	Minimum	Average	
5.2	4.6	4.9	GPG



Water: RAW
Year: 2022

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															
					01/11/2022	02/15/2022	03/15/2022										← Sample Dates			
Parameter	Units	Max.	Min.	Avg.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MCL	Sec.Std	RL	STDEV
Turbidity	N.T.U.	7.20	1.10	5.10	7.20	1.10	7.00										0.3/95% (1)			2.74
Total Solids	mg/L	154	125	138	125	135	154											500	10	15
Total Dissolved Solids	mg/L	137	113	129	113	137	136											500	10	14
Aluminum	mg/L	0.037	0.037	0.037		0.037												0.05-0.2	0.001	
Iron	mg/L	0.5	0.3	0.4	0.5	0.3											12.000	0.3	0.1	0.132
Copper	mg/L	0.060	0.055	0.058	0.055	0.060											1.3 (AL)		0.001	0.003
Magnesium	mg/L	7.5	7.0	7.3	7.0	7.5													0.1	0.36
Calcium	mg/L	26.1	24.7	25.4	24.7	26.1													0.1	1.0
Sodium	mg/L	5.3	4.8	5.1	4.8	5.3												20 (2)	0.1	0.33
Potassium	mg/L	1.0	1.0	1.0	1.0	1.0													0.1	0.02
Manganese	mg/L	0.005	0.001	0.003	0.005	0.001												0.05	0.001	0.003
Lead	mg/L	ND	ND	0.000	< 0.001	< 0.001											0.015 (AL)		0.001	
Zinc	mg/L	0.004	ND	0.002	0.004	< 0.001												5	0.001	
Silica	mg/L	2.6	2.1	2.4	2.6	2.1	2.6												0.4	0.3
Sulfate	mg/L	22.8	17.0	20.2	17.0	20.7	22.8													3.0
Chloride	mg/L	18.7	9.4	12.7	10.0	9.4	18.7											250	5	5.2
Phosphorus	mg/L	ND	ND	0.00	< 0.05	< 0.05	< 0.05												0.05	
Free Carbon Dioxide	mg/L	7.3	0.9	3.5	7.3	2.5	0.9													3.4
Total Hardness (3), (4), (5)	mg/L	90	86	89	86	90	90													2
Total Alkalinity (3)	mg/L	96	82	88	82	86	96													7
Carbonate Alkalinity (3)	mg/L	0	0	0	0	0	0													0
Bi-Carbonate Alkalinity (3)	mg/L	94	82	87	82	85	94													6
Non-Carbonate Hardness (3)	mg/L	4	-6	1	4	4	-6													6
Chemical Oxygen Demand	mg/L	7.5	5.2	6.3	7.5	5.2	6.1												2	1.2
Dissolved Oxygen	mg/L	15.8	13.5	14.3	15.8	13.6	13.5													1.3
Nitrite Nitrogen	mg/L	ND	ND	0.0	< 0.1	< 0.1	< 0.1										1		0.1	
Nitrate Nitrogen	mg/L	0.74	0.37	0.51	0.37	0.41	0.74										10	10	0.1	0.20
Fluoride	mg/L	0.11	0.09	0.10	0.11	0.09	0.09										4		0.5	0.01
pH		8.34	7.35	7.84	7.35	7.84	8.34										6.5-8.5	6.5-8.5		0.50
Specific Conductance @ 25 °C.	µmhos	211	177	191	177	211	186													18
Temperature	°C	2.4	2.1	2.2	2.4	2.2	2.1													0.2

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	
5.2	5.0	5.1	GPG



Water: TAP
Year: 2022

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															
					01/11/2022	02/15/2022	03/15/2022										← Sample Dates			
Parameter	Units	Max.	Min.	Avg.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MCL	Sec.Std	RL	STDEV
Turbidity	N.T.U.	0.07	0.02	0.05	0.02	0.05	0.07										0.3/95% (1)			0.02
Total Solids	mg/L	149	131	142	131	146	149											500	10	10
Total Dissolved Solids	mg/L	134	118	127	118	129	134											500	10	8
Aluminum	mg/L	0.044	0.026	0.035	0.044	0.035	0.026											0.05-0.2	0.001	0.009
Iron	mg/L	0.3	0.2	0.2	0.2	0.2	0.3											0.3	0.1	0.034
Copper	mg/L	ND	ND	0.000	< 0.001	< 0.001	< 0.001										1.3 (AL)		0.001	
Magnesium	mg/L	7.8	7.7	7.8	7.7	7.8	7.8												0.1	0.04
Calcium	mg/L	28.6	26.8	27.5	27.1	26.8	28.6												0.1	1.0
Sodium	mg/L	8.1	5.1	6.3	5.1	5.6	8.1											20 (2)	0.1	1.63
Potassium	mg/L	1.3	1.0	1.1	1.0	1.0	1.3												0.1	0.15
Manganese	mg/L	ND	ND	0.000	< 0.001	< 0.001	< 0.001											0.05	0.001	
Lead	mg/L	ND	ND	0.000	< 0.001	< 0.001	< 0.001										0.015 (AL)		0.001	
Zinc	mg/L	0.002	ND	0.001	< 0.001	< 0.001	0.002											5	0.001	
Silica	mg/L	2.5	2.3	2.4	2.5	2.4	2.3												0.4	0.1
Sulfate	mg/L	33.9	27.4	29.9	28.4	27.4	33.9													3.5
Chloride	mg/L	18.7	12.2	14.7	13.1	12.2	18.7											250	5	3.5
Phosphorus	mg/L	0.52	0.33	0.43	0.33	0.44	0.52												0.05	0.09
Free Carbon Dioxide	mg/L	9.2	1.0	5.0	1.0	9.2	4.9													4.1
Total Hardness (3), (4), (5)	mg/L	100	66	85	88	66	100													17
Total Alkalinity (3)	mg/L	80	70	75	70	80	74													5
Carbonate Alkalinity (3)	mg/L	0	0	0	0	0	0													0
Bi-Carbonate Alkalinity (3)	mg/L	80	69	74	69	80	74													5
Non-Carbonate Hardness (3)	mg/L	26	-14	10	18	-14	26													21
Chemical Oxygen Demand	mg/L	5.9	3.1	4.3	3.1	5.9	3.8												2	1.5
Dissolved Oxygen	mg/L	16.0	13.4	14.4	16.0	13.4	13.6													1.4
Nitrite Nitrogen	mg/L	ND	ND	0.0	< 0.1	< 0.1	< 0.1										1		0.1	
Nitrate Nitrogen	mg/L	0.70	0.35	0.49	0.35	0.42	0.70										10	10	0.1	0.18
Fluoride	mg/L	0.62	0.53	0.57	0.53	0.62	0.55										4		0.5	0.05
pH		8.16	7.24	7.63	8.16	7.24	7.48										6.5-8.5	6.5-8.5		0.48
Specific Conductance @ 25 °C.	µmhos	218	179	195	179	218	188													20
Temperature	°C	2.8	0.9	1.6	0.9	2.8	1.1													1.0

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
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Maximum	Minimum	Average
5.8	3.8	4.9

GPG



Water: RAW
Year: 2022

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															
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Parameter	Units	Max.	Min.	Avg.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MCL	Sec.Std	RL	STDEV
Turbidity	N.T.U.	3.55	1.90	2.46	3.55	1.90	1.94										0.3/95% (1)			1.18
Total Solids	mg/L	136	120	126	120	136	122											500	10	9
Total Dissolved Solids	mg/L	122	110	115	113	122	110											500	10	6
Aluminum	mg/L	ND		AE														0.05-0.2	0.001	
Iron	mg/L	0.3	0.3	0.3	0.3	0.3												0.3	0.1	0.003
Copper	mg/L	ND	ND	0.000	< 0.001	< 0.001											1.3 (AL)		0.001	
Magnesium	mg/L	7.6	7.1	7.3	7.1	7.6													0.1	0.36
Calcium	mg/L	26.1	24.5	25.3	24.5	26.1													0.1	1.1
Sodium	mg/L	4.7	4.7	4.7	4.7													20 (2)	0.1	
Potassium	mg/L	1.0	1.0	1.0	1.0														0.1	
Manganese	mg/L	0.002	0.002	0.002	0.002	0.002												0.05	0.001	0.000
Lead	mg/L	ND	ND	0.000	< 0.001	< 0.001											0.015 (AL)		0.001	
Zinc	mg/L	ND	ND	0.000	< 0.001	< 0.001												5	0.001	
Silica	mg/L	2.3	2.0	2.1	2.0	2.1	2.3												0.4	0.1
Sulfate	mg/L	18.5	15.7	17.3	15.7	17.7	18.5													1.5
Chloride	mg/L	12.2	9.4	10.3	9.4	12.2	9.4											250	5	1.6
Phosphorus	mg/L	ND	ND	0.00	< 0.05	< 0.05	< 0.05												0.05	
Free Carbon Dioxide	mg/L	1.4	1.0	1.2	1.0	1.2	1.4													0.2
Total Hardness (3), (4), (5)	mg/L	90	74	81	74	80	90													8
Total Alkalinity (3)	mg/L	100	84	91	84	100	88													8
Carbonate Alkalinity (3)	mg/L	0	0	0	0	0	0													0
Bi-Carbonate Alkalinity (3)	mg/L	98	83	89	83	98	87													8
Non-Carbonate Hardness (3)	mg/L	2	-20	-9	-10	-20	2													11
Chemical Oxygen Demand	mg/L	6.5	5.2	5.7	5.2	5.3	6.5												2	0.7
Dissolved Oxygen	mg/L	14.5	13.8	14.0	13.8	14.5	13.8													0.4
Nitrite Nitrogen	mg/L	ND	ND	0.0	< 0.1	< 0.1	< 0.1										1		0.1	
Nitrate Nitrogen	mg/L	0.58	0.33	0.43	0.33	0.58	0.38										10	10	0.1	0.13
Fluoride	mg/L	0.11	0.08	0.09	0.11	0.08	0.08										4		0.5	0.02
pH		8.22	8.10	8.17	8.22	8.20	8.10										6.5-8.5	6.5-8.5		0.06
Specific Conductance @ 25 °C.	µmhos	209	161	184	183	209	161													24
Temperature	°C	5.4	3.6	4.3	3.9	3.6	5.4													1.0

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	
5.2	4.3	4.7	GPG



Water: TAP
Year: 2022

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															
					01/11/2022	02/15/2022	03/15/2022										← Sample Dates			
Parameter	Units	Max.	Min.	Avg.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MCL	Sec.Std	RL	STDEV
Turbidity	N.T.U.	0.07	0.04	0.06	0.04	0.07	0.06										0.3/95% (1)			0.03
Total Solids	mg/L	143	118	128	124	143	118											500	10	13
Total Dissolved Solids	mg/L	133	90	116	125	133	90											500	10	23
Aluminum	mg/L	0.017	0.013	0.015	0.013	0.015	0.017											0.05-0.2	0.001	0.002
Iron	mg/L	0.3	0.2	0.2	0.2	0.2	0.3											0.3	0.1	0.034
Copper	mg/L	ND	ND	0.000	< 0.001	< 0.001	< 0.001										1.3 (AL)		0.001	
Magnesium	mg/L	7.8	7.4	7.6	7.7	7.8	7.4												0.1	0.18
Calcium	mg/L	26.4	25.3	26.0	26.3	26.4	25.3												0.1	0.6
Sodium	mg/L	7.0	4.9	5.7	5.4	7.0	4.9											20 (2)	0.1	1.08
Potassium	mg/L	1.0	1.0	1.0	1.0	1.0	1.0												0.1	0.03
Manganese	mg/L	ND	ND	0.000	< 0.001	< 0.001	< 0.001											0.05	0.001	
Lead	mg/L	ND	ND	0.000	< 0.001	< 0.001	< 0.001										0.015 (AL)		0.001	
Zinc	mg/L	ND	ND	0.000	< 0.001	< 0.001	< 0.001											5	0.001	
Silica	mg/L	2.4	2.3	2.3	2.4	2.3	2.3												0.4	0.1
Sulfate	mg/L	28.1	24.5	25.8	24.7	28.1	24.5													2.0
Chloride	mg/L	13.3	11.2	12.1	11.9	13.3	11.2											250	5	1.1
Phosphorus	mg/L	0.49	0.37	0.42	0.37	0.49	0.40												0.05	0.06
Free Carbon Dioxide	mg/L	8.4	4.3	6.0	8.4	5.4	4.3													2.1
Total Hardness (3), (4), (5)	mg/L	96	74	85	74	86	96													11
Total Alkalinity (3)	mg/L	84	40	67	84	76	40													23
Carbonate Alkalinity (3)	mg/L	0	0	0	0	0	0													0
Bi-Carbonate Alkalinity (3)	mg/L	84	40	67	84	76	40													23
Non-Carbonate Hardness (3)	mg/L	56	-10	19	-10	10	56													34
Chemical Oxygen Demand	mg/L	6.2	2.5	4.5	6.2	4.8	2.5												2	1.9
Dissolved Oxygen	mg/L	15.8	14.9	15.3	14.9	15.8	15.3													0.5
Nitrite Nitrogen	mg/L	ND	ND	0.0	< 0.1	< 0.1	< 0.1										1		0.1	
Nitrate Nitrogen	mg/L	0.39	0.35	0.37	0.35	0.39	0.38										10	10	0.1	0.02
Fluoride	mg/L	0.67	0.55	0.60	0.67	0.59	0.55										4		0.5	0.06
pH		7.45	7.27	7.34	7.30	7.45	7.27										6.5-8.5	6.5-8.5		0.10
Specific Conductance @ 25 °C.	µmhos	221	162	189	185	221	162													30
Temperature	°C	7.4	3.6	5.3	5.0	3.6	7.4													1.9

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
5.6	4.3	4.9

GPG



Water: TAP
Year: 2022

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															
					01/11/2022	02/15/2022	03/15/2022										← Sample Dates			
Parameter	Units	Max.	Min.	Avg.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MCL	Sec.Std	RL	STDEV
Turbidity	N.T.U.	0.05	0.05	0.05	0.05	0.05	0.05										0.3/95% (1)			0.02
Total Solids	mg/L	146	127	135	127	146	131											500	10	10
Total Dissolved Solids	mg/L	140	120	127	122	140	120											500	10	11
Aluminum	mg/L	0.040	0.025	0.034	0.037	0.025	0.040											0.05-0.2	0.001	0.008
Iron	mg/L	0.3	0.2	0.2	0.2	0.2	0.3											0.3	0.1	0.022
Copper	mg/L	0.002	0.002	0.002	0.002	0.002	0.002										1.3 (AL)		0.001	0.000
Magnesium	mg/L	7.8	7.4	7.6	7.6	7.8	7.4												0.1	0.21
Calcium	mg/L	27.0	25.8	26.3	26.1	27.0	25.8												0.1	0.6
Sodium	mg/L	7.1	5.1	6.0	5.9	7.1	5.1											20 (2)	0.1	0.98
Potassium	mg/L	1.0	1.0	1.0	1.0	1.0	1.0												0.1	0.02
Manganese	mg/L	ND	ND	0.000	< 0.001	< 0.001	< 0.001											0.05	0.001	
Lead	mg/L	ND	ND	0.000	< 0.001	< 0.001	< 0.001										0.015 (AL)		0.001	
Zinc	mg/L	0.010	ND	0.003	< 0.001	< 0.001	0.010											5	0.001	
Silica	mg/L	2.5	2.4	2.4	2.4	2.5	2.4												0.4	0.1
Sulfate	mg/L	31.3	29.1	29.9	29.1	29.3	31.3													1.2
Chloride	mg/L	14.4	11.2	12.9	11.2	14.4	13.1											250	5	1.6
Phosphorus	mg/L	0.42	0.38	0.41	0.42	0.38	0.42												0.05	0.02
Free Carbon Dioxide	mg/L	9.7	7.7	8.8	9.7	7.7	9.0													1.1
Total Hardness (3), (4), (5)	mg/L	104	76	90	76	90	104													14
Total Alkalinity (3)	mg/L	82	70	75	72	82	70													6
Carbonate Alkalinity (3)	mg/L	0	0	0	0	0	0													0
Bi-Carbonate Alkalinity (3)	mg/L	82	70	75	72	82	70													6
Non-Carbonate Hardness (3)	mg/L	34	4	15	4	8	34													16
Chemical Oxygen Demand	mg/L	4.3	2.1	3.0	2.1	4.3	2.6												2	1.2
Dissolved Oxygen	mg/L	14.1	13.8	13.9	13.9	14.1	13.8													0.2
Nitrite Nitrogen	mg/L	ND	ND	0.0	< 0.1	< 0.1	< 0.1										1		0.1	
Nitrate Nitrogen	mg/L	0.38	0.37	0.38	0.37	0.38	0.38										10	10	0.1	0.01
Fluoride	mg/L	0.63	0.52	0.56	0.52	0.63	0.54										4		0.5	0.06
pH		7.33	7.17	7.23	7.17	7.33	7.19										6.5-8.5	6.5-8.5		0.09
Specific Conductance @ 25 °C.	µmhos	223	167	193	188	223	167													28
Temperature	°C	7.2	6.0	6.5	6.0	6.3	7.2													0.6

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
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IN: Invalid Sample	

Maximum	Minimum	Average	
6.0	4.4	5.2	GPG



Water: TAP
Year: 2022

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															
					01/11/2022	02/15/2022	03/15/2022										← Sample Dates			
Parameter	Units	Max.	Min.	Avg.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MCL	Sec.Std	RL	STDEV
Turbidity	N.T.U.	0.05	0.03	0.04	0.05	0.03	0.03										0.3/95% (1)			0.02
Total Solids	mg/L	149	127	135	129	149	127											500	10	12
Total Dissolved Solids	mg/L	132	115	122	118	132	115											500	10	9
Aluminum	mg/L	0.020	0.014	0.017	0.020	0.017	0.014											0.05-0.2	0.001	0.003
Iron	mg/L	0.2	0.2	0.2	0.2	0.2	0.2											0.3	0.1	0.021
Copper	mg/L	ND	ND	0.000	< 0.001	< 0.001	< 0.001										1.3 (AL)		0.001	
Magnesium	mg/L	8.0	7.4	7.6	7.4	8.0	7.4												0.1	0.36
Calcium	mg/L	27.0	25.4	26.0	25.6	27.0	25.4												0.1	0.9
Sodium	mg/L	7.1	4.9	5.7	5.1	7.1	4.9											20 (2)	0.1	1.20
Potassium	mg/L	1.1	1.0	1.0	1.0	1.1	1.0												0.1	0.04
Manganese	mg/L	ND	ND	0.000	< 0.001	< 0.001	< 0.001											0.05	0.001	
Lead	mg/L	ND	ND	0.000	< 0.001	< 0.001	< 0.001										0.015 (AL)		0.001	
Zinc	mg/L	0.002	ND	0.001	< 0.001	< 0.001	0.002											5	0.001	
Silica	mg/L	2.7	2.3	2.5	2.7	2.3	2.4												0.4	0.2
Sulfate	mg/L	29.6	27.8	28.8	27.8	29.6	29.0													0.9
Chloride	mg/L	15.0	12.5	13.5	13.1	15.0	12.5											250	5	1.3
Phosphorus	mg/L	0.87	0.52	0.66	0.87	0.59	0.52												0.05	0.18
Free Carbon Dioxide	mg/L	12.2	10.0	11.0	12.2	10.7	10.0													1.1
Total Hardness (3), (4), (5)	mg/L	112	76	91	112	84	76													19
Total Alkalinity (3)	mg/L	76	70	73	70	76	74													3
Carbonate Alkalinity (3)	mg/L	0	0	0	0	0	0													0
Bi-Carbonate Alkalinity (3)	mg/L	76	70	73	70	76	74													3
Non-Carbonate Hardness (3)	mg/L	42	2	17	42	8	2													22
Chemical Oxygen Demand	mg/L	9.6	2.8	5.2	2.8	9.6	3.1												2	3.8
Dissolved Oxygen	mg/L	16.5	3.4	12.0	3.4	16.5	16.1													7.5
Nitrite Nitrogen	mg/L	ND	ND	0.0	< 0.1	< 0.1	< 0.1										1		0.1	
Nitrate Nitrogen	mg/L	0.55	0.36	0.43	0.36	0.55	0.37										10	10	0.1	0.11
Fluoride	mg/L	0.61	0.52	0.55	0.52	0.61	0.53										4		0.5	0.05
pH		7.17	7.06	7.13	7.06	7.15	7.17										6.5-8.5	6.5-8.5		0.06
Specific Conductance @ 25 °C.	µmhos	218	166	192	191	218	166													26
Temperature	°C	3.9	2.0	2.8	2.4	2.0	3.9													1.0

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	
6.5	4.4	5.3	GPG



Water: TAP
Year: 2022

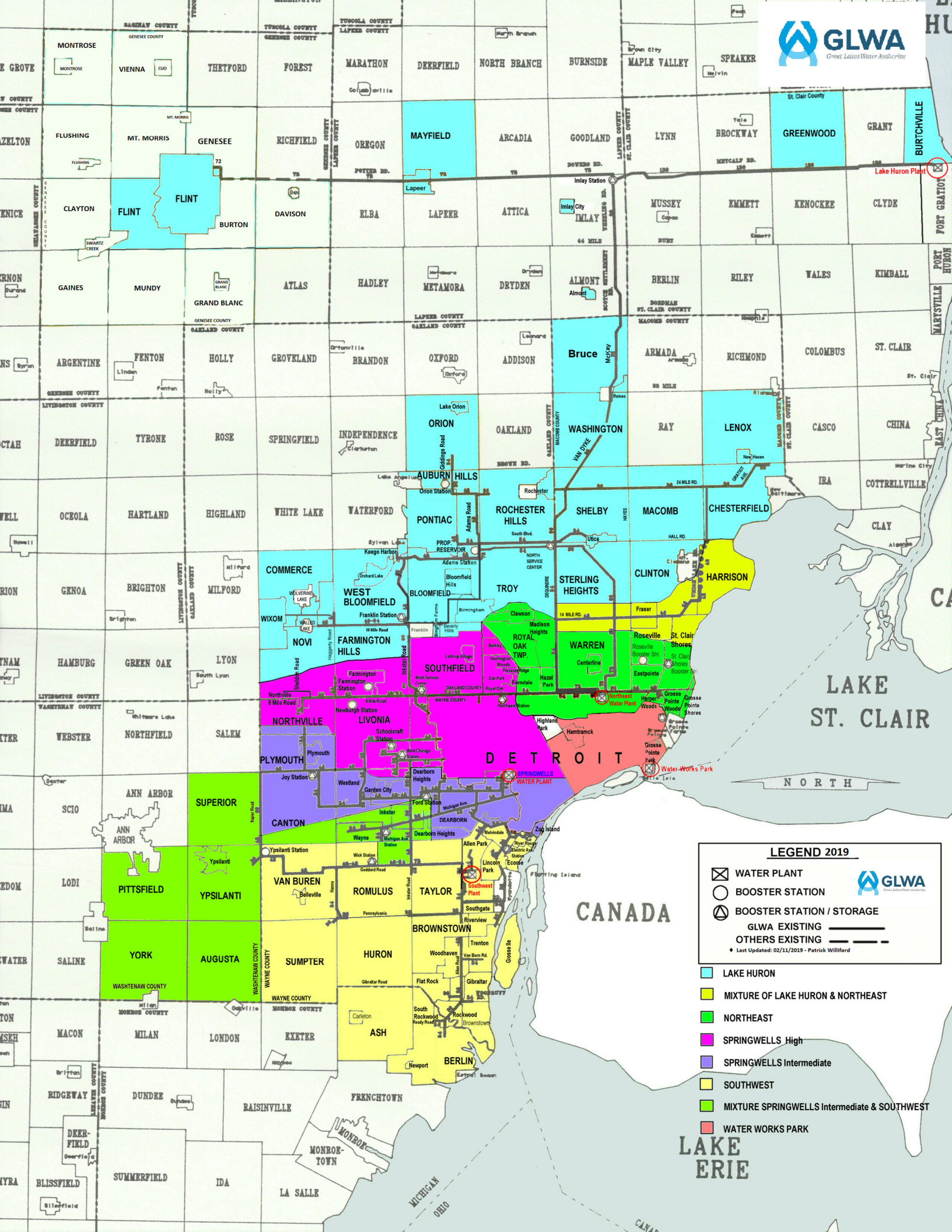
Plant Name: **Detroit (WWP-SPW-NE-SW)**

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															
					01/11/2022	02/15/2022	03/15/2022										← Sample Dates			
Parameter	Units	Max.	Min.	Avg.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MCL	Sec.Std	RL	STDEV
Turbidity	N.T.U.	0.07	0.02	0.05	0.04	0.05	0.05										0.3/95% (1)			0.02
Total Solids	mg/L	149	118	135	128	146	131											500	10	10
Total Dissolved Solids	mg/L	140	90	123	121	134	115											500	10	10
Aluminum	mg/L	0.044	0.013	0.025	0.029	0.023	0.024											0.05-0.2	0.001	0.003
Iron	mg/L	0.3	0.2	0.2	0.2	0.2	0.3											0.3	0.1	0.027
Copper	mg/L	0.002	ND	0.000	0.000	0.000	0.000										1.3 (AL)		0.001	0.000
Magnesium	mg/L	8.0	7.4	7.6	7.6	7.8	7.5												0.1	0.18
Calcium	mg/L	28.6	25.3	26.5	26.3	26.8	26.3												0.1	0.3
Sodium	mg/L	8.1	4.9	5.9	5.4	6.7	5.8											20 (2)	0.1	0.67
Potassium	mg/L	1.3	1.0	1.0	1.0	1.0	1.1												0.1	0.03
Manganese	mg/L	ND	ND	0.000	ND	ND	ND											0.05	0.001	
Lead	mg/L	ND	ND	0.000	ND	ND	ND										0.015 (AL)		0.001	
Zinc	mg/L	0.010	ND	0.001	ND	ND	0.003											5	0.001	
Silica	mg/L	2.7	2.3	2.4	2.5	2.4	2.3												0.4	0.1
Sulfate	mg/L	33.9	24.5	28.6	27.5	28.6	29.7													1.1
Chloride	mg/L	18.7	11.2	13.3	12.3	13.7	13.9											250	5	0.9
Phosphorus	mg/L	0.87	0.33	0.48	0.50	0.48	0.46												0.05	0.02
Free Carbon Dioxide	mg/L	12.2	1.0	7.7	7.8	8.2	7.0													0.6
Total Hardness (3), (4), (5)	mg/L	112	66	88	88	82	94													6
Total Alkalinity (3)	mg/L	84	40	72	74	79	65													7
Carbonate Alkalinity (3)	mg/L	0	0	0	0	0	0													0
Bi-Carbonate Alkalinity (3)	mg/L	84	40	72	74	78	64													7
Non-Carbonate Hardness (3)	mg/L	56	-14	15	14	3	30													13
Chemical Oxygen Demand	mg/L	9.6	2.1	4.2	3.6	6.2	3.0												2	1.7
Dissolved Oxygen	mg/L	16.5	3.4	13.9	12.0	14.9	14.7													1.6
Nitrite Nitrogen	mg/L	ND	ND	0.0	ND	ND	ND										1		0.1	
Nitrate Nitrogen	mg/L	0.70	0.35	0.42	0.36	0.44	0.46										10	10	0.1	0.05
Fluoride	mg/L	0.67	0.52	0.57	0.56	0.61	0.54										4		0.5	0.04
pH		8.16	7.06	7.33	7.42	7.29	7.28										6.5-8.5	6.5-8.5		0.08
Specific Conductance @ 25 °C.	µmhos	223	162	192	186	220	171													25
Temperature	°C	7.4	0.9	4.1	3.6	3.7	4.9													0.7

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
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AL: Action Level	(5) Tap Water Hardnessin in Grains per Gallon multiply value by 0.058 (Grains/Gallon)/(mg/L) -->
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IN: Invalid Sample	

Maximum	Minimum	Average	
6.5	3.8	5.1	GPG



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 ERIE