



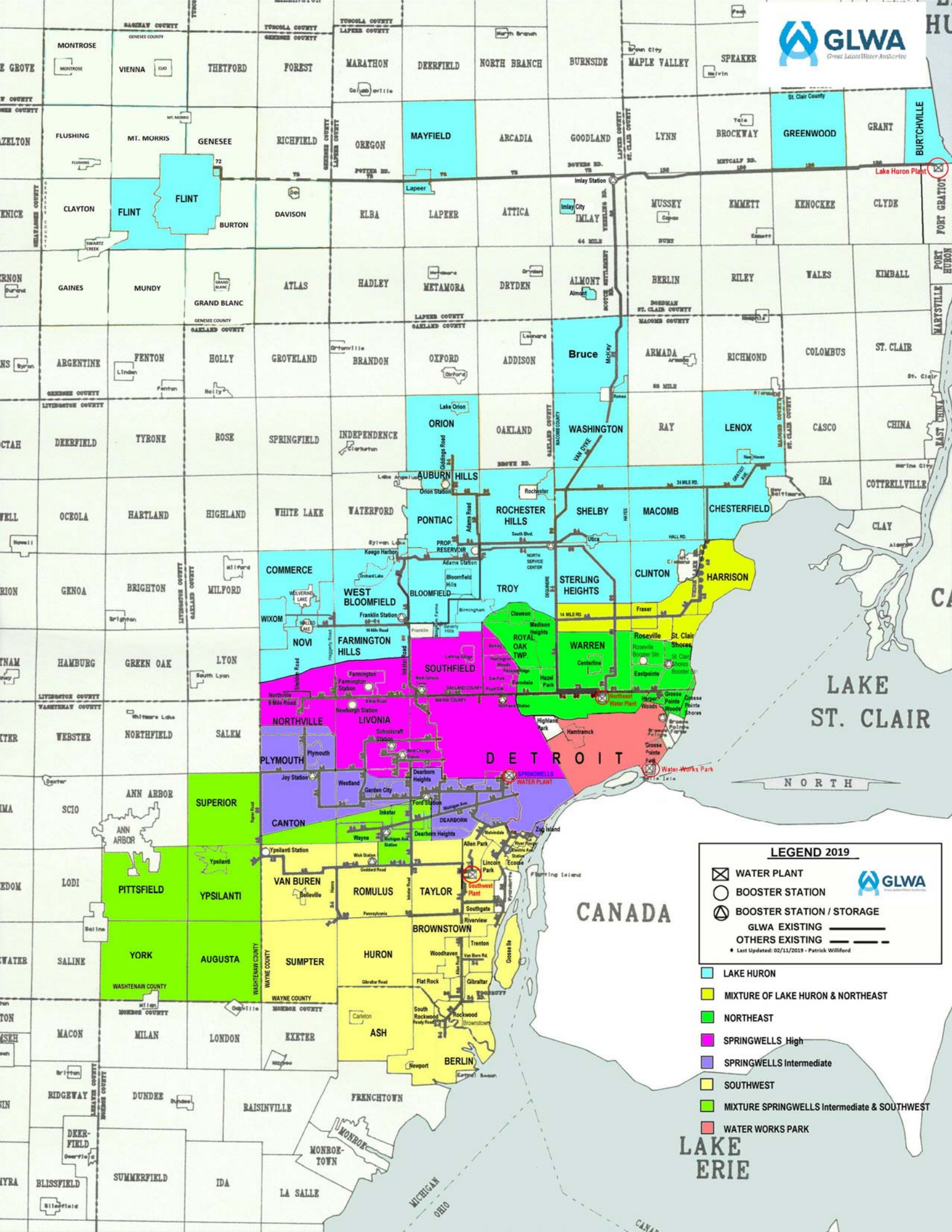
### GLWA Water Treatment Plants' - Mineral Reports

Parameter	Formula	Units	Sample Dates:												MCL	Sec.Std	RL/MDL				
			12/11/2018		12/11/2018		12/12/2018		12/12/2018		12/11/2018		12/11/2018					12/11/2018		12/11/2018	
			Lake Huron				Southwest				Belle Isle		Water Works Park					Northeast		Springwells	
			Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Tap	Tap	Tap	Tap							
Turbidity		NTU	0.58	0.06	3.00	0.06	3.70	0.07	0.09	0.08	0.3/95% (1)										
Total Solids		mg/L	30	121	162	156	108	127	146	134					500		10				
Total Dissolved Solids		mg/L	96	100	92	107	113	119	121	115					500		10				
Aluminum	Al	mg/L	0.021	0.056	AE	0.034	AE	0.042	0.024	0.023					0.05-0.2		0.005				
Iron	Fe	mg/L	< 0.005	< 0.005	0.108	< 0.005	0.092	< 0.005	< 0.005	< 0.005					0.3		0.005				
Copper	Cu	mg/L	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005					1.3 (AL)		0.005				
Magnesium	Mg	mg/L	7.45	7.43	8.18	8.00	7.98	7.75	7.70	7.85							0.5				
Calcium	Ca	mg/L	28.0	28.2	30.5	31.8	28.9	29.1	28.7	28.7							0.1				
Sodium	Na	mg/L	4.81	4.94	AE	5.99	AE	5.27	6.05	5.27					20 (2)		0.1				
Potassium	K	mg/L	1.13	1.41	1.34	1.36	1.25	1.24	1.18	1.25							0.1				
Manganese	Mn	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002					0.05		0.002				
Lead	Pb	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002					0.015 (AL)		0.001				
Zinc	Zn	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1					5		0.1				
Silica	SiO <sub>2</sub>	mg/L	1.9	2.1	2.1	2.2	2.0	2.3	2.1	2.2							0.4				
Sulfate	SO <sub>4</sub> <sup>2-</sup>	mg/L	15.7	19.5	17.3	25.0	16.9	24.5	26.5	24.2					250						
Chloride	Cl <sup>-</sup>	mg/L	7.7	8.7	9.9	11.4	8.4	9.7	10.4	9.9					250		5				
Phosphorus	P	mg/L	< 0.05	0.38	< 0.05	0.28	< 0.05	0.32	0.36	0.35							0.05				
Free Carbon Dioxide	CO <sub>2</sub>	mg/L	1.3	1.3	12.2	10.6	1.2	1.5	1.3	1.3											
Total Hardness (3), (4), (5)		mg/L	96	96	106	108	98	96	98	100											
Total Alkalinity (3)		mg/L	80	76	86	80	76	70	70	70											
Carbonate Alkalinity (3)		mg/L	0	0	0	0	0	0	0	0											
Bi-Carbonate Alkalinity (3)		mg/L	79	75	86	80	75	69	69	69											
Non-Carbonate Hardness (3)		mg/L	16	20	20	28	22	26	28	30											
Chemical Oxygen Demand		mg/L	5.1	< 2	4.7	3.7	5.1	4.2	< 2	< 2							2				
Dissolved Oxygen		mg/L	11.2	11.4	12.4	12.6	12.3	13.8	12.2	12.4											
Nitrite Nitrogen	NO <sub>2</sub> <sup>-</sup> - N	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1					1		0.1				
Nitrate Nitrogen	NO <sub>3</sub> <sup>-</sup> - N	mg/L	0.34	0.31	0.58	0.60	0.37	0.38	0.33	0.36					10		0.1				
Fluoride	F <sup>-</sup>	mg/L	0.07	0.56	0.07	0.56	0.07	0.76	0.54	0.60					4.0		0.5				
pH			8.10	8.06	7.15	7.18	8.11	7.98	8.02	8.02							6.5-8.5				
Specific Conductance @ 25 °C.		micromhos	201	202	218	227	247	214	214	212											
Temperature		°C	10.8	8.3	6.3	4.3	7.3	7.5	9.4	7.5											

Legend	Notes:
MCL: Maximum Contaminant Level	(1) Turbidity must not exceed 0.3 NTU in 95% of samples in any month and always be < 1 NTU
Sec.Std: Secondary Standard	(2) EPA Guidance Level
NTU: Nephelometric Turbidity Unit	(3) As Calcium Carbonate
mg/L: Milligram Per Liter	mg/L is equivalent to part per million (ppm)
AL: Action Level	
MDL: Method Detection Limit	(4) By Titration
< : Less than	(5) Hardness in Grains per Gallon = 0.058 × (Hardness in mg/L)
AE: Analytical Error	(6) Reported results are below the low calibration standard but above the instrument detection limit.
IV: Invalid Sample	

Reporting Analyst: **Levoska, Khna & Wiley** Chemist  
 Reviewed By: **Williford** Management Professional - Operations

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 ERIE**

**LAKE ST. CLAIR**

NORTH

CANADA

**DETROIT**

**LAKE ST. CLAIR**

MICHIGAN

CANADA