



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

### GLWA Water Treatment Plants' - Mineral Reports

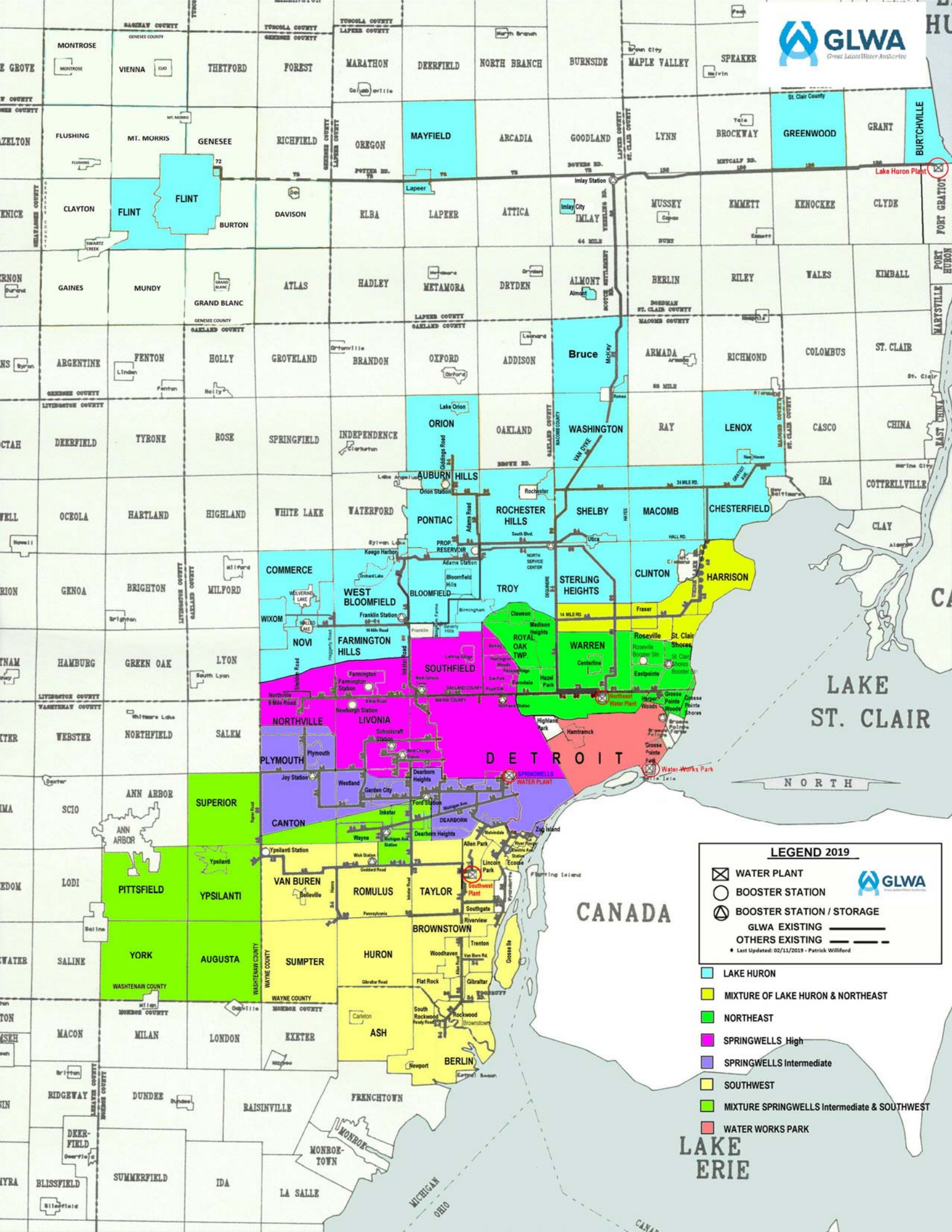
Parameter	Formula	Units	Sample Dates:												MCL	Sec.Std	MDL
			03/13/2018		03/13/2018		03/13/2018		03/13/2018		03/13/2018		03/13/2018				
			Lake Huron		Southwest		Belle Isle		Water Works Park		Northeast		Springwells				
		Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap				
Turbidity		NTU	0.40	0.05	14.00	0.20	4.20	0.08	0.07	0.11	0.3/95% (1)						
Total Solids		mg/L	95	122	163	146	114	124	146	147				500	10		
Total Dissolved Solids		mg/L	114	101	92	152	78	118	136	148				500	10		
Aluminum	Al	mg/L	AE	AE	AE	AE	AE	AE	AE	AE				0.05-0.2	0.005		
Iron	Fe	mg/L	AE	AE	AE	AE	AE	AE	AE	AE				0.3	0.005		
Copper	Cu	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	0.007	< 0.005	< 0.005	< 0.005	1.3 (AL)		1.0	0.005			
Magnesium	Mg	mg/L	7.80	7.80	7.70	8.33	7.70	8.18	7.85	8.08					0.5		
Calcium	Ca	mg/L	29.6	29.1	29.8	28.7	29.9	30.9	29.9	31.2					0.1		
Sodium	Na	mg/L	5.32	5.51	5.94	6.42	6.61	7.14	7.92	7.91				20 (2)	0.1		
Potassium	K	mg/L	1.13	1.09	1.40	1.15	4.62	1.33	1.20	1.19					0.1		
Manganese	Mn	mg/L	< 0.002	< 0.002	0.008	< 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	2.1	2.4	2.2	2.4	2.0	2.3	2.2	2.2					0.4		
Sulfate	SO <sub>4</sub> <sup>2-</sup>	mg/L	16.4	20.0	17.4	32.1	16.9	23.8	28.8	25.9				250			
Chloride	Cl <sup>-</sup>	mg/L	8.9	10.7	11.9	12.2	11.3	13.8	14.4	14.1				250	5		
Phosphorus	P	mg/L	< 0.05	0.38	< 0.05	0.35	< 0.05	0.33	0.33	0.48					0.05		
Free Carbon Dioxide	CO <sub>2</sub>	mg/L	0.8	5.6	3.0	16.6	1.2	6.9	10.3	6.7							
Total Hardness (3), (4), (5)		mg/L	98	96	96	110	92	102	98	98							
Total Alkalinity (3)		mg/L	80	70	94	74	82	72	68	64							
Carbonate Alkalinity (3)		mg/L	0	0	0	0	0	0	0	0							
Bi-Carbonate Alkalinity (3)		mg/L	78	70	93	74	81	72	68	64							
Non-Carbonate Hardness (3)		mg/L	18	26	2	36	10	30	30	34							
Chemical Oxygen Demand		mg/L	4.9	4.5	4.5	4.5	3.7	3.7	5.8	4.1					2		
Dissolved Oxygen		mg/L	13.4	13.3	12.9	13.1	13.2	14.2	13.6	13.4							
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	0.29	0.29	0.61	0.43	0.37	0.38	0.35	0.33	10				0.1		
Fluoride	F <sup>-</sup>	mg/L	0.08	0.66	0.10	0.63	0.07	0.68	0.54	0.44	4.0			2.0	0.5		
pH			8.30	7.40	7.80	6.95	8.12	7.32	7.12	7.28				6.5-8.5			
Specific Conductance @ 25 °C.		micromhos	229	233	288	272	244	242	245	246							
Temperature		°C	0.0	10.5	2.9	2.6	1.2	5.0	7.5	4.0							

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
IV: Invalid Sample	detection limit.




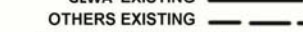
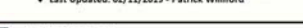
Reporting Analyst: Raupach Levoska & Khan  
 Reviewed By: Williford

Chemist-I  
 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**