



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

Sample Dates: 12/12/2017 12/12/2017 12/12/2017 12/12/2017 12/12/2017 12/12/2017 12/12/2017 12/12/2017

Parameter	Formula	Units	Lake Huron		Southwest		Belle Isle	Water Works Park	Northeast	Springwells	MCL	Sec.Std	MDL
			Raw	Tap	Raw	Tap	Raw	Tap	Tap	Tap			
Turbidity		NTU	0.65	0.05	2.50	0.04	3.89	0.12	0.06	0.08	0.3/95% (1)		
Total Solids		mg/L	115	126	134	127	117	130	122	134		500	10
Total Dissolved Solids		mg/L	133	123	155	138	135	148	153	160		500	10
Aluminum	Al	mg/L	< 0.005	0.053	0.123	0.058	0.190	< 0.005	< 0.005	0.086		0.05-0.2	0.005
Iron	Fe	mg/L	0.019	< 0.005	0.185	< 0.005	0.163	< 0.005	< 0.005	< 0.005		0.3	0.005
Copper	Cu	mg/L	0.017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.3 (AL)	1.0	0.002
Magnesium	Mg	mg/L	7.73	7.65	7.68	8.00	7.90	7.88	7.75	7.78			0.5
Calcium	Ca	mg/L	26.0	25.4	26.5	27.0	25.1	26.1	26.0	26.1			0.1
Sodium	Na	mg/L	5.02	4.60	4.96	4.68	4.70	4.55	4.70	4.86		20 (2)	0.1
Potassium	K	mg/L	0.76	0.76	0.81	0.79	0.83	0.77	0.78	0.79			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	1.0	1.1	1.0	1.1	1.0	1.1	1.1	1.1			0.4
Sulfate	SO <sub>4</sub> <sup>2-</sup>	mg/L	16.1	19.2	18.2	24.3	16.5	23.1	24.7	27.6		250	
Chloride	Cl <sup>-</sup>	mg/L	14.7	9.8	8.6	10.4	7.9	9.8	9.8	9.8		250	5
Phosphorus	P	mg/L	< 0.05	0.40	< 0.05	0.29	< 0.05	0.39	0.48	0.78			0.05
Free Carbon Dioxide	CO <sub>2</sub>	mg/L	1.3	5.9	2.9	15.2	4.8	26.3	7.0	12.4			
Total Hardness (3), (4), (5)		mg/L	102	100	104	106	106	102	100	100			
Total Alkalinity (3)		mg/L	80	74	82	76	80	74	70	68			
Carbonate Alkalinity (3)		mg/L	0	0	0	0	0	0	0	0			
Bi-Carbonate Alkalinity (3)		mg/L	80	74	82	76	80	74	70	68			
Non-Carbonate Hardness (3)		mg/L	22	26	22	30	26	28	30	32			
Chemical Oxygen Demand		mg/L	3.3	3.7	3.3	2.9	5.4	2.5	< 2	2.5			2
Dissolved Oxygen		mg/L	14.5	12.4	11.3	11.4	10.9	11.6	14.4	13.9			
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	0.31	0.29	0.30	0.31	0.31	0.32	0.27	0.28	10		0.1
Fluoride	F <sup>-</sup>	mg/L	0.07	0.70	0.14	0.60	0.07	0.63	0.58	0.52	4.0	2.0	0.5
pH			8.10	7.40	7.75	7.00	7.52	6.75	7.30	7.04		6.5-8.5	
Specific Conductance @ 25 °C.		micromhos	219	222	221	231	215	226	228	228			
Temperature		°C	13.8	12.5	6.3	6.4	8.1	8.5	8.4	7.6			

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) Tap Water Hardness in Grains per Gallon multiply value by 0.058 (Grains/Gallon)/(mg/L)
AE: Analytical Error	(6) Reported results are below the low calibration standard but above the instrument
IV: Invalid Sample	detection limit.

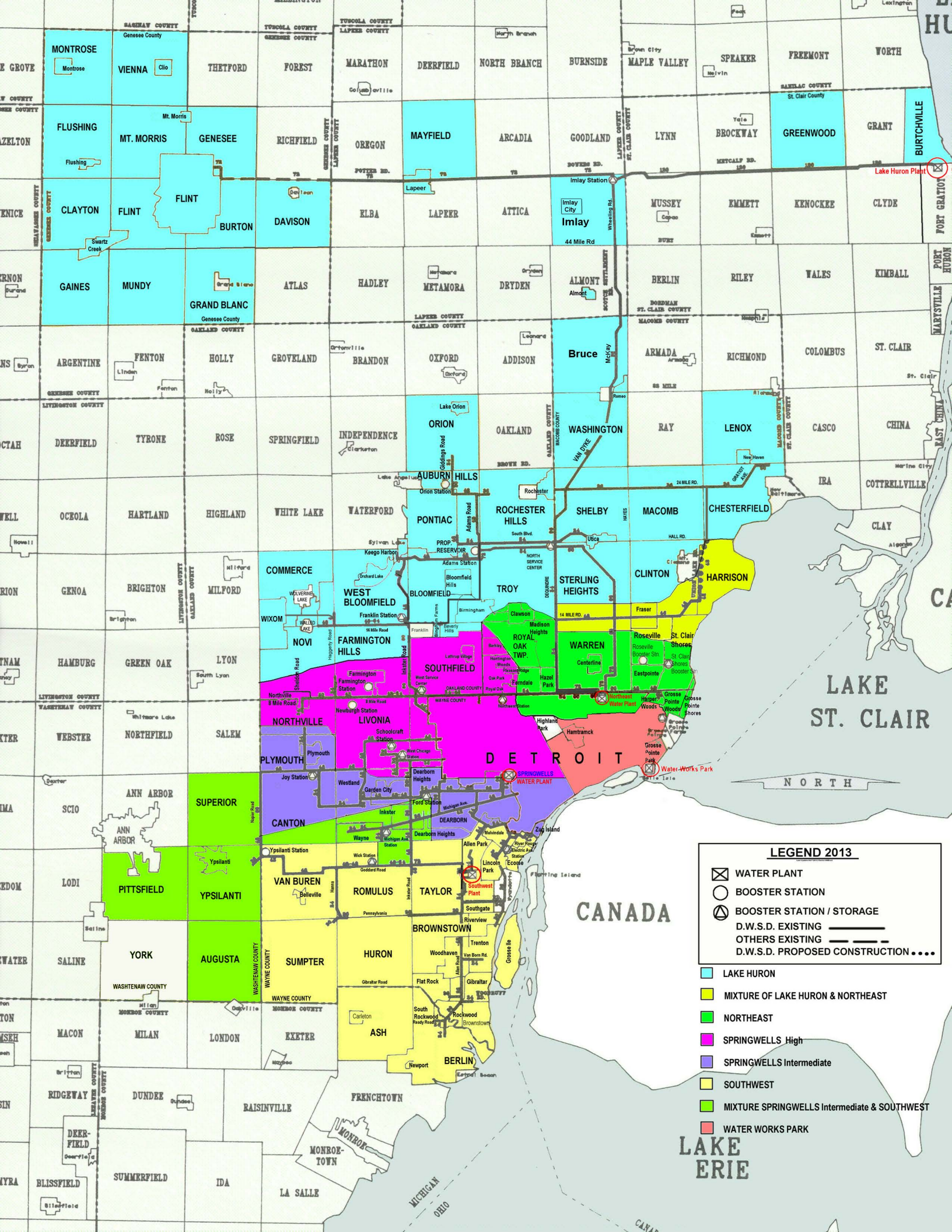
Analyst: Raupach & Brown  
 Reviewed By: Patrick Williford

Chemist-I  
 Management Professional - Ops.

Initials: **B. B.**  
 Initials: **P. W.**

Date: 01/26/2018  
 Date: 01/26/2018

Great Lakes Water Authority



**LEGEND 2013**

- ☒ WATER PLANT
- BOOSTER STATION
- ⊕ BOOSTER STATION / STORAGE
- D.W.S.D. EXISTING
- - - OTHERS EXISTING
- ⋯ D.W.S.D. PROPOSED CONSTRUCTION

- ☐ LAKE HURON
- ☐ MIXTURE OF LAKE HURON & NORTHEAST
- ☐ NORTHEAST
- ☐ SPRINGWELLS High
- ☐ SPRINGWELLS Intermediate
- ☐ SOUTHWEST
- ☐ MIXTURE SPRINGWELLS Intermediate & SOUTHWEST
- ☐ WATER WORKS PARK

**LAKE ERIE**

NORTH

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MICHIGAN

OHIO

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PORT GRATION

PORT FURON

MARSHVILLE

EAST CHINA

CA

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