



WATER OPERATING SERVICES
 WATER QUALITY
 10100 EAST JEFFERSON AVENUE
 DETROIT, MICHIGAN 48214
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GLWA Water Treatment Plants - Mineral Reports

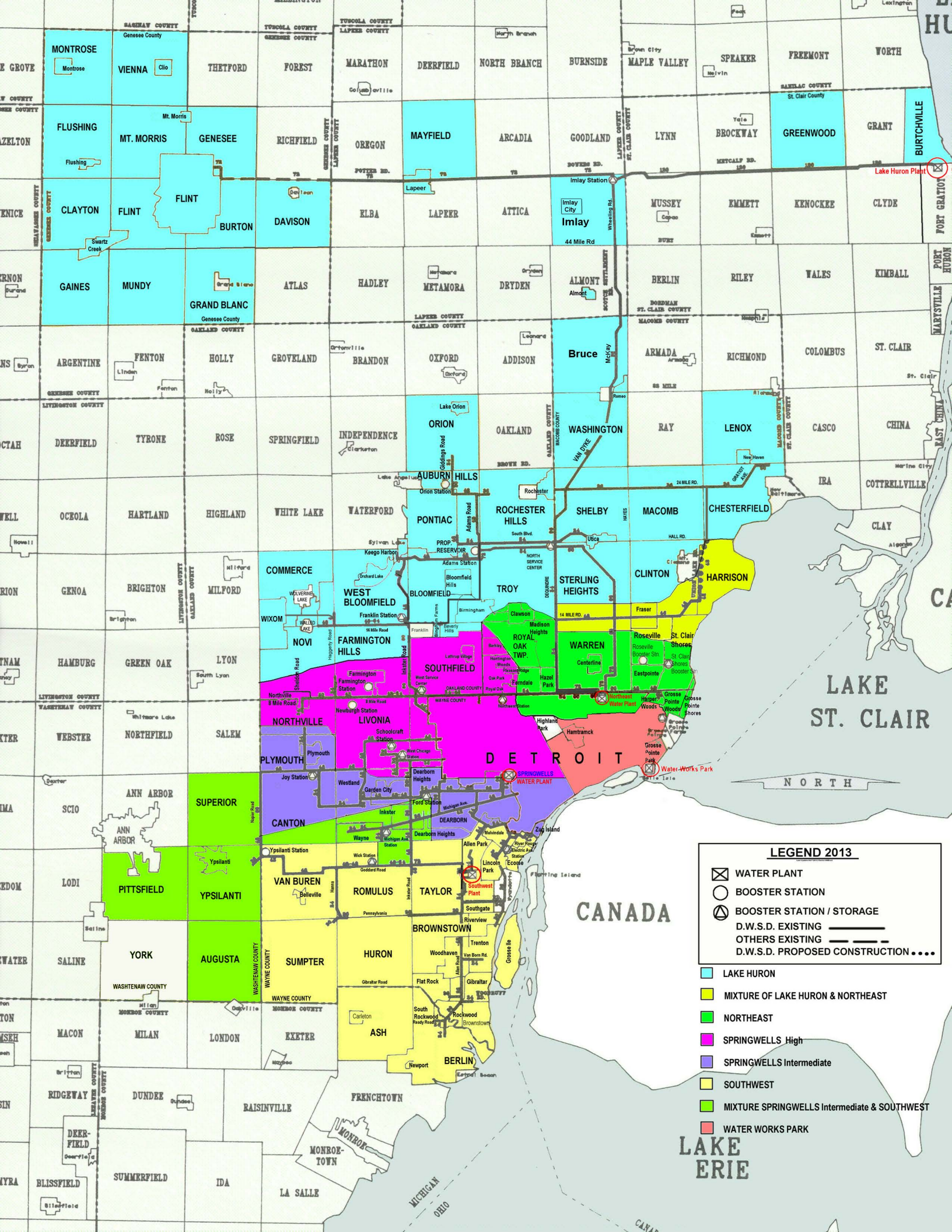
Sample Dates:	01/10/2017	01/10/2017	01/10/2017	01/10/2017	01/10/2017	01/10/2017	01/10/2017	01/10/2017	01/10/2017
	Lake Huron		Southwest		Belle Isle	Water Works Park	Northeast	Springwells	

Parameter	Formula	Units	Raw	Tap	Raw	Tap	Raw	Tap	Tap	Tap	MCL	Sec.Std	MDL
Turbidity		NTU	0.45	0.05	18.00	0.07	4.80	0.06	0.07	0.13	0.3/95% (1)		
Total Solids		mg/L	131	117	198	172	141	140	141	138		500	10
Total Dissolved Solids		mg/L	93	97	169	158	107	118	122	108		500	10
Aluminum	Al	mg/L	0.058	0.091	0.240	0.093	0.097	0.069	0.074	0.068		0.05-0.2	0.005
Iron	Fe	mg/L	0.134	0.051	0.260	0.222	0.239	0.202	0.025	0.121		0.3	0.005
Copper	Cu	mg/L	0.008	< 0.005	0.005	< 0.005	0.005	< 0.005	< 0.005	0.007	1.3 (AL)	1.0	0.002
Magnesium	Mg	mg/L	9.26	8.55	12.53	9.30	8.48	10.47	11.67	8.72			0.5
Calcium	Ca	mg/L	31.5	29.0	42.6	37.8	38.6	33.6	30.7	29.6			0.1
Sodium	Na	mg/L	5.75	4.76	9.90	9.05	7.73	6.29	5.85	5.23		20 (2)	0.1
Potassium	K	mg/L	1.00	0.96	1.55	1.44	1.06	1.06	1.04	1.00			0.1
Manganese	Mn	mg/L	0.002	< 0.002	0.010	0.011	0.004	0.004	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 ₂	mg/L	1.0	1.2	1.2	1.1	1.0	1.2	1.2	1.2			0.4
Sulfate	SO ₄ ²⁻	mg/L	17.7	22.8	23.9	33.1	18.6	22.5	27.1	28.7		250	
Chloride	Cl ⁻	mg/L	7.5	7.5	7.0	10.0	7.5	10.0	10.0	10.5		250	5
Phosphorus	P	mg/L	< 0.05	0.33	< 0.05	0.39	< 0.05	0.31	0.37	1.09			0.05
Free Carbon Dioxide	CO ₂	mg/L	1.4	4.3	2.1	6.8	1.0	1.5	5.1	6.5			
Total Hardness (3), (4), (5)		mg/L	100	110	120	128	104	100	100	104			
Total Alkalinity (3)		mg/L	80	70	100	80	80	70	70	70			
Carbonate Alkalinity (3)		mg/L	0	0	0	0	0	0	0	0			
Bi-Carbonate Alkalinity (3)		mg/L	80	70	100	80	80	70	70	70			
Non-Carbonate Hardness (3)		mg/L	20	40	20	48	24	30	30	34			
Chemical Oxygen Demand		mg/L	3.6	5.6	4.8	6.4	5.2	4.8	6.0	7.2			2
Dissolved Oxygen		mg/L	14.2	14.0	13.8	13.7	15.5	16.0	14.6	15.2			
Nitrite Nitrogen	NO ₂ ⁻ -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 ₃ ⁻ -N	mg/L	0.25	0.22	1.42	1.13	0.33	0.29	0.36	0.24		10	0.1
Fluoride	F ⁻	mg/L	0.07	0.48	0.09	0.38	0.07	0.47	0.38	0.32		4.0	2.0
pH			8.06	7.51	7.98	7.37	8.20	7.97	7.44	7.33		6.5-8.5	6.5-8.5
Specific Conductance @ 25 °C.		micromhos	207	220	294	303	226	235	225	221			
Temperature		°C	8.3	8.3	1.0	1.0	8.0	7.0	3.0	2.0			

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) 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: Brian Brown	Chemist-I	Initial	B. B.	Date: 05/01/2017
Reviewed By: Patrick Williford	Chemist-II	Initial	P. W.	Date: 05/04/2017

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**