



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: 07/11/2017 07/11/2017 07/11/2017 07/11/2017 07/11/2017 07/11/2017 07/11/2017 07/11/2017

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	0.55	0.07	2.18	0.11	2.30	0.07	0.07	0.06	0.3/95% (1)		
Total Solids		mg/L	154	136	167	178	151	169	160	177		500	10
Total Dissolved Solids		mg/L	125	134	124	144	132	135	137	135		500	10
Aluminum	Al	mg/L	NA	NA	NA	NA	NA	NA	NA	NA		0.05-0.2	0.005
Iron	Fe	mg/L	< 0.005	< 0.005	0.070	< 0.005	0.055	< 0.005	< 0.005	< 0.005		0.3	0.005
Copper	Cu	mg/L	0.011	< 0.005	0.014	< 0.005	0.007	< 0.005	< 0.005	0.007	1.3 (AL)	1.0	0.002
Magnesium	Mg	mg/L	7.05	7.08	8.70	7.35	7.33	7.15	7.00	7.25			0.5
Calcium	Ca	mg/L	25.4	25.3	25.6	25.9	24.7	25.2	25.0	25.6			0.1
Sodium	Na	mg/L	4.04	3.99	4.82	4.58	4.33	4.32	4.13	4.36		20 (2)	0.1
Potassium	K	mg/L	0.81	0.84	0.98	0.88	0.80	0.80	0.80	0.82			0.1
Manganese	Mn	mg/L	< 0.002	< 0.002	0.003	< 0.002	0.004	< 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 ₂	mg/L	0.7	0.8	< 0.5	0.6	0.6	0.7	0.7	0.7			0.4
Sulfate	SO ₄ ²⁻	mg/L	15.8	18.6	16.6	21.9	16.6	21.4	21.5	22.8		250	
Chloride	Cl ⁻	mg/L	7.4	9.4	8.4	10.4	7.4	9.4	9.9	9.9		250	5
Phosphorus	P	mg/L	< 0.05	0.34	< 0.05	0.31	< 0.05	0.34	0.34	0.66			0.05
Free Carbon Dioxide	CO ₂	mg/L	1.1	5.0	0.6	5.6	1.0	4.6	6.2	8.0			
Total Hardness (3), (4), (5)		mg/L	98	98	102	104	98	98	96	100			
Total Alkalinity (3)		mg/L	84	76	86	78	82	72	74	78			
Carbonate Alkalinity (3)		mg/L	0	0	0	0	0	0	0	0			
Bi-Carbonate Alkalinity (3)		mg/L	84	76	84	78	81	72	74	78			
Non-Carbonate Hardness (3)		mg/L	14	22	16	26	16	26	22	22			
Chemical Oxygen Demand		mg/L	5.2	4.4	5.2	4.4	4.8	3.6	2.0	4.8			2
Dissolved Oxygen		mg/L	10.9	9.6	8.7	8.7	8.2	10.0	9.0	8.9			
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	0.29	0.31	0.36	0.36	0.29	0.30	0.26	0.30	10		0.1
Fluoride	F ⁻	mg/L	0.08	0.77	0.09	0.65	0.08	0.69	0.65	0.65	4.0	2.0	0.5
pH			8.20	7.48	8.42	7.44	8.21	7.49	7.38	7.29		6.5-8.5	
Specific Conductance @ 25 °C.		micromhos	214	216	221	229	210	220	221	225			
Temperature		°C	10.8	10.8	22.0	22.5	22.0	22.2	22.9	23.0			

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.

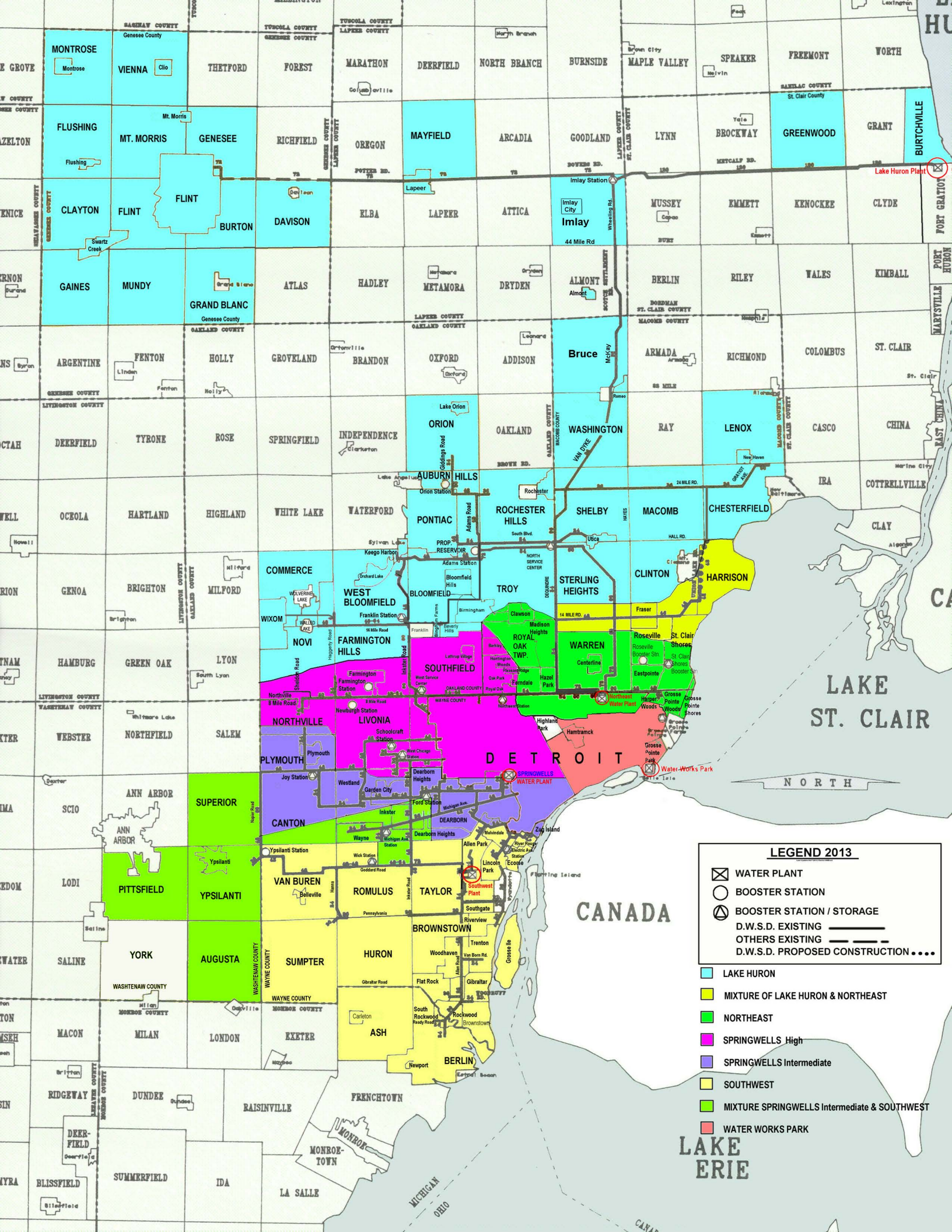
Analyst: Brown & Raupach
 Reviewed By: Patrick Williford

Chemist-I
 Management Professional - Ops.

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

Date: 12/04/2017
 Date: 12/15/2017

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



MICHIGAN OHIO

CANADA

LAKE ST. CLAIR

DETROIT

MONTRÖSE

VIENNA

THETFORD

FOREST

MARATHON

DEERFIELD

NORTH BRANCH

BURNSIDE

MAPLE VALLEY

SPEAKER

FREEMONT

WORTH

BURCHVILLE

FLUSHING

MT. MORRIS

GENESEE

RICHFIELD

OREGON

MAYFIELD

ARCADIA

GOODLAND

LYNN

BROCKWAY

GREENWOOD

GRANT

CLYDE

PORT GRATON

CLAYTON

FLINT

FLINT

BURTON

DAVISON

ELBA

LAPEER

ATTICA

IMLAY

MUSSEY

EMMETT

KENOCKEE

CLYDE

PORT GRATON

GAINES

MUNDY

GRAND BLANC

ATLAS

HADLEY

METAMORA

DRYDEN

ALMONT

BERLIN

RILEY

WALES

KIMBALL

ST. CLAIR

PORT GRATON

ARGENTINE

FENTON

HOLLY

GROVELAND

BRANDON

OXFORD

ADDISON

BRUCE

ARMADA

RICHMOND

COLOMBUS

ST. CLAIR

ST. CLAIR

PORT GRATON

DEERFIELD

TYBONE

ROSE

SPRINGFIELD

INDEPENDENCE

OAKLAND

ADDISON

WASHINGTON

RAY

LENOX

CASCO

CHINA

ST. CLAIR

PORT GRATON

OCOLA

HARTLAND

HIGHLAND

WHITE LAKE

WATERFORD

PONTIAC

ROCHESTER HILLS

SHELBY

MACOMB

CHESTERFIELD

CLAY

CLAY

CLAY

CLAY

GENOA

BRIGHTON

MILFORD

COMMERCE

WEST BLOOMFIELD

BLOOMFIELD

TROY

STERLING HEIGHTS

CLINTON

HARRISON

WARREN

WARREN

WARREN

WARREN

HAMBURG

GREEN OAK

LYON

NOVI

FARMINGTON HILLS

SOUTHFIELD

ROYAL OAK TWP.

WARREN

WARREN

WARREN

WARREN

WARREN

WARREN

WARREN

WEBSTER

NORTHFIELD

SALEM

NORTHVILLE

LIVONIA

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BLISSFIELD

SUMMERFIELD

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