



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: 04/11/2017 04/11/2017 04/11/2017 04/11/2017 04/11/2017 04/11/2017 04/11/2017 04/11/2017

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	3.20	0.05	46.00	0.16	10.00	0.06	0.08	0.16	0.3/95% (1)		
Total Solids		mg/L	142	142	220	161	174	158	163	168		500	10
Total Dissolved Solids		mg/L	88	86	126	108	117	116	121	106		500	10
Aluminum	Al	mg/L	0.121	0.068	0.791	0.100	0.536	0.088	0.079	0.072		0.05-0.2	0.005
Iron	Fe	mg/L	0.092	0.006	0.941	0.032	0.400	0.014	< 0.050	0.015		0.3	0.005
Copper	Cu	mg/L	0.011	< 0.005	0.018	< 0.005	0.009	< 0.005	< 0.005	0.008	1.3 (AL)	1.0	0.002
Magnesium	Mg	mg/L	8.70	8.13	11.00	7.95	9.43	8.68	9.38	8.03			0.5
Calcium	Ca	mg/L	26.6	26.4	34.5	26.5	26.4	29.0	28.1	27.7			0.1
Sodium	Na	mg/L	5.24	4.73	5.66	5.48	5.47	5.97	5.83	4.99		20 (2)	0.1
Potassium	K	mg/L	1.06	1.03	1.34	1.13	1.28	1.12	1.13	1.08			0.1
Manganese	Mn	mg/L	0.003	< 0.002	0.027	< 0.002	0.007	< 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	0.9	0.6	0.9	1.0	1.0	0.9	1.1	0.6			0.4
Sulfate	SO ₄ ²⁻	mg/L	18.2	22.2	16.3	28.8	20.2	25.9	28.9	31.4		250	
Chloride	Cl ⁻	mg/L	6.2	6.8	7.7	8.1	7.1	8.4	7.7	7.7		250	5
Phosphorus	P	mg/L	< 0.05	0.36	< 0.05	0.35	< 0.05	0.21	0.29	0.62			0.05
Free Carbon Dioxide	CO ₂	mg/L	0.9	1.1	1.0	1.2	0.7	1.7	1.3	1.1			
Total Hardness (3), (4), (5)		mg/L	106	102	106	106	110	106	110	108			
Total Alkalinity (3)		mg/L	88	76	88	74	90	74	74	70			
Carbonate Alkalinity (3)		mg/L	0	0	0	0	0	0	0	0			
Bi-Carbonate Alkalinity (3)		mg/L	88	76	88	74	90	74	74	70			
Non-Carbonate Hardness (3)		mg/L	18	26	18	32	20	32	36	38			
Chemical Oxygen Demand		mg/L	6.4	6.8	12.4	2.0	11.6	8.8	4.0	6.0			2
Dissolved Oxygen		mg/L	15.3	12.9	12.9	12.9	12.3	13.2	12.4	13.8			
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	0.38	0.35	0.49	0.43	0.54	0.38	0.36	0.40	10		0.1
Fluoride	F ⁻	mg/L	0.09	0.67	0.10	0.53	0.09	0.68	0.52	0.48	4.0	2.0	0.5
pH			8.26	8.15	8.23	8.10	8.41	7.94	8.05	8.10		6.5-8.5	
Specific Conductance @ 25 °C.		micromhos	228	214	234	245	244	248	249	241			
Temperature		°C	2.0	11.7	7.5	8.4	13.7	13.0	9.0	8.8			

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.

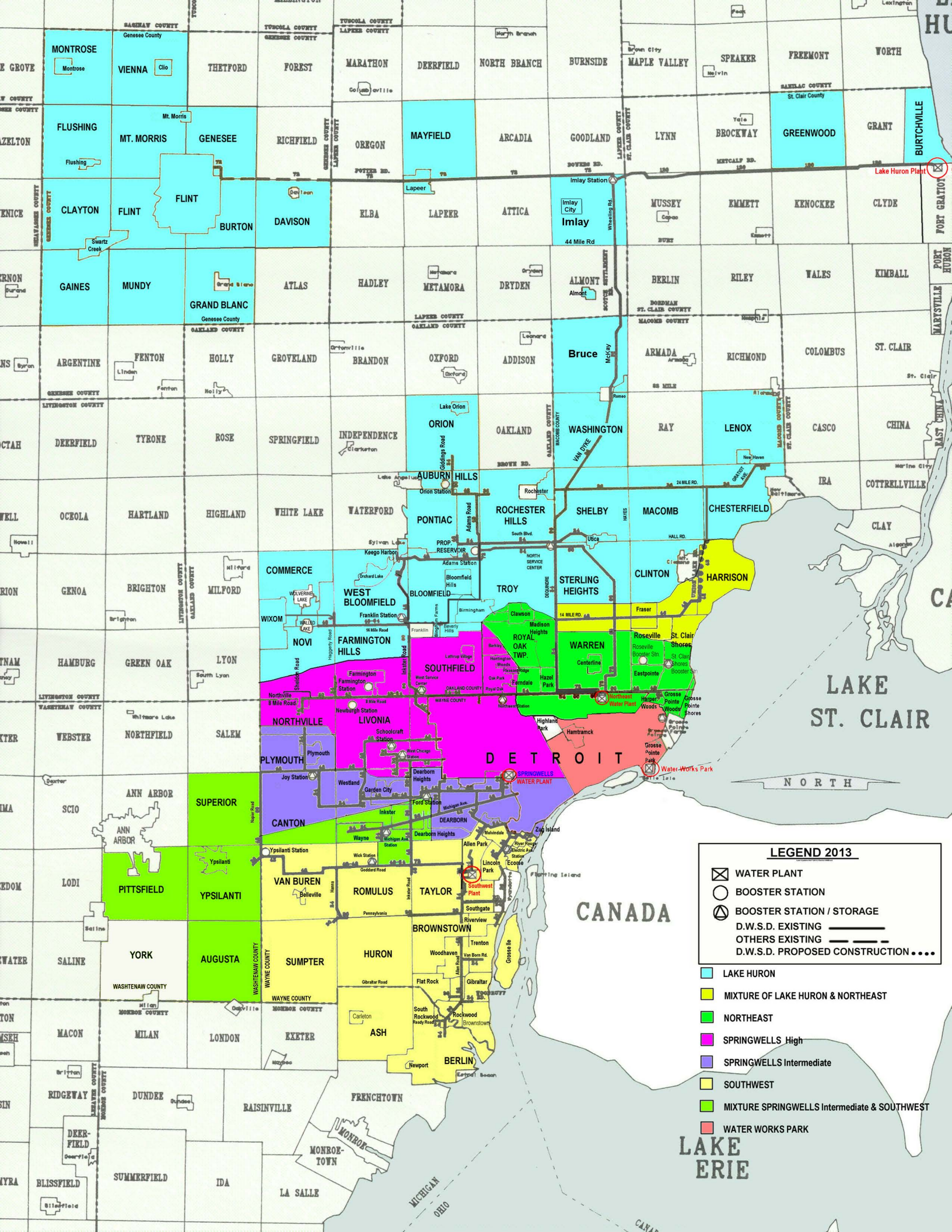
Analyst: Brian Brown
 Reviewed By: Patrick Williford

Chemist-I
 Management Professional - Ops.

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

Date: 06/28/2017
 Date: 07/28/2017

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

MONTRose

VIENNA Clio

FLUSHING Flushing

MT. MORRIS Mt. Morris

FLINT Flint

GENESEE

RICHFIELD

OREGON

MAYFIELD

ARCADIA

GOODLAND

LYNN

BROCKWAY

GREENWOOD

GRANT

BURCHVILLE

CLAYTON

FLINT

BURTON

DAVISON

ELBA

LAPEER

ATTICA

IMLAY Imlay City

MUSSEY

EMMETT

KENOCKEE

CLYDE

GAINES

MUNDY

GRAND BLANC Grand Blanc

ATLAS

HADLEY

METAMORA

DRYDEN

ALMONT Almont

BERLIN

RILEY

WALES

KIMBALL

ARGENTINE

FENTON Fenton

HOLLY Holly

GROVELAND

BRANDON

OXFORD Oxford

ADDISON

BRUCE

BERLIN

RICHMOND

COLOMBUS

ST. CLAIR

DEERFIELD

TYBONE

ROSE

SPRINGFIELD

INDEPENDENCE Clarkston

OAKLAND

WASHINGTON

RAY

LENOX

CASCO

CHINA

OCOLA

HARTLAND

HIGHLAND

WHITE LAKE

WATERFORD

PONTIAC

ROCHESTER HILLS

SHELBY

MACOMB

CHESTERFIELD

GENOA

BRIGHTON

MILFORD

COMMERCE

WEST BLOOMFIELD

BLOOMFIELD

TROY

STERLING HEIGHTS

CLINTON

HARRISON

HAMBURG

GREEN OAK

LYON

NOVI

FARMINGTON HILLS

SOUTHFIELD

ROYAL OAK TWP.

WARREN

ST. CLAIR SHORES

WEBSTER

NORTHFIELD

SALEM

NORTHVILLE

LIVONIA

PLYMOUTH

DEARBORN

DEARBORN HEIGHTS

SPRINGWELLS WATER PLANT

SCIO

ANN ARBOR

SUPERIOR

CANTON

WAYNE

DEARBORN

DEARBORN HEIGHTS

DEARBORN

DEARBORN

LODI

PITTSFIELD

YPSILANTI

VAN BUREN

ROMULUS

TAYLOR

DEARBORN

DEARBORN

DEARBORN

SALINE

YORK

AUGUSTA

SUMPTER

HURON

HURON

HURON

HURON

HURON

MACON

MILAN

LONDON

EXETER

ASH

BROWNSTOWN

BROWNSTOWN

BROWNSTOWN

BROWNSTOWN

RIDGEWAY

DUNDEE

RAISINVILLE

FRENCHTOWN

FRENCHTOWN

FRENCHTOWN

FRENCHTOWN

FRENCHTOWN

FRENCHTOWN

BLISSFIELD

SUMMERFIELD

IDA

LA SALLE

MONROE-TOWN

MONROE-TOWN

MONROE-TOWN

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