



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: 06/12/2018 06/12/2018 06/12/2018 06/12/2018 06/12/2018 06/12/2018 06/12/2018 06/12/2018

| Parameter                     | Formula                          | Units     | Lake Huron |         | Southwest |         | Belle Isle | Water Works Park | Northwest | Springwells | MCL         | Sec.Std  | MDL   |
|-------------------------------|----------------------------------|-----------|------------|---------|-----------|---------|------------|------------------|-----------|-------------|-------------|----------|-------|
|                               |                                  |           | Raw        | Tap     | Raw       | Tap     | Raw        | Tap              | Tap       | Tap         |             |          |       |
| Turbidity                     |                                  | NTU       | 0.30       | 0.05    | 1.50      | 0.20    | 2.40       | 0.08             | 0.07      | 0.13        | 0.3/95% (1) |          |       |
| Total Solids                  |                                  | mg/L      | 86         | 137     | 129       | 170     | 82         | 144              | 91        | 124         |             | 500      | 10    |
| Total Dissolved Solids        |                                  | mg/L      | 111        | 120     | 141       | 150     | 99         | 122              | 117       | 149         |             | 500      | 10    |
| Aluminum                      | Al                               | mg/L      | NA         | NA      | NA        | NA      | NA         | NA               | NA        | NA          |             | 0.05-0.2 | 0.005 |
| Iron                          | Fe                               | mg/L      | NA         | NA      | NA        | NA      | NA         | NA               | NA        | NA          |             | 0.3      | 0.005 |
| Copper                        | Cu                               | mg/L      | 0.010      | < 0.005 | 0.006     | < 0.005 | < 0.005    | < 0.005          | < 0.005   | 0.005       | 1.3 (AL)    | 1.0      | 0.002 |
| Magnesium                     | Mg                               | mg/L      | 7.98       | 7.85    | 8.53      | 8.43    | 8.13       | 8.33             | 8.43      | 8.33        |             |          | 0.5   |
| Calcium                       | Ca                               | mg/L      | 26.8       | 26.5    | NA        | 29.1    | NA         | 28.1             | 28.0      | 28.3        |             |          | 0.1   |
| Sodium                        | Na                               | mg/L      | 4.98       | 5.21    | NA        | 6.36    | NA         | 5.76             | 5.94      | 5.99        |             | 20 (2)   | 0.1   |
| Potassium                     | K                                | mg/L      | NA         | NA      | NA        | NA      | NA         | NA               | NA        | NA          |             |          | 0.1   |
| Manganese                     | Mn                               | mg/L      | NA         | NA      | NA        | NA      | NA         | NA               | NA        | NA          |             | 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      | 1.9        | 2.1     | 0.8       | 1.0     | 1.1        | 1.2              | 1.1       | 1.1         |             |          | 0.4   |
| Sulfate                       | SO <sub>4</sub> <sup>2-</sup>    | mg/L      | 16.8       | 18.6    | 18.4      | 26.2    | 17.0       | 22.2             | 25.5      | 25.9        |             | 250      |       |
| Chloride                      | Cl <sup>-</sup>                  | mg/L      | 9.1        | 9.6     | 10.4      | 11.8    | 8.8        | 11.0             | 11.0      | 11.0        |             | 250      | 5     |
| Phosphorus                    | P                                | mg/L      | < 0.05     | 0.40    | < 0.05    | 0.38    | < 0.05     | 0.29             | 0.40      | 0.41        |             |          | 0.05  |
| Free Carbon Dioxide           | CO <sub>2</sub>                  | mg/L      | 0.0        | 0.0     | 0.3       | 0.1     | 1.0        | 6.3              | 0.0       | 0.0         |             |          |       |
| Total Hardness (3), (4), (5)  |                                  | mg/L      | 98         | 97      | 106       | 104     | 100        | 102              | 102       | 102         |             |          |       |
| Total Alkalinity (3)          |                                  | mg/L      | 78         | 73      | 85        | 74      | 86         | 77               | 74        | 72          |             |          |       |
| Carbonate Alkalinity (3)      |                                  | mg/L      | 0          | 0       | 0         | 0       | 0          | 0                | 0         | 0           |             |          |       |
| Bi-Carbonate Alkalinity (3)   |                                  | mg/L      | 0          | 0       | 80        | 67      | 85         | 77               | 48        | 58          |             |          |       |
| Non-Carbonate Hardness (3)    |                                  | mg/L      | 20         | 24      | 21        | 30      | 14         | 25               | 28        | 30          |             |          |       |
| Chemical Oxygen Demand        |                                  | mg/L      | < 2        | 2.5     | < 2       | 2.1     | 3.0        | 5.1              | < 2       | < 2         |             |          | 2     |
| Dissolved Oxygen              |                                  | mg/L      | 9.3        | 9.4     | 7.9       | 8.0     | 9.1        | 9.2              | 9.4       | 8.6         |             |          |       |
| 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      | 0.32       | 0.33    | 0.43      | 0.41    | 0.33       | 0.43             | 0.35      | 0.34        | 10          |          | 0.1   |
| Fluoride                      | F <sup>-</sup>                   | mg/L      | 0.16       | 0.76    | 0.17      | 0.66    | 0.12       | 0.75             | 0.65      | 0.67        | 4.0         | 2.0      | 0.5   |
| pH                            |                                  |           | 11.16      | 11.46   | 8.79      | 9.00    | 8.23       | 7.39             | 9.72      | 9.38        |             | 6.5-8.5  |       |
| Specific Conductance @ 25 °C. |                                  | micromhos | 192        | 196     | 214       | 219     | 203        | 216              | 216       | 214         |             |          |       |
| Temperature                   |                                  | °C        | 14.7       | 13.4    | 18.9      | 18.3    | 18.0       | 18.5             | 19.8      | 18.9        |             |          |       |

|                                   |  |
|-----------------------------------|--|
| <b>Legend</b>                     | <b>Notes:</b>  |
| 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 x (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.   |
| NA: Not Available                 | detection limit.   |

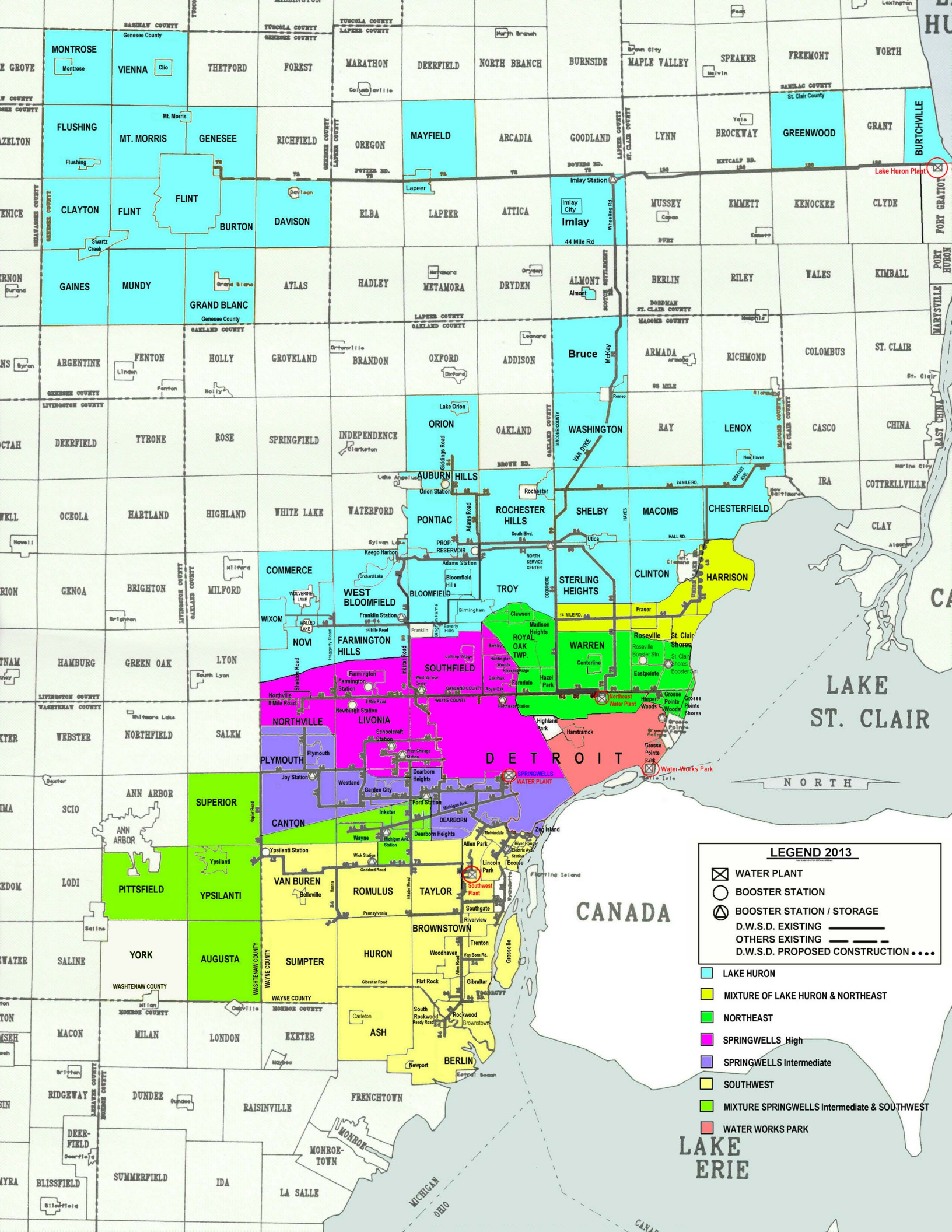
Reporting Analyst: Khan & Levoska  
 Reviewed By: Williford

Chemist-I  
 Management Professional - Ops.

Initials: **WK & BL**  
 Initials: **PW**

Date: 08/30/2018  
 Date: 08/30/2018

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

CANADA

MICHIGAN

OHIO

HU

PORT GRATION

PORT FURON

MARSHVILLE

EAST CHINA

CA

CLAY

ALGONA

ROSEVILLE

ST. CLAIR

ROOSEVELT

BOONVILLE

ST. CLAIR

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