

**City of Detroit**  
**Water and Sewerage Department**  
**Laboratory Analysis of Water Samples Collected at**  
**Southwest Plant**  
**09/10/2013**

Parameter	Formula	Units	Raw	Tap	MCL	Sec.Std	MDL
Turbidity		NTU	6.02	0.06	0.3/95% (1)		
Total Solids		mg/L	125	148		500	10
Total Dissolved Solids		mg/L	116	134		500	10
Aluminum	Al	mg/L	0.362	0.462		0.05-0.2	0.005
Iron	Fe	mg/L	0.134	< 0.050		0.3	0.005
Copper	Cu	mg/L	0.032	< 0.005	1.3		0.002
Magnesium	Mg	mg/L	7.69	7.78			0.5
Calcium	Ca	mg/L	26.6	25.9			0.1
Sodium	Na	mg/L	5.11	5.12		20 (2)	0.1
Potassium	K	mg/L	0.92	0.90			0.1
Manganese	Mn	mg/L	0.007	< 0.002		0.05	0.002
Zinc	Zn	mg/L	< 0.1	< 0.1		5	0.1
Silica	SiO <sub>2</sub>	mg/L	1.0	1.0			0.4
Sulfate	SO <sub>4</sub> <sup>2-</sup>	mg/L	16.6	24.2			
Chloride	Cl <sup>-</sup>	mg/L	8.0	9.5		250	5
Phosphorus	P	mg/L	0.07	0.33			0.05
Free Carbon Dioxide	CO <sub>2</sub>	mg/L	0.9	10.9			
Total Hardness (3), (4), (5)		mg/L	100	104			
Total Alkalinity (3)		mg/L	78	67			
Carbonate Alkalinity (3)		mg/L	0	0			
Bi-Carbonate Alkalinity (3)		mg/L	78	67			
Non-Carbonate Hardness (3)		mg/L	22	37			
Chemical Oxygen Demand		mg/L	4.4	< 2.0			2
Dissolved Oxygen		mg/L	7.1	7.1			
Ammonia Nitrogen	NH <sub>3</sub> -N	mg/L	< 0.1	< 0.1			0.1
Organic Nitrogen		mg/L	< 0.1	< 0.1			0.1
Nitrite Nitrogen	NO <sub>2</sub> <sup>-</sup> -N	mg/L	< 0.1	< 0.1	1		0.1
Nitrate Nitrogen	NO <sub>3</sub> <sup>-</sup> -N	mg/L	0.21	0.21	10	10	0.1
Fluoride	F <sup>-</sup>	mg/L	0.11	0.50	4		0.5
pH			8.23	7.09	6.5-8.5	6.5-8.5	
Specific Conductance @ 25 °C.		micromhos	216	223			
Temperature		°C	23	23.1			

Legend	Notes:
MCL: Maximum Contaminant Level	(1) Turbidity must not exceed 0.3 NTU in 95% of daily samples in any month
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)
MDL: Method Detection Limit	(4) By Titration
< : Less than	(5) Tap Water Hardness in Grains per Gallon <b>6.03 GPG</b>
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

Sr. Analytical Chemist  
Principal Chemist

Initial **B. B.**  
Initial **P. W.**

Date: 11/20/2013  
Date: 11/21/2013

**Sue McCormick**  
**Detroit Water & Sewerage Department**

**City of Detroit**  
**Water and Sewerage Department**  
**Laboratory Analysis of Water Samples Collected at**  
**Water Works Park Plant**  
**09/10/2013**

Parameter	Formula	Units	Raw	Tap	MCL	Sec.Std	MDL
Turbidity		NTU	1.50	0.08	0.3/95% (1)		
Total Solids		mg/L	118	153		500	10
Total Dissolved Solids		mg/L	140	136		500	10
Aluminum	Al	mg/L	0.299	0.194		0.05-0.2	0.005
Iron	Fe	mg/L	0.224	0.103		0.3	0.005
Copper	Cu	mg/L	< 0.005	0.006	1.3		0.002
Magnesium	Mg	mg/L	7.75	7.63			0.5
Calcium	Ca	mg/L	26.5	25.9			0.1
Sodium	Na	mg/L	4.99	5.01		20 (2)	0.1
Potassium	K	mg/L	0.93	0.96			0.1
Manganese	Mn	mg/L	0.003	< 0.002		0.05	0.002
Zinc	Zn	mg/L	< 0.1	< 0.1		5	0.1
Silica	SiO <sub>2</sub>	mg/L	0.0	0.9			0.4
Sulfate	SO <sub>4</sub> <sup>2-</sup>	mg/L	15.0	31.2			
Chloride	Cl <sup>-</sup>	mg/L	8.0	9.0		250	5
Phosphorus	P	mg/L	< 0.05	0.31			0.05
Free Carbon Dioxide	CO <sub>2</sub>	mg/L	0.6	7.3			
Total Hardness (3), (4), (5)		mg/L	100	102			
Total Alkalinity (3)		mg/L	78	68			
Carbonate Alkalinity (3)		mg/L	0	0			
Bi-Carbonate Alkalinity (3)		mg/L	78	68			
Non-Carbonate Hardness (3)		mg/L	22	34			
Chemical Oxygen Demand		mg/L	6.8	4.4			2
Dissolved Oxygen		mg/L	6.9	7.0			
Ammonia Nitrogen	NH <sub>3</sub> -N	mg/L	< 0.1	< 0.1			0.1
Organic Nitrogen		mg/L	< 0.1	< 0.1			0.1
Nitrite Nitrogen	NO <sub>2</sub> <sup>-</sup> -N	mg/L	< 0.1	< 0.1	1		0.1
Nitrate Nitrogen	NO <sub>3</sub> <sup>-</sup> -N	mg/L	0.24	0.24	10	10	0.1
Fluoride	F <sup>-</sup>	mg/L	0.09	0.63	4		0.5
pH			8.39	7.27	6.5-8.5	6.5-8.5	
Specific Conductance @ 25 °C.		micromhos	216	223			
Temperature		°C	24	23.7			

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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)
MDL: Method Detection Limit	(4) By Titration
< : Less than	(5) Tap Water Hardness in Grains per Gallon <b>5.92 GPG</b>
AE: Analytical Error	(6) Reported results are below the low calibration standard but above the instrument
IV: Invalid Sample	detection limit.

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