

**City of Detroit**  
**Water and Sewerage Department**  
**Laboratory Analysis of Water Samples Collected at**  
**Southwest Plant**  
**05/13/2013**

Parameter	Formula	Units	Raw	Tap	MCL	Sec.Std	MDL
Turbidity		NTU	2.70	0.09	0.3/95% (1)		
Total Solids		mg/L	147	170		500	10
Total Dissolved Solids		mg/L	147	168		500	10
Aluminum	Al	mg/L	0.130	0.069		0.05-0.2	0.005
Iron	Fe	mg/L	0.148	<0.050		0.3	0.005
Copper	Cu	mg/L	0.034	<0.005	1.3		0.002
Magnesium	Mg	mg/L	7.59	8.14			0.5
Calcium	Ca	mg/L	26.2	29.1			0.1
Sodium	Na	mg/L	4.96	5.54		20 (2)	0.1
Potassium	K	mg/L	0.89	1.00			0.1
Manganese	Mn	mg/L	< 0.002	< 0.002		0.05	0.002
Zinc	Zn	mg/L	< 0.1	< 0.1		5	0.1
Silica	SiO <sub>2</sub>	mg/L	0.8	0.6			0.4
Sulfate	SO <sub>4</sub> <sup>2-</sup>	mg/L	18.3	21.1			
Chloride	Cl <sup>-</sup>	mg/L	7.5	10.5		250	5
Phosphorus	P	mg/L	< 0.05	0.38			0.05
Free Carbon Dioxide	CO <sub>2</sub>	mg/L	1.7	4.8			
Total Hardness (3), (4), (5)		mg/L	120	115			
Total Alkalinity (3)		mg/L	87	84			
Carbonate Alkalinity (3)		mg/L	0	0			
Bi-Carbonate Alkalinity (3)		mg/L	87	84			
Non-Carbonate Hardness (3)		mg/L	33	31			
Chemical Oxygen Demand		mg/L	3.6	3.2			2
Dissolved Oxygen		mg/L	12.0	11.4			
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	0.41	0.69	10	10	0.1
Fluoride	F <sup>-</sup>	mg/L	0.12	0.71	4		0.5
pH			8.00	7.54	6.5-8.5	6.5-8.5	
Specific Conductance @ 25 °C.		micromhos	219	243			
Temperature		°C	11.5	12.3			

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>6.67 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: 06/25/2013  
Date: 06/25/2013

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

**City of Detroit**  
**Water and Sewerage Department**  
**Laboratory Analysis of Water Samples Collected at**  
**Water Works Park Plant**  
05/13/2013

Parameter	Formula	Units	Raw	Tap	MCL	Sec.Std	MDL
Turbidity		NTU	4.20	0.08	0.3/95% (1)		
Total Solids		mg/L	160	152		500	10
Total Dissolved Solids		mg/L	168	159		500	10
Aluminum	Al	mg/L	0.280	0.058		0.05-0.2	0.005
Iron	Fe	mg/L	1.445	< 0.050		0.3	0.005
Copper	Cu	mg/L	< 0.005	< 0.005	1.3		0.002
Magnesium	Mg	mg/L	8.17	7.56			0.5
Calcium	Ca	mg/L	27.9	26.3			0.1
Sodium	Na	mg/L	4.96	4.95		20 (2)	0.1
Potassium	K	mg/L	1.03	0.85			0.1
Manganese	Mn	mg/L	0.011	< 0.002		0.05	0.002
Zinc	Zn	mg/L	< 0.1	< 0.1		5	0.1
Silica	SiO <sub>2</sub>	mg/L	0.9	0.8			0.4
Sulfate	SO <sub>4</sub> <sup>2-</sup>	mg/L	17.8	31.2			
Chloride	Cl <sup>-</sup>	mg/L	8.0	9.0		250	5
Phosphorus	P	mg/L	< 0.05	0.25			0.05
Free Carbon Dioxide	CO <sub>2</sub>	mg/L	1.6	7.7			
Total Hardness (3), (4), (5)		mg/L	105	110			
Total Alkalinity (3)		mg/L	80	84			
Carbonate Alkalinity (3)		mg/L	0	0			
Bi-Carbonate Alkalinity (3)		mg/L	80	84			
Non-Carbonate Hardness (3)		mg/L	25	26			
Chemical Oxygen Demand		mg/L	3.2	< 2.0			2
Dissolved Oxygen		mg/L	11.5	AE			
Ammonia Nitrogen	NH <sub>3</sub> -N	mg/L	0.2	< 0.1			0.1
Organic Nitrogen		mg/L	0.5	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	0.51	0.38	10	10	0.1
Fluoride	F <sup>-</sup>	mg/L	0.10	0.58	4		0.5
pH			7.99	7.34	6.5-8.5	6.5-8.5	
Specific Conductance @ 25 °C.		micromhos	223	220			
Temperature		°C	11.1	AE			

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>6.38 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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