

City of Detroit
Water and Sewerage Department
Laboratory Analysis of Water Samples Collected at
Southwest Plant
January 8, 2013

Parameter	Formula	Units	Raw	Tap	MCL	Sec.Std	MDL
Turbidity		NTU	5.22	0.06	0.3/95% (1)		
Total Solids		mg/L	156	150		500	10
Total Dissolved Solids		mg/L	137	134		500	10
Aluminum	Al	mg/L	0.420	0.291		0.05-0.2	0.005
Iron	Fe	mg/L	0.287	0.052		0.3	0.005
Copper	Cu	mg/L	0.034	0.013	1.3		0.002
Magnesium	Mg	mg/L	8.41	7.94			0.5
Calcium	Ca	mg/L	30.4	29.7			0.1
Sodium	Na	mg/L	6.68	6.31		20 (2)	0.1
Potassium	K	mg/L	1.04	0.98			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 ₂	mg/L	1.0	0.8			0.4
Sulfate	SO ₄ ²⁻	mg/L	20.7	26.8			
Chloride	Cl ⁻	mg/L	10.0	11.0		250	5
Phosphorus	P	mg/L	< 0.05	0.21			0.05
Free Carbon Dioxide	CO ₂	mg/L	3.2	8.1			
Total Hardness (3), (4), (5)		mg/L	107	106			
Total Alkalinity (3)		mg/L	86	97			
Carbonate Alkalinity (3)		mg/L	0	0			
Bi-Carbonate Alkalinity (3)		mg/L	86	97			
Non-Carbonate Hardness (3)		mg/L	21	9			
Chemical Oxygen Demand		mg/L	8.0	< 2.0			2
Dissolved Oxygen		mg/L	13.9	14.0			
Ammonia Nitrogen	NH ₃ -N	mg/L	0.2	0.1			0.1
Organic Nitrogen		mg/L	0.4	0.3			0.1
Nitrite Nitrogen	NO ₂ ⁻ -N	mg/L	< 0.1	< 0.1	1		0.1
Nitrate Nitrogen	NO ₃ ⁻ -N	mg/L	0.63	0.61	10	10	0.1
Fluoride	F ⁻	mg/L	0.16	0.64	4		0.5
pH			7.73	7.38	6.5-8.5	6.5-8.5	
Specific Conductance @ 25 °C.		micromhos	238	245			
Temperature		°C	2.9	2.2			

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 6.15 GPG
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.

Date: Apr 9, 2013

Initial

P. W.

Date: 04/12/2013

Sue McCormick

Detroit Water & Sewerage Department

City of Detroit
Water and Sewerage Department
Laboratory Analysis of Water Samples Collected at
Water Works Park Plant
January 8, 2013

Parameter	Formula	Units	Raw	Tap	MCL	Sec.Std	MDL
Turbidity		NTU	7.78	0.08	0.3/95% (1)		
Total Solids		mg/L	161	155		500	10
Total Dissolved Solids		mg/L	109	114		500	10
Aluminum	Al	mg/L	0.289	0.235		0.05-0.2	0.005
Iron	Fe	mg/L	0.293	0.161		0.3	0.005
Copper	Cu	mg/L	0.008	< 0.005	1.3		0.002
Magnesium	Mg	mg/L	7.68	7.61			0.5
Calcium	Ca	mg/L	27.7	27.3			0.1
Sodium	Na	mg/L	5.31	6.00		20 (2)	0.1
Potassium	K	mg/L	0.93	0.86			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 ₂	mg/L	1.1	1.3			0.4
Sulfate	SO ₄ ²⁻	mg/L	19.4	31.2			
Chloride	Cl ⁻	mg/L	9.0	11.5		250	5
Phosphorus	P	mg/L	< 0.05	0.30			0.05
Free Carbon Dioxide	CO ₂	mg/L	1.2	8.5			
Total Hardness (3), (4), (5)		mg/L	96	104			
Total Alkalinity (3)		mg/L	95	81			
Carbonate Alkalinity (3)		mg/L	0	0			
Bi-Carbonate Alkalinity (3)		mg/L	95	81			
Non-Carbonate Hardness (3)		mg/L	1	23			
Chemical Oxygen Demand		mg/L	9.2	5.6			2
Dissolved Oxygen		mg/L	13.5	14.2			
Ammonia Nitrogen	NH ₃ -N	mg/L	0.1	< 0.1			0.1
Organic Nitrogen		mg/L	0.4	0.3			0.1
Nitrite Nitrogen	NO ₂ ⁻ -N	mg/L	< 0.1	< 0.1	1		0.1
Nitrate Nitrogen	NO ₃ ⁻ -N	mg/L	0.33	0.31	10	10	0.1
Fluoride	F ⁻	mg/L	0.09	0.63	4		0.5
pH			8.19	7.28	6.5-8.5	6.5-8.5	
Specific Conductance @ 25 °C.		micromhos	208	225			
Temperature		°C	7.2	8.8			

Legend	Notes:
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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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