

City of Detroit
Water and Sewerage Department
Laboratory Analysis of Water Samples Collected at
Lake Huron Plant
October 6, 2009

Parameter	Formula	Units	Raw	Tap	MCL	Sec.Std	MDL
Turbidity		NTU	0.3	0.05	0.3/95% (1)		
Total Solids		mg/L	124	136		500	10
Total Dissolved Solids		mg/L	119	128		500	10
Aluminum	Al	mg/L	0.065	0.137		0.05-0.2	0.005
Iron	Fe	mg/L	<0.050	<0.050		0.3	0.005
Copper	Cu	mg/L	0.008	0.005	1.3		0.002
Magnesium	Mg	mg/L	8.84	8.35			0.5
Calcium	Ca	mg/L	28.67	28.04			0.1
Sodium	Na	mg/L	6.09	6.18		20 (2)	0.1
Potassium	K	mg/L	0.84	0.8609			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	0.66	1.05			0.4
Sulfate	SO ₄	mg/L	22.2	28.6			
Chloride	Cl ⁻	mg/L	7.00	8.50		250	5
Phosphorus	P	mg/L	<0.05	0.42			0.05
Free Carbon Dioxide	CO ₂	mg/L	2.17	4.09			
Total Hardness (3), (4), (5)		mg/L	99	98			
Total Alkalinity (3)		mg/L	89	78			
Carbonate Alkalinity (3)		mg/L	0	0			
Bi-Carbonate Alkalinity (3)		mg/L	89	78			
Non-Carbonate Hardness (3)		mg/L	10	20			
Chemical Oxygen Demand		mg/L	5.2	4.8			2
Dissolved Oxygen		mg/L	8.21	8.45			
Ammonia Nitrogen	NH ₃ -N	mg/L	<0.1	<0.1			0.1
Organic Nitrogen		mg/L	0.12	<0.1			0.1
Nitrite Nitrogen	NO ₂ -N	mg/L	<0.1	<0.1	1		0.1
Nitrate Nitrogen	NO ₃ -N	mg/L	0.32	0.30	10	10	0.1
Fluoride	F	mg/L	0.12	1.01	4		0.5
pH			7.91	7.58	6.5-8.5	6.5-8.5	
Specific Conductance @ 25 °C.		micromhos	213	219			
Temperature		°C	17.7	18.3			

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 5.68 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 Initial **B. B.** Date: 01/20/2009
Water Quality Manager, Acting Initial **P.D.W** Date: 01/26/2009

Pam Turner
Detroit Water & Sewerage Department

City of Detroit
Water and Sewerage Department
Laboratory Analysis of Water Samples Collected at
Southwest Plant
October 6, 2009

Parameter	Formula	Units	Raw	Tap	MCL	Sec.Std	MDL
Turbidity		NTU	5.73	0.05	0.3/95% (1)		
Total Solids		mg/L	146	154		500	10
Total Dissolved Solids		mg/L	139	141		500	10
Aluminum	Al	mg/L	0.202	0.077		0.05-0.2	0.005
Iron	Fe	mg/L	0.192	<0.050		0.3	0.005
Copper	Cu	mg/L	0.006	0.008	1.3		0.002
Magnesium	Mg	mg/L	9.185	9.768			0.5
Calcium	Ca	mg/L	29.2	31.2			0.1
Sodium	Na	mg/L	5.96	6.22		20 (2)	0.1
Potassium	K	mg/L	0.86	0.86			0.1
Manganese	Mn	mg/L	0.005	0.002		0.05	0.002
Zinc	Zn	mg/L	<0.1	<0.1		5	0.1
Silica	SiO ₂	mg/L	0.66	0.87			0.4
Sulfate	SO ₄	mg/L	32.9	30.3			
Chloride	Cl ⁻	mg/L	7.50	9.00		250	5
Phosphorus	P	mg/L	<0.05	0.42			0.05
Free Carbon Dioxide	CO ₂	mg/L	2.39	5.78			
Total Hardness (3), (4), (5)		mg/L	104	106			
Total Alkalinity (3)		mg/L	85	78			
Carbonate Alkalinity (3)		mg/L	0	0			
Bi-Carbonate Alkalinity (3)		mg/L	85	78			
Non-Carbonate Hardness (3)		mg/L	19	28			
Chemical Oxygen Demand		mg/L	7.2	3.6			2
Dissolved Oxygen		mg/L	8.11	8.07			
Ammonia Nitrogen	NH ₃ -N	mg/L	<0.1	<0.1			0.1
Organic Nitrogen		mg/L	0.12	0.11			0.1
Nitrite Nitrogen	NO ₂ -N	mg/L	<0.1	<0.1	1		0.1
Nitrate Nitrogen	NO ₃ -N	mg/L	0.26	0.26	10	10	0.1
Fluoride	F	mg/L	0.12	0.90	4		0.5
pH			7.91	7.43	6.5-8.5	6.5-8.5	
Specific Conductance @ 25 °C.		micromhos	223	204			
Temperature		°C	15.1	15.1			

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
AE: Analytical Error	(6) Reported results are below the low calibration standard but above the instrument detection limit.
IV: Invalid Sample	6.15 GPG

Analyst: Brian Brown
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Detroit Water & Sewerage Department

City of Detroit
Water and Sewerage Department
Laboratory Analysis of Water Samples Collected at
Water Works Park Plant
October 6, 2009

Parameter	Formula	Units	Raw	Tap	MCL	Sec.Std	MDL
Turbidity		NTU	8.38	0.08	0.3/95% (1)		
Total Solids		mg/L	142	139		500	10
Total Dissolved Solids		mg/L	138	139		500	10
Aluminum	Al	mg/L	0.217	0.143		0.05-0.2	0.005
Iron	Fe	mg/L	0.226	< 0.050		0.3	0.005
Copper	Cu	mg/L	0.006	0.004	1.3		0.002
Magnesium	Mg	mg/L	7.89	8.66			0.5
Calcium	Ca	mg/L	30.57	25.80			0.1
Sodium	Na	mg/L	6.14	6.17		20 (2)	0.1
Potassium	K	mg/L	1.00	0.86			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 ₂	mg/L	0.97	0.79			0.4
Sulfate	SO ₄	mg/L	AE	31.2			
Chloride	Cl ⁻	mg/L	7.50	7.50		250	5
Phosphorus	P	mg/L	< 0.05	0.32			0.05
Free Carbon Dioxide	CO ₂	mg/L	3.01	5.26			
Total Hardness (3), (4), (5)		mg/L	101	103			
Total Alkalinity (3)		mg/L	85	76			
Carbonate Alkalinity (3)		mg/L	0	0			
Bi-Carbonate Alkalinity (3)		mg/L	85	76			
Non-Carbonate Hardness (3)		mg/L	16	27			
Chemical Oxygen Demand		mg/L	5.2	3.6			2
Dissolved Oxygen		mg/L	9.88	10.15			
Ammonia Nitrogen	NH ₃ -N	mg/L	< 0.1	< 0.1			0.1
Organic Nitrogen		mg/L	< 0.1	< 0.1			0.1
Nitrite Nitrogen	NO ₂ -N	mg/L	< 0.1	< 0.1	1		0.1
Nitrate Nitrogen	NO ₃ -N	mg/L	0.31	0.31	10	10	0.1
Fluoride	F	mg/L	0.11	0.995	4		0.5
pH			7.75	7.46	6.5-8.5	6.5-8.5	
Specific Conductance @ 25 °C.		micromhos	218	223			
Temperature		°C	14.5	16.7			

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
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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
AE: Analytical Error	(6) Reported results are below the low calibration standard but above the instrument detection limit.
IV: Invalid Sample	5.97 GPG

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