

**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 <sub>2</sub>	mg/L	0.66	1.05			0.4
Sulfate	SO <sub>4</sub>	mg/L	22.2	28.6			
Chloride	Cl <sup>-</sup>	mg/L	7.00	8.50		250	5
Phosphorus	P	mg/L	<0.05	0.42			0.05
Free Carbon Dioxide	CO <sub>2</sub>	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 <sub>3</sub> -N	mg/L	<0.1	<0.1			0.1
Organic Nitrogen		mg/L	0.12	<0.1			0.1
Nitrite Nitrogen	NO <sub>2</sub> -N	mg/L	<0.1	<0.1	1		0.1
Nitrate Nitrogen	NO <sub>3</sub> -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 <b>5.68 GPG</b>
AE: Analytical Error	(6) Reported results are below the low calibration standard but above the instrument detection limit.
IV: Invalid Sample	

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 <sub>2</sub>	mg/L	0.66	0.87			0.4
Sulfate	SO <sub>4</sub>	mg/L	32.9	30.3			
Chloride	Cl <sup>-</sup>	mg/L	7.50	9.00		250	5
Phosphorus	P	mg/L	<0.05	0.42			0.05
Free Carbon Dioxide	CO <sub>2</sub>	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 <sub>3</sub> -N	mg/L	<0.1	<0.1			0.1
Organic Nitrogen		mg/L	0.12	0.11			0.1
Nitrite Nitrogen	NO <sub>2</sub> -N	mg/L	<0.1	<0.1	1		0.1
Nitrate Nitrogen	NO <sub>3</sub> -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:
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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	<b>6.15 GPG</b>

Analyst: Brian Brown  
Reviewed By: Patrick Williford

Sr. Analytical Chemist  
Water Quality Manager, Acting

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

Date: 01/20/2009  
Date: 01/26/2009

**Pam Turner**  
**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 <sub>2</sub>	mg/L	0.97	0.79			0.4
Sulfate	SO <sub>4</sub>	mg/L	AE	31.2			
Chloride	Cl <sup>-</sup>	mg/L	7.50	7.50		250	5
Phosphorus	P	mg/L	< 0.05	0.32			0.05
Free Carbon Dioxide	CO <sub>2</sub>	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 <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> -N	mg/L	< 0.1	< 0.1	1		0.1
Nitrate Nitrogen	NO <sub>3</sub> -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:
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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	<b>5.97 GPG</b>

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