

### Appendix D-3

Flow-weighted average of limnological parameters, 2013, in Onondaga Lake tributaries, with standard error of estimate.

Parameter	Units	Nine Mile Creek		Harbor Brook		Onondaga Creek @ Kirpatrick Street		Ley Creek		Trib. 5A		METRO Effluent **		METRO By-Pass		East Flume	
		Concentration	RSE	Concentration	RSE	Concentration	RSE	Concentration	RSE	Concentration	RSE	Concentration	RSE	Concentration	RSE	Concentration	RSE
5-day BOD	mg/l	2.6	8.8%	2.6	20.0%	2.3	15.9%	2.9	20.2%	2.4	20.4%	2.2	4.4%	75.5	9.0%	5.0	29.0%
Total Alkalinity	mg/l	200	1.8%	242	6.3%	223	2.4%	192	5.8%	168	2.7%	123	3.5%	194	9.8%	251	9.3%
Total Organic Carbon	mg/l	3.2	11.5%	2.2	26.0%	2.6	21.7%	6.7	8.0%	3.2	7.6%	5.8	5.3%	15.2	10.8%	3.8	12.5%
TOC-filtered	mg/l	3.0	12.5%	2.0	27.8%	2.5	23.2%	6.4	7.7%	3.0	7.3%	5.3	4.4%	12.8	11.3%	3.5	12.2%
Total Inorganic Carbon	mg/l	47.1	1.7%	56.0	6.6%	53.7	2.5%	45.9	6.5%	38.8	4.5%	33.1	3.3%	47.2	10.5%	56.9	9.8%
Total Kjeldahl Nitrogen as N	mg/l	0.86	9.2%	0.60	25.1%	0.72	11.2%	0.80	10.3%	0.58	61.0%	1.2	4.7%	11.4	5.0%	1.0	24.4%
Organic Nitrogen as N	mg/l	0.67	12.2%	0.49	24.0%	0.63	12.5%	0.57	11.4%	0.42	9.2%	0.79	7.6%	4.5	11.1%	0.60	25.9%
Ammonia as N	mg/l	0.181	6.9%	0.096	38.8%	0.069	11.2%	0.232	11.0%	0.164	155.8%	0.251	13.1%	7.20	7.0%	0.402	36.7%
Nitrate as N	mg/l	0.935	8.2%	1.41	4.8%	1.115	5.5%	0.285	9.0%	1.012	15.5%	11.91	2.1%	1.11	20.0%	7.14	13.1%
Nitrite as N	mg/l	0.020	14.6%	0.015	39.4%	0.022	37.9%	0.017	24.6%	0.018	26.6%	0.033	22.4%	0.099	13.0%	2.006	86.0%
Arsenic	ug/l	1.9	7.1%	1.9	5.1%	2.1	30.1%	1.9	7.7%	2.0	16.5%	2.0	6.1%	2.0	1.1%	2.8	37.9%
Total Phosphorus	ug/l	93.9	21.9%	73.5	37.4%	91.7	23.0%	86.9	27.6%	87.1	12.1%	57.5	3.8%	1,142	5.7%	166	29.7%
Soluble Reactive Phosphorus	ug/l	9	32.0%	20	18.6%	8	24.5%	14	18.7%	22	22.9%	2	60.9%	253	11.0%	130	35.2%
Silica	mg/l	3.963	4.1%	4.92	4.4%	5.287	7.2%	5.883	6.2%	6.801	6.8%	5.033	2.7%	4.75	10.3%	10.7	11.6%
Calcium	mg/l	184.5	2.3%	213.1	6.1%	112.5	2.2%	107.0	5.7%	168.4	3.4%	154.2	4.1%	137.3	12.6%	160.7	11.1%
Sodium	mg/l	94.6	4.8%	159.6	7.9%	216.4	7.2%	207.4	11.5%	252.365	5.1%	490.1	13.5%	347.5	22.8%	305.3	19.2%
Sulfate	mg/l	170.7	5.7%	341.8	6.4%	103.9	4.5%	103.4	6.8%	121.7	6.1%	178.3	4.3%	130.8	20.1%	195.3	16.1%
Chloride	mg/l	251.9	3.4%	281.7	7.4%	347.2	7.5%	344.1	11.5%	531.1	5.7%	897.2	4.1%	608.1	23.2%	471.5	22.5%
Total Suspended Solids	mg/l	88	43.5%	22	69.0%	85	37.8%	23	59.2%	11	50.8%	5.0	2.5%	62	8.2%	16	87.9%
Total Dissolved Solids	mg/l	948	2.8%	1223	5.9%	975	5.2%	927	7.7%	1329	4.7%	1982	5.1%	1428	15.8%	1411	14.8%
Zinc	ug/l	17	59.6%	15.3	58.5%	16.2	59.5%	21	54.3%	19.2	66.6%	19.9	3.0%	60.7	13.8%	25.4	86.3%
Copper	ug/l	4.9	21.8%	3.9	39.2%	8.2	38.3%	5.8	45.1%	26.5	52.8%	9.9	3.6%	32.1	86.6%	6.2	92.5%
Chromium	ug/l	2.0	34.9%	2.4	57.3%	3.3	64.8%	3.6	49.5%	45.2	62.6%	7.8	7.2%	17.2	80.1%	2.0	65.6%
Cadmium	ug/l	0.67	18.9%	0.68	22.4%	0.68	21.2%	0.69	15.2%	0.71	14.0%	0.80	6.4%	5.0	4.2%	0.80	6.9%
Lead	ug/l	2.5	29.8%	3.2	41.2%	3.5	66.3%	4.3	72.5%	5.0	77.9%	2.0	7.5%	20	6.4%	2.0	126.9%
Iron	mg/l	1.97	27.0%	0.55	52.9%	2.9	38.8%	1.0	34.7%	0.8	31.4%	1.27	5.2%	2.5	13.1%	0.32	91.4%
Magnesium	mg/l	27.3	2.0%	37.8	5.4%	24.1	2.4%	20.2	5.8%	18.0	3.1%	21.3	2.9%	17.6	13.7%	25.9	11.5%
Manganese	ug/l	191.8	34.1%	26.7	37.1%	97.9	21.7%	97.7	11.9%	96.2	14.5%	51.0	5.6%	66.8	7.8%	22.8	28.5%
Nickel	ug/l	3.4	9.7%	3.9	25.6%	5.6	62.1%	3.9	14.9%	89.6	33%	14.8	4.5%	15.2	84.6%	3.8	27.8%
Fecal Coliforms	cells/100ml	742	92.1%	1,902	68%	1,235	39.6%	2,449	18.0%	61	209%	231	43.4%	69,526	43.3%	122	121.0%

RSE = relative standard error of the concentration estimate. \*\* METRO BOD-5, NH<sub>3</sub>-N, TP, TSS based on observations made daily.

Calculated using a multiple regression algorithm relating concentration to flow, season, and trend with residual interpolation.

METRO TKN based on observations made 5 times each 2 week period. Other values are based on data collected bi-weekly; heavy metals sampled quarterly.

Calculations use the laboratory reported minimal reportable limit (MRL) when observations were below the MRL.