

CSO INTERIM WATER QUALITY MONITORING
2015 RED RIVER MONITORING REPORT

Survey Date : June 28, 2015		Red River Sampling Locations																
Parameter	Unit	SOUTH FLOODWAY CONTROL			FORT GARRY BRIDGE			NORWOOD BRIDGE			PROVENCHER BRIDGE			NORTH PERIMETER BRIDGE			LOCKPORT BRIDGE	
		(R5)			(R7)			(R8)			(RX2)			(R10)			(R11)	
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	C
Temperature	° C	23.6	23.3	23.5	23.2	23.2	23.2	23.3	23.1	23.2	23.3	23.2	23.2	23.4	23.2	23.2	23.8	24.1
Dissolved Oxygen	mg/L	5.54	5.9	5.81	6.36	6.16	6.37	6.2	6.26	5.84	6.64	6.25	6.39	6.48	6.55	6.47	6.06	5.73
Conductivity	mS/cm	835	833	830	882	884	881	881	880	885	1112	977	882	956	955	953	945	946
pH	units	8.26	8.3	8.24	8.29	8.2	8.25	8.13	8.24	8.15	8.51	8.29	8.27	8.27	8.31	8.26	8.4	8.21
Biochemical Oxygen Demand	mg/L	2	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	2.4	< 2.0	2.3	2	2.3	2.7	< 2.0	2.8	2.8
Carbonaceous BOD	mg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total Suspended Solids	mg/L	290	230	191	152	118	108	145	208	190	182	238	188	81	107	161	84	96
Ammonia Nitrogen	mg/L N	< 0.01	< 0.01	< 0.01	0.043	0.041	0.044	0.084	0.084	0.088	0.028	0.059	0.091	0.159	0.133	0.12	0.118	0.075
Nitrate Nitrogen	mg/L N	0.499	0.154	0.492	0.497	0.494	0.481	0.507	0.521	0.521	0.359	0.451	0.511	0.464	0.463	0.463	0.494	0.491
Nitrite Nitrogen	mg/L N	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	0.012	< 0.02	< 0.01	< 0.01	0.012	0.011	0.011	0.013	0.012
Nitrate-Nitrite Nitrogen	mg/L N	0.499	0.154	0.492	0.497	0.494	0.481	0.507	0.531	0.533	0.359	0.451	0.511	0.476	0.474	0.474	0.507	0.503
Total Kjeldahl Nitrogen	mg/L N	1.03	0.94	0.98	1.08	1.16	1.22	1.4	1.42	1.35	1.19	1.08	1.06	1.2	1.21	1.09	1.12	1.09
Total Nitrogen ¹	mg/L N	1.53	1.44	1.47	1.58	1.65	1.7	1.91	1.95	1.88	1.55	1.53	1.57	1.68	1.68	1.56	1.63	1.59
Total Phosphorus	mg/L P	0.184	0.154	0.159	0.229	0.224	0.225	0.19	0.287	0.285	0.286	0.206	0.234	0.22	0.2	0.187	0.19	0.207
Escherichia Coliform	MPN/100 mL	30	20	63	10	31	10	75	63	41	327	121	75	288	185	231	2190	3080
Fecal Coliform	MPN/100 mL	*	496	*	*	426	*	*	816	*	*	2010	*	*	1600	*	8160	12000
		2:30 PM	2:30 PM	2:30 PM	11:30 AM	11:30 AM	11:30 AM	12:20 PM	12:20 PM	12:20 PM	12:45 PM	12:45 PM	12:45 PM	3:30 PM	3:30 PM	3:30 PM	2:40 PM	2:40 PM

Notes: 1) Calculated values
2) * - Fecal coliform testing performed only at Sample B locations to compare with historical data. Not a requirement of the Environment Act Licence No. 3042
3) Analysed by contract laboratory

Client File No: 3205.00

CSO INTERIM WATER QUALITY MONITORING
2015 RED RIVER MONITORING REPORT

Survey Date : June 29, 2015		Red River Sampling Locations																
Parameter	Unit	SOUTH FLOODWAY CONTROL			FORT GARRY BRIDGE			NORWOOD BRIDGE			PROVENCHER BRIDGE			NORTH PERIMETER BRIDGE			LOCKPORT BRIDGE	
		(R5)			(R7)			(R8)			(RX2)			(R10)			(R11)	
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	C
Temperature	° C	23.9	23.8	24.1	23.5	23.4	23.5	23.4	23.3	23.3	23.2	23.3	23.4	23.5	23.3	23.4	23.7	23.9
Dissolved Oxygen	mg/L	6.15	6.17	6.11	6.32	6.23	6.33	5.75	5.99	5.8	6.4	6.23	5.95	6.55	6.68	6.37	6.17	6.3
Conductivity	mS/cm	848	848	848	850	848	851	849	847	849	1119	938	855	946	945	945	934	937
pH	units	8.39	8.39	8.37	8.2	8.3	8.23	8.2	8.25	8.19	8.58	8.34	8.22	8.36	8.33	8.33	8.39	8.33
Biochemical Oxygen Demand	mg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	2.7	< 2.0	< 2.0	2.2	2.4	3.1	2.7	2.7	2.4	2.5
Carbonaceous BOD	mg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total Suspended Solids	mg/L	195	224	192	132	167	173	155	229	342	152	214	194	197	166	152	94	132
Ammonia Nitrogen	mg/L N	< 0.01	< 0.01	< 0.01	0.029	0.033	0.024	0.047	0.046	0.056	< 0.01	0.038	0.048	0.161	0.111	0.102	0.054	0.048
Nitrate Nitrogen	mg/L N	0.491	0.5	0.494	0.562	0.561	0.562	0.566	0.574	0.574	0.461	0.496	0.517	0.521	0.507	0.505	0.536	0.531
Nitrite Nitrogen	mg/L N	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.011	< 0.01	< 0.01	0.01	< 0.01
Nitrate-Nitrite Nitrogen	mg/L N	0.491	0.5	0.494	0.562	0.561	0.562	0.566	0.574	0.574	0.461	0.496	0.517	0.532	0.507	0.505	0.456	0.531
Total Kjeldahl Nitrogen	mg/L N	0.98	0.95	0.96	1.08	1.11	1.08	1	1.06	1.17	1.08	1.07	1.1	1.44	1.21	1.21	1.22	1.12
Total Nitrogen ¹	mg/L N	1.47	1.45	1.45	1.64	1.67	1.64	1.57	1.63	1.74	1.54	1.57	1.62	1.97	1.72	1.71	1.77	1.65
Total Phosphorus	mg/L P	0.15	0.146	0.15	0.157	0.154	0.154	0.156	0.155	0.161	0.163	0.159	0.168	0.202	0.172	0.173	0.169	0.172
Escherichia Coliform	MPN/100 mL	16	54	15	29	35	15	84	28	30	194	29	73	161	142	166	231	246
Fecal Coliform	MPN/100 mL	*	387	*	*	1550	*	*	> 2420	*	*	> 2420	*	*	> 2420	*	1610	1250
		12:30 PM	12:30 PM	12:30 PM	9:05 AM	9:10 AM	9:15 AM	9:40 AM	9:45 AM	9:50 AM	10:30 AM	10:35 AM	10:40 AM	1:05 PM	1:00 PM	12:50 PM	11:55 AM	12:10 PM

Notes: 1) Calculated values
2) * - Fecal coliform testing performed only at Sample B locations to compare with historical data. Not a requirement of the Environment Act Licence No. 3042
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CSO INTERIM WATER QUALITY MONITORING
2015 RED RIVER MONITORING REPORT

Survey Date : June 30, 2015		Red River Sampling Locations																		
Parameter	Unit	SOUTH FLOODWAY CONTROL			FORT GARRY BRIDGE			NORWOOD BRIDGE			PROVENCHER BRIDGE			NORTH PERIMETER BRIDGE			LOCKPORT BRIDGE			
		(R5)			(R7)			(R8)			(RX2)			(R10)			(R11)			
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	C		
Temperature	° C	24	23.9	24	23.7	23.6	23.8	23.5	23.5	23.6	23.2	23.3	23.6	23.9	23.8	23.8	23.7	23.9		
Dissolved Oxygen	mg/L	6.29	6.1	6.21	6.27	6.75	6.25	6.15	6.49	5.78	7.41	6.49	6.11	6.63	6.37	6.68	6.17	6.3		
Conductivity	mS/cm	871	868	870	888	891	890	873	871	872	1113	1004	872	951	947	950	934	937		
pH	units	8.42	8.43	8.4	8.34	8.33	8.32	8.28	8.34	8.27	8.6	8.44	8.28	8.35	8.43	8.36	8.39	8.33		
Biochemical Oxygen Demand	mg/L	< 2.0	2	< 2.0	< 2.0	2.3	< 2.0	2.1	2.6	2.2	< 2.0	< 2.0	2	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0		
Carbonaceous BOD	mg/L	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	2	2.2	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0		
Total Suspended Solids	mg/L	287	253		121	191	77	131	254	195	181	162	149	72	150	163	150	348		
Ammonia Nitrogen	mg/L N	< 0.01	< 0.01	< 0.01	0.029	< 0.01	0.024	0.043	0.047	0.044	< 0.01	0.029	0.044	0.118	0.096	0.092	0.073	0.053		
Nitrate Nitrogen	mg/L N	0.549	0.545	0.539	0.589	0.591	0.584	0.583	0.589	0.587	0.364	0.497	0.588	0.519	0.523	0.526	0.525	0.586		
Nitrite Nitrogen	mg/L N	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.011	0.011	0.012	0.013	0.016		
Nitrate-Nitrite Nitrogen	mg/L N	0.549	0.545	0.539	0.589	0.591	0.584	0.583	0.589	0.587	0.364	0.497	0.588	0.53	0.534	0.538	0.539	0.602		
Total Kjeldahl Nitrogen	mg/L N	0.88	0.93	0.99	1.3	1.21	1.09	1.29	1.49	1.33	1.36	1.33	1.2	1.31	1.42	1.44	1.39	1.69		
Total Nitrogen ¹	mg/L N	1.43	1.48	1.5	1.89	1.8	1.67	1.87	2.08	1.92	1.72	1.83	1.79	1.84	1.95	1.98	1.93	2.29		
Total Phosphorus	mg/L P	0.15	0.148		0.234	0.26	0.188	0.226	0.312	0.275	0.26	0.264	0.241	0.225	0.25	0.264	0.283	0.419		
Escherichia Coliform	MPN/100 mL	26	22	20	8	16	21	26	25	32	201	96	20	131	186	161	201	391		
Fecal Coliform	MPN/100 mL	*	80	*	*	613	*	*	980	*	*	2420	*	*	1050	*	581	1150		
		12:45 PM			9:25 AM			9:30 AM	9:40 AM	10:20 AM	10:25 AM	10:30 AM	10:45 AM	10:55 AM	11:00 AM	1:10 PM	1:20 PM	1:25 PM	12:35 PM	12:20 PM

Notes: 1) Calculated values
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