APPENDIX A – 2014 WATER QUALITY SUMMARY

MONTH	POST TREATMENT Free Cl_2 mg/L
January	
Minimum	0.83
Maximum	2.31
Average	1.33
February	
Minimum	0.78
Maximum	2.58
Average	1.31
March	
Minimum	0.86
Maximum	1.83
Average	1.33
April	
Minimum	0.79
Maximum	2.39
Average	1.31
May	
Minimum	0.79
Maximum	1.81
Average	1.30
June	
Minimum	0.81
Maximum	2.22
Average	1.38
July	
Minimum	0.80
Maximum	1.90
Average	1.49
August	
Minimum	0.78
Maximum	1.84
Average	1.33
September	
Minimum	0.74
Maximum	1.97
Average	1.36
October	
Minimum	0.77
Maximum	2.89
Average	1.33
November	
Minimum	0.61
Maximum	2.40
Average	1.27
December	
Minimum	0.80
Maximum	1.67
Average	1.23
Yearly Minimum	0.61
Yearly Maximum	2.89
Yearly Average	1.33

Note: Chlorine residuals obtained from SCADA.

APPENDIX B
ST. THOMAS TOTAL DAILY FLOW - 2014

Date	January m^3	February m^3	March m^3	April m^3	May m^3	June m^3	July m^3	August m^3	September m^3	October m^3	November m^3	December m^3
1	5203	6750	7043	4782	4192	7677	5903	6104	8014	7653	5527	6106
2	5011	6567	12789	4357	3958	4835	6028	5094	6169	7514	6044	5748
3	5455	6264	9645	4992	4220	5462	5360	5125	6771	7403	5573	6275
4	6538	5848	8993	4187	4856	4883	6410	5528	6797	7007	5301	6068
5	7327	6056	7078	4888	4494	4639	6162	5001	6733	8575	5736	6056
6	6499	6044	6588	5424	4179	5754	6783	6233	6067	8063	5620	6857
7	5735	5897	8540	4203	4062	6522	5040	6431	7015	7951	5257	7076
8	6568	6276	6430	4504	4471	4658	4955	6941	6679	7859	5540	6844
9	6397	6740	5850	4601	4539	6376	5660	7195	7397	8130	6217	6531
10	5872	6067	5543	4563	5062	6084	5890	7251	6871	8233	5325	6449
11	6436	6043	5160	4463	5504	5711	5740	6450	5915	8223	5607	6437
12	6975	5879	5159	4951	4130	5175	6770	5721	5718	8195	5662	6418
13	6157	6072	4689	4784	4460	4687	7089	5371	5743	8472	5268	6930
14	6691	5845	5014	4558	4251	5400	7944	5878	6426	8372	5535	7311
15	6320	7540	5661	4156	3894	6141	6172	6369	6262	8505	5931	6551
16	6511	7465	5782	4699	3952	6469	6221	5552	5926	8431	6646	8481
17	6380	8156	5363	4353	4193	5759	6592	6765	6295	8440	5261	8965
18	6770	7071	5449	5069	4419	5395	7128	6787	6639	8677	5346	9013
19	7114	5683	4982	4531	5799	5706	5228	7291	6438	8715	5649	7291
20	6344	5863	5402	5167	4342	6029	6577	6711	6908	8489	5530	7026
21	6200	5538	5341	5054	3909	6956	6259	6675	7253	8653	5644	6923
22	6632	6399	5552	4351	5861	9058	6541	7304	6811	8873	6159	6605
23	7777	6446	5759	4356	3928	7510	4728	6608	7708	9320	6764	6559
24	6272	6107	5343	4659	5572	7903	6240	7185	7906	8211	8451	6356
25	5862	5832	5389	4144	6627	5145	5615	7044	7919	8967	8557	6086
26	8370	5736	4788	4507	5529	5657	6268	7295	7947	8854	6030	6188
27	6301	8460	4848	4661	5638	7426	5957	7020	8090	8878	6196	6241
28	6246	6002	4620	6553	5888	7938	4927	6884	8945	8564	5430	6703
29	6299		5007	4237	5202	6731	6693	6831	7753	8776	6433	6238
30	5858		5124	4167	5232	7052	5635	7377	7764	8963	6801	6373
31	6087		4462		6849		5910	7060		6763		6006
Total	198,207	178,646	187,393	139,921	149,212	184,738	188,425	201,081	208,879	257,729	179,040	208,711	2,281,982
Minimum	5,011	5,538	4,462	4,144	3,894	4,639	4,728	5,001	5,718	6,763	5,257	5,748	3,894
Maximum	8,370	8,460	12,789	6,553	6,849	9,058	7,944	7,377	8,945	9,320	8,557	9,013	12,789
Average	6,394	6,380	6,045	4,664	4,813	6,158	6,078	6,486	6,963	8,314	5,968	6,733	6,250

APPENDIX C
ST. THOMAS DAILY INSTANTANEOUS PEAK FLOW - 2014

Date	January L/s	February L/s	March L/s	April L/s	May L/s	June L/s	July L/s	August L/s	September L/s	October L/s	November L/s	December L/s
1	270	268	274	268	267	276	279	272	267	278	273	266
2	265	271	277	270	271	272	275	273	266	269	277	273
3	270	273	279	272	271	270	273	272	271	267	275	274
4	266	274	281	271	272	271	270	275	272	600	272	277
5	271	276	276	271	273	271	273	272	277	276	275	274
6	270	278	273	271	274	273	276	277	274	274	272	274
7	265	281	274	271	273	275	279	275	276	276	276	276
8	270	277	280	271	276	277	273	269	274	275	274	452
9	274	281	276	274	274	272	269	264	274	268	373	275
10	490	277	275	278	269	270	270	268	272	268	278	277
11	272	276	277	271	272	271	266	268	276	269	272	277
12	273	352	279	276	273	276	269	271	273	268	272	273
13	272	277	270	276	275	273	271	273	272	271	277	281
14	273	277	267	270	278	275	275	270	275	267	279	275
15	275	277	270	274	271	277	268	275	274	271	280	275
16	264	279	273	276	267	277	268	278	274	268	280	275
17	263	276	270	267	272	276	266	274	276	270	273	268
18	270	275	265	267	271	279	267	280	269	271	369	265
19	266	281	272	268	274	276	264	275	267	271	276	271
20	268	276	271	270	275	281	267	275	267	268	280	275
21	268	267	272	265	278	273	269	364	273	270	275	272
22	272	267	270	268	279	274	268	268	271	277	272	269
23	278	267	272	275	278	273	264	270	269	273	274	271
24	266	272	290	268	278	276	265	268	491	272	275	264
25	270	269	271	268	278	261	265	271	277	274	278	265
26	271	272	269	267	275	270	271	270	277	274	276	266
27	272	277	268	269	277	266	275	268	279	279	276	267
28	276	273	267	271	272	269	268	268	276	279	267	266
29	280		271	269	279	477	264	268	277	273	285	269
30	270		268	266	272	273	273	270	285	273	275	278
31	268		271		275		275	270		278		273
Minimum	263	267	265	265	267	261	264	264	266	267	267	264	261
Maximum	490	352	290	278	279	477	279	364	491	600	373	452	600
Average	277	277	273	271	274	280	270	275	281	283	282	278	277

Ontario **Drinking-Water Systems Regulation O. Reg. 170/03**

Drinking-Water System Number:	260078897
Drinking-Water System Name:	**Elgin Middlesex Pumping Station - St. Thomas Area Secondary Water Supply System**
Drinking-Water System Owner:	St. Thomas Area Secondary Water Supply System Joint Board of Management
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1, 2014 through December 31, 2014

Complete if your Category is Large Municipal Residential or Small Municipal Residential

Does your Drinking-Water System serve more than 10,000 people? Yes [X] No [ ]

Is your annual report available to the public at no charge on a web site on the Internet?
Yes [X] No [ ]

Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

City of St. Thomas, City Hall
Environmental Services
545 Talbot Street
St Thomas, ON.
N5P 3V7
www.city.st-thomas.on.ca

Elgin Area Water Treatment Plant
43665 Dexter Line, Union, ON

Complete for all other Categories.

Number of Designated Facilities served:

N/A

Did you provide a copy of your annual report to all Designated Facilities you serve?
Yes [ ] No [ ]

Number of Interested Authorities you report to: N/A

Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?
Yes [ ] No [ ]

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Systems that receive their drinking water directly from the St. Thomas EMPS:

Drinking Water System Name	Drinking Water System Number
St. Thomas Area Secondary Water Supply System	260078897

Systems that receive their drinking water indirectly from the St. Thomas EMPS:

Drinking Water System Name	Drinking Water System Number
St. Thomas Distribution System	260002187
Dutton/Dunwich Distribution System	220002967
Municipality of Central Elgin	260004761
Southwold Distribution Supply	210001362

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?

Yes [X] No [ ]

Indicate how you notified system users that your annual report is available, and is free of charge.

- **[X] Public access/notice via the web**
- **[X] Public access/notice via Government Office**
- **[ ] Public access/notice via a newspaper**
- **[X] Public access/notice via Public Request**
- **[ ] Public access/notice via a Public Library**
- **[ ] Public access/notice via other method**

Describe your Drinking-Water System

The Elgin Middlesex Pumping Station (EMPS) receives water from the Elgin Area Primary Water Supply System, which is located to the east of Port Stanley. Through various secondary water supply systems, the EMPS serves the Cities of London and St. Thomas, Town of Aylmer, and Municipalities of Central Elgin, Malahide, Dutton-Dunwich and Southwold.

The EMPS is a shared facility encompassing a twin celled reservoir with a total capacity of 54,600m^3. Booster pumps are dedicated to directing water to the City of London, St. Thomas Secondary and/or Aylmer Secondary Water Supply Systems. A gas chlorine system is utilized to provide re-chlorination for water being directed to the St. Thomas and Aylmer Secondary Supply Systems. The facility also houses a 600kW standby diesel generator that provides emergency power to pump water into the St. Thomas and Aylmer systems during a power interruption.

Three pipelines exit the EMPS: one exits to the south of the EMPS property and extends west to service the St. Area Thomas Secondary System; the second services the City of London distribution system; the third pipeline services the municipalities on the Aylmer Area Secondary System.

List all water treatment chemicals used over this reporting period

Chlorine Gas

Were any significant expenses incurred to?

[ ] Install required equipment
[X] Repair required equipment
[ ] Replace required equipment

Please provide a brief description and a breakdown of monetary expenses incurred

- Concrete suction and discharger header inspection - $15000.00
- Fuel system upgrade $105000.00 in process
- Implementation of tower alarms to Elgin SCADA - $1000.00
- Pump Guards - $1500.00

Notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
N/A	N/A	N/A	N/A	N/A	N/A

Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

	Number of Samples	Range of E.Coli Results (CFU/100 mL) (min #)-(max #)	Range of Total Coliform Results (CFU/100 mL) (min #)-(max #)	Number of Heterotrophic Plate Count (HPC) Samples	Range of HPC Results (CFU/1 mL) (min #)-(max #)
Distribution	53	0 - 0	0 - 0	53	(0) – (30)

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

Analyte	Number of Grab Samples (Continuous Monitoring)	Min	Max	Avg
Free Chlorine Residual (mg/L)	8760	0.61	2.89	1.33

Note: *The free chlorine residual spiked on occasion during 2014. Each spike corresponded with a pump start-up. None of the spikes lasted longer than 5 minutes after pump start-up.*

Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
THM (NOTE: result value is based on latest annual average)	January 7, 2014 April 8,2014 July 8, 2014 October 7, 2014	12 17 20 26	µg/L µg/L µg/L µg/L	NO

APPENDIX E 2014 EMPS Treatment	
Month	**Total Chlorine Gas Usage - Kg**
January	134.2
February	136.4
March	140.9
April	116.7
May	135.3
June	157.2
July	163.6
August	181.4
September	184.9
October	203.3
November	113.1
December	153.7
Yearly Total	**1820.7**

Please note: Aylmer and St.Thomas combined cl2 usage