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| <b>Drinking-Water System Number:</b>   | 260078897  |
| <b>Drinking-Water System Name:</b>     | <b>Elgin Middlesex Pumping Station - St. Thomas Area Secondary Water Supply System</b> |
| <b>Drinking-Water System Owner:</b>    | St. Thomas Area Secondary Water Supply System Joint Board of Management                |
| <b>Drinking-Water System Category:</b> | Large Municipal Residential  |
| <b>Period being reported:</b>          | January 1, 2018 through December 31, 2018  |

|   |   |
|---|---|
| <p><b><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></b></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px;"> <p>City of St. Thomas, City Hall<br/>Environmental Services<br/>545 Talbot Street<br/>St Thomas, ON.<br/>N5P 3V7<br/><a href="http://www.city.st-thomas.on.ca">www.city.st-thomas.on.ca</a></p> <p>Elgin Area Primary Water Supply System<br/>Treatment Plant<br/>43665 Dexter Line, Union, ON</p> </div> | <p><b><u>Complete for all other Categories.</u></b></p> <p>Number of Designated Facilities served:<br/><div style="border: 1px solid black; padding: 2px; width: 100px; text-align: center;">N/A</div></p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve?<br/>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>Number of Interested Authorities you report to:<br/><div style="border: 1px solid black; padding: 2px; width: 100px; text-align: center;">N/A</div></p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?<br/>Yes <input type="checkbox"/> No <input type="checkbox"/></p> |
|---|---|

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                    |
| St. Thomas Distribution System                | 260002187                    |



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

| <b>Drinking Water System Name</b>  | <b>Drinking Water System Number</b> |
|------------------------------------|-------------------------------------|
| 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  No

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

- Public access/notice via the web
- Public access/notice via Government Office
- Public access/notice via a newspaper
- 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, 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<sup>3</sup>. Booster pumps are dedicated to directing water to the City of London, St. Thomas Secondary and/or Aylmer Area Secondary Water Supply Systems. A gas chlorine system is utilized to provide re-chlorination for water being directed to the St. Thomas and Aylmer Area Secondary Water 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. Thomas Secondary Water Supply System; the second services the City of London distribution system; the third services the municipalities on the Aylmer Area Secondary Water Supply System.

**List all water treatment chemicals used over this reporting period**

|              |
|--------------|
| Chlorine Gas |
|--------------|



**Were any significant expenses incurred to?**

- Install required equipment
- Repair required equipment
- Replace required equipment

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

- Pumps 1,2 & 3 replacement and installed VFD
- Chlorine system repairs
- Discharge valves on pumps 1 & 3 rebuild
- LED lighting upgrade
- Installed Arc flash labels on MCC panels
- Installed chlorine leak beacons and horns

**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  | (<10)-(10)                                      |

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

| Parameter                     | Number of Grab Samples (Continuous Monitoring) | Min  | Max  | Avg  |
|-------------------------------|--|------|------|------|
| Free Chlorine Residual (mg/L) | 8760   | 0.70 | 2.83 | 1.26 |

*Note: The free chlorine residual spiked on occasion during 2018. 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**

| <b>Parameter</b>  | <b>Sample Date</b>   | <b>Result Value</b>      | <b>Unit of Measure</b>       | <b>Exceedance</b> |
|---|--|--------------------------|------------------------------|-------------------|
| <b>THM</b><br>(NOTE: result value is based on one sample) | January 16, 2018<br>April 5, 2018<br>July 24, 2018<br>October 16, 2018 | 12<br>13<br>27<br>25     | µg/L<br>µg/L<br>µg/L<br>µg/L | NO                |
| <b>THM Running Annual Average (RAA)</b>                   | 2018   | 19.3                     | µg/L                         | NO                |
| <b>HAA</b><br>(NOTE: result value is based on one sample) | January 16, 2018<br>April 5, 2018<br>July 24, 2018<br>October 16, 2018 | ND<br>7.4<br>20.1<br>9.3 | µg/L<br>µg/L<br>µg/L<br>µg/L | NO                |
| <b>HAA Running Annual Average (RAA)</b>                   | 2018   | 9.2                      | µg/L                         | NO                |

ND= Non-detect

| <b>APPENDIX E<br/>2018 EMPS Treatment</b> |  |
|---|--|
| <b>Month</b>                              | <b>Total Chlorine Gas<br/>Usage - Kg</b> |
| January                                   | 170.5                                    |
| February                                  | 156.9                                    |
| March                                     | 146.8                                    |
| April                                     | 127.8                                    |
| May                                       | 151.9                                    |
| June                                      | 155.9                                    |
| July                                      | 217.5                                    |
| August                                    | 177.9                                    |
| September                                 | 171.0                                    |
| October                                   | 174.7                                    |
| November                                  | 190.2                                    |
| December                                  | 169.7                                    |
| <b>Yearly Total</b>                       | <b>2010.8</b>                            |

Please note: Aylmer and St.Thomas combined cl2 usage