



## 2019 COMPLIANCE REPORT



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(MECP) Inspection Summary

## **PROFILE**

### **WHO WE ARE**

The Elgin Area Primary Water Supply System (EAPWSS) is owned by a Board of Management who governs the drinking water system. The Board of Management is made up of members appointed from each of the eight (8) member municipalities that are currently supplied with water from the EAPWSS. One of these member municipalities, the City of London, acts as the Administering Municipality. Accordingly, the City of London provides all associated administrative and management services on behalf of the Board. The Board of Management currently utilizes the services of an independent contracted Operating Authority.

The water system is operated and maintained by Ontario Clean Water Agency (OCWA) under contract to the Board of Management.

### ***OPERATING AUTHORITY:***



### **EAPWSS Board Member Municipalities:**

- City of London (Administering Municipality)
- Town of Aylmer
- Municipality of Bayham
- Municipality of Central Elgin
- Municipality of Dutton Dunwich
- Township of Malahide
- City of St. Thomas
- Township of Southwold

## WHAT WE DO

### Water Treatment & Supply

The EAPWSS is responsible for the treatment and transmission of drinking water to eight (8) municipalities in southwestern Ontario. The population served by this system is approximately 130,000. Water is provided bulk wholesale to the municipalities who then distribute it to their customers.

The Elgin Area Water Treatment Plant (WTP) was constructed in the late 1960's and officially began operating in 1972. The WTP employs pre-chlorination, screening, powder activated carbon addition (seasonally on an as-required basis), coagulation, flocculation, sedimentation, dual-media filtration, UV disinfection, post-chlorination, fluoridation and pH adjustment using both carbon dioxide and sodium hydroxide to treat raw water obtained from Lake Erie. After the water is treated it is pumped from the WTP to various communities or to the terminal storage reservoirs. The drinking water system is monitored at various locations throughout the system via a Supervisory Control and Data Acquisition (SCADA) system.

### EAPWSS Assets:

- 1 low lift pumping station
- 1 water treatment plant
- 1 residuals management facility
- 2 surge facilities
- 1 terminal storage reservoir (consists of 2 reservoir cells)
- 14.7 km primary transmission pipeline



*Figure 1: Low Lift Pumping Station located on Lake Erie*

## WHAT IS IMPORTANT

### Values of the Water System

The values of the EAPWSS are the inherent beliefs or moral standards that generally reflect what the EAPWSS Board of Management stands for and believes in:

- **Sustainable** - be financially, environmentally, socially, and physically sustainable;
- **Inclusive** - provide access to bulk drinking water for current and prospective members, in accordance with Board policy;
- **Fair and equitable** - balance the interests of individual members with the best interests of all members, as well as the needs of existing members with the needs of new members;
- **Vigilant** - ensure an adequate supply of safe and reasonably priced drinking water is available to members;
- **Innovative** - be receptive to and supportive of new ideas and opportunities for improvement;
- **Cooperative** – be supportive to the needs of the Elgin Area Primary Water Supply System;
- **Open and transparent** – conduct business in a manner that enables member municipalities and the public to review and provide input into major decisions as appropriate;
- **Public Ownership** – retain ownership of the water system in public hands.

## EAPWSS: AT A GLANCE

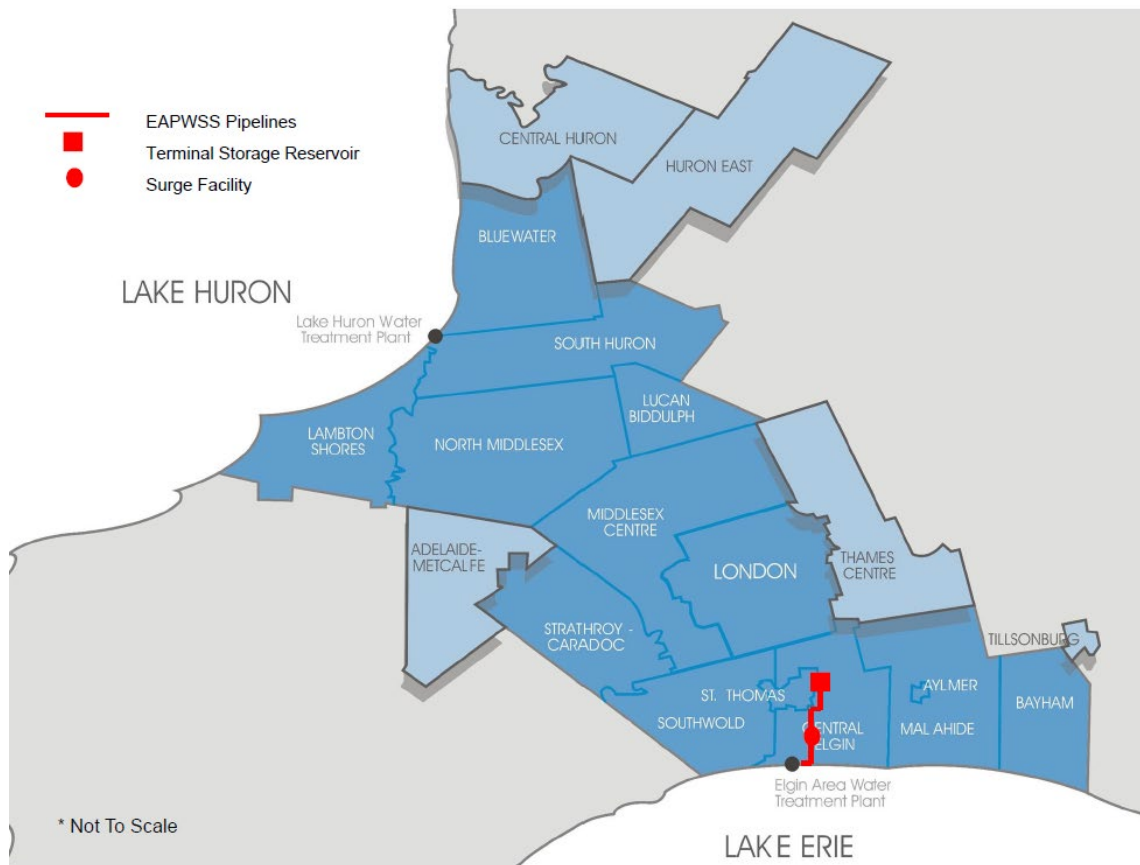


Figure 2: EAPWSS Major Infrastructure Locations

## THE WATER TREATMENT PROCESS

The following figure provides a general overview of the conventional water treatment process. The processes outlined below are very similar to the treatment at the Elgin Area WTP, although they are not an exact representation. Some details may vary.

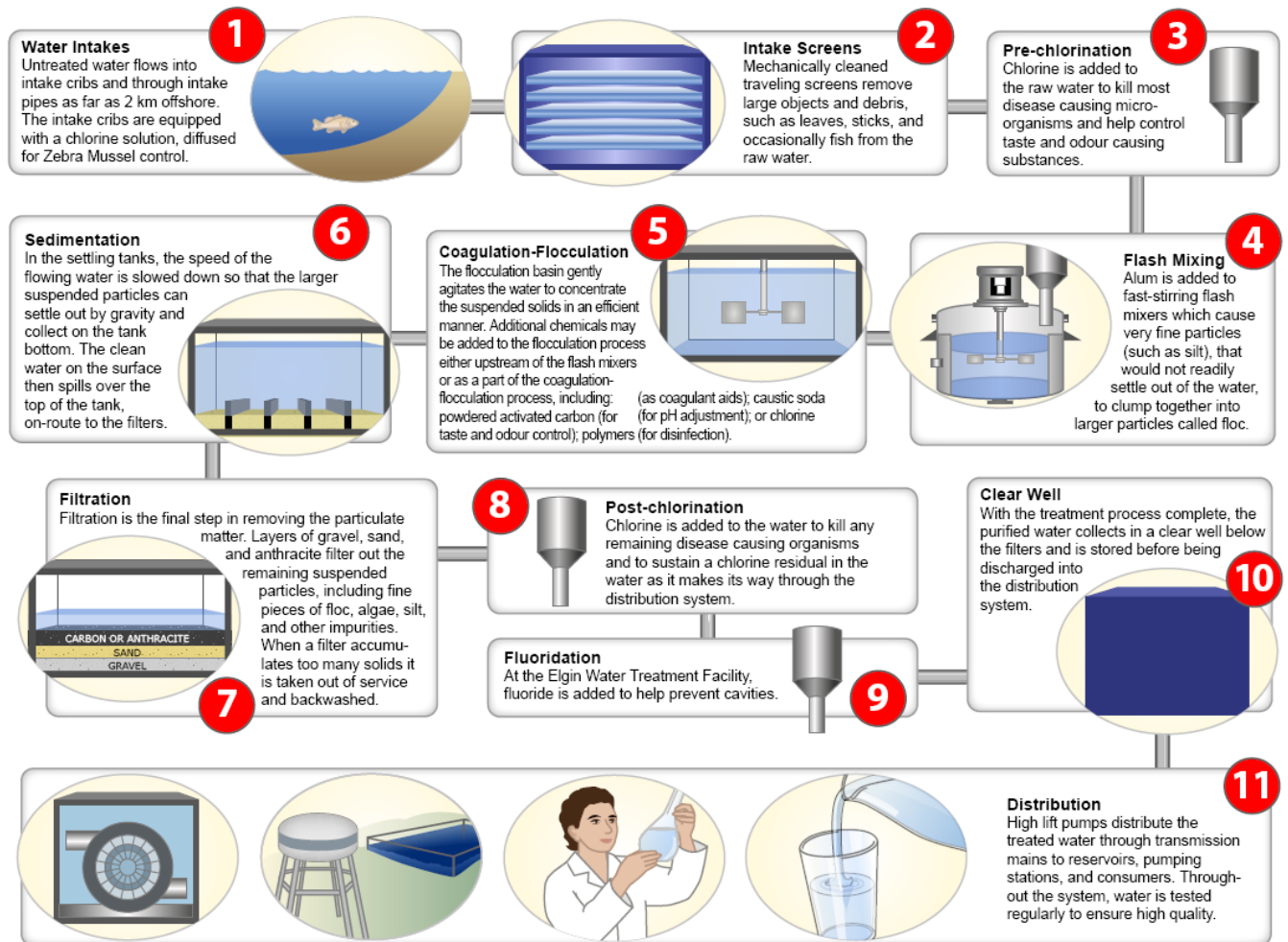


Figure 3: General Overview of the Water Treatment Process

At the Elgin Area WTP, several additional treatment steps take place:

- Carbon dioxide is injected prior to the flash mixing (Step 4) to lower the raw water pH in order to improve the treatment process effectiveness and efficiency.
- A UV reactor is located after each filter (Step 7) for additional disinfection when required.
- Sodium Hydroxide is added as the treated water leaves the WTP and enters the transmission system (Step 11) to raise the treated water pH, resulting in reduced corrosion potential.



## **2019 HIGHLIGHTS - GENERAL**

### **PROCESS OPTIMIZATION & RESEARCH DAY**

On March 29, 2019, the Lake Huron & Elgin Area Primary Water Supply Systems co-hosted a Process Optimization and Research Day. The purpose was to share information on the research programs currently being undertaken by the water systems in affiliation with the two partner Natural Science and Engineering Council (NSERC) chairs at the University of Waterloo and University of Toronto.

Although the NSERC chairs periodically hold “technology transfer days” to share information on their research projects with their contributing partners, this Research Day is unique in that it is hosted by a water system, and the water systems’ research partners presented their work on the Lake Huron and Elgin Area Water Supply Systems to associated guests. Guests included staff from the Ontario Clean Water Agency (OCWA), the Ministry of the Environment, Conservation and Parks (MECP), the local Health Units, Board staff, and staff of the benefiting municipalities supplied by the Lake Huron & Elgin Area Water Supply Systems.

Topics presented on Research Day included various investigations related to microplastics, cyanobacteria, lead corrosion control strategies, storm event monitoring, treatment studies and other research initiatives. It was an extremely valuable day of sharing project work, research and optimization for the water systems and an opportunity for attendees to network.

### **DRINKING WATER QUALITY MANAGEMENT SYSTEM (DWQMS) ACCREDITATION**

The continued utilization and accreditation of a Quality Management System (QMS) is a regulatory requirement. The *Safe Drinking Water Act* (SDWA) and the water system’s Municipal Drinking Water Licence (MDWL) require that an accredited Operating Authority be in operational charge of the drinking water system. In order to become accredited, the Operating Authority must utilize and maintain an Operational Plan that meets the requirements of the Drinking Water Quality Management Standard (DWQMS). An external re-accreditation audit is required every three years. OCWA received full scope DWQMS re-accreditation in November 2019 and is currently accredited for another three-year period ending in 2022.



## **2019 CAPITAL PROJECT HIGHLIGHTS**

### **ELGIN MIDDLESEX TERMINAL RESERVOIR REPAIRS**

During a routine cleaning and inspection of the Terminal Reservoir in November 2018, the contracted Operating Authority discovered an open core hole in the slab floor of reservoir Cell #2. It was determined that a void existed below the open core hole. There was concern that the void, if left unaddressed, could compromise the structural integrity of the concrete reservoir and lead to contaminated drinking water. During the inspection there were also concerns about the condition of a previously repaired drain line, and the condition of the leaking inlet valve, outlet valve, and drain valves.

GM BluePlan was engaged on an emergency procurement basis to assist in undertaking an engineering assessment of the damage and recommend options for the repair of the reservoir cell. With the assistance of the OCWA, GM BluePlan completed an assessment of the concrete structure, reservoir drain lines, and valves.

Emergency repairs were required to mitigate the risk of future catastrophic failure. Valve repairs, drain line repairs, and floor slab repairs were subsequently undertaken. Reservoir cell #2 was fully returned to service in May 2019.



*Figure 4: Reservoir Cell #2 out of service for repairs.*

## TREATED WATER FLOW METER REPLACEMENTS

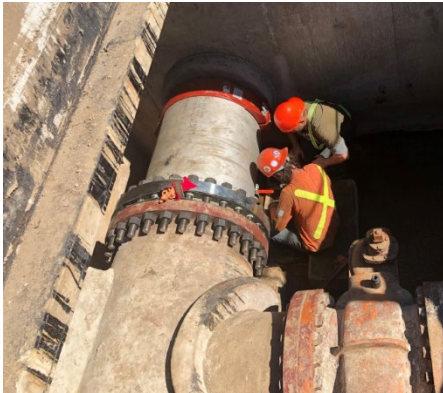
Flow meters throughout the Water Treatment Plant (WTP) are necessary to control and monitor the various treatment processes. In addition to process controls, the treated water flow meters are also required for regulatory monitoring related to the water system's Municipal Drinking Water Licence (MDWL). The systemic replacement of the old and failing non-revenue meters throughout the WTP ensures continued process control and regulatory compliance. In 2019, both the east and west treated water flow meters were replaced.



*Figures 5a and 5b: New flow meters installed on the east and west treated water lines. The flow meter readouts are mounted on the wall.*

## A-PIPELINE DECOMMISSIONING

The EAPWSS transmission system includes twinned pipelines that extend from the Water Treatment Plant to the Terminal Reservoir. The original 750mm transmission pipeline was constructed in the mid 1960's, and a second 900mm transmission pipeline was constructed in 2013. Since the pipeline was twinned, the operating authority has had to alternate between operating the original 750mm pipeline and the new 900mm pipeline in order to maintain water quality in the transmission system. In 2019, the 750mm pipeline was temporarily decommissioned by isolating it from the system. A pipeline condition assessment is scheduled to take place in 2020, with subsequent repairs/refurbishment taking place to extend the pipeline longevity. The system is now running solely on the 900mm pipeline until both pipelines are required to meet future water demands from the benefiting municipalities.



*Figure 6a: Installation of paddle flange that physically isolates the two pipelines.*

*Figure 6b: Original isolation valve removed to allow for paddle flange installation.*

## HIGH LIFT PUMP CONTROL VALVE REHABILITATION

In 2019, a full rehabilitation of the four (4) high lift control valves was undertaken. The work included removing the valves, shipping them to a valve rebuilder, disassembly and inspection, cleaning, application of protective coatings, exterior painting, replacement of all pilot piping, reassembly, installation and valve setup. This work was done in advance of the high lift pump replacement project which is taking place in 2020.



*Figure 7a: Discharge piping showing location where high lift control valve was removed.*

*Figure 7b: High Lift control valve being prepared for shipping to valve rebuilder.*



## **2019 FLOW SUMMARY**

As per the water system's current Permit To Take Water (PTTW), the amount of raw water taken into the Elgin Area WTP cannot exceed 91.0 million litres/day. This converts to 1053 litres/second.

The water taking in 2019 was approved under PTTW #6283-8QZM3N.

As per the water system's Municipal Drinking Water Licence (MDWL), the rated capacity of the WTP is 91.0 million litres/day. The maximum daily volume of treated water that flows from the treatment plant into the distribution system shall not exceed this value.

The following table contains a flow summary, with comparison to the system's rated capacity and permit limits in order to assess the capability of the system to meet existing and planned uses.

	<b>Total Daily Flow (ML/day)</b>	<b>Total Daily Flow (% of Capacity)</b>	<b>Daily Instantaneous Peak Flow (L/s)</b>
PTTW – permitted amount of raw water taking	91.0	100.00%	1053
Raw Water Flow – Average Day	43.8	48.1%	765
Raw Water Flow – Max. Day	56.2	61.8%	1159
WTP Rated Capacity	91.0	100.00%	1053
Treated Water Flow – Average Day	43.7	48.0%	736
Treated Water Flow – Max. Day	56.6	62.2%	1075

A complete flow summary for the EAPWSS can be found in Appendix A.

Raw water instantaneous peak flow rates exceeded the requirements of the PTTW on two (2) occasions in 2019:

<b>Date</b>	<b>Raw Water Instantaneous Flow Rate</b>	<b>Reason</b>
May 8, 2019	1058 L/s	Exceedance occurred when performing maintenance on the EMPS reservoir
August 27, 2019	1159 L/s	Exceedance occurred when performing maintenance on the south sedimentation train

Treated water instantaneous peak flow rates exceeded the requirements of the MDWL on one (1) occasion in 2019:

Date	Treated Water Instantaneous Flow Rate	Reason
May 30, 2019	1075 L/s	Exceedance occurred when discharge valve failed to close during pump transition

The majority of the volume of treated drinking water from the EAPWSS is used by the City of London. As shown in Figure 8, London takes 53.39% of the volume; St. Thomas takes 26.70%, and the other six municipalities using the remaining 19.91%.

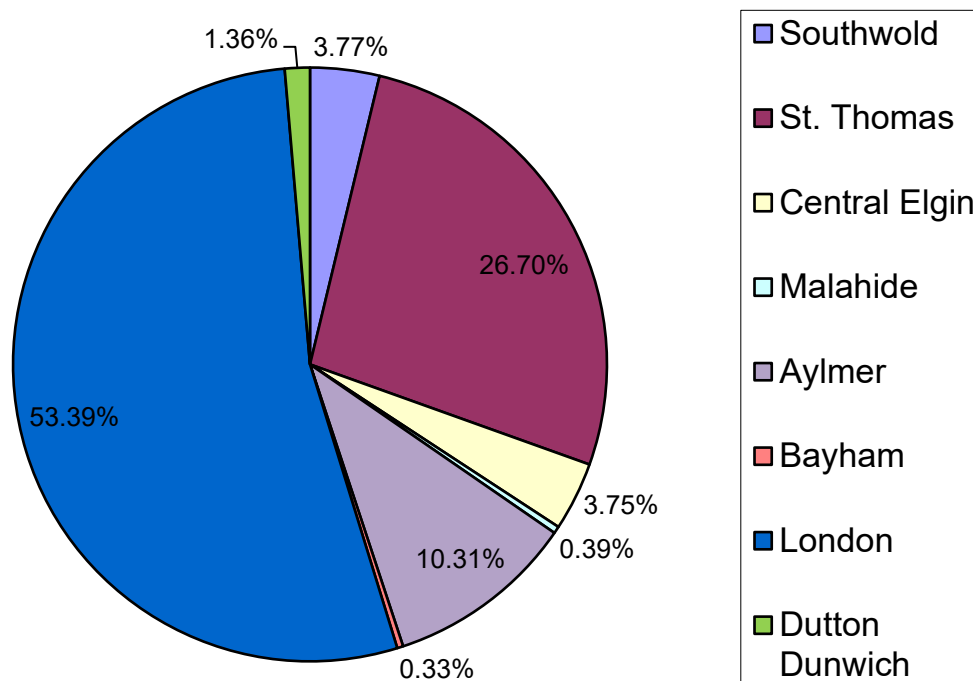


Figure 8: 2019 Treated Water Volumes per Municipality

## **2019 CHEMICAL CONSUMPTION**

A variety of water treatment chemicals are used at the Elgin Area WTP to ensure safe, clean drinking water. The following table outlines the chemicals most frequently used for the EAPWSS. As part of the system's registered ISO14001 Environmental Management System, objectives and targets are currently in place to optimize chemical usage.

<b>Chemical</b>	<b>Purpose</b>	<b>Total amount used in 2019</b>
Aluminum sulphate	Coagulant	660,302 kg
Polymer	Coagulant aid	159 kg
Powdered activated carbon	Taste and odour control (seasonally)	13,783 kg
Chlorine gas	Primary disinfection	32,611 kg
Chlorine gas	Mussel control at the intake crib	4,163 kg
Fluoride	Prevention of dental cavities	8,493 kg
Carbon Dioxide	pH adjustment - injected at the start of the treatment process to lower the raw water pH for improved treatment effectiveness and efficiency	151,537 kg
Sodium Hydroxide	pH adjustment – injected at the end of the treatment process to raise the treated water pH for reduced corrosion potential	263,260 kg
Sodium Bisulphite	Residuals Management Facility Dechlorination	4,245 kg
Polymer	Residuals Management Facility Centrifuge	1,713 kg
Polymer	Residuals Management Facility Thickener	351 kg



## **2019 WATER QUALITY SAMPLING AND MONITORING**

The EAPWSS consistently provides treated drinking water with water quality above the standards required by provincial regulation. Where desirable, the EAPWSS standards are more stringent than what is required by regulation. For example, the target at the Elgin Area WTP for treated water turbidity (a measure of the cloudiness of water) is ten times more stringent than the provincial standard. The EAPWSS is practicing continual improvement to ensure that high drinking water standards are maintained and enhanced where possible.

All water quality sampling at the EAPWSS is performed in accordance with the *Safe Drinking Water Act* and its associated regulations. All samples are collected by licensed operating authority personnel and are submitted to Canadian Association for Laboratory Accreditation (CALA)/ Standards Council of Canada (SCC) accredited laboratories for both bacterial and chemical analysis.

In 2019, a total of 539 microbiological samples were collected from raw, treated and distribution system water, and were tested for E Coli, total coliforms and heterotrophic plate count (HPC). There was one incident of adverse microbiological test results in 2019. For more information please see the Annual Report, which is attached as Appendix B.

Annual samples are collected and tested for inorganics (metals) and organics which include herbicides, pesticides and volatile organic parameters. Quarterly sampling is also conducted for trihalomethanes and haloacetic acids (disinfection by-products), nitrates and nitrites.

Seasonal samples are collected and tested for total microcystin from June through to the end of October. A total of 22 raw water samples were tested for total microcystin. There were no detectable results in the raw water.

In addition, the WTP operator samples the raw, in-process and treated water six times per day and carries out an array of physical and chemical tests for operational control.

As required by regulation, the EAPWSS also prepares an Annual Report which includes a summary of water quality test results and a maintenance report. The 2019 Annual Report can be found in Appendix B.

## **RESIDUALS MANAGEMENT FACILITY (RMF)** **COMPLIANCE**

The Municipal Drinking Water Licence for the EAPWSS requires that non-compliant discharges of total chlorine residual to the natural environment must be reported. This annual compliance report includes a report on the date and time of any non-compliant discharges, the duration, maximum total chlorine residual value, volume of non-compliant discharge, reason, and corrective action taken.

In 2019, there were no reportable non-compliant discharges of total chlorine residual.

## **RESEARCH AND PARTNERSHIPS**

The EAPWSS acknowledges the importance of scientific research on water quality and the effects on human health. The EAPWSS has partnered with the Natural Sciences and Engineering Research Council (NSERC) Chair in Drinking Water Research at the University of Waterloo and University of Toronto to pursue research opportunities, as well as Western University, and is a member of the Water Research Foundation (WRF). In addition, the EAPWSS continues to evaluate and conduct specific research on the efficacy of the existing treatment processes, optimizing and improving treatment systems, and evaluating the potential and need of more advanced treatment alternatives.

The EAPWSS also participates in the Ministry of the Environment, Conservation and Parks (MECP) Drinking Water Surveillance Program (DWSP) and intake monitoring studies.

## **MINISTRY INSPECTION**

### **ANNUAL INSPECTION**

The Ontario Ministry of the Environment, Conservation and Parks (MECP) conducts an inspection of the EAPWSS annually. A MECP inspection took place on November 13, 2019. The final inspection report was issued on March 17, 2020. A total of one (1) non-compliance was identified in the inspection report. The details of the non-compliance can be found in Appendix C. The final inspection rating received for the 2019-2020 reporting year was 97.11%.



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## **APPENDIX A – 2019 FLOW SUMMARY**

# 1. RAW WATER INTAKE – FLOW (m3/DAY)

Day	Jan. (m³)	Feb. (m³)	Mar. (m³)	Apr. (m³)	May (m³)	June (m³)	July (m³)	Aug. (m³)	Sep. (m³)	Oct. (m³)	Nov. (m³)	Dec. (m³)	Total
1	41,584	41,771	42,507	46,480	44,239	52,782	47,903	48,651	45,521	41,013	39,850	38,540	
2	44,428	42,161	42,501	44,820	42,357	35,320	56,193	49,276	48,113	49,344	44,805	37,133	
3	43,356	43,056	40,549	41,736	33,349	52,529	45,208	43,484	50,767	38,024	43,504	47,656	
4	44,603	38,868	47,575	42,502	44,936	46,487	52,399	53,108	45,126	47,663	42,636	34,645	
5	42,987	40,375	40,608	39,822	45,204	39,483	54,684	41,782	45,081	34,112	40,643	43,479	
6	42,180	43,707	41,076	42,017	47,341	45,126	52,301	44,378	46,172	50,592	47,466	39,620	
7	43,675	38,061	38,577	44,348	41,652	43,581	48,804	53,077	47,662	50,515	39,418	48,642	
8	44,827	46,401	37,153	35,103	53,504	50,859	52,263	41,272	45,272	20,749	40,289	41,934	
9	40,407	41,078	44,232	33,357	51,828	52,188	51,383	52,295	44,877	46,019	33,706	44,873	
10	47,125	41,047	36,590	33,635	55,410	41,028	51,164	48,074	51,593	43,706	47,384	41,754	
11	37,791	43,189	45,850	31,400	42,997	49,345	50,940	45,422	44,639	43,103	34,854	48,022	
12	45,405	37,809	40,520	43,157	41,969	44,359	48,832	46,658	43,023	39,614	49,573	43,683	
13	45,288	42,342	41,395	44,679	43,748	34,517	45,358	53,463	46,944	41,053	30,068	44,778	
14	42,303	39,888	40,426	40,333	41,976	52,516	48,828	46,728	44,131	42,341	40,117	40,379	
15	43,997	40,354	40,806	46,263	48,520	38,428	50,701	48,048	47,784	43,918	39,589	42,792	
16	41,791	40,941	41,266	43,918	42,744	43,668	50,717	51,050	49,164	48,004	42,911	42,586	
17	43,115	40,575	42,892	43,204	45,531	51,028	43,497	50,710	19,051	36,052	41,251	43,915	
18	40,781	40,133	38,697	44,686	42,268	41,587	54,676	48,134	51,187	43,988	37,314	40,963	
19	42,308	43,581	41,696	40,576	46,573	51,037	45,545	48,160	34,122	49,343	45,920	47,592	
20	42,705	40,828	41,874	42,068	43,001	47,576	48,302	45,584	46,794	39,250	36,644	39,498	
21	42,191	36,666	42,333	42,972	45,447	38,666	44,860	54,470	46,682	50,125	41,741	43,812	
22	41,531	43,613	39,898	44,141	44,988	46,323	54,401	42,672	46,347	32,260	40,564	41,340	
23	42,492	42,000	42,722	43,813	44,482	48,732	43,725	45,468	43,882	40,531	41,469	40,365	
24	42,673	41,542	46,197	44,176	43,735	48,757	51,013	48,052	43,084	50,308	41,195	43,634	
25	38,133	47,574	38,856	43,510	41,367	47,111	43,595	48,771	51,510	40,880	43,217	40,437	
26	43,756	39,636	40,053	42,825	47,829	44,560	52,319	45,695	42,174	41,470	38,377	38,999	
27	42,427	43,068	41,275	44,382	43,275	48,787	49,160	51,816	49,264	39,687	48,128	44,486	
28	42,447	36,040	36,931	42,744	45,057	53,310	49,745	53,147	39,612	48,468	33,269	36,283	
29	39,397		42,850	41,545	41,990	48,795	43,421	42,400	47,672	34,089	36,632	46,244	
30	42,190		42,650	39,124	47,130	55,324	49,259	42,289	49,026	46,001	46,805	38,859	
31	41,304		33,473		42,800		42,998	53,637		37,180		40,314	

Day	Jan. (m³)	Feb. (m³)	Mar. (m³)	Apr. (m³)	May (m³)	June (m³)	July (m³)	Aug. (m³)	Sep. (m³)	Oct. (m³)	Nov. (m³)	Dec. (m³)	Total
<b>Total</b>	1,319,197	1,156,302	1,274,027	1,253,335	1,387,244	1,393,805	1,524,191	1,487,767	1,356,273	1,309,398	1,229,338	1,307,257	15,998,132
<b>Minimum</b>	37,791	36,040	33,473	31,400	33,349	34,517	42,998	41,272	19,051	20,749	30,068	34,645	19,051
<b>Maximum</b>	47,125	47,574	47,575	46,480	55,410	55,324	56,193	54,470	51,593	50,592	49,573	48,642	56,193
<b>Average</b>	42,555	41,296	41,098	41,778	44,750	46,460	49,167	47,992	45,209	42,239	40,978	42,170	43,830

Note: (i) As per the water system's current Permit To Take Water, the amount of raw water taken into the Elgin Area Water Treatment Plant cannot exceed 91,000 m3/day.

## 2. RAW WATER INSTANTANEOUS PEAK FLOW (L/s)

Day	Jan. (L/s)	Feb. (L/s)	Mar. (L/s)	April (L/s)	May (L/s)	June (L/s)	July (L/s)	Aug. (L/s)	Sep. (L/s)	Oct. (L/s)	Nov. (L/s)	Dec. (L/s)	Total
1	904	765	965	711	834	754	783	675	595	846	823	775	
2	897	804	786	781	834	836	731	675	744	751	586	847	
3	919	970	763	713	753	762	793	712	622	736	791	786	
4	971	934	773	713	828	850	614	688	725	794	650	434	
5	969	851	784	682	819	817	726	768	744	780	810	700	
6	966	840	814	683	815	659	615	787	739	595	611	828	
7	969	829	765	685	819	1,011	735	758	620	607	628	758	
8	944	935	874	769	1,058	605	720	800	593	845	608	858	
9	944	959	775	769	1,024	830	603	709	743	845	392	854	
10	973	928	765	800	1,040	761	601	563	1,000	694	797	738	
11	954	971	764	800	799	809	616	677	616	744	588	858	
12	950	812	618	766	798	844	568	670	624	589	792	773	
13	950	949	607	760	823	838	756	751	616	637	773	850	
14	972	857	604	755	794	838	571	705	606	795	840	649	
15	971	971	764	769	798	709	591	677	748	789	648	854	
16	970	973	761	761	824	812	592	712	720	753	658	638	
17	973	971	625	844	830	780	680	680	812	629	791	726	
18	970	967	626	795	779	814	702	603	848	815	766	748	
19	968	972	601	825	786	594	596	578	853	595	787	789	
20	891	931	601	828	843	842	595	744	700	706	434	830	
21	972	952	607	814	828	747	597	923	630	591	866	606	
22	971	970	726	629	823	674	877	925	730	639	857	856	
23	973	972	615	630	826	568	827	679	678	623	775	846	
24	976	977	801	805	774	569	594	563	668	627	656	855	
25	947	972	781	623	769	571	675	679	755	752	855	744	
26	939	969	762	834	601	571	674	689	849	767	624	627	
27	970	971	769	626	708	570	572	1,159	728	780	852	843	
28	878	971	765	629	669	684	672	765	680	586	694	481	
29	857		730	839	607	629	728	602	698	651	425	847	
30	895		676	839	900	729	723	610	834	593	848	852	



Day	Jan. (L/s)	Feb. (L/s)	Mar. (L/s)	April (L/s)	May (L/s)	June (L/s)	July (L/s)	Aug. (L/s)	Sep. (L/s)	Oct. (L/s)	Nov. (L/s)	Dec. (L/s)	Total
<b>31</b>	915		729		802		672	772		773		588	
<b>Minimum</b>	857	765	601	623	601	568	568	563	593	586	392	434	392
<b>Maximum</b>	976	977	965	844	1,058	1,011	877	1,159	1,000	846	866	858	1,159
<b>Average</b>	946	927	729	749	813	736	671	719	717	707	708	756	765

Note: (i) As per the water system's current Permit To Take Water, the amount of raw water taken into the Elgin Area Water Treatment Plant cannot exceed 91,000 m<sup>3</sup>/day. This converts to 1053 litres/second.

### 3. TREATED WATER FLOW (m3/DAY)

Day	Jan. (m³)	Feb. (m³)	Mar. (m³)	Apr. (m³)	May (m³)	June (m³)	July (m³)	Aug. (m³)	Sep. (m³)	Oct. (m³)	Nov. (m³)	Dec. (m³)	Total
1	42,516	40,909	44,352	47,214	44,698	53,796	46,030	49,371	46,735	41,600	38,509	36,635	
2	44,121	43,526	43,059	43,730	43,226	34,512	50,978	49,235	46,509	50,332	43,357	35,047	
3	43,791	43,293	39,529	42,154	31,333	53,833	42,283	45,513	51,530	37,372	42,234	46,631	
4	43,452	38,506	46,936	42,577	45,543	46,024	50,928	52,654	44,097	47,754	41,054	32,985	
5	44,598	39,693	42,178	41,915	44,594	39,044	51,038	43,588	46,055	34,450	40,249	41,691	
6	42,768	41,546	40,213	41,904	45,973	45,968	50,917	45,257	46,279	48,903	46,332	39,807	
7	43,201	40,459	40,167	43,783	41,820	44,434	45,516	54,016	47,730	49,023	38,711	47,052	
8	43,366	44,252	36,079	35,963	54,402	51,103	51,113	42,208	45,849	19,947	39,146	40,050	
9	40,569	41,293	44,233	33,248	51,602	52,643	50,872	52,233	44,538	45,871	32,847	43,385	
10	46,031	41,457	38,619	34,426	55,336	41,015	49,344	49,580	51,233	42,213	46,374	49,815	
11	39,496	46,323	45,276	41,262	43,822	49,102	50,999	45,825	45,405	41,539	34,249	47,592	
12	45,220	35,507	40,999	43,100	42,678	45,245	50,883	46,212	43,604	39,154	48,146	43,195	
13	45,446	43,048	40,053	43,501	41,324	36,480	45,945	54,873	45,801	38,655	29,937	42,996	
14	40,684	40,060	41,963	41,072	43,142	50,970	50,680	47,486	45,110	41,259	38,421	39,612	
15	43,891	42,215	40,767	47,930	48,842	39,702	48,397	47,360	46,950	40,834	38,044	42,183	
16	41,827	40,921	42,134	42,983	43,327	43,260	50,746	52,863	50,025	47,923	42,660	41,738	
17	42,578	41,569	42,327	43,320	44,662	51,030	42,435	51,221	20,252	35,546	41,897	43,090	
18	40,900	38,065	38,116	44,438	42,695	42,905	51,476	50,530	51,395	41,278	35,123	38,849	
19	41,926	43,400	41,560	37,950	46,237	51,046	46,042	50,478	34,126	47,840	45,832	48,371	
20	42,443	40,887	42,553	43,335	43,758	47,706	45,236	46,944	46,303	37,607	35,181	35,842	
21	44,312	37,909	43,862	42,830	45,064	39,003	42,560	56,628	47,122	48,817	40,405	43,525	
22	42,043	44,447	38,923	45,127	46,650	54,484	50,469	43,885	49,949	32,580	38,362	39,863	
23	40,569	42,200	43,847	43,568	44,249	50,833	44,135	46,833	43,181	39,669	39,102	39,141	
24	43,171	42,181	46,101	44,656	42,901	49,483	52,546	49,384	44,968	48,765	40,515	42,356	
25	38,251	47,126	38,001	43,969	42,442	47,821	43,511	50,168	50,264	38,628	40,606	40,021	
26	43,301	40,985	40,662	42,653	48,825	45,172	54,675	46,188	42,393	39,966	39,751	37,564	
27	41,613	42,501	43,059	43,867	43,529	50,546	50,700	47,997	49,961	29,517	47,900	44,820	
28	43,788	35,271	36,238	43,124	46,017	51,055	50,933	52,014	40,879	47,031	30,011	34,113	
29	38,581		43,822	41,378	42,150	50,787	43,061	43,158	49,898	32,579	35,001	44,932	
30	41,772		41,348	38,735	45,841	50,791	50,868	42,739	49,067	44,461	46,353	37,177	
31	41,862		34,389		41,941		44,243	52,217		35,449		40,685	

Day	Jan. (m³)	Feb. (m³)	Mar. (m³)	Apr. (m³)	May (m³)	June (m³)	July (m³)	Aug. (m³)	Sep. (m³)	Oct. (m³)	Nov. (m³)	Dec. (m³)	Total
<b>Total</b>	1,318,087	1,159,549	1,281,364	1,265,713	1,388,624	1,409,793	1,499,559	1,508,654	1,367,209	1,266,562	1,196,309	1,280,763	15,942,184
<b>Minimum</b>	38,251	35,271	34,389	33,248	31,333	34,512	42,283	42,208	20,252	19,947	29,937	32,985	19,947
<b>Maximum</b>	46,031	47,126	46,936	47,930	55,336	54,484	54,675	56,628	51,530	50,332	48,146	49,815	56,628
<b>Average</b>	42,519	41,412	41,334	42,190	44,794	46,993	48,373	48,666	45,574	40,857	39,877	41,315	43,659

Note: (i) As per the water system's current Municipal Drinking Water Licence, the rated capacity of the Water Treatment Plant is 91,000 m³/day. The maximum daily volume of treated water that flows from the treatment plant into the distribution system shall not exceed this value.

#### 4. TREATED WATER INSTANTANEOUS PEAK FLOW (L/s)

Day	Jan. (L/s)	Feb. (L/s)	Mar. (L/s)	April (L/s)	May (L/s)	June (L/s)	July (L/s)	Aug. (L/s)	Sep. (L/s)	Oct. (L/s)	Nov. (L/s)	Dec. (L/s)	Total
1	762	660	906	922	826	631	607	603	906	857	573	622	
2	706	689	882	816	770	622	869	929	929	604	570	627	
3	767	687	752	755	753	639	842	897	609	670	616	613	
4	647	627	875	878	895	907	595	623	898	559	699	389	
5	624	778	776	640	906	878	597	926	906	834	577	627	
6	729	592	739	812	776	850	595	925	812	570	680	625	
7	894	703	765	750	927	701	721	921	630	835	610	621	
8	811	764	716	913	913	597	599	906	781	857	569	627	
9	791	688	773	893	914	644	595	612	803	719	385	391	
10	716	687	773	921	916	624	868	704	614	809	573	733	
11	739	745	911	918	897	707	597	934	616	700	658	773	
12	656	649	816	626	939	834	573	934	910	683	570	717	
13	648	590	815	929	930	830	744	927	911	572	784	798	
14	715	658	739	780	921	595	593	912	604	792	923	698	
15	696	843	640	863	940	675	701	637	750	789	648	790	
16	744	556	798	825	845	713	581	615	585	570	615	780	
17	59	600	837	869	888	596	765	613	859	622	739	628	
18	742	591	587	842	905	751	627	599	855	810	627	628	
19	911	817	888	823	948	597	681	590	829	659	619	615	
20	639	887	822	914	936	877	746	880	598	574	620	619	
21	872	909	647	913	831	699	753	926	599	571	618	617	
22	865	756	638	876	924	742	881	887	585	575	621	625	
23	716	642	836	939	893	595	863	900	856	580	613	700	
24	976	820	758	772	904	601	882	653	709	571	627	749	
25	587	781	921	918	755	603	869	877	637	847	628	754	
26	627	848	637	937	810	605	903	878	859	717	616	602	
27	715	882	910	931	725	601	592	717	588	588	630	578	
28	629	927	813	883	642	597	597	608	847	703	668	697	
29	627		928	816	874	679	753	608	585	627	626	740	
30	629		751	644	1,075	594	595	631	809	717	971	842	
31	588		752		639		763	609		668		579	

Day	Jan. (L/s)	Feb. (L/s)	Mar. (L/s)	April (L/s)	May (L/s)	June (L/s)	July (L/s)	Aug. (L/s)	Sep. (L/s)	Oct. (L/s)	Nov. (L/s)	Dec. (L/s)	Total
Minimum	59	556	587	626	639	594	573	590	585	559	385	389	59
Maximum	976	927	928	939	1,075	907	903	934	929	857	971	842	1,075
Average	704	728	787	844	865	686	708	774	749	685	642	658	736

Note: (i) As per the water system's current Municipal Drinking Water Licence, the rated capacity of the Water Treatment Plant is 91,000 m<sup>3</sup>/day. This converts to 1053 litres/second. The maximum daily volume of treated water that flows from the treatment plant into the distribution system shall not exceed this value.

## **APPENDIX B – 2019 ANNUAL REPORT**

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

<b>Drinking-Water System Number:</b>	210000871
<b>Drinking-Water System Name:</b>	<b>Elgin Area Primary Water Supply System</b>
<b>Drinking-Water System Owner:</b>	Elgin Area Primary Water Supply System Joint Board of Management
<b>Drinking-Water System Operating Authority:</b>	Ontario Clean Water Agency (OCWA)
<b>Drinking-Water System Category:</b>	Large Municipal Residential
<b>Period being reported:</b>	January 1, 2019 through December 31, 2019

<p><b>Complete if your Category is Large Municipal Residential or Small Municipal Residential</b></p> <p><b>Does your Drinking-Water System serve more than 10,000 people?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p><b>Is your annual report available to the public at no charge on a web site on the Internet?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p><b>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</b></p> <p>Lake Huron and Elgin Area Water Supply Systems c/o Regional Water Supply Division 235 North Centre Road, Suite 200 London, ON N5X 4E7 <a href="https://huronelginwater.ca/">https://huronelginwater.ca/</a></p> <p>Elgin Area Water Treatment Plant 43665 Dexter Line, Union, ON N0L 2L0</p>	<p><b>Complete for all other Categories.</b></p> <p><b>Number of Designated Facilities served:</b> N/A</p> <p><b>Did you provide a copy of your annual report to all Designated Facilities you serve?</b> Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><b>Number of Interested Authorities you report to:</b> N/A</p> <p><b>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?</b> Yes <input type="checkbox"/> No <input type="checkbox"/></p>
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## Drinking-Water Systems Regulation O. Reg. 170/03

**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 EAPWSS:**

Drinking Water System Name	Drinking Water System Number
City of London Distribution System	260004917
St. Thomas Area Secondary Water Supply System	260078897
Aylmer Area Secondary Water Supply System	260004722
Port Burwell Area Secondary Water Supply System	260004735
Central Elgin Distribution System	260004761
St. Thomas Distribution System	260002187

**Systems that receive their drinking water indirectly from the EAPWSS:**

Drinking Water System Name	Drinking Water System Number
Aylmer Distribution System	260002136
Malahide Distribution System	260004774
Dutton/Dunwich Distribution System	220002967
Bayham Distribution System	260004748
Southwold Distribution System	210001362
Ontario Police College Distribution System	260002161

**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 News Release

## Drinking-Water Systems Regulation O. Reg. 170/03

### **Describe your Drinking-Water System**

The Elgin Area Primary Water Supply System employs pre-chlorination, screening, process pH adjustment (utilizing carbon dioxide), powder activated carbon addition (seasonally on an as-required basis), coagulation, flocculation, sedimentation, dual-media filtration, UV disinfection, post-chlorination, final pH adjustment (utilizing sodium hydroxide) and fluoridation to treat raw water obtained from Lake Erie. The WTP has a rated capacity of 91 ML/day (MLD). Water is pumped from the plant through the water main (900mm diameter) to various communities enroute to the Elgin-Middlesex terminal reservoirs located northeast of St. Thomas in the Municipality of Central Elgin. The drinking water system is monitored at various locations throughout the system via a Supervisory Control and Data Acquisition (SCADA) system.

A Residuals Management Facility (RMF) providing equalization, clarification, sludge thickening and dechlorination, thickened sediment is dewatered by centrifuges and the thickened sediment is sent to the landfill for final disposal. Clarified and dechlorinated liquid streams are discharged back to Lake Erie through the plant drain.

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

Carbon Dioxide  
 Aluminum Sulphate  
 Cationic Polymer  
 Powder Activated Carbon  
 Chlorine Gas  
 Hydrofluosilicic Acid  
 Sodium Hydroxide  
 Dewatering Polymer (Residuals Management Facility)  
 Sodium Bisulphite (Residuals Management Facility)

### **Were any significant expenses incurred to?**

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

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

#### **Capital Projects:**

- Instrumentation replacements
- High lift Motor Control Center (MCC) HVAC installation
- Filter area HVAC upgrades
- Treated water flow meter replacements
- Low lift drain well chlorine sample line installation
- Low Lift Pumps #1 and #3- Pump Rebuild
- Window replacements
- Operations & Maintenance Manual update
- Ultraviolet transmittance (UVT) analyzers installation

### Drinking-Water Systems Regulation O. Reg. 170/03

- Residuals Management Facility (RMF) scraper system repairs
- RMF pump rebuilds
- RMF lighting motion sensors installation
- EMPS reservoir cell #2 repairs
- EMPS reservoir cell #2 valve seat replacement
- A-pipeline decommissioning
- High lift pump #1,2,3 & 4 discharge valve rebuilds
- Hand railing replacements
- Low lift sluice gate repairs
- High lift sluice gate repairs

#### **Maintenance Projects:**

- Chamber P030B actuator relocation
- Flash mixing tank drain valves replacements

**Provide details on the 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**

<b>Incident Report Date</b>	<b>Parameter</b>	<b>Result</b>	<b>Unit of Measure</b>	<b>Corrective Action</b>	<b>Corrective Action Date</b>
January 6, 2019 AWQI #144453	E.coli and Total Coliforms	*NDOGT	CFU/ 100 mL	Resampled and tested. All resample results were clear.	January 6, 2019 January 7, 2019

\*NDOGT – No data: Overgrown with target bacteria

**Drinking-Water Systems Regulation O. Reg. 170/03**  
**Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.**

	<b>Number of Samples</b>	<b>Range of E.Coli Results (CFU/100 mL) (min #)-(max #)</b>	<b>Range of Total Coliform Results (CFU/100 mL) (min #)-(max #)</b>	<b>Range of HPC Results (CFU/1 mL) (min #)-(max #)</b>
Raw Water	105	(0)-(200)	(4)-(68,000)	(<10)-(>2,000)
Treated Water (WTP)	269	(0)-(NDOGT)	(0)-(NDOGT)	(0)-(1,090)
Distribution (EMPS Valve House)	110	(0)-(0)	(0)-(0)	(<10)-(40)
Distribution (Fruitridge Surge Facility)	55	(0)-(0)	(0)-(0)	(<10)-(10)

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

<b>Parameter</b>	<b>Number of Grab Samples</b>	<b>Range of Results (min #)-(max #)</b>
Treated Water Free Chlorine (mg/L)	Continuous Monitoring	(0.46)-(2.64)
Treated Water Free Chlorine (mg/L)	2101	(0.88)-(1.73)
Treated Water Turbidity (NTU)	Continuous Monitoring	(0.015)-(2.00)
Treated Water Turbidity (NTU)	2101	(0.022)-(0.490)
Treated Water Fluoride (mg/L)	Continuous Monitoring	(0.15)-(1.18)
Treated Water Fluoride (mg/L)	714	(0.08)-(0.90)
Filter #1 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.016)-(0.168)
Filter #2 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.010)-(0.320)
Filter #3 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.012)-(0.236)
Filter #4 - Filtered Water Turbidity (NTU)	Continuous Monitoring	(0.012)-(0.683)
Combined Filtered Water Turbidity (NTU)	2100	(0.008)-(0.100)

**Drinking-Water Systems Regulation O. Reg. 170/03**  
**Summary of Inorganic parameters tested during this reporting period**  
*(\*All tests were conducted on treated water leaving the WTP unless otherwise noted)*

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	Jan.22, 2019	0.00017	mg/L	NO
	Aug. 7, 2019	0.00019	mg/L	
Arsenic	Jan.22, 2019	0.0003	mg/L	NO
	Aug. 7, 2019	0.0003	mg/L	
Barium	Jan.22, 2019	0.0215	mg/L	NO
	Aug. 7, 2019	0.0225	mg/L	
Boron	Jan.22, 2019	0.019	mg/L	NO
	Aug. 7, 2019	0.022	mg/L	
Cadmium	Jan.22, 2019	0.000012	mg/L	NO
	Aug. 7, 2019	0.000008	mg/L	
Chromium	Jan.22, 2019	0.00013	mg/L	NO
	Aug. 7, 2019	0.00019	mg/L	
Lead (EMPS Valve House)	Jan.22, 2019 July 31, 2019	Not Detected 0.00005	mg/L mg/L	NO
Mercury	Jan.22, 2019	Not Detected	mg/L	NO
	Aug. 7, 2019	Not Detected	mg/L	
Selenium	Jan.22, 2019	0.00016	mg/L	NO
	Aug. 7, 2019	0.00015	mg/L	
Uranium	Jan.22, 2019	0.000036	mg/L	NO
	Aug. 7, 2019	0.001800	mg/L	
Sodium	Jan.22, 2019	18.4	mg/L	NO
Nitrite	Jan. 22, 2019	Not Detected	mg/L	NO
	Apr. 11, 2019	Not Detected	mg/L	
	Jul. 23, 2019	Not Detected	mg/L	
	Oct. 22, 2019	Not Detected	mg/L	
Nitrate	Jan. 22, 2019	0.208	mg/L	NO
	Apr. 11, 2019	0.207	mg/L	
	Jul. 23, 2019	0.128	mg/L	
	Oct. 22, 2019	0.144	mg/L	

## Drinking-Water Systems Regulation O. Reg. 170/03

### Summary of Organic parameters sampled during this reporting period

*(\*All tests were conducted on treated water leaving the WTP unless otherwise noted)*

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Atrazine + N-dealkylated metabolites	Jan.22, 2019 Aug. 7, 2019	0.00008 0.00006	mg/L mg/L	NO
Azinphos-methyl	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Benzene	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Benzo(a)pyrene	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Bromoxynil	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Carbaryl	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Carbofuran	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Carbon Tetrachloride	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Chlorpyrifos	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Diazinon	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Dicamba	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
1,2-Dichlorobenzene	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
1,4-Dichlorobenzene	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
1,2-Dichloroethane	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
1,1-Dichloroethylene (vinylidene chloride)	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO

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

<b>Parameter</b>	<b>Sample Date</b>	<b>Result Value</b>	<b>Unit of Measure</b>	<b>Exceedance</b>
Dichloromethane	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
2-4 Dichlorophenol	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Diclofop-methyl	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Dimethoate	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Diquat	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Diuron	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Glyphosate	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Haloacetic Acids (HAA's) (EMPS Valve House)	Jan. 22, 2019 Apr. 11, 2019 Jul. 23, 2019 Oct. 22, 2019	Not Detected Not Detected 0.0057 Not Detected	mg/L mg/L mg/L mg/L	NO
Haloacetic Acids (HAA's) (EMPS Valve House) Running Annual Average	2019	0.0014	mg/L	NO
Malathion	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
2-Methyl-4-chlorophenoxyacetic acid	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Metolachlor	Jan.22, 2019 Aug. 7, 2019	0.00002 0.00001	mg/L mg/L	NO
Metribuzin	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Monochlorobenzene	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO



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

<b>Parameter</b>	<b>Sample Date</b>	<b>Result Value</b>	<b>Unit of Measure</b>	<b>Exceedance</b>
Paraquat	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Pentachlorophenol	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Phorate	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Picloram	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Polychlorinated Biphenyls (PCB)	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Prometryne	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Simazine	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Total Trihalomethanes (THMs) (EMPS Valve House)	Jan. 22, 2019 Apr. 11, 2019 Jul. 23, 2019 Oct. 22, 2019	0.008 0.013 0.022 0.016	mg/L mg/L mg/L mg/L	NO
Total Trihalomethanes (THMs) (EMPS Valve House) Running Annual Average	2019	0.015	mg/L	NO
Terbufos	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Tetrachloroethylene	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
2,3,4,6-Tetrachlorophenol	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Triallate	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Trichloroethylene	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
2,4,6-Trichlorophenol	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO
Trifluralin	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO

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

<b>Parameter</b>	<b>Sample Date</b>	<b>Result Value</b>	<b>Unit of Measure</b>	<b>Exceedance</b>
Vinyl Chloride	Jan.22, 2019 Aug. 7, 2019	Not Detected Not Detected	mg/L mg/L	NO

**NOTE:** During 2019, no Inorganic or Organic parameter(s) exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

**APPENDIX C –  
2019 MINISTRY OF THE ENVIRONMENT, CONSERVATION AND  
PARKS (MECP) INSPECTION SUMMARY**

**Ministry of the Environment, Conservation and Parks (MECP) Inspection  
Report – Issued March 17, 2020**

**Summary of Non-compliances (NC)**

#	MECP Inspection Module	MECP Non-compliance (Summary)	Corrective Action Required by MECP(Summary)
NC #1	Treatment Processes	<p><b>Where an activity has occurred that could introduce contamination, all parts of the drinking water system were not disinfected in accordance with Schedule B, Condition 2.3 of the Drinking Water Works Permit.</b></p> <p>Drinking Water Works Permit DWWP # 048-201 Issue #5 Section 2.3 of Schedule B stipulates that all parts of the drinking water system in contact with drinking water which are added, modified, replaced, extended; or taken out of service for inspection, repair or other activities that may lead to contamination, shall be disinfected before being put into service in accordance with a procedure approved by the Director or in accordance with the applicable provisions of the following documents:</p> <ul style="list-style-type: none"> <li>a) The ministry's Watermain Disinfection Procedure, dated November 2015;</li> <li>b) Subject to condition 2.3.2, any updated version of the ministry's Watermain Disinfection Procedure;</li> <li>c) AWWA C652 – Standard for Disinfection of Water-Storage Facilities;</li> <li>d) AWWA C653 – Standard for Disinfection of Water Treatment Plants; and</li> <li>e) AWWA C654 – Standard for</li> </ul>	<p>From herein, the Operating Authority shall ensure that the procedures outlined in the Drinking Water Works Permit DWWP # 048-201 Issue # 5, Section 2.3 of Schedule B are complied with.</p> <p>An internal operational document should be developed indicating the Standard to be used regarding disinfection and bacteriological sampling, pending the location of work to be completed and mandatory record keeping ensuring compliance.</p> <p>The Operating Authority shall provide additional training to the operators regarding the requirements of Drinking Water Works Permit DWWP # 048-201 Issue # 5 specifically Section 2.3.</p> <ul style="list-style-type: none"> <li>a) The ministry's Watermain Disinfection Procedure, dated November 2015;</li> <li>b) Subject to condition 2.3.2, any updated version of the ministry's Watermain Disinfection Procedure;</li> <li>c) AWWA C652 – Standard for Disinfection of Water-Storage Facilities;</li> <li>d) AWWA C653 – Standard for Disinfection of Water Treatment Plants; and</li> <li>e) AWWA C654 – Standard for Disinfection of Wells.</li> </ul> <p>In addition to the above the</p>

#	MECP Inspection Module	MECP Non-compliance (Summary)	Corrective Action Required by MECP(Summary)
		<p>Disinfection of Wells. Documentation provided for the inspection period, indicates that not all sampling and monitoring conditions had been conducted during underwater inspection of the EMPS Cell # 2. Specifically, AWWA C652 – Standard for Disinfection of Water -Storage Facilities section 4.4 and section 5.1 Water Quality Sampling and Testing for coliform bacteria and chlorine residual. In addition to the above, records provided fail to document the time line of disinfection regarding the spray method as a minimum contact time of 30 minutes.</p>	<p>Operating Authority shall submit documentation including an operator sign off sheet to the undersigned inspector no later than March 31, 2020.</p>