



**Infrastructure and Development
Services Department
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March 1st, 2024

Dear Water Consumer,

The Water Division is pleased to provide the 2023 Annual Summary Report for the City of Stratford Drinking Water System.

The attached report is in accordance with Schedule 22 of O. Reg 170/03, under the Safe Drinking Water Act.

As identified under Section 12 of O. Reg. 170/03, it is required that the Annual Report as per Section 11 of O. Reg. 170/03 and the Summary Report be made available for inspection by any member of the public during normal business hours, without charge. This report can be viewed at Infrastructure and Developmental Services, City Annex, 82 Erie Street, 3rd Floor, Stratford.

The report can also be found on the City of Stratford website at:
<https://www.stratford.ca/en/live-here/waterannualreports.aspx>

This report will also be provided to members of council by March 31, 2024.

For any questions or additional information regarding the report, please contact me at (519) 271-0250 ext. 222.

Yours truly,

A handwritten signature in blue ink, appearing to read "J. Bowes". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Johnny Bowes
Manager of Environmental Services



2023

Annual Summary Report

City of Stratford Drinking Water System

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Quality Management System Policy

The City of Stratford as the owner and operator of the treatment and distribution drinking water system is committed to developing a high level of trust, commitment, and accountability by consistently delivering high quality and safe drinking water to the consumers.

The City of Stratford, Water Division is committed to:

- Providing safe and reliable drinking water services to our consumers, by managing potential risks, promoting resource stewardship and source water protection,
- Complying with applicable legislation, regulations, guidelines, and standards as related to the provision of safe drinking water.
- Maintaining and continually improving the effectiveness of the Quality Management System; and
- Establish and maintain a Quality Management System that is consistent with the Quality Management System Policy.

The City of Stratford Quality Management System Summary

The City of Stratford Quality Management System (QMS) is legislated under the Drinking Water Quality Management Standard (DWQMS) through the Safe Drinking Water Act. To maintain operating authority accreditation, the Ministry of the Environment, Conservation and Parks (MECP) mandate tasks that must be completed annually. These activities include:

- Conducting an internal audit of the Quality Management System.
- Conducting a Management Review meeting.
- Participating in an external audit conducting by a third-party Accreditation Body.
- Updating the Quality Management System Operational Plan.
- Updating Council of the status of the Quality Management System.

The QMS Operational Plan was reviewed and updated in 2022 with focus on implementing significant updates to the City's existing Operational Plan, reflecting sector best practices for the City's improved conformity to the latest version of the MECP's Drinking Water Quality Management Standard. It was endorsed by the new council on May 23, 2023.

Internal audits were completed with support from Water operational staff and Acclaims Environmental. No non-conformities were identified as a result of the internal audit. The audit report did note three areas for opportunities for improvement which are all being addressed by staff.

The City of Stratford must receive accreditation annually to operate the drinking water system. Through a qualified third-party auditor, the City must demonstrate that its QMS meets the requirements of the DWQMS (Drinking Water Quality Management Standard). SAI Global conducted an external surveillance audit on April 28th, 2023, by Janet McKenzie. There were no non-conformances and three OFI's identified.

Staff are required to conduct an annual Management Review meeting to evaluate the effectiveness of the QMS. Deficiencies and opportunities for improvement are identified and action items are developed to ensure follow-up. The City of Stratford held their management review meeting on December 18th, 2023. All requirements were met in 2023.

1.0 System Overview

This annual summary for the City of Stratford Drinking Water System was published in accordance with Schedule 22 of Ontario's Drinking Water Systems Regulation for the reporting period of January 1, 2023 to December 31, 2023. The City of Stratford Drinking Water System (waterworks number 220000530) is categorized as a Large Municipal Residential Drinking Water System.

This report was prepared by the City of Stratford on behalf of the Corporation of the City of Stratford and must be supplied to the municipal council by March 31, 2023.

2.0 Compliance with Regulations

The City of Stratford Drinking Water System is operated and maintained to ensure that safe drinking water supplied to the consumers and serviced by the system satisfy requirements within the Safe Drinking Water Act, the regulations, the Municipal Drinking Water License (074-101) and Drinking Water Works Permit (074-201).

The Ministry of the Environment, Conservation and Parks (MECP) conducted the routine annual inspection on June 5th, 2023. The inspecting officer, Neville Rising, identified three non-compliances with the regulatory requirements. Two of them were administrative in nature and were corrected immediately. The third involved modifications to our well supply infrastructure that was completed in February 2024. Updates were sent to Mr. Rising during this process to show our progress on the corrective actions.

There were nine Adverse Drinking Water Quality Incidents (AWQI) reported during this reporting period. Eight occurred from our mandated sodium and fluoride sampling that is detailed in the following paragraph. It should be noted that typically, all sodium/fluoride incidents are recorded on one AWQI for each parameter. However, in 2023, all sodium exceedances were on one AWQI, but all seven fluoride exceedances were reported individually.

Water quality exceedances for Fluoride and Sodium were observed in samples taken in 2023. The Fluoride and Sodium levels continue to be an issue in the system due to them occurring naturally. Annual notification is provided to property owners on their water bill as well as notification on the Huron Perth Public Health website of the Fluoride levels.

Fluoride & Sodium exceedances are reportable every 57 months. Next reportable exceedances will be in 2027 and 2028.

- Next reporting requirement for Fluoride, for all treated entry locations, is March 8, 2028.

- Next reporting requirement for Sodium, for all treated entry locations, is December 8, 2027.

The other AWQI occurred with a distribution sample taken on August 9, 2023, at 777 Romeo St. S. One Total Coliform was identified during sampling with a result of 1 cfu/100mL. This was reported to SACC and the MECP as required. Resamples were taken at the source and the upstream and downstream hydrants on August 12th, 2023. All resamples passed.

3.0 Corrective Actions

The routine MECP Inspections have an Inspection Rating Record, which evaluates the system to provide information for the owner/operator on areas that need to be improved. The particular areas that were evaluated for the City of Stratford Drinking Water System were: Treatment Process, Operations Manuals, Water Quality Monitoring, Reporting and Corrective Actions and Other Inspection Findings. This system received 20 out of 654 non-compliance risk ratings and as such received 96.94% for the Final Inspection Rating.

4.0 Summary of Quantity of Water Supplied

Production Wells and Treated Flows

Within the City of Stratford Drinking Water System is a total of 11 confined artesian wells. Of the 11 wells in the system, five are considered remote facilities that are located throughout the City. The distribution system has over 180 kilometers of cast iron, ductile, steel and PVC water main, varying in size from 100mm to 400mm. Additionally, The City of Stratford's water system is 100% metered, with more than 12,537 service connections.

There are also two water towers within the distribution system that provide both storage and pressure stability. The City's topography is moderately level which allows for a single pressure zone throughout the distribution system.

Attached as Appendix A is a summary the flow rates for 2023, which include; Municipal Drinking Water License Schedule C rated capacity, total and average daily flows, and raw water peak flows.

Monitoring Wells

As per section 4.2 (4) of the Permit to Take Water, all data collected under the monitoring well program shall be analyzed, interpreted, and summarized in an annual report by a qualified person. The 2023 final report was prepared by ARL Groundwater Resources Ltd. on February 29th, 2024. Reports can be viewed at 82 Erie Street, 3rd Floor Engineering.

General comments include:

- Total pumpage from all wells was approximately 8% lower in 2023 compared with 2022.
- The Romeo Street well field accounted for approximately 42% of the total well production in 2023, followed by Lorne Avenue (20%), O'Loane (15%), Dunn (11%), Chestnut St. (7%) and Mornington St. (4%), respectively.
- The hydrographs of water level measurements recorded at the City multilevel monitoring wells in 2023 are generally consistent with measurements recorded in recent years. There is some evidence that water levels were lower during 2020-2023, compared to 2018-2019.
- There is no evidence available to indicate that water taking by the City in 2023 had an adverse effect on other private wells or the natural environment.

Recommendations:

- That water level monitoring at the multilevel monitoring wells continue with some changes in methodology including a shift to more automated monitoring using dataloggers and transducers.
- That a more comprehensive review and interpretation of the monitoring data be performed in 2024, to better determine the relationship between pumping at individual supply wells, and water level response at both the multilevel monitoring wells and the individual supply wells themselves.
- That a review of the monitoring and reporting requirements in the PTTW for the City supply wells should be considered in 2024. The objective of the review would be to update and improve on the effectiveness of the monitoring and reporting program required under the PTTW.

Appendix "A" – Flow Data

Chestnut Street Well and Pumphouse

Month	Raw Peak Flow Rate (Max = 2500 L/min)	Treated Water (MDWL Limit = 3600 m ³ /day)	Monthly Average (m ³ /day)
January	1600	699	219
February	1606	1774	919
March	1618	1060	818
April	1620	978	859
May	1622	1781	1047
June	1598	1726	891
July	1608	1781	1136
August	1600	1801	1193
September	1600	1746	1071
October	1615	1759	956
November	1623	1008	714
December	1629	1679	515
Average	-	-	862
Maximum	1629	1801	-

Morningson Street Well and Pumphouse

Month	Raw Peak Flow Rate (Max = 3410 L/min)	Treated Water (MDWL Limit = 4910 m ³ /day)	Monthly Average (m ³ /day)
January	2277	585	375
February	2277	962	478
March	2277	1815	646
April	2286	1469	577
May	2286	765	526
June	2260	1550	518
July	2278	1656	604
August	2266	597	333
September	2265	939	374
October	2269	635	380
November	2272	687	467
December	2364	698	345
Average	-	-	469
Maximum	2364	1815	-

Appendix "A" – Flow Data

Lorne Avenue Well and Pumphouse

Month	Raw Peak Flow Rate (Max = 1370 L/min)	Treated Water (MDWL Limit = 1973 m ³ /day)	Monthly Average (m ³ /day)
January	1101	739	377
February	1081	281	101
March	1091	305	112
April	1109	308	101
May	1085	209	114
June	1119	1435	465
July	1090	948	229
August	1466	873	173
September	1086	142	23
October	0	0	0
November	0	0	0
December	7630	443	443
Average	-	-	178
Maximum	7630	1435	-

*December 1, 2023 – Flushing to Waste, extended our PTTW L/min due to no back pressure during flushing.

Dunn Road Well and Pumphouse

Month	Raw Peak Flow Rate (Max = 5000 L/min)	Treated Water (MDWL Limit = 7200 m ³ /day)	Monthly Average (m ³ /day)
January	2419	1375	1068
February	2445	2699	1350
March	2453	1671	1120
April	2453	1502	1191
May	2949	2672	1500
June	6603	2740	1773
July	2375	2566	1588
August	2376	2603	1550
September	2427	1623	1259
October	2456	2565	1053
November	2459	1338	997
December	2443	2596	1065
Average	-	-	1293
Maximum	6606	2740	-

*June 19, 2023 – Flushing to waste, extended our PTTW L/min due to no back pressure during flushing.

Appendix "A" – Flow Data

O'Loane Avenue Well and Pumphouse

Month	Raw Peak Flow Rate (Max = 3406 L/min)	Treated Water (MDWL Limit = 4905 m ³ /day)	Monthly Average (m ³ /day)
January	2981	2039	1649
February	2986	2053	1349
March	2984	2063	1640
April	4124	2135	1734
May	3007	2945	1814
June	2972	3414	2123
July	2999	2438	1164
August	2992	2435	1761
September	2340	2512	2108
October	3102	2629	1734
November	3113	2668	1542
December	3094	1999	1472
Average	-	-	1674
Maximum	4124	3414	-

*April 14, 2023 – Flushing to Waste, extended our PTTW L/min due to no back pressure during flushing.

Romeo Street Pumping Station

Month	Raw Peak Flow Rate (see individual flow rates FW 1, 2, 3, 4, 6, 7)	Treated Water (MDWL Limit = 17012 m ³ /day)	Monthly Average (m ³ /day)
January	-	5670	5354
February	-	6100	5104
March	-	5330	4772
April	-	5540	5029
May	-	7360	6170
June	-	9324	6445
July	-	6370	5258
August	-	5730	5259
September	-	5720	5307
October	-	5950	5446
November	-	5780	5508
December	-	5220	4683
Average	-	-	5361
Maximum	-	9324	-

Appendix "A" – Flow Data

Romeo Street Pumping Station Raw Peak Flows

Field Wells 1, 2, 3, 4, 6, 7 (PTTW allowable water taking is per individual field well)

Month	FW1 (L/min)	FW2 (L/min)	FW3 (L/min)	FW4 (L/min)	FW6 (L/min)	FW7 (L/min)
January	1094	1085	1001	1082	2819	2559
February	1097	1085	1005	1072	2899	2565
March	1098	1090	1008	1070	2953	2571
April	1097	1093	983	1066	0	2590
May	1093	1102	973	1101	2968	2558
June	1093	1095	937	1069	2848	2563
July	1101	1093	928	1065	2993	2558
August	1099	1089	922	1069	61715	2567
September	1099	1098	915	1059	62951	2559
October	1096	1102	900	1127	3003	2546
November	1091	1102	896	1072	2976	2543
December	1096	1099	903	1067	3047	2584
Average	-	-	-	-	-	-
Maximum	1101	1102	1008	1127	3047	2590
Max Limit	1136	1136	1136	1136	3858	3410

*August 23, 2023 – False readings on FW #6 flows, due to the installation of a new mag meter at the well.

*September 15, 2023 – False readings on FW #6 flows, related to software issues between the mag meter and PLC.