

St. Andrews/Rosedale Distribution System

Drinking Water Works Permit No. 186-201
Municipal Drinking Water Licence No. 186-101

Works No. 260001250

- 2019 Summary Report -

Prepared by:
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ST. ANDREWS/ROSEDALE DISTRIBUTION SYSTEM

2019 SUMMARY REPORT

Facility description:	Water booster pumping station
Capacity:	898 m³
Service area:	St. Andrews/Rosedale Subdivision
Service population:	1850
Raw water source:	St. Lawrence River (water supplied by the City of Cornwall)
Operations manager:	Chris Eamon (613)-551-2720

This report is a summary of water quality information for the St. Andrews/Rosedale Distribution System, published in accordance with Schedule 22 of Ontario's Drinking Water Systems Regulation for the reporting period of January 1 to December 31. The St. Andrews/Rosedale Distribution System is categorized as a Large Municipal Residential Drinking Water System.

This report is prepared by Caneau Water and Sewage Operations Inc. on behalf of the Corporation of the Township of South Stormont. A copy of the Summary report is to be provided to the members of the municipal council not later than March 31, 2020.

"The report must list the requirements of the Act, the regulations, the system's approval and any order that the system failed to meet at any time during the period covered by the report and specify the duration of the failure; and for each failure referred to, describe the measures that were taken to correct the failure." – O. Reg. 170/03 s. 22(2)

"The report must also include the following information for the purpose of enabling the owner of the system to assess the rated capability of their system to meet existing and planned uses of the system:

1. A summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows and daily instantaneous peak flow rates.
2. A comparison of the summary referred to in paragraph 1 to the rated capacity and flow rates approved in the system's approval."

O. Reg. 170/03 s. 22 (3)

System Description

Water enters from the Cornwall Distribution System at two points, one on Mack Street and Cornwall Centre Road and one at the corner of Highway 138 and Cornwall Centre Road. Each of these locations contains a metering chamber, which is owned and monitored by the City of Cornwall. In each of these metering chambers, a system of check valves has been installed to prevent backflow into the Cornwall Distribution System.

The booster pumping station and re-chlorination facility consists of the following:

- Duty pumps – two vertical in-line centrifugal booster pumps (one duty, one standby) each rated at approximately 10.4 L/s at a Total Dynamic Head (TDH) of 12.5 m,

- Disinfection system – a sodium hypochlorite disinfection system with automatic switchover consisting of two (2) solution feed pumps each rated at approximately 0.315 L/h at a pressure of 1750 kPa; a 100 L capacity hypochlorite solution tank with spill containment,
- Standby power – provision for connection to portable diesel unit,
- Instrumentation – flow meter and chlorine residual analyzer,

together with all necessary mechanical and electrical work, instrumentation and controls.

The elevated tank is located on the south side of County Road 18. It has a ground elevation of 71.5m. The tower's overflow is at an elevation of 120.3 m. The main water storage cavity is 9.4 m in diameter. It has an effective capacity of 770 m³. It is fed and emptied via a 200 mm diameter riser.

The tower is equipped with a Rosemount pressure sensor, which sends signals to the booster station to turn the pumps on or off.

Compliance with Terms and Conditions of the Municipal Drinking Water Licence

The St. Andrews/Rosedale Distribution System is operated and maintained in accordance with O. Reg. 170/03 dated June 1, 2003 (last amendment – O. Reg. 185/18) and the Municipal Drinking Water Licence.

The average water taking for the year was 454 m³/day. The maximum flow for the year occurred in April 2019 – 1,001 m³. The flow meter was calibrated November 21, 2019 by Endress and Hauser.

Free chlorine residual in treated water is continuously monitored at the point of entrance into the distribution system. The Prominent chlorine analyzer is accurate to ±2% of the measured value. The online analyzer is monitored, at minimum, every 72 hours. The on-line chlorine analyzer is checked with the hand-held chlorine analyzer and adjusted as required. An alarm system calls out when the chlorine goes below 0.40mg/L or above 3.50 mg/L. Operators at the St. Andrews Booster Stations try to keep the chlorine residual around 1.00 mg/L. (See Appendix I for flows and chlorine residuals.) The chlorine analyzer was calibrated November 21, 2019 by Endress and Hauser. Operators in charge of the St. Andrews Booster Station keep a daily log book, recording flow meter readings, free chlorine residual (both continuous and grab samples), and other physical and chemical parameters of the treated water. The booster station is checked (at minimum) every 72 hours.

Samples are collected throughout the year from the treated water to determine whether or not the water is safe for human consumption (in accordance with O. Reg. 170/03, Schedule 10 and 13, Microbiological and Chemical Sampling and Testing). Bacteriological analysis is performed weekly (10 samples per month) on the distribution samples and trihalomethanes (THMs) and haloacetic acids (HAAs) are analyzed 4 times a year. See results in Appendix II – 2019 Annual Report for the Ministry of the Environment, Conservation and Parks. All samples are analyzed at Caduceon Environmental Labs in Nepean, Ontario. Caduceon and its subcontracted labs are

accredited by the Standards Council of Canada. Written procedures have been established for the notification of the Medical Officer of Health and the Ministry of the Environment Spills Action Centre should a sample result indicate an exceedance has occurred. In the reporting year, there were no adverse water quality incidents.

Under Ontario Regulation 170/03, Schedule 15, Section 15.1-5 (lead sampling), St. Andrews/Rosedale Distribution system is eligible for reduced sampling and reduced frequency (every 3 years). Samples were collected in 2018/2019, and the next round of sampling will take place in 2021/2022. pH and alkalinity are required to be collected twice per year.

Free chlorine residual in the distribution system is monitored by an alarmed online analyzer with datalogging. The analyzer is checked (at a minimum) every 72 hours. The distribution analyzer will alarm out when the chlorine residual goes below 0.15 mg/L for a period greater than 15 minutes. The distribution chlorine analyzer was calibrated November 21, 2019 by Endress and Hauser.

All records and information relating to, or resulting from the monitoring, sampling and analyzing activities are retained for a minimum of 5 years.

The St. Andrews/Rosedale Distribution System is classified Water Distribution 2 (Certificate Number 3669). Operators responsible for the operation of the St. Andrews/Rosedale Distribution System hold valid licences applicable to this type of water distribution system.

Following all maintenance or repairs to the water distribution system, all affected areas are disinfected in accordance with the MOE's "Procedure for Disinfection of Drinking Water in Ontario" dated June 2006. All chemicals used in the treatment process (Chlorine) and all materials contacting the water meet both the American Water Works Association (AWWA) quality criteria and the American National Standards Institute (ANSI) safety criteria. All chemicals have been registered by a testing institution accredited under the Standards Council of Canada Act or by ANSI.

A contingency plan has been implemented to ensure adequate equipment and material is available for dealing with emergencies, upset conditions and equipment breakdowns in the works.

An operating manual is available at the plant. The manual includes monitoring and reporting of the necessary and in-process parameters essential for control of the treatment process and for the assessment of the performance of the works. It also contains procedures that are required for adequate operation and maintenance of the monitoring equipment.

Drawings have been prepared and kept up-to-date showing the new works as constructed (record drawings), including timely incorporation of all modifications made to the works throughout its operational life.

A Process and Instrumentation Diagram (PID) for the water booster station and the elevated storage reservoir has been prepared and kept up to date, including timely incorporations of all modifications made to the works throughout its operational life.

All record drawings and diagrams and all existing record drawings which are currently in retention throughout the operational life of the water works are readily available for inspection by Ministry staff.

Procedures have been established and are followed for receiving, responding to, and recording complaints about any aspect of the works, including recording the steps that were taken to determine the cause of complaint and the corrective measures taken to alleviate the cause and prevent its reoccurrence.

Compliance with Regulatory Requirements and Actions Required

The 2019-2020 Compliance Inspection was completed on January 7, 2020 by the Ministry of the Environment, Conservation and Parks. The Compliance Inspection Report has yet to be received as of March 31, 2020. There are no known issues of regulatory non-compliance.

A copy of the report is available at the Township office.

Maintenance

- January 31 – Marleau Mechanical on site to quote replacement expansion joint on P100B.
- February 15 – Marleau Mechanical on site to install filter and y strainer add zinc pellets to the hot water tank.
- February 20 – E&H on site to complete calibrations on flow meters – were not able to complete because simulator broke while testing unit.
- April 4 – Township repairing a main break on Hwy 138 – filled tower to prepare.
- April 18 – Bergeron Electric on site to install GFI outlet for dehumidifier.
- April 18 – Capital Controls on site to troubleshoot tower alarm on communication system between the tower and the Booster Station. The tower level programming on ABB unit was also updated.
- May 3 – Handy Dan D on site at booster station to install eaves trough on west side of building above entry doors.
- May 10 – Marleau HVAC on site to test backflow preventer and install drain line.
- May 15 – tower level sensor not reading properly – called Capital Controls who confirmed a faulty level sensor – sourcing a new one ASAP – currently running tower in manual – 8 hours on, 8 hours off schedule as per normal automatic function (7am-3pm-11pm). Township and fire department have been notified and will be in contact with operator should more water be required.
- May 17 – Capital Controls on site at tower to replace level sensor – mounted, plumbed and calibrated – put both pumps back to auto – tower function back to normal.
- June 6 – Bergeron Electric on site to move wall outlet off newly installed drain line.
- September 6 – EH on site to troubleshoot pH probe issues. Cable connecting probe was found to be faulty. Cable replaced and probe recalibrated.
- September 25 – Ranguard on site to replace door contact.
- October 1 – Xplorenet on site to inspect their equipment.
- November 21 – Endress & Hauser on site for annual flow meter and Cl₂ analyzer calibrations.

APPENDIX I
Flow Data

APPENDIX II
2019 Annual Report
Ministry of the Environment, Conservation and Parks