

St. Andrews/Rosedale Distribution System

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

Works No. 260001250

- 2018 Summary Report -

Prepared by:
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Chris Eamon

ST. ANDREWS/ROSEDALE DISTRIBUTION SYSTEM

2018 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, 2019.

"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 659 m³/day. The maximum flow for the year occurred on June 11, 2018 – 1,183 m³. The flow meter was calibrated October 18, 2017 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 August 15, 2018 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 – 2018 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 2015/2016, and the next round of sampling will take place in 2018/2019. 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 August 15, 2018 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 2018-2019 Compliance Inspection was completed on July 17, 2018 by the Ministry of the Environment, Conservation and Parks. The Compliance Inspection Report was received on August 28, 2018 and there were no issues of regulatory non-compliance.

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

Maintenance

- Feb. 12 – Quarterly samples collected at distribution points
- Feb. 21 – Capital Controls on site to install temporary data logger while original is sent for repairs
- Mar. 8 & 18 – Marleau Mechanical on site to install new back flow preventer and troubleshoot hot water tank
- Apr. 5 – Xplornet on site at tower to repair equipment damaged in wind storm
- May 14 – Annual sampling completed
- July 17 – Annual MOECP inspection
- Aug. 7 – Quarterly samples collected at distribution points
- Aug. 21 – Marleau Mechanical on site to replace dampener motor on fresh air intake vent
- Sept. 24 – Endress and Hauser on site to replace pH probe on analyzer as part of annual calibrations
- Oct. 30 – Marleau HVAC on site to troubleshoot electric heater
- Nov. 5 – Quarterly samples collected at distribution points
- Dec. 13/14 – Township performing watermain repair – came in early to fill tower both days – watermain repaired Dec. 14 @ 1:30pm

APPENDIX I
Flow Data

APPENDIX II
2018 Annual Report
Ministry of the Environment, Conservation and Parks