

# Newington Water Treatment Plant

Drinking Water Works Permit No. 186-203  
Municipal Drinking Water Licence No. 186-103

Works No. 220008051

- 2023 Summary Report -

**Prepared by:**

CANEAU WATER AND SEWAGE OPERATIONS INC.  
19740 WELLINGTON ST.  
WILLIAMSTOWN, ON K0C 2J0

BILL BRYCE, PRESIDENT

## NEWINGTON WATER TREATMENT PLANT

### 2023 SUMMARY REPORT

<b>Facility description:</b>	<b>Communal ground water supply system</b>
<b>Capacity:</b>	<b>328 m<sup>3</sup>/day</b>
<b>Service area:</b>	<b>Village of Newington</b>
<b>Service population:</b>	<b>150</b>
<b>In-service date:</b>	<b>1937</b>
<b>Water source:</b>	<b>Ground water</b>
<b>Disinfection method:</b>	<b>Sodium Hypochlorite (liquid chlorine)</b>
<b>Overall Responsible Operator:</b>	<b>Chris Eamon (613) 551-2720</b>

This report is a summary of water quality information for the Newington Water Treatment Plant, published in accordance with Schedule 22 of Ontario's Drinking Water Systems Regulation for the reporting period of January 1 to December 31, 2023. The Newington Water Treatment Plant 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, 2024.

"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**

The Newington water works draws groundwater from two wells located within the Newington Fairgrounds. The wells are operated in series. The first well, known as the "Kraft" well is the primary source of water. It is a dug well which was originally installed in 1937. The well equipment was upgraded in 1988, including pump upgrade, pressure tanks, chlorination equipment, etc. The Newington WTP was upgraded in 2004 to include cartridge filtration,

extended chlorine contact piping, diesel standby generator, and new instrumentation, as outlined in Drinking Water Works Permit 186-203. The pressure tanks were replaced in 2019.

In dry periods, when the water level hits a minimum depth in the Kraft Well the pump in the second well, the “Fairgrounds” well, is activated to pump water to the Kraft Well. The Fairgrounds Well is a drilled well originally installed in 1979.

Additional descriptions of the wells and disinfection system are provided in the following sub-sections.

### **Well #1 – The Kraft Well**

Well #1 is a dug well installed at a reported depth of 5.2 m. It is located on Lot 7 of Concession Road 8, Township of South Stormont. The co-ordinates for this location are 4,995,915 (+/- 100m) Northing and 498,463 (+/- 100) m Easting, determined from a GPS unit.

The Permit to Take Water limit for Well #1 is 326.9 m<sup>3</sup>/d. Groundwater is pumped from one of two submersible pumps (capacity 6.0 L/s @ TDH 52.7 m) each installed in 200 mm diameter well casing. A check valve is located on the discharge of the pumps to prevent backflow. The well discharge is connected to the lift station via 6 meters of 75 mm diameter schedule 80 PVC pipe. Flow is measured by an inline ABB flow meter.

### **Well #2 – The Fairgrounds Well**

The Fairgrounds Well is located on lot 7 Concession Road 8, Township of South Stormont, approximately 330m North of the Kraft Well. The co-ordinates for this location are 4,996,065 (+/- 100 m) Northing and 498,848 (+/- 100) m Easting. The well casing is 200 mm diameter and the well is drilled to a reported depth of 14 m. The piping from the Fairgrounds Well to the Pump Station is 38 mm Schedule 40 PVC. There is approximately 470 m of piping between the Fairgrounds Well and the Lift station. The piping leaves the well, enters the front end of the lift station. When the system is in auto, a three-way solenoid valve opens to ditch discharge for the first 10 minutes of the Fairgrounds Well pump operation, and then directs the flow into the Kraft Well. When the system is in manual, it is flushed for 1 hour and tested before putting it into operation,

Groundwater is pumped by a single submersible pump. The capacity of the pump is 1.4 l/s @ TDH 30.5 m of head. The Permit to Take Water limit for the well is 65.5 m<sup>3</sup>/day.

### **Water Treatment Plant**

Treatment consists of cartridge filtration and disinfection by sodium hypochlorite.

### **Cartridge Filtration**

Cartridge Filters	
Manufacturer	Harmsco
Housing Model	HUR 90 HP
10-Micron Filter	Model HC/90-10
5-Micron Filter	Model HC/90-5
1-Micron Filter	Model HC-PP-90-1

Three (3) cartridge filters operating in series. The first filter is a 10-micron pre-filter, the second filter is a 5-micron filter, and the third is a 1-micron absolute filter. The 1-micron absolute filter is a Harmsco Poly-Pleat filter cartridge which meets the 3-log (99.9%) removal requirements in the National Sanitation Foundation Standard (NSF) 53 for cyst size particles. The turbidity in the filtered water is measured with a Hach turbidity analyzer.

### **Turbidity Analyzer**

The Newington WTP contains one Hach turbidity analyzer. The purpose of this unit is to measure the turbidity of the water following the cartridge filters.

The analyzer provides the operator interface and communications with other devices.

The signal from the filtered water analyzer is data-logged on the ABB SM1000 unit.

### **Sodium Hypochlorite Disinfection**

Post-Chemical Metering Pumps	
Manufacturer	Metcon/Prominent
Model	GALA1602NPB900UD112000
Chemical Used	Sodium Hypochlorite
Max Capacity	1.4 L/hr
@ Max Back Press. Of	253 psi
Pressure Relief Valve Setting	100 psi
Back Pressure Valve Setting	80 psi
Size of Calibration Column Used	100 mL

The panel was equipped with two (2) Prominent chemical feed pumps, Model GALA1602NPB900UD112000. It is equipped with one (1) back pressure valve set at 100 psi and two (2) pressure relief valves set at 115 psi. The suction of the pump is suction lift. The line pressure at the injection point is estimated @ 90 psi injected into a pipe.

A 70 m length of 600 mm diameter pipe installed outside of the plant, directly to the north-east of the plant, provides chlorine contact time. As water exits the contact pipe, the treated water is monitored for free chlorine residual.

A 6% v/v sodium hypochlorite solution is kept in a 200-litre polyethylene tank. The metering pump rate is set on a daily basis to correspond with the groundwater pumping rate and the chlorine residual in the distribution system.

### **Chlorine Analyzer - Dulcometer D1C**

The Prominent Dulcometer D1C is a device designed for measuring, displaying and controlling free chlorine concentrations in the filtered and potable water. The unit is comprised of the controller, the In-Line Sensor Housing (DGMA), a CLE chlorine sensor, and a Dulcotest Transducer 4-20 mA pH probe.

### **System Pressurization**

Pumping is activated by a pressure drop in the distribution system. Pressure is maintained by six (6) pressure tanks in the lift station. The pressure tanks are ProliteSS, Model CSS 120. The pressure tanks maintain a pressure of 470 kPa in the feeder main to the distribution system. Flow is measured by an inline Endress & Hauser flow meter.

The piping from the pump station to the distribution system is mostly 75 mm diameter PE Series 100 pipe. A 21m length of 600 mm diameter cast iron pipe has been incorporated into this pipe. The purpose of this addition is to provide additional chlorine contact time prior to the first user. There is no sampling point after this length of pipe to re-establish the chlorine residual.

### **Distribution System**

The distribution system consists of approximately 2.9 km of 75 mm diameter PE Series 100 distribution piping.

There are no other disinfection systems in the distribution system.

There are no storage reservoirs on the distribution network.

### **Compliance with Terms and Conditions of the Municipal Drinking Water Licence**

The Newington Water Treatment Plant and distribution system is operated and maintained in accordance with O. Reg. 170/03 dated June 1, 2003 (last amendment – O. Reg. 269/22) and the Municipal Drinking Water Licence.

A valid Permit to Take Water was issued on June 30, 2015 (No. 5764-9XYMDS) and permits the taking of water from two wells – the Kraft Well (326.9 m<sup>3</sup>/day) and the Fairground Well (65.5 m<sup>3</sup>/day). The permit expires June 30, 2025.

The water treatment plant is operated to treat water at a rate not exceeding the maximum flow rate of 328m<sup>3</sup>/day. The average water taking for the year was 52 m<sup>3</sup>/day, 16% of the authorized water taking. (See Appendix I for total flow, average monthly flow and maximum monthly flow.) The flows into the water treatment plant did not exceed the maximum flow rate of 328 m<sup>3</sup>/day at any time. The maximum raw daily flow was 147 m<sup>3</sup> and occurred on April 18, 2023.

The works and related equipment and appurtenances used to achieve compliance with the Municipal Drinking Water Licence are properly operated and maintained, including effective performance, adequate funding, adequate operator staffing and training, including training in all procedures and other requirements of this certificate and the Act and regulations, adequate laboratory facilities, process controls and alarms, and the use of the process chemical that comes in contact with the water being treated is suitable for the process and appropriate for drinking water.

A mechanical meter measures the flow rate and daily quantity of water taken from each well and conveyed to, and through, the water treatment plant. The flow rate of treated water supplied to the distribution system is recorded as total flow (See Appendix I). The flow meters were calibrated on August 17, 2023, by Endress & Hauser.

Free chlorine residual and turbidity in treated water is continuously monitored at the point of entrance into the distribution system. The Prominent chlorine analyzer is accurate to  $\pm 2\%$  of the measured value. A low chlorine alarm calls out at a value that is above the required CT, and the high lift pumps will shut down if the chlorine reaches a level lower than the required CT, or the lowest chlorine level of 0.40 mg/L, to prevent water below the required CT from being distributed. A high chlorine alarm calls out at 3.50 mg/L. Operators at the Newington Water Treatment Plant try to keep the chlorine residual at around 1.00 mg/L. The on-line chlorine analyzer is checked with the hand-held chlorine analyzer and adjusted as required. The chlorine analyzer was calibrated August 16, 2023, by Endress & Hauser. Turbidity is monitored continuously at the filter discharge point. The Hach turbidity analyzer is accurate to  $\pm 0.1$  NTU (Nephelometric Turbidity Unit). The turbidity analyzer is checked monthly using a hand-held turbidity analyzer and adjusted accordingly. Raw water turbidity is analyzed monthly. The turbidimeter alarms out when the turbidity reaches 1.00 NTU (Nephelometric Turbidity Units) for a period greater than 14 minutes, 50 seconds and will shut the system down to prevent turbid water from entering the contact pipe. (See Appendix I for monthly average turbidity, and minimum, maximum and average chlorine residual.) The turbidity analyzer was calibrated August 9, 2023, by Hach Canada.

Operators in charge of the Newington Water Treatment Plant keep a daily log book, recording flow meter readings, free and total chlorine residual (both continuous and grab samples), turbidity, and other physical and chemical parameters of the treated water. The WTP is checked (at minimum) every 72 hours.

Samples are collected throughout the year from the raw water and 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 (1 sample each per week of raw and treated water, and 8 samples monthly from the distribution system). Nitrates, THMs and HAAs are analyzed 4 times a year in the distribution system. Schedule 23 and 24 (treated water) are analyzed annually. Sodium and fluoride (treated water) are tested once every 60 months. (See Appendix II – 2023 Annual Report for the Ministry of the Environment.) 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), Newington WTP and distribution system is eligible for reduced sampling and reduced frequency (every 3 years). Lead samples were last collected in 2022 and will be collected again in 2025. Alkalinity and pH are required to be sampled twice per year.

Free chlorine residual in the distribution system is monitored by an alarmed online analyzer with datalogging. The analyzer is checked, at minimum, every 72 hours. The analyzer will alarm out when the chlorine goes below 0.15 mg/L or above 3.50 mg/L for a period greater than 15 minutes. The online distribution chlorine analyzer was calibrated August 17, 2023, by Endress & Hauser.

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

The Newington Water Treatment Plant is classified as a Water Treatment 1 (Certificate No. 3668) and Water Distribution 1 (Certificate Number 903). Operators responsible for the operation of the Newington Water Treatment Plant hold valid licences applicable to this type of water treatment plant.

Following all maintenance or repairs to the water treatment facility, 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 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 ensures adequate equipment and material are available for dealing with emergencies, upset conditions and equipment breakdowns in the works.

An operating manual incorporates the requirements of the Municipal Drinking Water Licence. 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 are 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 entire water treatment plant has been prepared and is kept up-to-date, including timely incorporation 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 2022-2023 Compliance Inspection was conducted on between December 2, 2022, and February 14, 2023, by the Ministry of the Environment, Conservation and Parks. The Compliance Inspection Report was received on February 24, 2023, with a final inspection rating of 100.00%.

The following section is quoted directly from the February, 2023, MECP Compliance Inspection Report.

"The following item(s) have been identified as non-compliance/non-conformance, based on a "No" response captured for a legislative or best management practice (BMP) question (s), respectively.

Measures were not in place to protect the groundwater and/or GUDI source in accordance with the Municipal Drinking Water Licence and Drinking Water Works Permit issued under Part V of the SDWA.

The requirements for the well inspection and maintenance outlined in Schedule B, Conditions 16.2.8 to 16.2.10 of the facility's MDWL include:

16.2.8 An inspection schedule for all wells associated with the drinking water system, including all production wells, standby wells, test wells and monitoring wells;

16.2.9 Well inspection and maintenance procedures that consider the entire well structure of each well including all above and below grade well components; and

16.2.10 Remedial action plans for situations where an inspection indicates non-compliance with respect to regulatory requirements and/or risk to raw well water quality.

A review of the "Newington Well Inspection Record" form confirms there are annual and 5-year inspection and maintenance activities scheduled and conducted by operators and/or a licensed well contractor, as required. The form also outlines, in detail, what inspection and maintenance checks are to be performed to ensure the entire well structure of each well including all above and below grade well components are considered. This satisfies the requirements laid out in Conditions 16.2.8 and 16.2.9.

Further review of procedures provided by the operating authority confirms that although a "QMS Adverse Water Quality Reporting Procedure" is in place, which provides direction on how



to address adverse conditions outlined in Schedule 16 of O. Reg. 170/03, there were no procedures or remedial action plans in place to address situations where a risk to raw well water quality has been identified. Condition 16.2.10 of the facility's MDWL has therefore not been met.

Examples of remedial actions plans or procedures that would satisfy Condition 16.2.10 may include, but are not limited to, those relating to raw well water contamination, production well failure, or raw water supply shortages.

**ACTIONS REQUIRED:** By no later the April 30, 2023, the operating authority SHALL develop and submit to the undersigned water inspector one or more remedial action plan (s) or procedure(s) addressing situations where a risk to raw well water quality has been identified.”

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

### **MAINTENANCE**

- January 4 – Capital Controls on site to work on pump 2B VFD.
- January 5 – Genrep on site to replace generator controller.
- January 12 – Genrep on site for generator repairs.
- January 31 – Genrep on site to remove alternator and send out for repairs.
- January 31 – Latreille Electric on site to troubleshoot generator control panel and block heater breaker.
- February 15 – Quarterly samples collected at WTP and distribution points.
- March 30 – Pyro Pro on site to perform fire extinguisher inspections.
- April 5 – Ranguard on site to repair alarm system.
- April 7 – Bell on site to repair phone link at Newington Rink.
- April 12 – Samples for lead testing (pH, alkalinity) collected in the distribution system.
- May 2 – Genrep on site to begin installation of repaired generator.
- May 8 – Quarterly samples collected at WTP and distribution points.
- May 8 – Annual samples collected at WTP.
- July 26 – Marleau on site to wire SureFeed to UPS.
- August 1 – Cameron Networks on site to install a cell booster.
- August 8 – Quarterly samples collected at WTP and distribution points.
- August 9 – Hach on site to conduct annual calibrations on turbidity analyzers.
- August 30 – Endress & Hauser on site to conduct annual calibrations on chlorine analyzers and final flow meter.
- August 31 – Endress & Hauser on site to conduct annual calibration on raw water flow meter.
- October 11 – Samples for lead testing (pH, alkalinity) collected in the distribution system.
- October 31 – Genrep on site to conduct annual inspections and maintenance.
- November 13 – Quarterly samples collected at WTP and distribution points.
- December 4 – Bourgeois on site to conduct well inspection.

APPENDIX I  
Flow Data

## NEWINGTON WATER TREATMENT SYSTEM SUMMARY REPORT

**Municipality:** Township of South Stormont

**Reporting Year:** 2023

**Water Source:** #1 Well-Dug (Kraft Well) and #2 Well-Drilled (Fairground)

**Design Capacity:** 328 m<sup>3</sup>

**Description:** Ground water source, cartridge filtration, chlorination

Month	Raw Flow Total Flow m <sup>3</sup>	Treated Flow			Free Chlorine			Treated Water Physical/Chemical Parameters										
		Total Flow m <sup>3</sup>	Avg. Day m <sup>3</sup> /day	Max. Day m <sup>3</sup> /day	Avg. mg/L	Min. mg/L	Max. mg/L	Turbidity		Nitrite NO <sub>2</sub> mg/L	Nitrate NO <sub>3</sub> mg/L	THM ug/L	HAA ug/L	Raw Water	Safe		Unsafe or Poor	
								Avg. NTU	Max. NTU						Treated	Distribution	Plant	Distribution
January	1,581	1,571	51	82	1.08	0.48	1.63	0.03	0.03					5	5	8		
February	1,408	1,406	50	73	1.16	0.65	1.58	0.02	0.03	0.06	6.12	<6	<5.3	4	4	8		
March	1,558	1,559	50	56	1.29	1.19	1.45	0.03	0.06					4	4	8		
April	1,750	1,740	58	146	1.24	1.11	1.55	0.03	0.03					4	4	8		
May	1,920	1,918	62	95	1.23	1.16	1.41	0.03	0.03	<0.05	5.31	<6	<5.3	5	5	8		
June	1,807	1,793	60	81	1.29	1.15	1.46	0.03	0.03					4	4	8		
July	1,613	1,569	51	69	1.28	1.14	1.48	0.03	0.04					5	5	8		
August	1,552	1,487	48	61	1.30	0.59	2.77	0.03	0.11	<0.05	5.78	<6	<5.3	4	4	8		
September	1,587	1,541	51	86	1.30	1.23	1.47	0.03	0.04					4	4	8		
October	1,429	1,380	45	111	1.27	1.21	1.83	0.03	0.03					5	5	8		
November	1,326	1,275	43	58	1.26	1.13	1.44	0.03	0.04	<0.05	5.74	<6	<5.3	4	4	8		
December	1,428	1,394	45	65	1.25	0.64	1.92	0.03	0.04					4	4	8		
<b>Total</b>	<b>18,959</b>	<b>18,633</b>												<b>52</b>	<b>52</b>	<b>96</b>	<b>0</b>	<b>0</b>
Average	52		51		1.25			0.03		<0.06	5.74	<6	<5.3					
Minimum						0.48												
Maximum				146			2.77		0.11									
ODWS										1	10	100.0	80.0	52	52	96		

APPENDIX II  
2023 Annual Report  
Ministry of the Environment, Conservation and Parks



**OPTIONAL ANNUAL REPORT TEMPLATE**

<b>Drinking-Water System Number:</b>	<b>220008051</b>
<b>Drinking-Water System Name:</b>	Newington Water Treatment Plant
<b>Drinking-Water System Owner:</b>	Township of South Stormont
<b>Drinking-Water System Category:</b>	Large Municipal Residential
<b>Period being reported:</b>	January 1 – December 31, 2023

<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 [ ] No [ x ]</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [ x ] No [ ]</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <table border="1" style="width: 100%;"> <tr> <td>Township of South Stormont 2 Milles Roches Road Long Sault, ON K0C 1P0  Website: southstormont.ca</td> </tr> </table>	Township of South Stormont 2 Milles Roches Road Long Sault, ON K0C 1P0  Website: southstormont.ca	<p><b><u>Complete for all other Categories.</u></b></p> <p>Number of Designated Facilities served: <input style="width: 100px; height: 20px;" type="text"/></p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [ ] No [ ]</p> <p>Number of Interested Authorities you report to: <input style="width: 100px; height: 20px;" type="text"/></p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [ ] No [ ]</p>
Township of South Stormont 2 Milles Roches Road Long Sault, ON K0C 1P0  Website: southstormont.ca		

**Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report**

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Drinking Water System Name	Drinking Water System Number

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 Newington water works draws groundwater from two wells located within the Newington Fairgrounds. The supply/treatment and storage works (STSW) consists of the two wells and disinfection by sodium hypochlorite. The wells are operated in series. The first well, known as the “Kraft” well is the primary source of water. It is a dug well which was originally installed in 1937. In dry periods, when the water level hits a minimum depth in the Kraft Well, the pump in the second well, the “Fairgrounds” well, is activated to pump water to the Kraft Well. The Fairgrounds Well is a drilled well originally installed in 1979.

**Treatment**

Two series (duty and standby) of 10 micron, 5 micron, and 1 micron “absolute” filters are run in parallel. Each filter train has a differential pressure transmitter and switch connected to a three-way solenoid valve. Should the differential pressure exceed 20 psi, the water will be directed to the standby water filter train. An on-line turbidity analyzer monitors the turbidity from the cartridge filter effluent. As water exits the plant, it enters a 600 mm x 73 m chlorine contact pipe. At the end of the contact pipe, the chlorine is continuously monitored by an online chlorine analyzer. The treated water is monitored for free chlorine residual and turbidity by online analyzers.

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

**Sodium Hypochlorite**

**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**

Repair generator alternator - \$12,185  
Upgrade generator controller - \$6,466  
Conduct annual calibrations - \$2,985



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

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date

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 Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	52	0-0	0-2		
Treated	52	0-0	0-0	52	<2-<2
Distribution	96	0-0	0-0	52	<2-4
Free chlorine residuals tested at the same time as microbiological sample collection: 0.75-1.43 mg/L (Treated samples) and 0.70-1.32 mg/L (Distribution samples)					

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

	Number of Grab Samples	Range of Results (min #)-(max #)
Turbidity	8760	0.03-0.11 NTU
Chlorine	8760	0.48-2.77 mg/L
Fluoride (If the DWS provides fluoridation)		

*NOTE: For continuous monitors use 8760 as the number of samples.*

*NOTE: Record the unit of measure if it is not milligrams per litre.*

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure

Summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	May 8, 2023	<0.0001	mg/L	
Arsenic	May 8, 2023	<0.0001	mg/L	
Barium	May 8, 2023	0.036	mg/L	
Boron	May 8, 2023	<0.005	mg/L	
Cadmium	May 8, 2023	<0.000015	mg/L	



<b>Chromium</b>	May 8, 2023	<0.001	mg/L	
<b>*Lead</b>				
<b>Mercury</b>	May 8, 2023	<0.00002	mg/L	
<b>Selenium</b>	May 8, 2023	<0.001	mg/L	
<b>Sodium</b>	May 9, 2022	3.2	mg/L	
<b>Uranium</b>	May 8, 2023	0.00033	mg/L	
<b>Fluoride</b>	May 9, 2022	<0.1	mg/L	
<b>Nitrite</b>	February 15, 2023	0.06	mg/L	
	May 8, 2023	<0.05	mg/L	
	August 8, 2023	<0.05	mg/L	
	November 13, 2023	<0.05	mg/L	
<b>Nitrate</b>	February 15, 2023	6.12	mg/L	
	May 8, 2023	5.31	mg/L	
	August 8, 2023	5.78	mg/L	
	November 13, 2023	5.74	mg/L	

\*only for drinking water systems testing under Schedule 15.2; this includes large municipal non-residential systems, small municipal non-residential systems, non-municipal seasonal residential systems, large non-municipal non-residential systems, and small non-municipal non-residential systems

**Summary of lead testing under Schedule 15.1 during this reporting period**

(applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

<b>Location Type</b>	<b>Number of Samples</b>	<b>Range of Lead Results (min#) – (max #)</b>	<b>Number of Exceedances</b>
<b>Plumbing</b>	<b>Exempt*</b>		
<b>Distribution</b>			

\*Due to historically low concentrations of lead in its drinking water, the Township of South Stormont is exempt from plumbing sampling for lead and is required to sample for lead in the distribution system every three years in both “winter” (Dec-Apr) and “summer” periods (Jun-Oct). The next distribution lead samples will be collected between Dec 15, 2024 and Apr 15, 2025 and between Jun 15, 2025 and Oct 15, 2025.

<b>Non-Lead Parameter</b>	<b>Winter Period (Dec-Apr)</b>	<b>Summer Period (Jun-Oct)</b>
<b>pH</b>	7.23 (1 sample on Apr 12, 2023)	8.22 (1 sample on Oct 11, 2023)
<b>Alkalinity</b>	252 mg/L (1 sample on Apr 12, 2023)	263 mg/L (1 sample on Oct 11, 2023)



**Summary of Organic parameters sampled during this reporting period or the most recent sample results**

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	May 8, 2023	<0.3	ug/L	
Atrazine + N-dealkylated metabolites	May 8, 2023	<0.5	ug/L	
Azinphos-methyl	May 8, 2023	<1	ug/L	
Benzene	May 8, 2023	<0.5	ug/L	
Benzo(a)pyrene	May 8, 2023	<0.006	ug/L	
Bromoxynil	May 8, 2023	<0.5	ug/L	
Carbaryl	May 8, 2023	<3	ug/L	
Carbofuran	May 8, 2023	<1	ug/L	
Carbon Tetrachloride	May 8, 2023	<0.2	ug/L	
Chlorpyrifos	May 8, 2023	<0.5	ug/L	
Diazinon	May 8, 2023	<1	ug/L	
Dicamba	May 8, 2023	<1	ug/L	
1,2-Dichlorobenzene	May 8, 2023	<0.5	ug/L	
1,4-Dichlorobenzene	May 8, 2023	<0.5	ug/L	
1,2-Dichloroethane	May 8, 2023	<0.5	ug/L	
1,1-Dichloroethylene	May 8, 2023	<0.5	ug/L	
Dichloromethane (Methylene Chloride)	May 8, 2023	<5	ug/L	
2-4 Dichlorophenol	May 8, 2023	<0.2	ug/L	
2,4-Dichlorophenoxy acetic acid (2,4-D)	May 8, 2023	<1	ug/L	
Diclofop-methyl	May 8, 2023	<0.9	ug/L	
Dimethoate	May 8, 2023	<1	ug/L	
Diquat	May 8, 2023	<5	ug/L	
Diuron	May 8, 2023	<5	ug/L	
Glyphosate	May 8, 2023	<25	ug/L	
Malathion	May 8, 2023	<5	ug/L	
MCPA	May 8, 2023	<10	ug/L	
Metolachlor	May 8, 2023	<3	ug/L	
Metribuzin	May 8, 2023	<3	ug/L	
Monochlorobenzene	May 8, 2023	<0.5	ug/L	
Paraquat	May 8, 2023	<1	ug/L	
Pentachlorophenol	May 8, 2023	<0.2	ug/L	
Phorate	May 8, 2023	<0.3	ug/L	
Picloram	May 8, 2023	<5	ug/L	
Polychlorinated Biphenyls(PCB)	May 8, 2023	<0.05	ug/L	
Prometryne	May 8, 2023	<0.1	ug/L	
Simazine	May 8, 2023	<0.5	ug/L	
THM (NOTE: show latest annual average)		<6.0	ug/L	
Haloacetic Acid (HAA) (NOTE: show latest annual average)		<5.3	ug/L	
Terbufos	May 8, 2023	<0.5	ug/L	



<b>Tetrachloroethylene</b>	May 8, 2023	<0.5	<b>ug/L</b>	
<b>2,3,4,6-Tetrachlorophenol</b>	May 8, 2023	<0.2	<b>ug/L</b>	
<b>Triallate</b>	May 8, 2023	<10	<b>ug/L</b>	
<b>Trichloroethylene</b>	May 8, 2023	<0.5	<b>ug/L</b>	
<b>2,4,6-Trichlorophenol</b>	May 8, 2023	<0.2	<b>ug/L</b>	
<b>Trifluralin</b>	May 8, 2023	<0.5	<b>ug/L</b>	
<b>Vinyl Chloride</b>	May 8, 2023	<0.2	<b>ug/L</b>	

**List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.**

<b>Parameter</b>	<b>Result Value</b>	<b>Unit of Measure</b>	<b>Date of Sample</b>
Nitrate	6.12	mg/L	February 15, 2023
Nitrate	5.31	mg/L	May 8, 2023
Nitrate	5.78	mg/L	August 8, 2023
Nitrate	5.74	mg/L	November 13, 2023