

February 27, 2017

Clerk Administrator Susan Arnold and Council  
The Corporation of the Village of South River  
63 Marie Street,  
South River, ON P0A 1X0

**Re: 2016 Annual/Summary Report for the South River Drinking Water System**

Dear Susan Arnold and Council:

Ontario's Drinking-Water Systems Regulation (O. Reg. 170/03), made under the *Safe Drinking Water Act in 2002*, requires that the owner of a drinking water system prepare an Annual Report and an Annual Summary Report of the operation of the system and the quality of its water.

Annual Report

The annual report must cover the period of January 1<sup>st</sup> to December 31<sup>st</sup> in a year and must be prepared not later than February 28<sup>th</sup> of the following year. Pursuant to the legislative requirements, enclosed for your records is the 2016 Annual Report for the South River Drinking Water System.

In accordance with Section 11 (6), the annual report must:

- (a) contain a brief description of the drinking-water system, including a list of water treatment chemicals used by the system during the period covered by the report;
- (b) summarize any reports made to the Ministry under subsection 18 (1) of the Act or section 16-4 of Schedule 16 during the period covered by the report;
- (c) summarize the results of tests required under the Regulation, or an approval or order, including an OWRA order, during the period covered by the report and, if tests required under this Regulation in respect of a parameter were not required during that period, summarize the most recent results of tests of that parameter;
- (d) describe any corrective actions taken under Schedule 17 or 18 during the period covered by the report;
- (e) describe any major expenses incurred during the period covered by the report to install, repair or replace required equipment; and
- (f) if the case of a large municipal residential system or a small municipal residential system, include a statement of where a report prepared under Schedule 22 will be available for inspection under subsection 12 (4) O. Reg. 170/03, s. 11 (6).

In addition, Section 11 (7) gives the direction that a copy of an annual report for the system is given, without charge, to every person who requests a copy and be made available for inspection by any member of the public during normal business hours. The reports should be made available at the office of the Village, or at a location that is accessible to the users of the water system.

### Summary Report

The annual summary report must cover the period of January 1<sup>st</sup> to December 31<sup>st</sup> in a year and must be prepared not later than March 31<sup>st</sup> of the following year. Pursuant to the legislative requirements, enclosed for your records is the 2016 Annual Summary for the South River Drinking Water System.

As required in *Schedule 22, Summary Reports for Municipalities*, the annual summary must:

- (2) (a) list the requirements of the Act, the regulations, the system's approval, drinking water works permit, municipal drinking water licence, and any orders applicable to the system that were not met at any time during the period covered by the report; and
  - (b) for each requirement referred to in clause (a) that was not met, specify the duration of the failure and the measures that were taken to correct the failure.
- (3) The report must also include the following information for the purpose of enabling the owner of the system to assess the capability of the 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.
  2. A comparison of the summary referred to in paragraph 1 to the rated capacity and flow rates approved in the system's approval, drinking water works permit or municipal drinking water licence, or if the system is receiving all of its water from another system under an agreement pursuant to subsection 5 (4), to the flow rates specified in the written agreement.

In addition, Section 12 (1) – 4 – gives the direction that a copy of the annual summary for the system is given, without charge, to every person who requests a copy and be made available for inspection by any member of the public during normal business hours. The reports should be made available at the office of the Village, or at a location that is accessible to the users of the water system.

These reports were prepared by the Ontario Clean Water Agency on behalf of the Village of South River and are based on information kept on record by OCWA at the South River WTP. The reports cover the period January 1<sup>st</sup> to December 31<sup>st</sup> 2016.

Please note that any Provincial Officers Orders or non-compliance issues that you have received directly from the MOE should be reviewed. Where non-compliance with the Order or Issue is evident and it is not included in the attached 2016 Annual/Summary Report, then we recommend that this information be added to the report.

After your review and inclusion of any additional information, this report is to be provided to the Council members representing the Village of South River before March 31, 2017. Please ensure this distribution.

Yours truly,  
Ontario Clean Water Agency

Joshua Gravelle  
Process and Compliance Technician

Copy to: Sherry Ilersich, Drinking Water Inspector, Ministry of the Environment



**Ontario Clean Water Agency**  
**Agence Ontarienne Des Eaux**

South River Drinking Water System

# 2016 ANNUAL/SUMMARY REPORT

Prepared by the Ontario Clean Water Agency  
on behalf of the Corporation of the Village of South River



## Table of Contents

<b>INTRODUCTION .....</b>	<b>2</b>
<b>Section 11 - ANNUAL REPORT .....</b>	<b>3</b>
1.0 Introduction .....	3
2.0 Description of the Drinking Water System (DWS No. 220013562) .....	4
3.0 List of Water Treatment Chemicals Used Over the Reporting Period .....	5
4.0 Significant Expenses Incurred in the Drinking Water System .....	6
5.0 Drinking Water System Highlights .....	6
6.0 Details on Notices of Adverse Test Results and Other Problems Reported to & Submitted to the Spills Action Center .....	7
7.0 Microbiological Testing Performed During the Reporting Period .....	7
8.0 Operational Testing Performed During the Reporting Period .....	7
<b>Schedule 22 - SUMMARY REPORTS FOR MUNICIPALITIES.....</b>	<b>12</b>
1.0 Introduction .....	12
2.0 Requirements the System Failed to Meet .....	12
3.0 Summary of Quantities and Flow Rates .....	12
<b>CONCLUSION.....</b>	<b>15</b>

## List of Appendices

**APPENDIX A – Monthly Summary of Microbiological Test Results**

**APPENDIX B – Monthly Summary of Operational Data**



## INTRODUCTION

Municipalities throughout Ontario have been required to comply with Ontario Regulation 170/03 made under the Safe Drinking Water Act (SDWA) since June 2003. The Act was enacted following recommendations made by Commissioner O'Conner after the Walkerton Inquiry. The Act's purpose is to protect human health through the control and regulation of drinking water systems. O. Reg. 170/03 regulates drinking water testing, use of licensed laboratories, treatment requirements and reporting requirements.

Section 11 of Regulation 170/03 requires the owner to produce an Annual Report. This report must include the following:

1. Description of system & chemical(s) used
2. Summary of any adverse water quality reports and corrective actions
3. Summary of all required testing
4. Description of any major expenses incurred to install, repair or replace equipment

This annual report must be completed by February 28th of each year.

Section 22 of the regulation also requires a Summary Report which must be presented & accepted by Council by March 31<sup>st</sup> of each year for the preceding calendar year.

The report must list the requirements of the Act, its regulations, the system's Drinking Water Works Permit (DWWP), Municipal Drinking Water Licence (MDWL), Certificate of Approval (if applicable), and any Provincial Officer Order the system failed to meet during the reporting period. The report must also specify the duration of the failure, and for each failure referred to, describe the measures that were taken to correct the failure.

The Safe Drinking Water Act (2002) and the drinking water regulations can be viewed at the following website: <http://www.e-laws.gov.on.ca>.

To enable the Owner to assess the rated capacity of their system to meet existing and future planned water uses, the following information is also required in the report.

1. A summary of the quantities and flow rates of water supplied during the reporting period, including the monthly average and the maximum daily flows,
2. A comparison of the summary to the rated capacity and flow rates approved in the systems approval, drinking water works permit or municipal drinking water licence or a written agreement if the system is receiving all its water from another system under an agreement.

The reports have been prepared by the Ontario Clean Water Agency (OCWA) on behalf of the Owner and presented to council as the 2016 Annual/Summary Report.



South River Drinking Water System

Section 11

# 2016 ANNUAL REPORT



## Section 11 - ANNUAL REPORT

---

### 1.0 Introduction

**Drinking-Water System Name:** SOUTH RIVER DRINKING WATER SYSTEM  
**Drinking-Water System No.:** 220013562  
**Drinking-Water System Owner:** The Corporation of the Village of South River  
**Drinking-Water System Category:** Large Municipal, Residential System  
**Period being reported:** January 1, 2016 to December 31, 2016

**Does your Drinking Water System serve more than 10,000 people?** No

**Is your annual report available to the public at no charge on a web site on the Internet?** No

**Location where Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.**

South River Municipal Office,  
63 Marie Street,  
South River, Ontario  
P0A 1X0

### ***Drinking Water Systems that receive drinking water from the South River Drinking Water System***

The South River Drinking Water System provides all drinking water to the community of South River.

### ***The Annual Report was not provided to any other Drinking Water System Owners.***

The Ontario Clean Water Agency prepared the 2016 Annual/Summary Report for the South River Drinking Water System and provided a copy to the system owner; the Corporation of the Village of South River. The South River Drinking Water System is a stand-alone system that does not receive water from or send water to another system.

### ***Notification to system users that the Annual Report is available for viewing is accomplished through:***

- A notice which is posted on the Village website that the annual report is available for viewing in the public binder at the municipal office.
- A newsletter is included Bi-monthly with the municipal utility billing.
- Discussions during public council meetings.



## **2.0 Description of the Drinking Water System (DWS No. 220013562)**

The South River Drinking Water System is owned by The Corporation of the Village of South River and consists of a Class 3 water treatment subsystem and a Class 1 water distribution subsystem. The Ontario Clean Water Agency is designated as the Overall Responsible Operator for the water treatment plant. The municipality of South River provides the ORO for the South River Water Distribution System.

### ***Raw Water Supply***

The plant raw water intake consists of a 300 mm diameter intake pipe extending 232m into Forest Lake, with a flared elbow in a wooden and concrete crib located at a depth of 4.5 m. The low lift pumping station is located approx. 170 m south of Howard Street off the gravel access road. The low lift pumping station consists of a raw water well, dual manual screens and three (3) submersible pumps (two duty pumps and one standby), each rated at 10.0 L/s at 11.0 m of TDH that pump water to the treatment plant. In accordance with the PTTW, the allowable rate of water taking is 19.3 l/s with a maximum daily volume of 1680 m<sup>3</sup>/d.

### ***Water Treatment***

The South River Water Treatment facility, owned by the Village of South River, was commissioned in May of 2000. The plant provides full conventional treatment to raw water drawn from Forest Lake, a dam controlled section of the South River. Treatment consists of chemically assisted coagulation, flocculation, clarification and filtration in dual package plants followed by disinfection with Sodium Hypochlorite before entering the distribution system. This is a pressurized system due to there being no elevated treated water storage reservoir in the community. The water treatment facility consists of Two (2) Conventional Napier Reid package plants each rated at 840 m<sup>3</sup>/d with flocculation tanks, up flow clarifiers, and filters each consisting of triple media that includes Garnet Sand, Silica Sand and Granular Activated Carbon both with surface areas of 4.49 m<sup>2</sup>. The chemical feed system consists of two (2) coagulant metering pumps, one (1) duty and one (1) standby, each with the capacity of 5 L/hour and one (1) 15 m<sup>3</sup> storage tank; Two (2) (polymer) metering pumps, each with a capacity of 8 L/hour and one (1) 1350 L storage tank; three (3) alkalinity and pH adjustment (sodium hydroxide) metering pumps with a capacity of 3 L/hour and one (1) 1350 L storage tanks; four (4) primary and post disinfection (sodium hypochlorite) metering pumps, three (3) duty, and one standby, each rated at 3 L/hour and a 450 L storage tank. Raw water entering the plant is injected with sodium hydroxide and aluminum sulphate. Sodium hydroxide was replaced by Soda Ash August 10, 2016. Soda ash offers numerous advantages such as affordability, ease and safety of handling and transportation. Furthermore, Soda Ash is more effective at increasing alkalinity. Following rapid mixing, the water flows into the flocculation tank. A polymer can be injected into the flocculation chamber as a coagulant aid. Treated water overflows from the clarifiers through two multimedia filters consisting of garnet/sand/ anthracite. Filtered water is then injected with a 12% sodium hypochlorite solution and directed to a baffled clear well reservoir located beneath the plant. Treated water is pumped from the clearwell, and directed to the distribution system by a high lift pumping system. A second chlorination point and pH adjustment is available prior to the point of entry to the distribution system, if needed.

### ***Water Storage and Pumping Capabilities***

An in ground clearwell reservoir located under the facility has the approximate capacity of 1,536 m<sup>3</sup> of useable storage. The water supply system is a pressurized system. High lift pumps at the





treatment facility run continually to maintain water pressure in the water distribution system piping which delivers the treated water to the systems users. There are four high lift pumps, two (2) pumps each rated at 7 L/s at a TDH of 45m; two (2) pumps each rated at 14 L/s at a TDH of 45m. The high lift pumps are controlled by variable frequency drives and sequence automatically to maintain system pressure and flow demands. In addition there are two (2) high lift fire pumps each rated at 56 L/s at a TDH of 38m.

### ***Waste Management***

A wastewater treatment system consists of a two cell backwash holding tank / settling tank with approximately 210 m<sup>3</sup> total capacity; one (1) sludge pump rated at 5.0 L/s pumping to a 4500 L sludge storage tank and a two (2) unit bag sludge dewatering system. Process waste is generated at the South River Water Treatment Plant from clarifier blowdown to remove sludge and filter backwashing. The sludge from the clarifier blow down is directed to the sludge thickening tank with the decant from this tank being directed to the clarification tank. The filter backwash water goes to the clarification tank with the sludge that is built up pumped to the sludge thickening tank. The supernatant from the clarification tank is decanted and discharged to a storm sewer which discharges to the lake. The sludge from the sludge thickening tank is pumped to the sludge bagging system every 3-5 times/week for disposal. Dechlorination is practiced for all wastewater entering the collection system. Composite samples of the effluent are collected monthly.

### ***Emergency Power***

Standby emergency power is provided by one (1) 135 kW radiator cooled diesel generator housed in a separate building. It has one (1) double walled external fuel tank with the capacity of 1135 liters for diesel fuel storage.

### ***Distribution System***

The South River Water Supply System is classified as a Large Municipal Residential Drinking Water System which serves a population of approximately 1100 consumers, with around 500 connections. The South River distribution system consists of a mixture of cast iron, ductile iron, asbestos and PVC piping ranging in size from 300mm in diameter down to 50mm diameter. As of December 2010 there is: 250m of 50mm, 1984m of 100mm, 6657m of 150mm, 1401m of 200mm, 1451m of 250mm, and 685m of 300mm. The length of the entire system is therefore approximately 12.43 km. There are 11 dead end locations and 66 fire hydrants. There is no water storage tower or reservoir in the distribution system.

## **3.0 List of Water Treatment Chemicals Used Over the Reporting Period**

The following chemicals were used in the treatment process at the South River Water Treatment Plant.

- Alum (Aluminum Sulphate) - Coagulation/Flocculation
- Magnafloc LT25 Poly Acrylamide Polymer – Coagulant aid
- Sodium Carbonate (Soda Ash) – Alkalinity and pH Adjustment
- Sodium Hydroxide (Caustic Soda) – Alkalinity and pH Adjustment
- Sodium Hypochlorite – Disinfection



#### 4.0 Significant Expenses Incurred in the Drinking Water System

OCWA is committed to maintaining the assets of the drinking water system and maintains a program of scheduled inspection and maintenance activities using a computerized Work Management System (WMS). OCWA implemented a new Workplace Management System (Maximo) in 2016 which better maintains and optimizes facility assets. All routine maintenance activities conducted at the water treatment plant were accomplished in 2016.

Significant expenses incurred in the drinking water system include:

- High lift pump #4 VFD replaced.
- High lift pump #4 breaker replaced.
- High lift pump pressure switches.
- Backwash pump P11 rebuild and low lift pump installed.
- New chemical dosing pumps installed with new shelving.
- Two new turbidity analyzers installed with solenoids.
- New chlorine analyzer installed.
- New soda ash dosing system, includes, 2 new Watson Marlow pumps with a soda ash mixing tank with duty and standby capabilities.
- Desludge actuator repair.
- Hot water on demand unit and plumbing.
- Filter effluent actuator and valve.

#### 5.0 Drinking Water System Highlights

- The MOECC performed their last annual inspection on September 15, 2015. The MOECC did not perform an inspection in the year of 2016.
- SAI Global conducted a re-accreditation (verification) audit of the South River Drinking Water Systems' Quality and Environmental Management System (QEMS). The system and processes associated with the QEMS were evaluated on May 18, 2016 to ensure implementation of the Operational Plan and procedures and conformance to the Drinking Water Quality Management Standard. Two (2) opportunities for improvement were identified during the audit and have been resolved. Re-accreditation was achieved on June 9, 2016.
- Renewed Drinking Water Works Permit and Municipal Drinking Water Licence on March 11, 2016.
- Soda Ash trial underway as of August 10, 2016 (replacing Sodium hydroxide) with no reported issues.
- A drastic change in the raw water characteristic in late December 2016 caused issues with the esthetics qualities of the treated water. A trial for a change in coagulant is planned for March 1<sup>st</sup>, 2017. Polyaluminium Chloride (PACl) will be utilized instead of Aluminium sulphate. PACl has a broader effective pH range of 5.0 to 8.0 and also works well at low raw water temperatures in comparison to Alum.



## 6.0 Details on Notices of Adverse Test Results and Other Problems Reported to & Submitted to the Spills Action Center

Based on information kept on record by OCWA, zero (0) adverse water quality incident was reported to the MOE's Spills Action Centre in 2016

## 7.0 Microbiological Testing Performed During the Reporting Period

### Summary of Microbiological Data

Sample Type	No. of Samples	Range of <i>E. coli</i> Results (min to max)	Range of Total Coliform Results (min to max)	# of HPC Samples	Range of HPC Results (min to max)
Raw (Lake)	52	0 to 8	17 to 500	0	N/A
Treated	52	0 to 0	0 to 0	52	0 to 2
Distribution	156	0 to 0	0 to 0	53	0 to 2

Maximum Allowable Concentration (MAC) for *E. coli* = 0 Counts/100 mL

MAC for Total Coliforms = 0 Counts/100 mL

"<" denotes less than the laboratory's method detection limit.

NDOGT = No Data, Overgrown with Target

NDOGHPC = No Data, Overgrown with HPC

**Notes:** One microbiological sample is collected and tested each week from the raw and treated water supply. A total of three microbiological samples are collected and tested each week from the South River distribution system.

Refer to *Appendix A* for a monthly summary of microbiological test results.

## 8.0 Operational Testing Performed During the Reporting Period

### Continuous Monitoring in the Treatment Process

Parameter	No. of Samples	Range of Results (min to max)	Unit of Measure
Filter #1 Turbidity	8760	0.0 to 0.955	NTU
Filter #2 Turbidity	8760	0.0 to 2.00	NTU
Free Chlorine	8760	1.10 to 5.00	mg/L

**Notes:** For continuous monitors 8760 is used as the number of samples.

CT is the concentration of chlorine in the water times the time of contact that the chlorine has with the water. It is used to demonstrate the level of disinfection treatment in the water. CT calculations are performed for the South River water plant if the free chlorine residual level drops below 1.00 mg/L to ensure primary disinfection is achieved.

Effective backwash procedures, including filter to waste are in place to ensure that the effluent turbidity requirements are met all times. The plant is configured to shut down and creates a callout whenever turbidity reaches 1.00 NTU for 0 seconds. Thus, the maximum result of 2 NTU on Filters 2 is not representative of the water entering the clearwell.



### Summary of Chlorine Residual Data in the Distribution System

Parameter	No. of Samples	Range of Results (min to max)	Unit of Measure	Standard
Free Chlorine	364	0.05 to 3.40	mg/L	0.05

**Note:** A total of seven operational checks for chlorine residual in the distribution system are collected each week. Four (4) samples are tested one day and three (3) on a second day. The sample sets are collected at least 48-hours apart and samples collected on the same day are from different locations.

Refer to *Appendix B* for a monthly summary of the above operational data.

### Summary of Nitrate & Nitrite Data (sampled at the water treatment plant)

Date of Sample	Nitrate Result Value	Nitrite Result Value	Unit of Measure	Exceedance
January 19	0.122	< 0.003	mg/L	No
April 19	0.134	< 0.003	mg/L	No
July 19	0.076	< 0.003	mg/L	No
October 17	0.022	< 0.003	mg/L	No

Maximum Allowable Concentration (MAC) for Nitrate = 10 mg/L

MAC for Nitrite = 1 mg/L

### Summary of Total Trihalomethane Data (sampled in the distribution system)

Date of Sample	Result Value	Unit of Measure	Running Average	Exceedance
January 19	44.0	ug/L	77.0	No
April 19	40.0			
July 19	121.0			
October 17	103.0			

Maximum Allowable Concentration (MAC) for Total Trihalomethanes = 100 ug/L (Four Quarter Running Average)

### Summary of Most Recent Lead Data

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

The South River Drinking Water System was eligible to follow the “Exemption from Plumbing Sampling” as described in section 15.1-5(9) and 15.1-5(10) of Schedule 15.1 of Ontario Regulation 170/03. The exemption applies to a drinking water system if, in two consecutive periods at reduced sampling, not more than 10% of all samples from plumbing exceed the maximum allowable concentration (MAC) of 10 ug/L for lead. As such, the system was required to test for lead, total alkalinity and pH in two distribution sample collected during the periods of December 15 to April 15 (winter period) and June 15 to October 15 (summer period). This testing is required in every 12-month period with lead testing in every third 12-month period.

Two rounds of lead, alkalinity and pH testing were carried out on March 31<sup>st</sup> and September 21<sup>st</sup> of 2016. Results are summarized in the table below.

**Summary of Lead, pH & Alkalinity Data**

Date of Sample	No. of Samples	Sample Location/ID	Lead (mg/L)	Field pH	Alkalinity (mg/L)
March 31	1	Hydrant #26	<0.001	6.41	7.26
March 31	1	Hydrant #65	<0.001	6.52	8.04
Sept. 21	1	Hydrant #26	<0.001	6.43	29.0
Sept. 21	1	Hydrant #61	<0.001	6.65	29.8

***Most Recent Schedule 23 Inorganic Data Tested at the Water Treatment Plant***

Parameter	Result Value	Unit of Measure	Standard	Exceedance
Antimony	0.07	ug/L	6	No
Arsenic	<MDL 0.2	ug/L	25	No
Barium	21.8	ug/L	1000	No
Boron	12.0	ug/L	5000	No
Cadmium	0.023	ug/L	5	No
Chromium	0.06	ug/L	50	No
Mercury	<MDL 0.01	ug/L	1	No
Selenium	<MDL 0.04	ug/L	10	No
Uranium	<MDL 0.002	ug/L	20	No

**Note:** Sample required every 12 months (sample date = *January 19, 2016*)



### Most Recent Schedule 24 Organic Data Tested at Water Treatment Plant

TREATED WATER	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Alachlor (ug/L) - TW	2016/01/19	<MDL 0.02	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2016/01/19	<MDL 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	2016/01/19	<MDL 0.05	20.00	No	No
Benzene (ug/L) - TW	2016/01/19	<MDL 0.32	5.00	No	No
Benzo(a)pyrene (ug/L) - TW	2016/01/19	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2016/01/19	<MDL 0.33	5.00	No	No
Carbaryl (ug/L) - TW	2016/01/19	<MDL 0.05	90.00	No	No
Carbofuran (ug/L) - TW	2016/01/19	<MDL 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2016/01/19	<MDL 0.16	5.00	No	No
Chlorpyrifos (ug/L) - TW	2016/01/19	<MDL 0.02	90.00	No	No
Diazinon (ug/L) - TW	2016/01/19	<MDL 0.02	20.00	No	No
Dicamba (ug/L) - TW	2016/01/19	<MDL 0.2	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2016/01/19	<MDL 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2016/01/19	<MDL 0.36	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2016/01/19	<MDL 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2016/01/19	<MDL 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2016/01/19	<MDL 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2016/01/19	<MDL 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2016/01/19	<MDL 0.19	100.00	No	No
Diclofop-methyl (ug/L) - TW	2016/01/19	<MDL 0.4	9.00	No	No
Dimethoate (ug/L) - TW	2016/01/19	<MDL 0.03	20.00	No	No
Diquat (ug/L) - TW	2016/01/19	<MDL 1.0	70.00	No	No
Diuron (ug/L) - TW	2016/01/19	<MDL 0.03	150.00	No	No
Glyphosate (ug/L) - TW	2016/01/19	<MDL 1.0	280.00	No	No
Malathion (ug/L) - TW	2016/01/19	<MDL 0.02	190.00	No	No
Metolachlor (ug/L) - TW	2016/01/19	<MDL 0.01	50.00	No	No
Metribuzin (ug/L) - TW	2016/01/19	<MDL 0.02	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2016/01/19	<MDL 0.3	80.00	No	No
Paraquat (ug/L) - TW	2016/01/19	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2016/01/19	<MDL 0.04	3.00	No	No
Pentachlorophenol (ug/L) - TW	2016/01/19	<MDL 0.15	60.00	No	No
Phorate (ug/L) - TW	2016/01/19	<MDL 0.01	2.00	No	No
Picloram (ug/L) - TW	2016/01/19	<MDL 1.0	190.00	No	No
Prometryne (ug/L) - TW	2016/01/19	<MDL 0.03	1.00	No	No
Simazine (ug/L) - TW	2016/01/19	<MDL 0.01	10.00	No	No
Terbufos (ug/L) - TW	2016/01/19	<MDL 0.01	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2016/01/19	<MDL 0.35	30.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2016/01/19	<MDL 0.2	100.00	No	No
Triallate (ug/L) - TW	2016/01/19	<MDL 0.01	230.00	No	No
Trichloroethylene (ug/L) - TW	2016/01/19	<MDL 0.44	50.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2016/01/19	<MDL 0.25	5.00	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA)*	2016/01/19	<MDL 0.12000000000000002	100.00	No	No
Trifluralin (ug/L) - TW	2016/01/19	<MDL 0.02	45.00	No	No
Vinyl Chloride (ug/L) - TW	2016/01/19	<MDL 0.17	2.00	No	No

**Note:** Sample required every 12 months (sample date = January 19, 2016)

### ***Inorganic or Organic Test Results that Exceeded Half the Standard Prescribed in Schedule 2 of the Ontario Drinking Water Quality Standards.***

No inorganic or organic parameter(s) listed in Schedule 23 and 24 of Ontario Regulation 170/03 exceeded half the standard found in Schedule 2 of the Ontario Drinking Water Standard (O. Reg. 169/03) during the reporting period.



**Most Recent Sodium Data Sampled at the Water Treatment Plant**

Date of Sample	No. of Samples	Result Value	Unit of Measure	Standard	Exceedance
January 21, 2013(Compliance)	1	24.0	mg/L	20	Yes (AWQI #109845)
January 29, 2013 (resample)	1	22.0	mg/L	20	Yes (AWQI #109845)
January 19, 2016	1	37.1	mg/L	20	Yes (see note)

**Note:** Sample required every 60 months. Next sampling scheduled for January 2018.

The aesthetic objective for sodium in drinking water is 200 mg/L at which it can be detected by a salty taste. It is required that the local Medical Officer of Health be notified when the concentration exceeds 20 mg/L so that persons on sodium restricted diets can be notified by their physicians. The adverse sodium result was reported to MOE SAC and the North Bay Parry Sound Health Unit on January 25, 2013 as required under Schedule 16 of O. Reg. 170/03 (AWQI# 109845). Therefore, sodium exceedances are reported if there has not been an adverse reported in the previous 57 months. The last sodium exceedance was reported in January of 2013.

**Most Recent Fluoride Data Sampled at the Water Treatment Plant**

Date of Sample	No. of Samples	Result Value	Unit of Measure	Standard	Exceedance
January 19, 2016	1	<MDL 0.06	mg/L	1.5	No

**Note:** Sample required every 60 months. Next sampling scheduled for January 2021.

**Summary of Additional Testing Performed in Accordance with a Legal Instrument.**

Condition 1.5 of Schedule C to Municipal Drinking Water Licence (MDWL) #200-101 requires that the annual average concentration of total suspended solids (TSS) from the effluent discharged to Forest Lake not exceed 25 mg/L. Further, Condition 4.4 of Schedule C to the MDWL requires that composite samples are collected every month.

The South River water treatment plant did not exceed this limit in 2016.

**Summary of Total Suspended Solids Data from the Effluent Discharge**

Date of Sample	No. of Samples	Result Value	Unit of Measure	Annual Average	Limit
January	1	12	mg/L	10.5	25
February	1	12			
March	1	6			
April	1	13			
May	1	5			
June	1	14			
July	1	11			
August	1	7			
September	1	5			
October	1	6			
November 23	1	30			
December	1	5			



South River Drinking Water System

Schedule 22

# 2016 SUMMARY REPORT

## FOR MUNICIPALITIES





## Schedule 22 - SUMMARY REPORTS FOR MUNICIPALITIES

### 1.0 Introduction

<b>Drinking-Water System Name:</b>	<b>SOUTH RIVER DRINKING WATER SYSTEM</b>
<b>Municipal Drinking Water Licence (MDWL) No.:</b>	200-101-2 (issued March 11, 2016)
<b>Drinking Water Work Permit (DWWP) No.:</b>	200-201-2 (issued March 11, 2016)
<b>Permit to Take Water (PTTW) No.:</b>	0365-7T6P5G (issued June 19, 2009)
<b>Period being reported:</b>	January 1, 2016 to December 31, 2016

### 2.0 Requirements the System Failed to Meet

There was no incidence where OCWA was required to report an Adverse Water Quality Incident.

### 3.0 Summary of Quantities and Flow Rates

#### *Flow Monitoring*

MDWL No. 200-101 requires the owner to install a sufficient number of flow measuring devices to permit the continuous measurement and recording of:

- the flow rate and daily volume of treated water that flows from the treatment subsystem the distribution system, and
- the flow rate and daily volume of water that flows into the treatment subsystem.

The flow monitoring equipment identified in the MDWL is present and operating as required. These flow meters are calibrated on an annual basis as specified in the manufacturers' instructions.

#### *Water Usage*

The following water usage tables summarize the quantities and flow rates of water taken and produced during the 2016 reporting period, including total monthly volumes, average monthly volumes, maximum monthly volumes, and maximum flow rates.



## Raw Water

### 2016 - Monthly Summary of Water Takings from the Source (Forest Lake)

Regulated by Permit to Take Water (PTTW) #0365-7T6P5G, issued June 19, 2009

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year to Date
Total Volume (m <sup>3</sup> )	23187	17943	17415	14921	14025	16321	14088	15671	14409	14608	14455	17922	194964
Average Volume (m <sup>3</sup> /d)	748	619	562	497	452	544	454	506	480	487	482	578	534
Maximum Volume (m <sup>3</sup> /d)	854	1173	914	814	659	747	549	849	785	789	812	994	1173
PTTW - Maximum Allowable Volume (m <sup>3</sup> /day)	1680	1680	1680	1680	1680	1680	1680	1680	1680	1680	1680	1680	1680
Maximum Flow Rate (L/min)	743	885	1036	757	925	875	993	952	900	962	716	723	1036
PTTW - Maximum Allowable Flow Rate (L/min)	1160	1160	1160	1160	1160	1160	1160	1160	1160	1160	1160	1160	1160

The system's Permit to Take Water #0365-7T6P5G allows the municipality to withdraw a maximum volume of 1680 cubic meters from Forest Lake each day. A review of the raw water flow data indicates that the system never exceeded this allowable limit having a maximum volume of 1173 m<sup>3</sup> in February 2016. The Permit also allows a maximum flow rate of 1160 L/minute. At no point during the reporting period did the system exceed this rate having a maximum recorded flow of 1036 L/minute in March 2016.

## Treated Water

### 2016 - Monthly Summary of Treated Water Supplied to the Distribution System

Regulated by Municipal Drinking Water Licence (MDWL) #200-101 - Issue 2, issued March 11, 2016

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year to Date
Total Volume (m <sup>3</sup> )	14456	13125	13766	12609	10819	10945	11201	12435	10710	10777	9886	10603	141332
Average Volume (m <sup>3</sup> /d)	466	453	459	420	349	365	361	401	357	348	330	353	388
Maximum Volume (m <sup>3</sup> /d)	506	976	579	762	426	729	451	510	446	389	366	437	976
MDWL - Rated Capacity (m <sup>3</sup> /day)	1680	1680	1680	1680	1680	1680	1680	1680	1680	1680	1680	1680	1680

Schedule C, Section 1.1 of MDWL No. 200-101 states that the maximum daily volume of treated water that flows from the treatment subsystem to the distribution system shall not exceed a maximum flow rate of 1680 m<sup>3</sup> on any calendar day. The South River DWS complied with this limit having a recorded maximum volume of 976 m<sup>3</sup>/day in February 2016, which is 58.1% of the rated capacity.

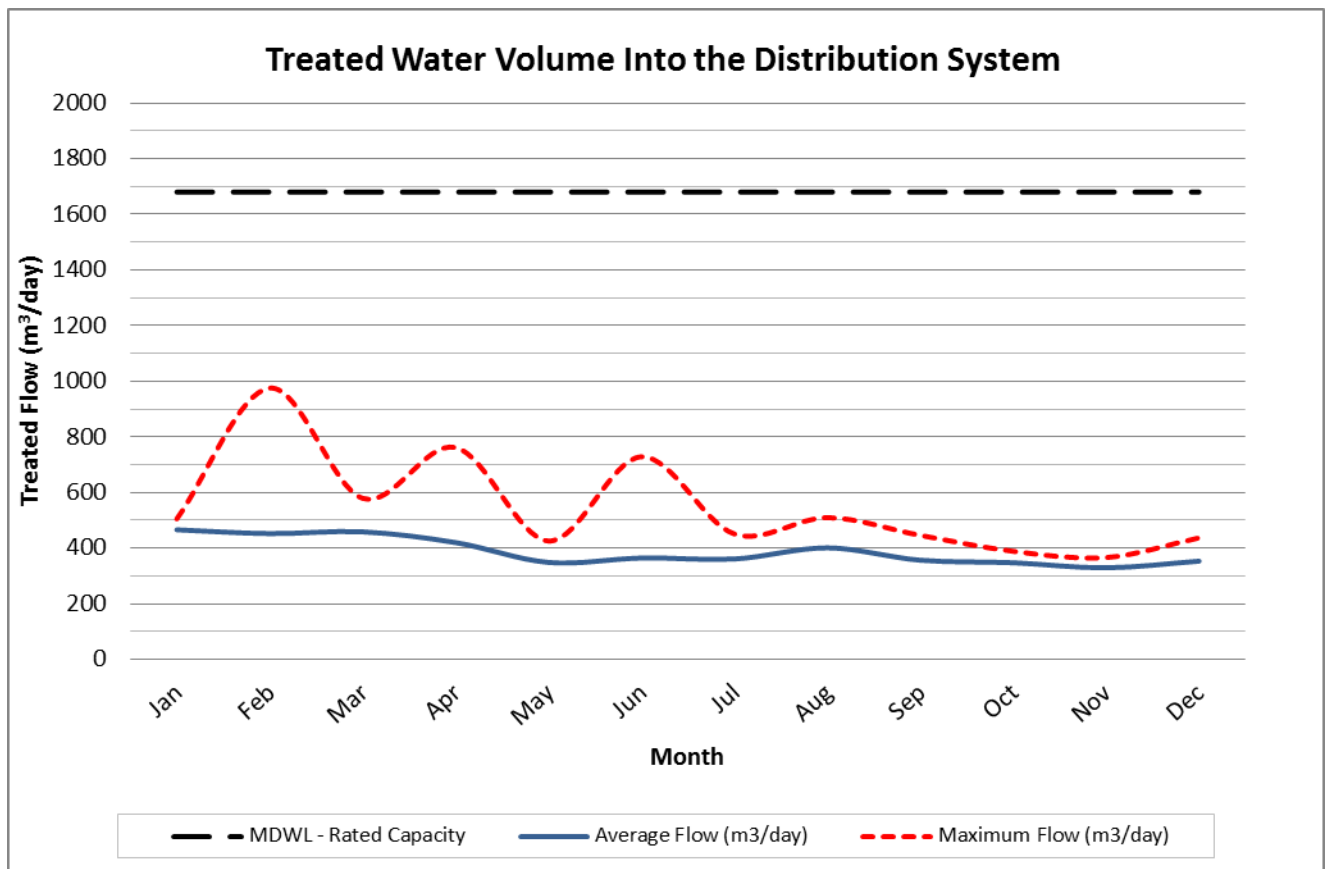
Figure 1 compares the average and maximum flow rates into the distribution system to the rated capacity of the system identified in the MDWL. This information enables the Owner to assess the system's existing and future planned water usage needs.



### Comparison of the Flow Summary to Systems Licence & Permit

Rated Capacity of the Plant (MDWL)	1680 m <sup>3</sup> /day	
Average Daily Flow for 2016	388 m <sup>3</sup> /day	23.1% of the rated capacity
Maximum Daily Flow for 2016	976 m <sup>3</sup> /day	58.1% of the rated capacity
Total Treated Water Produced in 2016	141 332 m <sup>3</sup>	

The South River water treatment plant is rated to produce 1680 cubic meters of water per day as specified in the system's Municipal Drinking Water Licence. The average daily flow was 388 m<sup>3</sup> per day, which is 23.1% of the rated capacity. This information clearly shows that the plant is well within its rated capacity and is able to meet current demands of consumers.





## CONCLUSION

In 2016, the South River Drinking Water System (DWS) met the terms and conditions outlined in its site specific drinking water works permit and municipal drinking water licence having zero incidents of non-compliance and zero adverse water quality incident during the reporting period. The system was able to operate within the water taking limits of the permit and in accordance with the rated capacity of the licence while meeting the community's demand for water use.



# **APPENDIX A**

## Monthly Summary of Microbiological Test Results

**South River Drinking Water System  
Monthly Microbiological Results**

Report extracted 02/15/2017 17:19

From: 01/01/2016 to 31/12/2016

Facility Org Number: 5083  
Facility Works Number: 220013562  
Facility Name: SOUTH RIVER DRINKING WATER SYSTEM  
Facility Owner: Municipality: The Corporation of the Municipality of South River  
Facility Classification: Class 3 Water Treatment  
Receiver:  
Service Population: 1049.0  
Total Design Capacity: 1680.0 m3/day

	01/2016	02/2016	03/2016	04/2016	05/2016	06/2016	07/2016	08/2016	09/2016	10/2016	11/2016	12/2016	Total	Avg	Max	Min
Distribution Water / E. Coli - cfu/100mL																
Count Lab	12	15	12	12	15	12	12	15	12	15	12	12	156			
Max Lab	0	0	0	0	0	0	0	0	0	0	0	0			0	
Mean Lab	0	0	0	0	0	0	0	0	0	0	0	0		0		
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0				0
Distribution Water / HPC - cfu/mL																
Count Lab	4	5	4	4	5	4	4	5	4	5	4	4	52			
Max Lab	1	1	0	0	2	0	1	1	0	1	0	1			2	
Mean Lab	0.25	0.2	0	0	0.4	0	0.25	0.2	0	0.2	0	0.25		0.154		
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0				0
Distribution Water / Total Coliform: TC - cfu/100mL																
Count Lab	12	15	12	12	15	12	12	15	12	15	12	12	156			
Max Lab	0	0	0	0	0	0	0	0	0	0	0	0			0	
Mean Lab	0	0	0	0	0	0	0	0	0	0	0	0		0		
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0				0
Raw Water / E. Coli: EC - cfu/100mL																
Count Lab	4	5	4	4	4	4	4	5	4	5	4	4	51			
Max Lab	3	4	8	4	5	1	6	1	3	3	1	7			8	
Mean Lab	1.25	1.6	3.5	1.75	1.75	0.25	1.75	0.2	1.25	1	0.25	3.25		1.451		
Min Lab	0	0	1	0	0	0	0	0	0	0	0	1				0
Raw Water / Total Coliform: TC - cfu/100mL																
Count Lab	4	5	4	4	4	4	4	5	4	5	4	4	51			
Max Lab	107	82	400	99	260	201	136	500	73	90	81	74			500	
Mean Lab	70.25	59	156	72.25	138.25	118.75	75.75	127.8	44.25	57.2	42.25	54.75		84.51		
Min Lab	42	47	49	46	65	87	22	20	18	22	19	17				17
Treated Water / E. Coli: EC - cfu/100mL																
Count Lab	4	5	4	4	5	4	4	5	4	5	4	4	52			
Max Lab	0	0	0	0	0	0	0	0	0	0	0	0			0	
Mean Lab	0	0	0	0	0	0	0	0	0	0	0	0		0		
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0				0
Treated Water / HPC - cfu/mL																
Count Lab	4	5	4	4	5	4	4	5	4	5	4	4	52			
Max Lab	0	1	0	0	1	0	1	1	0	2	0	0			2	
Mean Lab	0	0.2	0	0	0.2	0	0.25	0.2	0	0.6	0	0		0.135		
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0				0
Treated Water / Total Coliform: TC - cfu/100mL																
Count Lab	4	5	4	4	5	4	4	5	4	5	4	4	52			
Max Lab	0	0	0	0	0	0	0	0	0	0	0	0			0	
Mean Lab	0	0	0	0	0	0	0	0	0	0	0	0		0		
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0				0



# **APPENDIX B**

## Monthly Summary of Operational Data

**South River Drinking Water System  
Monthly Operational Data**

Report extracted 02/16/2017 15:54

From: 01/01/2016 to 31/12/2016

Facility Org Number: 5083  
Facility Works Number: 220013562  
Facility Name: SOUTH RIVER DRINKING WATER SYSTEM  
Facility Owner: Municipality: The Corporation of the Municipality of South River  
Facility Classification: Class 3 Water Treatment  
Receiver:  
Service Population: 1049.0  
Total Design Capacity: 1680.0 m3/day

	01/2016	02/2016	03/2016	04/2016	05/2016	06/2016	07/2016	08/2016	09/2016	10/2016	11/2016	12/2016	Total	Avg	Max	Min
Distribution Water / Cl Residual: Free DW1 - mg/L																
Count IH	8	9	8	8	9	9	8	9	9	9	8	9	103			
Total IH	10.325	10.6	10.14	10.69	14.31	10.56	11.81	13.13	15.83	11.15	11.93	10.31	140.785			
Max IH	2.2	2.2	2.18	2.2	2.9	2.3	2.7	2.8	2.9	1.97	2.3	1.74			2.9	
Mean IH	1.291	1.178	1.267	1.336	1.59	1.173	1.476	1.459	1.759	1.239	1.491	1.146		1.367		
Min IH	0.145	0.38	0.52	0.76	0.25	0.06	0.09	0.06	0.79	0.8	0.75	0.51				0.06
Distribution Water / Cl Residual: Free DW2 - mg/L																
Count IH	8	9	8	8	9	9	8	9	9	9	8	9	103			
Total IH	13.39	14.38	13.87	10.27	11.97	9.39	10.51	12.68	13.41	12.98	10.97	11.69	145.51			
Max IH	2.3	2.1	3	2.06	1.7	1.58	1.81	2.2	2.6	1.72	1.64	1.63			3	
Mean IH	1.674	1.598	1.734	1.284	1.33	1.043	1.314	1.409	1.49	1.442	1.371	1.299		1.413		
Min IH	1.03	1.29	0.74	0.05	1	0.49	0.91	0.87	0.4	0.94	0.96	0.86				0.05
Distribution Water / Cl Residual: Free DW3 - mg/L																
Count IH	8	9	8	8	9	9	8	9	9	9	8	9	103			
Total IH	16.48	13.9	15.55	12.44	14.31	9.73	9.54	12.61	15.99	16.43	13.01	11.69	161.68			
Max IH	2.5	2.2	2.8	2.3	3.4	2.6	2.5	2.7	2.8	2.7	2.4	2.5			3.4	
Mean IH	2.06	1.544	1.944	1.555	1.59	1.081	1.193	1.401	1.777	1.826	1.626	1.299		1.57		
Min IH	1.57	0.27	1.14	0.72	0.06	0.09	0.53	0.83	0.55	1.29	0.98	0.62				0.06
Distribution Water / Cl Residual: Free DW4 - mg/L																
Count IH	4	5	4	4	5	4	4	5	4	5	4	4	52			
Total IH	5.54	7.3	8.44	6.47	3.85	8.86	5.73	10.5	6.36	12.89	4.31	6.11	86.36			
Max IH	1.96	2.2	2.7	2.6	1.63	2.7	2.4	2.6	2.5	3.2	1.63	1.74			3.2	
Mean IH	1.385	1.46	2.11	1.618	0.77	2.215	1.432	2.1	1.59	2.578	1.078	1.528		1.661		
Min IH	0.72	0.54	1.79	0.36	0.06	1.06	0.05	1.23	0.44	1.89	0.74	0.99				0.05
Filter 1 / Turbidity - NTU																
Max OL	0.627	0.682	0.509	0.236	0.136	0.264	0.509	0.582	0.327	0.418	0.9	0.955			0.955	
Mean OL	0.093	0.056	0.038	0.031	0.028	0.05	0.069	0.059	0.061	0.051	0.031	0.075		0.053		
Min OL	0.027	0	0.018	0.009	0.009	0	0.027	0.018	0.027	0	0.018	0.018				0
Filter 2 / Turbidity - NTU																
Max OL	0.75	0.7	2	1.42	0.45	0.34	0.28	0.26	0.19	0.37	0.17	1.04			2	
Mean OL	0.137	0.118	0.131	0.11	0.107	0.053	0.033	0.053	0.041	0.06	0.045	0.054		0.079		
Min OL	0.12	0	0.11	0.1	0.03	0	0.03	0.03	0.02	0	0.02	0.02				0
Treated Water / Cl Residual: Free - mg/L																
Max OL	2.86	4.2	4.96	4.55	5	4.12	4.85	4.99	4.86	4.61	3.45	4.98			5	
Mean OL	2.373	2.141	2.463	2.456	2.568	3.027	2.977	3.182	3.107	3.103	2.497	2.28		2.681		
Min OL	1.65	1.72	1.73	1.82	1.6	2.62	1.75	2.01	2	2.01	1.36	1.1				1.1