Ontario Clean Water Agency
Agence Ontarienne Des Eaux

31 Station Rd. N
Kirkland Lake, ON P2N 3J5
Tel: 705 567 3955
Fax: 705 567 7974
www.ocwa.com

February 3, 2020 Revised February 4, 2020

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

Re: 2019 Annual/Summary Report for the South River Drinking Water System

Dear Don McArthur 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 1st to December 31st in a year and must be prepared not later than February 28th of the following year. Pursuant to the legislative requirements, enclosed for your records is the 2019 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 1st to December 31st in a year and must be prepared not later than March 31st of the following year. Pursuant to the legislative requirements, enclosed for your records is the 2019 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 1st to December 31st 2019.

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 2019 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, 2020. Please ensure this distribution.

Yours truly,
Ontario Clean Water Agency

Joshua Gravelle
Process and Compliance Technician

Copy to: Vesna Alimpic, Drinking Water Inspector, Ministry of the Environment, Conservation and Parks

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

South River Drinking Water System

2019 Annual/Summary Report

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

Table of Contents

List of Appendices

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 31st 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 2019 Annual/Summary Report.

South River Drinking Water System

Section 11

2019 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, 2019 to December 31, 2019

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? Yes,
http://www.southriverontario.com/community-services/water-department

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 (DWS) 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 2019 Annual/Summary Report for the South River DWS and provided a copy to the system owner; the Corporation of the Village of South River. The South River DWS 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 (DWS) 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 South River Water Treatment Plant (WTP) and the South River Water Distribution System.

The South River DWS has an approved rated capacity of 1680 m^3/day and provides a potable water supply to the Village of South River.

Raw Water Supply

The plant raw water intake consists of a 300 millimeter (mm) diameter intake pipe extending 232 meters (m) 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 litres per second (L/s) at 11.0 m of total dynamic head (TDH) that pump water to the treatment plant. In accordance with the Permit To Take Water (PTTW), the allowable rate of water taking is 19.3 L/s with a maximum daily volume of 1680 cubic meters per day (m^3/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^3/d with flocculation tanks, up flow clarifiers, and filters each consisting of triple media that includes Garnet Sand, Silica Sand and Granular Activated Carbon (GAC) both with surface areas of 4.49 square meters (m^2). The chemical feed system consists of two (2) coagulant (polyaluminum chloride (PACl)) metering pumps, one (1) duty and one (1) standby, each with the capacity of 30 litres per hour (L/hour) and one (1) 15 cubic meters (m^3) storage tank; two (2) polymer metering pumps, each with a capacity of 30 L/hour and one (1) 100 L storage tank; three (3) alkalinity and pH adjustment (soda ash) metering pumps with a capacity of 30 L/hour and one (1) 1350 L storage tanks; three (3) primary and post disinfection (sodium hypochlorite) metering pumps, two (2) duty, and one standby, each rated at 7.5 L/hour and a 450 L storage tank; one (1) pre-oxidizer (potassium permanganate ($KMNO_4$)) metering pump with a capacity of 18 L/hour and one (1) 1350 L storage tank. Raw water entering the plant is injected with soda ash and PACl. 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. Aluminum sulphate (Alum) was replaced by PACl June 7, 2017. PACl has greater flexibility, coagulates at

a wider pH range, creates better floc formation at low temperatures, requires lower dosage, reduces sludge production and reduces wear on pumping equipment due to the lower dosing rates. 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, Silica Sand and GAC. 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.

A six month trial using $KMNO_4$ began December 20, 2017. The six month trial involved injecting $KMNO_4$ at the raw water header. An existing pre-chlorination injection system originally incorporated at the facility on the raw water header intended for sodium hypochlorite was utilized for the $KMNO_4$. Sodium hypochlorite was trialed in 2016 at 12% concentration, but with near freezing surface water temperatures and detention time of the package plants the oxidation process was ineffective. In an attempt to improve treated water quality $KMNO_4$ was used as a pre-oxidizing agent. Based on a review of published jar testing reports with similar raw characteristics, it was proposed that depending on iron and manganese concentrations the dosage range for $KMNO_4$ would be approximately 1.5 to 4.0 milligrams per litre (mg/L). Continuous monitoring of the iron and manganese concentrations as well as subsequent jar testing was the basis for dosage. However, the intention was to slightly under-dose $KMNO_4$ which would oxidize most of the iron and manganese to eliminate potential colour related issues in the drinking water system rather than overshoot with potential for pink treated water occurrences. Using $KMNO_4$ suited the water quality in South River due to fluctuations of iron and manganese levels caused by thermal turnover. $KMNO_4$ trial successful as of June 20, 2019 and is now permanently being used as a pre-oxidizing agent.

Water Storage and Pumping Capabilities

An in ground clearwell reservoir located under the facility has the approximate capacity of 1,536 m^3 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 45 m; two (2) pumps each rated at 14 L/s at a TDH of 45 m. 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 38 m.

Waste Management

A wastewater treatment system consists of a two cell backwash holding tank / settling tank with approximately 210 m^3 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 WTP 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 3-5 times/week for disposal. Composite samples of the effluent are collected monthly.

Emergency Power

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

Distribution System

The South River DWS 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 polyvinyl chloride (PVC) piping ranging in size from 300 mm in diameter down to 50 mm diameter. As of December 2010 there is: 250 m of 50 mm, 1984 m of 100 mm, 6657 m of 150 mm, 1401 m of 200 mm, 1451 m of 250 mm, and 685 m of 300 mm. The length of the entire system is therefore approximately 12.43 kilometers (km). There are 11 dead end locations and 66 fire hydrants. There is no water storage tower or reservoir in the distribution system. The distribution system typically undergoes routine flushing twice a year, in the spring and in the fall.

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.

- Polyaluminum Chloride (PACl) - Coagulation/Flocculation
- Potassium Permanganate ($KMNO_4$) – Iron and Manganese Control
- Magnafloc LT27AG Anionic Polymer – Coagulant aid
- Sodium Carbonate (Soda Ash) – 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 2015 which better maintains and optimizes facility assets. All routine maintenance activities conducted at the water treatment plant were accomplished in 2019.

Significant expenses incurred in the drinking water system include:

- Generator repairs – replaced battery and removed illegal valve on fuel line.
- Raw water header and static mixer cleaned out.
- Smoke and fire detection system upgraded.
- Backwash tank had sludge removed and was cleaned out.
- Concrete chemical loading ramp was constructed to improve safety while bringing heavy loads of chemicals into the facility.
- SCADA Pack was upgraded to ensure data is stored during a power loss.
- New post pH adjustment pump installation completed.
- High lift pump programming modifications and testing completed.

5.0 Drinking Water System Highlights

- The Ministry of the Environment, Conservation and Parks (MECP) performed their last annual inspection on October 29, 2019. The inspection included a physical assessment of the South River WTP and a document review. There was three non-compliance issues and five best practice recommendation. The system received a risk rating of 4.46%, with a final inspection rating of 95.54%.

- SAI Global conducted an on-site external Re-accreditation audit of the South River Drinking Water System's Quality and Environmental Management System (QEMS). The system and processes associated with the QEMS were evaluated on May 16, 2019 to ensure implementation of the Operational Plan and procedures and conformance to the Drinking Water Quality Management Standard. There were two opportunities for improvement (OFI), both are resolved. Re-accreditation was achieved on May 21, 2019.

- PTTW renewal completed. New PTTW number 4340-BA6RUQ expires March 14, 2029.

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, three (3) adverse water quality incidents were reported to the Ministry of the Environment's Spills Action Centre (MOE SAC) in 2019. Three (3) supernatant spills were also reported to MOE SAC in 2019.

AWQI 144472 – Watermain Break/Loss of Pressure/Boil Water Advisory

January 8, 2019 @ 1142 hrs - Category 2 water main break affecting residents on Marie St. A main was leaking, so main was shut down for repair. Town operators responded to and repaired pipe. The local Health Unit was notified and the Village of South River extended the BWA for the affected area. The water main was isolated and repaired main break. All materials were disinfected and the area flushed as per MECP's Watermain Disinfection procedure. Repair was completed and the pressure was restored on January 8, 2019.

The area was flushed and 2 sets of 3 microbiological samples were collected (upstream, downstream and at site). Sample results indicated no total coliforms or *E.coli* or general bacteria. BWA was lifted on January 11. Resolution submitted on January 17.

AWQI 144828 – Watermain Break/Loss of Pressure/Boil Water Advisory

February 20, 2019 @ 1327 hrs - Category 2 water main break affecting residents on Riverside Dr. A main was leaking, so main was shut down for repair. Town operators responded to and repaired pipe. The local Health Unit was notified and the Village of South River extended the BWA for the affected area. The water main was isolated and repaired main break. All materials were disinfected and the area flushed as per MECP's Watermain 2019.

The area was flushed and 2 sets of 3 microbiological samples were collected (upstream, downstream and at site). Sample results indicated no total coliforms or *E.coli* or general bacteria. BWA was lifted on February 28, 2019. Resolution submitted on March 1, 2019.

AWQI 145535 – 1 Total Coliform in a Distribution Microbiological Sample

1 Total Coliform was detected in a drinking water sample collected in the South River distribution system at 1 Montreal (Corner Store) on May 27, 2019 at 1515 hrs. (Free Chlorine Residual = 1.88 mg/L). A re-sample was collected as required under O. Regulation 170/03 (upstream, downstream and at the site of the adverse result) on May 29, 2019. All re-sample results were acceptable having zero total coliforms and zero *E. coli*.

SAC Reference 7826-BG3NAF – Supernatant Spill
Type of incident: Spill
SAC Ref No.: 7826-BG3NAF
Start Date & Time: September 16, 2019 @ 1140 hours
Termination: September 16, 2019 @ 1316 hours
Duration: 1.5 hours
Approximate volume: 15 m^3
Details: Package Plant De-sludge Valves opened to perform process maintenance in manual override. Following the completion of the maintenance, valves remained in the open position overwhelming waste system with clear supernatant.
Receiver: N/A
Actions: Following notification of minor stream from the waste system overflow header into storm water drainage ditch. Package Plant valves placed into closed position.
Reporting: Verbal & written reports to MOE SAC, faxed to EC as required.

SAC Reference 7100-BG6JK2– Supernatant Spill
Type of incident: Spill
SAC Ref No.: 7100-BG6JK2
Start Date & Time: September 17, 2019 @ 0900 hours
Termination: September 19, 2019 @ 1030 hours
Duration: 20 hours
Approximate volume: 7.2 m^3
Details: Clear supernatant observed slowly exiting Waste System Overflow Header into drainage ditch. Samples collected for submission to lab. Trending review shows incident intermittent over a few days. Issue attributed to sludge distorting level transducer.
Receiver: N/A
Actions: Following notification of minor stream from the waste system overflow header into storm water drainage ditch. Supernatant pump set-points adjusted for equipment to operate at reduced level with transducer cleaned. Waste System sludge being pumped down.
Reporting: Verbal & written reports to MOE SAC, faxed to EC as required.

SAC Reference 0182-BKCKGU– Supernatant Spill
Type of incident: Spill
SAC Ref No.: 0182-BKCKGU
Start Date & Time: December 27, 2019 @ 1545 hours
Termination: December 27, 2019 @ 1800 hours
Duration: 1.5 hours
Approximate volume: 10 m^3
Details: Package Plants experienced issues resulting in repeat filter backwash with significant portion of process being wasted. Waste Tank overwhelmed with overflow to ditch resulting in slight sludge film. Notified of incident by Public Works Chief.

Receiver: N/A
Actions: Waste Tank high Level inhibition set-point reduced. Waste Tank High Level Alarm reduced further. Public Works Department will remove sludge from ditch for landfill disposal.
Reporting: Verbal & written reports to MOE SAC, faxed to EC as required.

7.0 Microbiological Testing Performed During the Reporting Period

Summary of Microbiological Data

Sample Type	No. of Samples	Range of *E. coli* Results *(min to max)*	Range of Total Coliform Results *(min to max)*	# of HPC Samples	Range of HPC Results *(min to max)*
Raw (Lake)	54	0 to 20	3 to 1080	0	N/A
Treated	53	0 to 0	0 to 0	53	0 to 1
Distribution	163	0 to 0	0 to 1*	55	0 to 57

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.

*See page 8 for details regarding AWQI 145535.

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 0.94	NTU
Filter #2 Turbidity	8760	0.0 to 1.0	NTU
Free Chlorine	8760	1.10 to 4.94	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 and/or CT is verified via plant SCADA 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.

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	0.34 to 3.90	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 22	0.066	< 0.003	mg/L	No
April 15	0.196	< 0.003	mg/L	No
July 16	0.086	< 0.003	mg/L	No
October 21	0.069	< 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
Jan. 22	24.0	ug/L	28.50	No
Apr. 16	16.0			
July 16	46.0			
Oct. 21	28.0			

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

Summary of Total Haloacetic Acids Data *(sampled in the distribution system)*

Date of Sample	Result Value	Unit of Measure	Running Average	Exceedance
Jan. 22 (63 Marie)	42.0	ug/L	31.43	N/A until 2020
Apr. 15 (63 Marie)	16.3			
July 16 (314 Hwy. 124)	37.2			
Oct. 21 (63 Marie)	30.2			

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 DWS 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 April 5 and October 4th of 2019. 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)
April 5	1	Hydrant #40	0.0002	7.59	25.2
April 5	1	Hydrant #26	0.0016	7.76	23.6
Oct. 4	1	Hydrant #40	0.0006	7.35	17.8
Oct. 4	1	Hydrant #20	<0.0001	7.32	17.7

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

Parameter	Result Value	Unit of Measure	Standard	Exceedance
Antimony	0.03	ug/L	6	No
Arsenic	<MDL 0.2	ug/L	10	No
Barium	14.3	ug/L	1000	No
Boron	5.0	ug/L	5000	No
Cadmium	0.003	ug/L	5	No
Chromium	0.3	ug/L	50	No
Mercury	<MDL 0.01	ug/L	1	No
Selenium	<MDL 0.04	ug/L	50	No
Uranium	0.008	ug/L	20	No

Note: Sample required every 12 months (sample date = *January 22, 2019)*

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	2019/01/22	<MDL 0.02	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - T	2019/01/22	<MDL 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	2019/01/22	<MDL 0.05	20.00	No	No
Benzene (ug/L) - TW	2019/01/22	<MDL 0.32	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2019/01/22	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2019/01/22	<MDL 0.33	5.00	No	No
Carbaryl (ug/L) - TW	2019/01/22	<MDL 0.05	90.00	No	No
Carbofuran (ug/L) - TW	2019/01/22	<MDL 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2019/01/22	<MDL 0.16	2.00	No	No
Chlorpyrifos (ug/L) - TW	2019/01/22	<MDL 0.02	90.00	No	No
Diazinon (ug/L) - TW	2019/01/22	<MDL 0.02	20.00	No	No
Dicamba (ug/L) - TW	2019/01/22	<MDL 0.2	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2019/01/22	<MDL 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2019/01/22	<MDL 0.36	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2019/01/22	<MDL 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2019/01/22	<MDL 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) -	2019/01/22	<MDL 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2019/01/22	<MDL 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) -	2019/01/22	<MDL 0.19	100.00	No	No
Diclofop-methyl (ug/L) - TW	2019/01/22	<MDL 0.4	9.00	No	No
Dimethoate (ug/L) - TW	2019/01/22	<MDL 0.06	20.00	No	No
Diquat (ug/L) - TW	2019/01/22	<MDL 1.0	70.00	No	No
Diuron (ug/L) - TW	2019/01/22	<MDL 0.03	150.00	No	No
Glyphosate (ug/L) - TW	2019/01/22	<MDL 1.0	280.00	No	No
Malathion (ug/L) - TW	2019/01/22	<MDL 0.02	190.00	No	No
Metolachlor (ug/L) - TW	2019/01/22	<MDL 0.01	50.00	No	No
Metribuzin (ug/L) - TW	2019/01/22	<MDL 0.02	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - T	2019/01/22	<MDL 0.3	80.00	No	No
Paraquat (ug/L) - TW	2019/01/22	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2019/01/22	<MDL 0.04	3.00	No	No
Pentachlorophenol (ug/L) - TW	2019/01/22	<MDL 0.15	60.00	No	No
Phorate (ug/L) - TW	2019/01/22	<MDL 0.01	2.00	No	No
Picloram (ug/L) - TW	2019/01/22	<MDL 1.0	190.00	No	No
Prometryne (ug/L) - TW	2019/01/22	<MDL 0.03	1.00	No	No
Simazine (ug/L) - TW	2019/01/22	<MDL 0.01	10.00	No	No
Terbufos (ug/L) - TW	2019/01/22	<MDL 0.01	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2019/01/22	<MDL 0.35	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2019/01/22	<MDL 0.2	100.00	No	No
Triallate (ug/L) - TW	2019/01/22	<MDL 0.01	230.00	No	No
Trichloroethylene (ug/L) - TW	2019/01/22	<MDL 0.44	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2019/01/22	<MDL 0.25	5.00	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (	2019/01/22	<MDL 0.12	100.00	No	No
Trifluralin (ug/L) - TW	2019/01/22	<MDL 0.02	45.00	No	No
Vinyl Chloride (ug/L) - TW	2019/01/22	<MDL 0.17	1.00	No	No

Note: Sample required every 12 months (sample date = *January 22, 2019)*

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 22, 2018(Compliance)	1	24.6	mg/L	20	Yes (AWQI #138657)
January 30, 2018 (resample)	1	24.0	mg/L	20	Yes (AWQI #138657)

Note: Sample required every 60 months. Next sampling scheduled for January 2023.

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 NBPSDHU on January 29, 2018 as required under Schedule 16 of O. Reg. 170/03 (AWQI# 138657).

Most Recent Fluoride Data Sampled at the Water Treatment Plant

Date of Sample	No. of Samples	Result Value	Unit of Measure	Standard	Exceedance
March 8, 2011	1	<0.10	mg/L	1.5	No
January 19, 2016	1	<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 2019.

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	5	mg/L	6.67	25
February	1	10			
March	1	9			
April	1	2			
May	1	12			
June	1	6			
July	1	4			
August	1	2			
September	1	4			
October	1	5			
November	1	12			
December	1	9			

South River Drinking Water System

Schedule 22

2019 SUMMARY REPORT

FOR MUNICIPALITIES

Schedule 22 - SUMMARY REPORTS FOR MUNICIPALITIES

1.0 Introduction

Drinking-Water System Name:	**SOUTH RIVER DRINKING WATER SYSTEM**
Municipal Drinking Water Licence (MDWL) No.:	200-101-2 (issued March 11, 2016)
Drinking Water Work Permit (DWWP) No.:	200-201-2 (issued March 11, 2016)
Permit to Take Water (PTTW) No.:	4340-BA6RUQ (issued March 14, 2019)
Period being reported:	January 1, 2019 to December 31, 2019

2.0 Requirements the System Failed to Meet

The last MECP inspection report dated October 29, 2019 identified the following non-compliance items. There were three non-compliance items noted in inspection report from 2019.

Also, it should be noted that, three (3) adverse water quality incidents were reported to the MOE's Spills Action Center. Refer to *Section 6.0 – Details on Notices of Adverse Test Results and Other Problems Reported to & Submitted to the Spills Actions Center* on page 7 of this report for details.

Issue Identified in Report/Order	Required Action or Recommendation Identified in Report/Order	Responsibility for Action Item? *(Client, OCWA, Joint)*	Issue Analysis	Status *(Complete or In Progress)*
1. The owner/operating authority was not in compliance with the requirement to prepare Form 1 documents as required by their Drinking Water Works Permit during the inspection period. Section 31(1) of Safe Drinking Water Act requires that no person shall use or operate a municipal drinking-water system that was established before or after this section comes into force except under the authority of and in accordance with an approval under this Part or municipal drinking-water licence. According to the information provided to the inspecting officer, the distribution system was modified by moving a watermain by approximately 15 m and removing a watermain from a property currently owned by the Municipality. The works occurred in June and July 2019. This alteration was not verified in writing by a Professional Engineer and the owner on "Form 1 – Record of Watermains Authorized as a Future Alteration" prior to the modification being placed into service as required by Condition 3.3 of the DWWP.	**Action(s) Required:** It is the owner's responsibility to familiarize with the requirements of the South River DWS Drinking Water Works Permit and the Municipal Drinking Water Licence in terms of owners roles and obligations. By no later than February 10, 2020, the owner and the Professional Engineer involved with the alteration of the drinking water system are required to complete "Form 1 – Record of Watermains Authorized as a Future Alteration" for the performed alteration and provide a copy of the form to the undersigned officer by e-mail to the email address vesna.alimpic@ontario.ca, by fax to 705-497-6866 or mail to Ministry of the Environment, Conservation and Parks, North Bay Area Office, 191 Booth Road Unit 16 & 17, North Bay, ON P1A 4K3.	Client and Engineering Firm that completed the works.	This is the Owner and Professional Engineers responsibility to ensure the form 1 gets completed. Owner is aware of requirement and is in discussion with the Professional Engineer that completed the works. OCWA has no further action required with regards to this non-compliance issue. Owner should ensure to inform OCWA when the Form 1 is completed and submitted, by February 10, 2020. Form 1 completed, sent to MECP on January 23, 2020. No further action required. Confirmed with MECP via email on January 24, 2020.	**Complete**

2. All continuous monitoring equipment utilized for sampling and testing required by O. Reg.170/03, or Municipal Drinking Water Licence or Drinking Water Works Permit or order, were not equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6. Section 6-5(1)5 of Schedule 6 of O. Reg. 170/03 requires that where an automatic shut-off mechanism is not used on a continuous monitoring equipment, in addition to alarming when the test result for a parameter is outside the range prescribed in the table to Schedule 6-5, the continuous monitoring equipment must cause an alarm to signal if the analyzer loses power or malfunctions so that an operator can be immediately alerted and take appropriate action. Filter effluent turbidity continuous analyzers and the POE chlorine continuous analyzer are not equipped with alarms or shut down mechanisms in the event the continuous monitoring equipment loses power or malfunctions.	**Action(s) Required:** The owner is required to choose between one of the two following options: 1. Meet the requirements of Section 6-5(1)5 of Schedule 6 of Drinking Water Systems Regulation by designing and operating the continuous monitoring equipment to either: a) cause an alarm to signal immediately at the location where the equipment conducts tests and a location where a person is present if the equipment malfunctions or loses power or a test result for a parameter is above the maximum alarm standard or below the minimum alarm standard specified in the Table to Schedule 6 for the parameter, or b) have a feature that ensures that no water is directed to users of water sampled by the equipment in the event that the equipment malfunctions or loses power or a test result for a parameter is above the maximum alarm standard or below the minimum alarm standard specified in the Table to Schedule 6 for the parameter. 2. Apply for regulatory relief from the requirements for continuous monitoring specified in Section 6-5(1)5 of Schedule 6 of Drinking Water Systems Regulation. By no later than January 28th, 2020, the owner must inform Water Inspector Vesna Alimpic, MECP, North Bay Office, Drinking Water and Environmental Compliance Division, 191 Booth Road Unit 16 & 17, North Bay, ON or at vesna.alimpic@ontario.ca in writing about the selected option and submit an action plan based on the selected option.	OCWA	Will need to have discussions with Management and Instrumentation Technician to determine the best possible solution to the alarming issues. Investigation of the equipment is required to determine if alarming is possible in the event of malfunction or loss of power. Action plan to be provided to MECP by January 28, 2020. Option 1a selected and programming updated January 20, 2020 to satisfy regulatory requirement. Confirmed with MECP via email on January 24, 2020 that all required actions were completed. No further action required.	**Complete**

3. All changes to the system registration information were not provided within ten (10) days of the change. Section 10.1(3) of O. Reg. 170/03 prescribes that if there is any change to the system information given to the Director, the owner of the drinking-water system shall give the Director written notice of the change within 10 (ten) days of the change. Generally, once the operating authority is aware of the changes of the system profile information, they submit the updated information to the ministry. A new public works chief operator was hired by the owner on September 31, 2019. There was a delay in sharing this information with the operating authority. The change of the owner alternate contact represented by the public works chief operator was provided to the Director on October 21, 2019, which does not fall within the required 10 days. During the preparation of this inspection report, the clerk-administrator as the representative of the owner indicated that they were not aware of this requirement and that they intend to ensure that such oversight does not happen again.	**Action(s) Required:** The owner of the drinking water system is reminded that they must ensure that any changes to the system information are provided to the Director by written notice within 10 (ten) days of the change. No further action required.	Joint	In future, the Village will inform OCWA if the DWIS profile requires update within 10 days, OCWA will then submit DWIS Profile information form to update.	**Complete**

3.0 Summary of Quantities and Flow Rates

Flow Monitoring

MDWL No. 200-101requires 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 2019 reporting period, including total monthly volumes, average monthly volumes, maximum monthly volumes, and maximum flow rates.

Raw Water

2019 - Monthly Summary of Water Takings from the Source (Forest Lake)
Regulated by Permit to Take Water (PTTW) #4340-BA6RUQ , issued March 14, 2019

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year to Date
Total Volume (m^3)	17541	20662	23777	20284	18634	21408	22008	19502	21750	19013	19839	23070	247488
Average Volume (m^3/d)	566	738	767	676	601	714	710	629	725	613	661	744	679
Maximum Volume (m^3/d)	1245	1038	1004	917	839	1121	868	886	930	931	836	962	1245
PTTW - Maximum Allowable Volume (m^3/day)	1680	1680	1680	1680	1680	1680	1680	1680	1680	1680	1680	1680	1680
Maximum Flow Rate (L/min)	905	860	821	767	867	842	677	658	776	856	784	962	962
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 #4340-BA6RUQ 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 1245 m^3 in January 2019. The Permit also allows a maximum flow rate of 1160 litres per minute (L/min). At no point during the reporting period did the system exceed this rate having a maximum recorded flow of 962 L/min in December 2019.

Treated Water

2019 - 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^3)	13912	17509	20361	17849	16752	18505	18844	16681	18553	16273	16285	17450	208972
Average Volume (m^3/d)	449	625	657	595	540	617	608	538	618	525	543	563	573
Maximum Volume (m^3/d)	856	833	953	653	600	828	882	642	770	774	600	604	953
MDWL - Rated Capacity (m^3/day)	1680	1680	1680	1680	1680	1680	1680	1680	1680	1680	1680	1680	1680

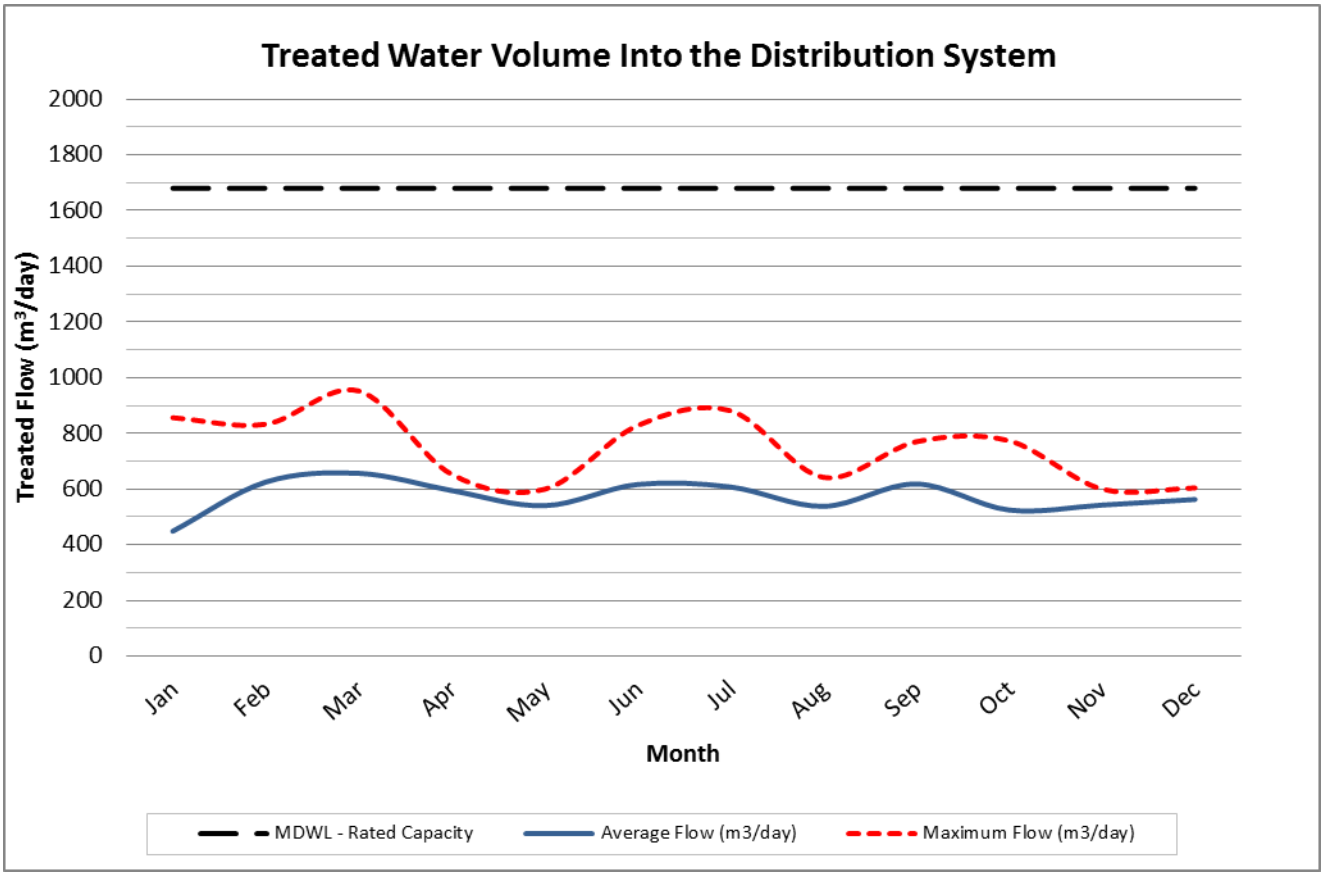
Schedule C, Section 1.1 of MDWL No. 200-101 states that the maximum daily volume of treated water that flows from the treatment subsystem to the distribution system shall not exceed a maximum flow rate of 1680 m^3 on any calendar day. The South River DWS complied with this limit having a recorded maximum volume of 953 m^3/day in March 2019, which is 56.7% 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^3/day	
Average Daily Flow for 2019	573 m^3/day	34.1% of the rated capacity
Maximum Daily Flow for 2019	953 m^3/day	56.7% of the rated capacity
Total Treated Water Produced in 2019	208,972 m^3	

The South River WTP 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 573 m^3 per day, which is 34.1% 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 2019, the South River DWS met the terms and conditions outlined in its site specific drinking water works permit and municipal drinking water licence having three adverse water quality incident and three incidents of non-compliance 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 Summary of Microbiological Test Results

From: 01/01/2019 to 31/12/2019

Report extracted 01/27/2020 11:26

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

Total Design Capacity: 1680.0 m3/day

		01/2019	02/2019	03/2019	04/2019	05/2019	06/2019	07/2019	08/2019	09/2019	10/2019	11/2019	12/2019	Total	Avg	Max	Min
Distribution Water / E. Coli - cfu/100mL																	
Count Lab		16	12	12	15	15	12	15	12	12	15	12	15	163			
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		6	4	4	5	5	4	5	4	4	5	4	5	55			
Max Lab		57	0	1	0	0	0	4	1	1	0	1	0			57	
Mean Lab		9.667	0	0.25	0	0	0	0.8	0.25	0.25	0	0.25	0		1.2		
Min Lab		0	0	0	0	0	0	0	0	0	0	0	0				0
Distribution Water / Total Coliform: TC - cfu/100mL																	
Count Lab		16	12	12	15	15	12	15	12	12	15	12	15	163			
Max Lab		0	0	0	0	1	0	0	0	0	0	0	0			1	
Mean Lab		0	0	0	0	0.067	0	0	0	0	0	0	0		0.006		
Min Lab		0	0	0	0	0	0	0	0	0	0	0	0				0
Raw Water / E. Coli: EC - cfu/100mL																	
Count Lab		6	4	4	5	4	4	5	4	4	5	4	5	54			
Max Lab		2	4	8	15	20	2	2	1	7	13	17	7			20	
Mean Lab		0.5	2.75	3.75	5	7	1	0.8	0.75	3	4	7	1.6		2.981		
Min Lab		0	2	1	2	0	0	0	0	1	1	1	0				0
Raw Water / Total Coliform: TC - cfu/100mL																	
Count Lab		6	4	4	5	4	4	5	4	4	5	4	5	54			
Max Lab		66	115	360	460	176	1080	420	92	98	460	145	520			1080	
Mean Lab		60.167	79	131.75	158.4	94.5	378.25	178.2	54	59	212.6	105	178.8		140.87		
Min Lab		53	55	45	49	14	112	3	7	33	75	50	61				3
Treated Water / E. Coli: EC - cfu/100mL																	
Count Lab		5	4	4	5	4	4	5	4	4	5	4	5	53			
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		5	4	4	5	4	4	5	4	4	5	4	5	53			
Max Lab		1	1	0	0	0	1	1	0	0	1	1	0			1	
Mean Lab		0.2	0.25	0	0	0	0.25	0.6	0	0	0.2	0.25	0		0.151		
Min Lab		0	0	0	0	0	0	0	0	0	0	0	0				0
Treated Water / Total Coliform: TC - cfu/100mL																	
Count Lab		5	4	4	5	4	4	5	4	4	5	4	5	53			
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 Summary of Operational Data

From: 01/01/2019 to 31/12/2019

Report extracted 02/03/2020 13:59

Facility Org Number: 5083

Facility Works Number: 220013562

Facility Name: SOUTH RIVER DRINKING WATER SYSTEM

Facility Owner: Municipality: The Corporation of the Village of South River

Facility Classification: Class 3 Water Treatment

Total Design Capacity: 1680.0 m3/day

		01/2019	02/2019	03/2019	04/2019	05/2019	06/2019	07/2019	08/2019	09/2019	10/2019	11/2019	12/2019	Total	Avg	Max	Min
Distribution Water / Cl Residual: Free DW1 - mg/L																	
Count IH		9	7	9	9	9	8	9	9	8	9	9	9	104			
Total IH		12.61	12.7	16.02	18.92	17.62	17.23	16.24	17.03	18.61	16.77	18.77	17.42	199.94			
Max IH		1.96	2.5	2.05	3.5	2.19	2.8	2.4	2.5	2.5	2.3	2.9	2.5			3.5	
Mean IH		1.401	1.814	1.78	2.102	1.958	2.154	1.804	1.892	2.326	1.863	2.086	1.936		1.923		
Min IH		0.85	0.99	1.47	1.67	1.44	1.53	0.45	1.02	2.14	1.55	1.48	1.49				0.45
Distribution Water / Cl Residual: Free DW2 - mg/L																	
Count IH		9	7	9	9	9	8	9	9	8	9	9	9	104			
Total IH		11.61	13.78	18.47	17.15	17.84	16.68	15.25	15.76	17.78	16.54	20.03	16.86	197.75			
Max IH		2.05	2.6	2.5	3.4	2.3	2.6	2.9	2.3	3.2	2.5	3.2	2.9			3.4	
Mean IH		1.29	1.969	2.052	1.906	1.982	2.085	1.694	1.751	2.222	1.838	2.226	1.873		1.901		
Min IH		0.54	1.31	1.39	1.41	1.67	1.43	0.79	0.65	1.64	0.95	1.48	1.44				0.54
Distribution Water / Cl Residual: Free DW3 - mg/L																	
Count IH		9	7	9	9	9	8	9	9	8	9	9	9	104			
Total IH		12.96	13.77	19.35	19.05	19.23	17.38	16.03	16.7	18.36	18.88	20.37	16.29	208.37			
Max IH		2.16	2.6	2.6	3.9	2.5	2.7	2.6	2.8	2.5	2.4	3.1	2.8			3.9	
Mean IH		1.44	1.967	2.15	2.117	2.137	2.173	1.781	1.856	2.295	2.098	2.263	1.81		2.004		
Min IH		0.72	1.28	1.73	1.57	1.58	1.63	0.54	0.64	1.76	1.54	1.4	1.27				0.54
Distribution Water / Cl Residual: Free DW4 - mg/L																	
Count IH		4	4	4	5	4	4	5	4	4	5	4	5	52			
Total IH		7.09	6.86	5.96	9.72	5.59	7.39	9.42	6.47	10.5	12.7	8.94	8.95	99.59			
Max IH		2.06	2.5	2.13	3.9	1.87	2.9	2.2	1.77	2.8	2.8	2.3	2.2			3.9	
Mean IH		1.773	1.715	1.49	1.944	1.398	1.847	1.884	1.618	2.625	2.54	2.235	1.79		1.915		
Min IH		1.31	0.91	0.39	0.6	0.34	1.45	1.38	1.41	2.3	2.2	2.14	1.35				0.34
Filter 1 / Turbidity - NTU																	
Max OL		0.573	0.255	0.069	0.264	0.1	0.036	0.045	0.273	0.936	0.073	0.45	0.909			0.936	
Mean OL		0.023	0.013	0.011	0.018	0.009	0.01	0.01	0.012	0.013	0.018	0.025	0.038		0.017		
Min OL		0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0	0	0				0
Filter 2 / Turbidity - NTU																	
Max OL		0.52	0.18	0.06	0.08	0.51	0.24	0.08	0.16	0.1	0.08	0.58	1			1	
Mean OL		0.023	0.012	0.012	0.011	0.011	0.013	0.013	0.015	0.011	0.018	0.03	0.038		0.017		
Min OL		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0	0	0				0
Treated Water / Cl Residual: Free (Min = 1.0 mg/L) - mg/L																	
Max OL		3.17	4.94	4.03	4.43	4.34	4.19	3.37	3.71	4.43	3.24	4.63	3.21			4.94	
Mean OL		2.288	2.573	2.689	2.858	2.696	2.704	2.7	2.895	2.984	2.762	2.814	2.402		2.697		
Min OL		1.16	1.1	1.21	2.44	2.16	2.18	1.84	2.38	2.42	1.23	1.47	1.24				1.1