

January 16, 2024

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

**Re: 2023 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 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 2023 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 2023 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> 2023.

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 2023 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, 2024. Please ensure this distribution.

Yours truly,  
Ontario Clean Water Agency

Joshua Gravelle  
Process and Compliance Technician

Copy to: Erin Spires, Drinking Water Inspector, Ministry of the Environment, Conservation and Parks



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

South River Drinking Water System

# 2023 ANNUAL/SUMMARY REPORT

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



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## 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.

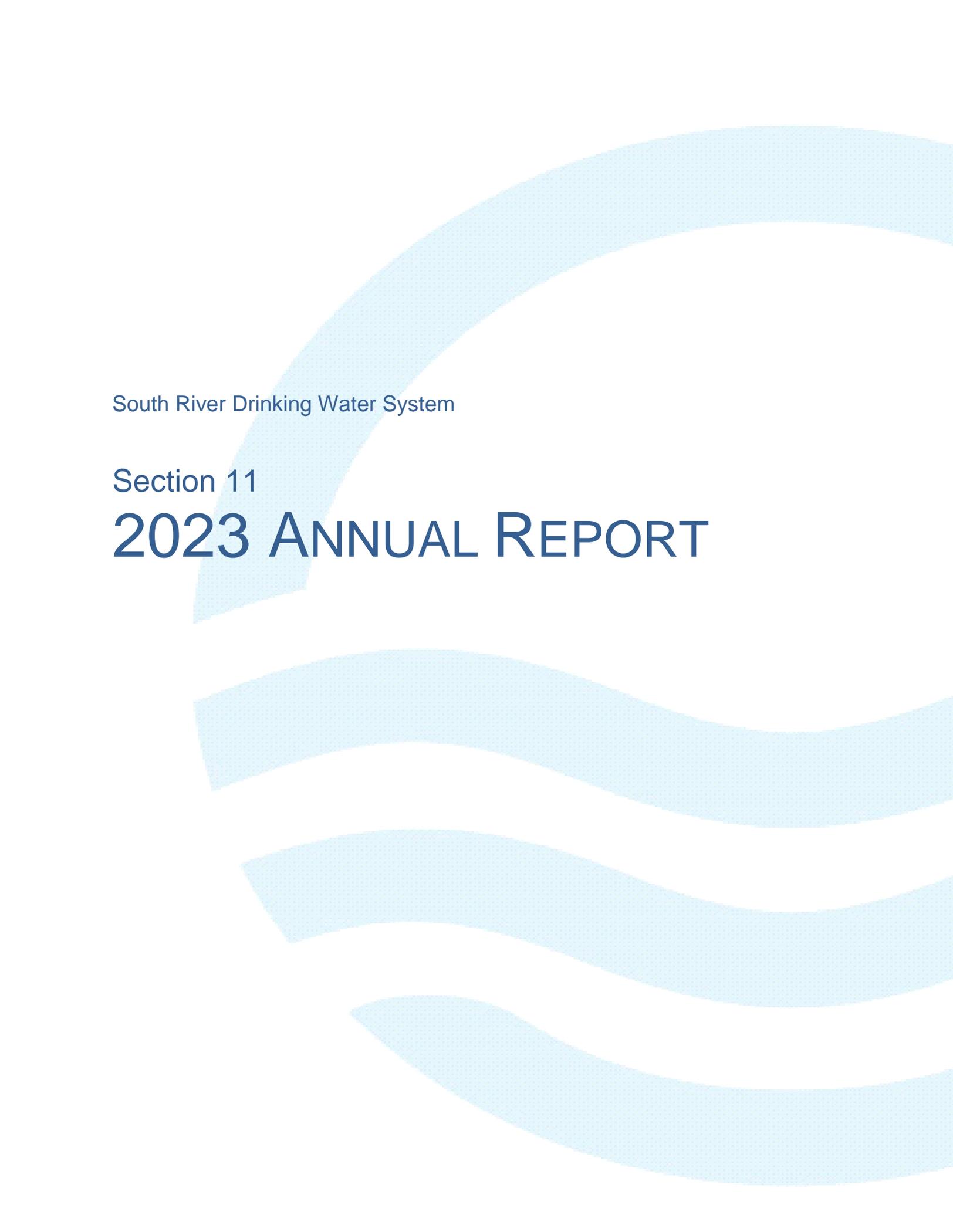
The report must list the requirements of the Act, its regulations, the system's Drinking Water Works Permit (DWWP), Municipal Drinking Water Licence (MDWL), Certificate of Approval (if applicable), and any Provincial Officer Order the system failed to meet during the reporting period. The report must 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 2023 Annual/Summary Report.



South River Drinking Water System

Section 11

# 2023 ANNUAL REPORT



## Section 11 - ANNUAL REPORT

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### 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, 2023 to December 31, 2023

**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,

<https://southriver.ca/en/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 2023 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<sup>3</sup>/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<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 multi-media that includes Garnet Sand, Silica Sand, Greensand Plus and Granular Activated Carbon (GAC) both with surface areas of 4.49 square meters (m<sup>2</sup>). 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), one (1) large 11,500 L storage tank and one (1) 450 L day tank; three (3) alkalinity and pH adjustment (soda ash) metering pumps one (1) pre-pH adjustment with a capacity of 30 L/hour and one (1) post-pH adjustment with a capacity of 60 L/hour and one (1) standby with one (1) storage tanks; two (2) post disinfection (sodium hypochlorite) metering pumps, each rated at 30 L/hour and two storage tanks; one (1) pre-oxidizer (potassium permanganate (KMNO<sub>4</sub>)) metering pump with a capacity of 30 L/hour, one (1) filter backwash greensand regeneration KMNO<sub>4</sub> metering pump with a capacity of 120 L/hour and one (1) 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 PACI June 7, 2017. PACI 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. Treated water overflows from the clarifiers through two multimedia filters consisting of Garnet Sand, Silica Sand and GAC. Recently, Greensand Plus was incorporated to assist with iron and manganese removal. Filtered water is then injected with a 6% 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, 2018 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 required monthly; however, being collected weekly to get a more complete set of results.

### ***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<sub>4</sub>) – Iron and Manganese Control
- Magnafloc LT27AG Anionic Polymer – Sludge Waste System
- 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 2023.

Significant expenses incurred in the drinking water system include:

- Septic tank and waste tanks pumped out.
- Backwash tank sludge vacuumed out.
- Various temporary watermain and new watermain installations completed throughout the Village. Form 1 completed and received, with drawings.
- Waste tank pump out.
- Ordered laboratory benchtop pH meter.



- Concrete formwork was constructed and concrete was poured for hypochlorite containment and tanks.
- Purchased new Swan free chlorine residual analyzer for point of entry.
- Remotely operated vehicle (ROV) clearwell inspection.

## 5.0 Drinking Water System Highlights

- The Ministry of the Environment, Conservation and Parks (MECP) inspection held on November 30, 2023. The inspection included a physical assessment of the South River WTP and a document review. Three non-compliance items identified and addressed. The rating report is pending at the time of this report.
- SAI Global conducted an off-site external 12-month surveillance 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 17, 2023 to ensure implementation of the Operational Plan and procedures and conformance to the Drinking Water Quality Management Standard. There were no findings identified. Re-accreditation achieved on June 9, 2022.
- Monitoring microcystins in raw samples from June to October. No results in the raw were over the minimum detectable level. Zero suspected harmful algae bloom incidents occurred during this algae season.

## 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, twenty-three (23) adverse water quality incidents (AWQI) were reported to the Ministry of the Environment's Spills Action Centre (MOE SAC) in 2023.

**AWQI #161192:** January 18, 2023 - Category 2 watermain break at Ottawa/Lincoln Avenue caused a loss of pressure to three homes and arena. The main was isolated prior to repairing. The local Health Unit was notified and a boil water advisory (BWA) was issued for the affected area. After the repair was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (2.5 mg/L). Two sets of three bacteriological samples were collected (upstream, downstream and at the site of the break) on January 19th and 20th, 2023. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on January 23th at approximately 10:58 AM. Resolution submitted on January 23, 2023. Operator in Charge (OIC) - Seppe Maes.

**AWQI #161242:** Point of Entry (POE) sample collected on January 23, 2023: Sodium result = 64.3 mg/L. Corrective Action: Resample and update Sodium Advisory. Resample collected on January 30, 2023: resample result = 62.4 mg/L. Spills Action Center (SAC), Owner and HU notified on January 27, 2023. Notice to be updated at regular locations to warn residents on a sodium restricted diet. Resolution completed February 3, 2023 and emailed to SAC, Owner and HU.

**AWQI #161421:** March 3, 2023 - Category 2 watermain break at Dufferin-Riverside caused a loss of pressure to 33 homes. The main was isolated prior to repairing. The local Health Unit



was notified and a BWA was issued for the affected area. After the repair was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (1.5 mg/L). Two sets of three bacteriological samples were collected (upstream, downstream and at the site of the break) on March 3 and 4, 2023. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on March 7. Resolution submitted on March 7, 2023. OIC - Seppe Maes.

**AWQI #161887:** May 4, 2023 - Category 2 watermain repair at Tebby Court and Alfred St. caused a loss of pressure to 21 homes. The main was isolated prior to repairing. The local Health Unit was notified and a BWA was issued for the affected area. After the repair was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (2.00 mg/L). Two sets of three bacteriological samples were collected (upstream, downstream and at the site of the break) on May 4 and 5, 2023. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on May 8. Resolution submitted on May 8, 2023. OIC: Seppe Maes.

**AWQI #162006:** May 25, 2023 - Category 2 watermain modification at Ottawa and Dufferin caused a loss of pressure to 32 homes. Loss of pressure for new cut and cap/valve install. The local Health Unit was notified and a BWA was issued for the affected area. After the works were complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (1.90 mg/L and 0.52 mg/L). Two sets of three bacteriological samples were collected (upstream, downstream and at the site of the break) on May 25 and 26, 2023. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on May 29. Resolution submitted on May 29, 2023. OIC - Seppe Maes.

**AWQI #162107:** June 5, 2023 - Category 2 watermain break at Eagle Lake Road and Poplar Street caused a loss of pressure to 60 homes. The local Health Unit was notified and a BWA was issued for the affected area. After the repair was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (2.2 mg/L). Two sets of three bacteriological samples were collected (upstream, downstream and at the site of the break) on June 5 and 6, 2023. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on June 9, 2023. Resolution submitted on June 9, 2023. OIC - Seppe Maes.

**AWQI #162118:** June 6, 2023 - Category 2 watermain modification (valve and hydrant replacement) at Main Street and Broadway Avenue caused a loss of pressure to 18 homes. The local Health Unit was notified and a BWA was issued for the affected area. After the repair was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (1.9 mg/L). Two sets of three bacteriological samples were collected (upstream, downstream and at the site of the break) on June 7 and 8, 2023. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on June 12, 2023. Resolution submitted on June 12, 2023. OIC - Seppe Maes.

**AWQI #162141:** June 8, 2023 - Category 2 watermain modification (valve replacement) at Maple and Broadway Avenue caused a loss of pressure to 21 homes. The local Health Unit was notified and a BWA was issued for the affected area. After the modification was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (1.54 mg/L). Two sets of three bacteriological samples were collected (upstream, downstream and at the site of the break) on June 8 and 9, 2023. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on June 12, 2023. Resolution submitted on June 12, 2023. OIC - Seppe Maes.



**AWQI #162271:** June 22, 2023 - Category 2 watermain modification (valve install) at Broadway/Riverside and Broadway/Maple caused a loss of pressure to 58 homes. The local Health Unit was notified and a BWA was issued for the affected area. After the modification was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (1.54 mg/L). Two sets of three bacteriological samples were collected (upstream, downstream and at the site of the break) on June 22 and 26, 2023. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on June 28, 2023. Resolution submitted on June 29, 2023. OIC - Seppe Maes.

**AWQI #162329:** June 28, 2023 - Category 2 watermain modification (new watermain tie-in with no Certified Operator present) at Alfred. The local Health Unit was notified and a BWA was issued for the affected area. After the modification was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (1.61 mg/L). Two sets of four bacteriological samples were collected (upstream, downstream and at the site of the break) on June 29 and July 1, 2023. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on July 4, 2023. Resolution submitted on July 5, 2023. OIC - Seppe Maes.

**AWQI #162344:** June 29, 2023 - Category 2 watermain modification (new watermain tie-in with no Certified Operator present) at Tebby. The local Health Unit was notified and a BWA was issued for the affected area. After the modification was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (1.60 mg/L). Two sets of four bacteriological samples were collected (upstream, downstream and at the site of the break) on June 29 and July 1, 2023. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on July 4, 2023. Resolution submitted on July 5, 2023. OIC - Seppe Maes.

**AWQI #162365:** June 29, 2023 - Category 2 watermain modification (valve replacement) on Fitz caused a loss of pressure to 13 homes. The local Health Unit was notified and a BWA was issued for the affected area. After the modification was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (2.18 mg/L). Two sets of three bacteriological samples were collected (upstream, downstream and at the site of the works) on June 29 and July 1, 2023. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on July 4, 2023. Resolution submitted on July 5, 2023. OIC - Seppe Maes.

**AWQI #162412:** July 5, 2023 - Category 2 watermain modification loss of pressure (LOP) on Johnston, Kilpper, Grant and Poplar caused a loss of pressure to 60 homes. The local Health Unit was notified and a BWA was issued for the affected area. After the modification was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (1.70 mg/L). Two sets of three bacteriological samples were collected (upstream, downstream and at the site of the works) on July 6 and 7, 2023. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on July 10, 2023. Resolution submitted on July 10, 2023. OIC - Seppe Maes.

**AWQI #162505:** July 10, 2023 - Category 2 watermain modification (LOP – Scheduled Maintenance) on Alfred and Eagle Lake Rd. caused a loss of pressure to 25 homes. The local Health Unit was notified and a BWA was issued for the affected area. After the modification was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (1.50 mg/L). Two sets of three bacteriological samples were collected (upstream, downstream and at the site of the works) on July 12 and 13, 2023. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on July 14, 2023. Resolution submitted on July 17, 2023. OIC - Seppe Maes.



**AWQI #162530:** July 12, 2023 - Category 2 watermain modification (Route Maintenance) on Broadway and Riverside Ave. caused a loss of pressure to 41 homes. The local Health Unit was notified and a BWA was issued for the affected area. After the modification was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (1.74 mg/L). Two sets of three bacteriological samples were collected (upstream, downstream and at the site of the works) on July 13 and 14, 2023. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on July 17, 2023. Resolution submitted on July 17, 2023. OIC - Seppe Maes.

**AWQI #162628:** July 18, 2023 - Category 2 watermain modification (Routine Maintenance) on Ottawa and Broadway Ave. caused a loss of pressure to 36 homes. The local Health Unit was notified and a BWA was issued for the affected area. After the modification was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (1.27 mg/L). Two sets of three bacteriological samples were collected (upstream, downstream and at the site of the works) on July 19 and 20, 2023. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on July 21, 2023. Resolution submitted on July 25, 2023. OIC - Seppe Maes.

**AWQI #162905:** August 3, 2023 - Category 2 watermain modification (LOP) on Broadway Ave.-Riverside Ave. caused a loss of pressure to 20 homes. The local Health Unit was notified and a BWA was issued for the affected area. After the modification was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (2.20 mg/L). Two sets of five bacteriological samples were collected (upstream, downstream and at the site of the works) on August 4 and 5, 2023. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on August 8, 2023. Resolution submitted on August 8, 2023. OIC - Seppe Maes.

**AWQI #162963:** August 9, 2023 - Category 2 watermain modification (LOP) at Broadway Ave.-Riverside Ave. caused a loss of pressure to 21 homes. The local Health Unit was notified and a BWA was issued for the affected area. After the modification was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (2.20 mg/L). Two sets of three bacteriological samples were collected (upstream, downstream and at the site of the works) on August 10 and 11, 2023. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on August 14, 2023. Resolution submitted on August 14, 2023. OIC - Seppe Maes.

**AWQI #163364:** September 11, 2023 - Category 2 watermain modification (LOP) at Ottawa Ave - HWY 124 caused a loss of pressure to 5 homes and 2 businesses. The local Health Unit was notified and a BWA was issued for the affected area. After the modification was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (1.60 mg/L). Two sets of three bacteriological samples were collected (upstream, downstream and at the site of the works) on September 11 and 12, 2023. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on September 14, 2023. Resolution submitted on September 14, 2023. OIC - Seppe Maes.

**AWQI #163501:** September 18, 2023 - Category 2 watermain modification (LOP) at HWY 124 - Ottawa Ave. caused a loss of pressure to 25 homes and 2 businesses. The local Health Unit was notified and a BWA was issued for the affected area. After the modification was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (2.07 mg/L). Two sets of three bacteriological samples were collected (upstream, downstream and at the site of the works) on September 19 and 20, 2023. Sample results



indicated no total coliforms or *E.coli*. BWA was lifted on September 22, 2023. Resolution submitted on September 22, 2023. OIC - Seppe Maes.

**AWQI #163523:** September 20, 2023 - Category 2 watermain modification (LOP) at Howard-Ena Intersection/Riverside-Ethelbert Intersection caused a loss of pressure to 0 homes. Reduced pressure in complete distribution system. The local Health Unit was notified. After the modification was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (2.15 mg/L). Two sets of three bacteriological samples were collected (upstream, downstream and at the site of the works) on September 21 and 22, 2023. Sample results indicated no total coliforms or *E.coli*. No residents impacted so no BWA imposed by the Village of South River. Resolution submitted on September 25, 2023. OIC - Seppe Maes.

**AWQI #163596:** September 25, 2023 - Category 2 watermain modification (LOP) at Howard and Ena Intersection caused a loss of pressure to 35 homes and 3 businesses. The local Health Unit was notified and a BWA was issued for the affected area. After the modification was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (1.91 mg/L). Two sets of three bacteriological samples were collected (upstream, downstream and at the site of the works) on September 26 and 27, 2023. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on September 28, 2023. Resolution submitted on October 2, 2023. OIC - Seppe Maes.

**AWQI #163859:** October 23, 2023 - Category 2 watermain modification (LOP) at Marie St. - Lincoln Ave. caused a loss of pressure to 3 homes. The local Health Unit was notified and a BWA was issued for the affected area. After the modification was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (2.20 mg/L). Two sets of three bacteriological samples were collected (upstream, downstream and at the site of the works) on October 24 and 25, 2023. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on October 27, 2023. Resolution submitted on October 27, 2023. OIC - Seppe Maes.

## 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)	53	0 to 40	6 to 440	0	N/A
Treated	53	0 to 0	0 to 0	53	0 to 1
Distribution	307	0 to 0	0 to 0	53	0 to 4

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.

**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	0.009 to 0.86	NTU
Filter #2 Turbidity	8760	0.01 to 0.58	NTU
Free Chlorine	8760	1.29 to 4.99	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 1.25 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	0.06 to 3.3	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 23	0.07	< 0.003	mg/L	No
April 17	0.175	<0.003	mg/L	No
July 11	0.120	<0.003	mg/L	No
October 16	0.056	<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. 23	51.0	ug/L	Q1 = 57.75	No
Apr. 17	34.0		Q2 = 56.50	
July 11	70.0		Q3 = 58.00	
Oct. 16	50.0		Q4 = 51.25	

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. 23	23.3	ug/L	Q1 = 31.30	No
Apr. 17	28.9		Q2 = 30.60	
July 11	38.2		Q3 = 29.85	
Oct. 16	24.0		Q4 = 28.60	

Maximum Allowable Concentration (MAC) for Total Haloacetic Acids= 80 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 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 11<sup>th</sup> and October 3<sup>rd</sup> of 2023. 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 11	1	Hydrant #19	0.00016	7.22	20.4
April 11	1	Hydrant at 148 Ottawa	0.00029	7.56	22.1
Oct. 3	1	Hydrant @ Public School	0.00020	7.70	31.3
Oct. 3	1	Connolly Bleeder	<0.00002	7.30	29.3

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

Parameter	Result Value	Unit of Measure	Standard	Exceedance
Antimony	<MDL 0.6	ug/L	6	No
Arsenic	<MDL 0.2	ug/L	10	No
Barium	17.2	ug/L	1000	No
Boron	7.0	ug/L	5000	No
Cadmium	<MDL 0.003	ug/L	5	No
Chromium	0.73	ug/L	50	No
Mercury	<MDL 0.01	ug/L	1	No
Selenium	<MDL 0.04	ug/L	50	No
Uranium	0.005	ug/L	20	No

**Note:** Sample required every 12 months (sample date = January 23, 2023)



**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	2023/01/23	<MDL 0.02	5.0	No	No
Atrazine + N-dealkylated metabolites (ug/L) -	2023/01/23	<MDL 0.01	5.0	No	No
Azinphos-methyl (ug/L) - TW	2023/01/23	<MDL 0.05	20.0	No	No
Benzene (ug/L) - TW	2023/01/23	<MDL 0.32	1.0	No	No
Benzo(a)pyrene (ug/L) - TW	2023/01/23	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2023/01/23	<MDL 0.33	5.0	No	No
Carbaryl (ug/L) - TW	2023/01/23	<MDL 0.05	90.0	No	No
Carbofuran (ug/L) - TW	2023/01/23	<MDL 0.01	90.0	No	No
Carbon Tetrachloride (ug/L) - TW	2023/01/23	<MDL 0.17	2.0	No	No
Chlorpyrifos (ug/L) - TW	2023/01/23	<MDL 0.02	90.0	No	No
Diazinon (ug/L) - TW	2023/01/23	<MDL 0.02	20.0	No	No
Dicamba (ug/L) - TW	2023/01/23	<MDL 0.2	120.0	No	No
1,2-Dichlorobenzene (ug/L) - TW	2023/01/23	<MDL 0.41	200.0	No	No
1,4-Dichlorobenzene (ug/L) - TW	2023/01/23	<MDL 0.36	5.0	No	No
1,2-Dichloroethane (ug/L) - TW	2023/01/23	<MDL 0.35	5.0	No	No
1,1-Dichloroethylene (ug/L) - TW	2023/01/23	<MDL 0.33	14.0	No	No
Dichloromethane (Methylene Chloride) (ug/L)	2023/01/23	<MDL 0.35	50.0	No	No
2,4-Dichlorophenol (ug/L) - TW	2023/01/23	<MDL 0.15	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L)	2023/01/23	<MDL 0.19	100.0	No	No
Diclofop-methyl (ug/L) - TW	2023/01/23	<MDL 0.4	9.0	No	No
Dimethoate (ug/L) - TW	2023/01/23	<MDL 0.06	20.0	No	No
Diquat (ug/L) - TW	2023/01/23	<MDL 1.0	70.0	No	No
Diuron (ug/L) - TW	2023/01/23	<MDL 0.03	150.0	No	No
Glyphosate (ug/L) - TW	2023/01/23	<MDL 1.0	280.0	No	No
Malathion (ug/L) - TW	2023/01/23	<MDL 0.02	190.0	No	No
Metolachlor (ug/L) - TW	2023/01/23	<MDL 0.01	50.0	No	No
Metribuzin (ug/L) - TW	2023/01/23	<MDL 0.02	80.0	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) -	2023/01/23	<MDL 0.3	80.0	No	No
Paraquat (ug/L) - TW	2023/01/23	<MDL 1.0	10.0	No	No
PCB (ug/L) - TW	2023/01/23	<MDL 0.04	3.0	No	No
Pentachlorophenol (ug/L) - TW	2023/01/23	<MDL 0.15	60.0	No	No
Phorate (ug/L) - TW	2023/01/23	<MDL 0.01	2.0	No	No
Picloram (ug/L) - TW	2023/01/23	<MDL 1.0	190.0	No	No
Prometryne (ug/L) - TW	2023/01/23	<MDL 0.03	1.0	No	No
Simazine (ug/L) - TW	2023/01/23	<MDL 0.01	10.0	No	No
Terbufos (ug/L) - TW	2023/01/23	<MDL 0.01	1.0	No	No
Tetrachloroethylene (ug/L) - TW	2023/01/23	<MDL 0.35	10.0	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2023/01/23	<MDL 0.2	100.0	No	No
Triallate (ug/L) - TW	2023/01/23	<MDL 0.01	230.0	No	No
Trichloroethylene (ug/L) - TW	2023/01/23	<MDL 0.44	5.0	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2023/01/23	<MDL 0.25	5.0	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (	2023/01/23	<MDL 0.12	100.0	No	No
Trifluralin (ug/L) - TW	2023/01/23	<MDL 0.02	45.0	No	No
Vinyl Chloride (ug/L) - TW	2023/01/23	<MDL 0.17	1.0	No	No

**Note:** Sample required every 12 months (sample date = January 23, 2023)

***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 23, 2023(Compliance)	1	64.3	mg/L	20	Yes (AWQI #161242)
January 30, 2023 (resample)	1	62.4			Yes (AWQI #161242)

**Note:** Sample required every 60 months. Next sampling scheduled for January 2028.

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 27, 2023 as required under Schedule 16 of O. Reg. 170/03 (AWQI# 161242).

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

Date of Sample	No. of Samples	Result Value	Unit of Measure	Standard	Exceedance
January 18, 2021	1	<0.06	mg/L	1.5	No

**Note:** Sample required every 60 months. Next sampling scheduled for January 2026.

**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. Started weekly sampling in late 2022 to get a more complete set of data and capture shifts in concentrations.

The South River Water Treatment Plant did not exceed this limit in 2023.

**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	7	97, 10, 42, 36, 25, 2, 3	mg/L	17.44	25
February	4	7, 9, 31, 41			
March	5	5, 8, 27, 36, 5			
April	4	23, 9, 2, 5			
May	5	5, 4, 8, 9, 14			
June	4	2, 5, 23, 11			
July	5	35, 5, 9, 87, 2			
August	4	12, 21, 18, 3			
September	4	8, 36, 11, 6			
October	5	21, 2, 49, 9, 3			
November	4	4, 3, 5, 4			
December	4	7, 3, 13, 79			



South River Drinking Water System

Schedule 22

# 2023 SUMMARY REPORT

## FOR MUNICIPALITIES



## Schedule 22 - SUMMARY REPORTS FOR MUNICIPALITIES

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### 1.0 Introduction

<b>Drinking-Water System Name:</b>	<b>SOUTH RIVER DRINKING WATER SYSTEM</b>
<b>Municipal Drinking Water Licence (MDWL) No.:</b>	200-101-4 (issued January 15, 2021)
<b>Drinking Water Work Permit (DWWP) No.:</b>	200-201-4 (issued January 15, 2021)
<b>Permit to Take Water (PTTW) No.:</b>	4340-BA6RUQ (issued March 14, 2019)
<b>Period being reported:</b>	January 1, 2023 to December 31, 2023

### 2.0 Requirements the System Failed to Meet

According to information kept on record by OCWA, the South River Drinking Water System has complied with all the requirements set out in the system’s MDWL, its DWWP, the Act and its Regulations. With the exceptions noted below.

The latest MECP inspection report dated November 30, 2023 identified three non-compliance items (two from previous year which have been addressed and discussed in last year’s annual report). The other is described below.

According to the information kept on record by OCWA; there was one non-compliance issue during 2023.

Also, it should be noted that, twenty-three (23) 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.

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. Required Actions: Subsequent to the watermains being completed the Form 1s were signed and kept on filed. The owner and operating authority shall ensure that all Form 1's are completed prior to completing or placing into service watermains. No further action required. Root Cause (RC): OCWA and the Village informed the contractor numerous times about the requirement to complete Form 1 prior to placing works into service. The contractor failed to complete the Form 1's as required in two instances. During the year of 2023, more email were sent to contractor requesting Form 1's prior to placing works into service. Corrective Action (CA): The contractor did provide the Form 1's after numerous reminders. Prior to any works in distribution in future, OCWA and the Village will continue to request Form 1's prior to placing works into service from the appropriate third party.

### 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 2023 reporting period, including total monthly volumes, average monthly volumes, maximum monthly volumes, and maximum flow rates.

#### Raw Water

**2023 - 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 <sup>3</sup> )	20035	11480	15860	14162	16198	19235	17206	18114	16334	14201	13184	13218	189227
Average Volume (m <sup>3</sup> /d)	646	410	512	472	523	641	555	584	544	458	439	426	518
Maximum Volume (m <sup>3</sup> /d)	920	566	1063	620	724	925	778	781	713	647	612	654	1063
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)	748	531	791	582	597	873	610	681	687	578	514	509	873
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 1063 m<sup>3</sup> in March 2023. 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 873 L/min in June 2023.

#### Treated Water

**2023 - Monthly Summary of Treated Water Supplied to the Distribution System**

Regulated by Municipal Drinking Water Licence (MDWL) #200-101 - Issue 4, issued Jan. 15, 2021

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year to Date
Total Volume (m <sup>3</sup> )	14335	8266.9	11461	10556	12061	14317	12858	13531	11945	10894	9926	9498	139650
Average Volume (m <sup>3</sup> /d)	462	295	370	352	389	477	415	436	398	351	331	306	382
Maximum Volume (m <sup>3</sup> /d)	646	351	950	417	497	787	537	565	603	468	358	340	950
MDWL - Rated Capacity (m <sup>3</sup> /day)	1680	1680	1680	1680	1680	1680	1680	1680	1680	1680	1680	1680	1680



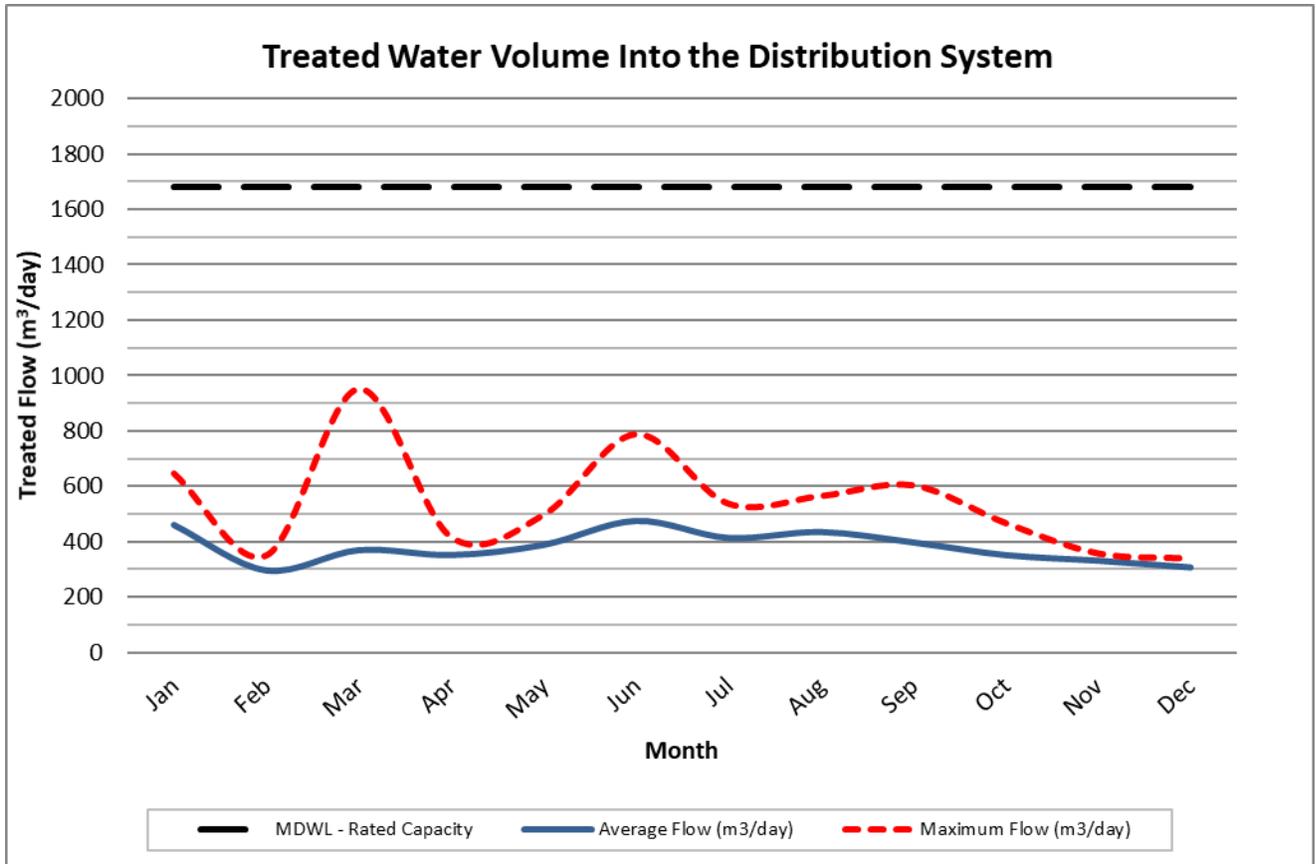
Schedule C, Section 1.1 of MDWL No. 200-101 states that the maximum daily volume of treated water that flows from the treatment subsystem to the distribution system shall not exceed a maximum flow rate of 1680 m<sup>3</sup> on any calendar day. The South River DWS complied with this limit having a recorded maximum volume of 950 m<sup>3</sup>/day in March 2023, which is 56.5% 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***

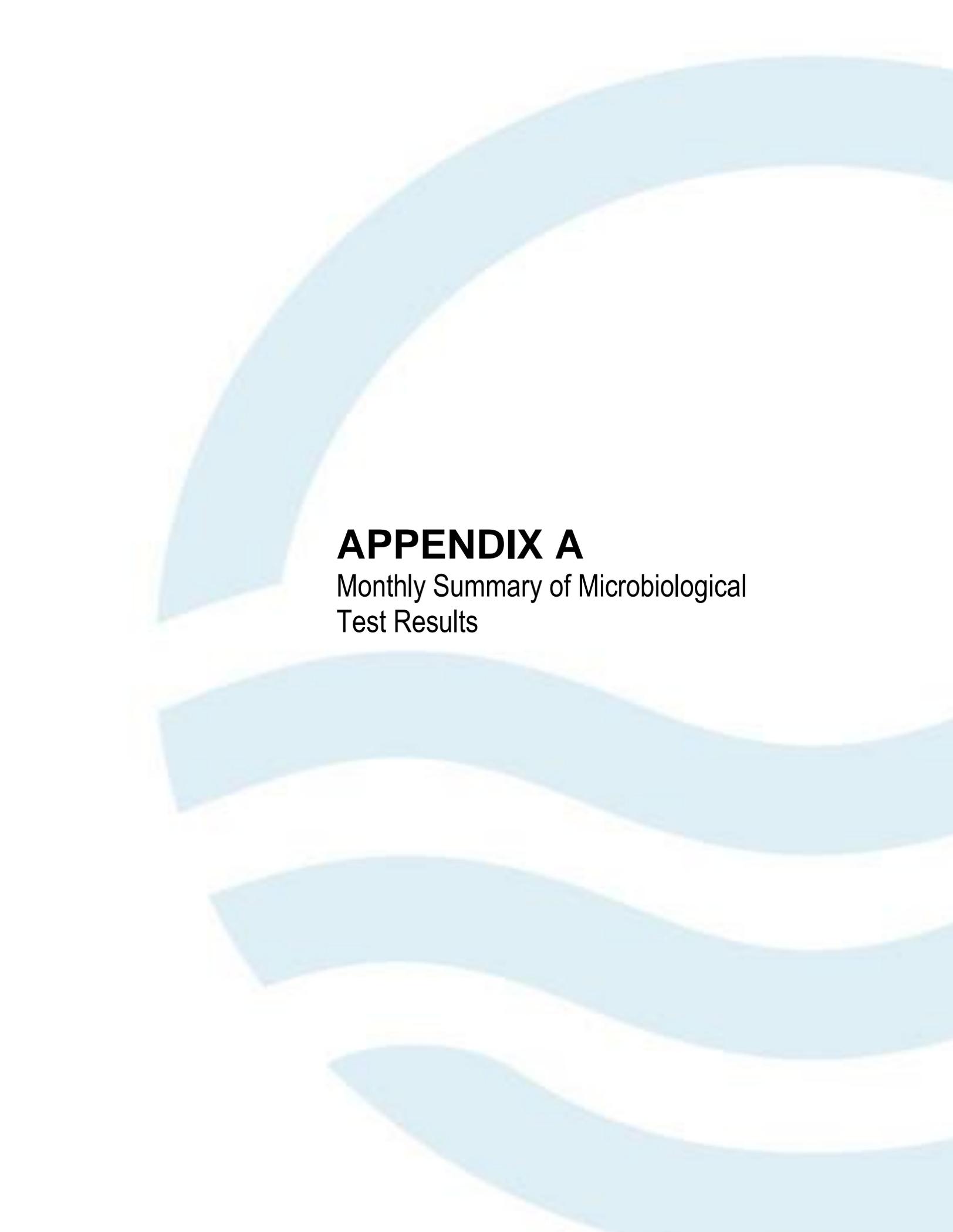
Rated Capacity of the Plant (MDWL)	1680 m <sup>3</sup> /day	
Average Daily Flow for 2023	382 m <sup>3</sup> /day	22.7% of the rated capacity
Maximum Daily Flow for 2023	950 m <sup>3</sup> /day	56.5% of the rated capacity
Total Treated Water Produced in 2023	139,650 m <sup>3</sup>	

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 382 m<sup>3</sup> per day, which is 22.7% 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 2023, according to information kept on record by OCWA; the South River DWS met the terms and conditions outlined in its site specific drinking water works permit and municipal drinking water licence having twenty-three adverse water quality incidents and one incident 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

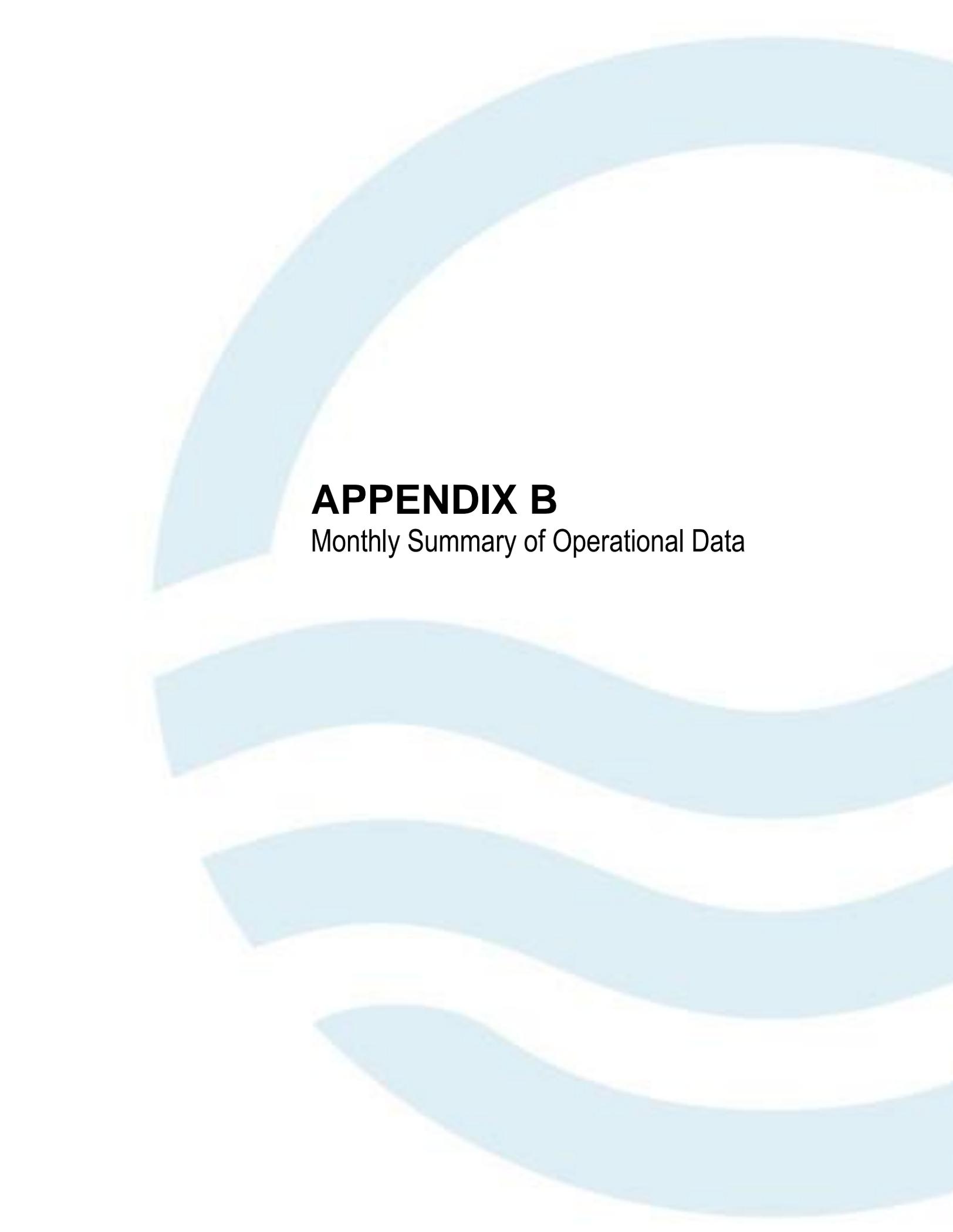
**South River Drinking Water System  
Monthly Summary of Microbiological Test Results**

Report extracted 01/16/2024 12:49

From: 01/01/2023 to 31/12/2023

**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

	01/2023	02/2023	03/2023	04/2023	05/2023	06/2023	07/2023	08/2023	09/2023	10/2023	11/2023	12/2023	Total	Avg	Max	Min
<b>Distribution Water / E. Coli - cfu/100mL</b>																
Count Lab	21	12	18	20	27	52	48	28	36	21	12	12	307			
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
<b>Distribution Water / HPC - cfu/mL</b>																
Count Lab	5	4	4	4	5	4	6	4	4	5	4	4	53			
Max Lab	0	1	0	1	0	1	1	2	4	0	1	0			4	
Mean Lab	0	0.25	0	0.5	0	0.5	0.167	0.5	1.25	0	0.25	0		0.264		
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0				0
<b>Distribution Water / Total Coliform: TC - cfu/100mL</b>																
Count Lab	21	12	18	20	27	52	48	28	36	21	12	12	307			
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
<b>Raw Water / E. Coli: EC - cfu/100mL</b>																
Count Lab	5	4	4	4	5	4	6	4	4	5	4	4	53			
Max Lab	<	20	20	20	8	20	20	20	20	40	20	20			40	
Mean Lab	<	8.6	6.75	5.5	3.75	14	10.25	8.333	5.25	5	17.6	8.5	5.75		8.566	
Min Lab	<	0	0	0	0	0	0	0	0	1	0	0				0
<b>Raw Water / Total Coliform: TC - cfu/100mL</b>																
Count Lab	5	4	4	4	5	4	6	4	4	5	4	4	53			
Max Lab	320	200	80	440	340	340	220	40	120	440	320	260			440	
Mean Lab	145.6	116.5	62.25	164.5	192.6	209.25	82	18	54.75	232.6	132	113.25		128.83		
Min Lab	63	56	51	58	87	137	22	6	21	42	47	50				6
<b>Treated Water / E. Coli: EC - cfu/100mL</b>																
Count Lab	5	4	4	4	5	4	6	4	4	5	4	4	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
<b>Treated Water / HPC - cfu/mL</b>																
Count Lab	5	4	4	4	5	4	6	4	4	5	4	4	53			
Max Lab	0	1	1	0	1	0	0	0	0	0	1	1			1	
Mean Lab	0	0.25	0.25	0	0.2	0	0	0	0	0	0.25	0.25		0.094		
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0				0
<b>Treated Water / Total Coliform: TC - cfu/100mL</b>																
Count Lab	5	4	4	4	5	4	6	4	4	5	4	4	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**

Report extracted 01/16/2024 13:08

From: 01/01/2023 to 31/12/2023

**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

	01/2023	02/2023	03/2023	04/2023	05/2023	06/2023	07/2023	08/2023	09/2023	10/2023	11/2023	12/2023	Total	Avg	Max	Min
<b>Distribution Water / Cl Residual: Free DW1 - mg/L</b>																
Count IH	9	8	9	8	10	8	9	9	8	9	9	8	104			
Total IH	19.41	18.84	21.89	17.76	21.61	18.92	18.68	14.82	15.09	19.05	21.77	17.55	225.39			
Max IH	2.4	3.2	2.9	2.7	2.4	3	2.6	2.4	2.4	2.7	2.7	2.5			3.2	
Mean IH	2.157	2.355	2.432	2.22	2.161	2.365	2.076	1.647	1.886	2.117	2.419	2.194		2.167		
Min IH	1.63	1.83	1.95	1.89	1.66	1.78	1.45	0.38	1.65	1.04	2.17	1.75				0.38
<b>Distribution Water / Cl Residual: Free DW2 - mg/L</b>																
Count IH	9	8	9	8	10	8	9	9	8	9	9	8	104			
Total IH	18.79	19.01	21.14	17.92	19.1	17.26	16.07	14.07	13.31	10.5	10.95	9.53	187.65			
Max IH	2.5	3.1	2.9	2.6	2.5	2.7	2.12	2.02	1.85	2.16	1.54	1.87			3.1	
Mean IH	2.088	2.376	2.349	2.24	1.91	2.157	1.786	1.563	1.664	1.167	1.217	1.191		1.804		
Min IH	1.84	1.75	1.66	1.97	1.19	1.76	1.47	0.32	1.38	0.84	0.85	0.85				0.32
<b>Distribution Water / Cl Residual: Free DW3 - mg/L</b>																
Count IH	9	8	9	8	10	8	9	9	8	9	9	8	104			
Total IH	14.64	17.69	21.13	16.33	16.33	14.99	16.45	12.15	14.74	16.51	13.07	10.91	184.94			
Max IH	2.3	3.3	3.2	2.7	2.6	2.2	2.6	2.4	3	2.5	2.9	2.3			3.3	
Mean IH	1.627	2.211	2.348	2.041	1.633	1.874	1.828	1.35	1.843	1.834	1.452	1.364		1.778		
Min IH	0.71	1.51	1.43	1.51	0.86	1.59	1.42	0.06	1.13	0.99	0.98	0.84				0.06
<b>Distribution Water / Cl Residual: Free DW4 - mg/L</b>																
Count IH	5	4	4	4	5	4	5	4	4	5	4	4	52			
Total IH	5.11	8.9	10.7	7.86	5.48	9.22	9.73	9.59	9.13	7.78	8.68	7.77	99.95			
Max IH	1.64	3.3	3.2	2.2	1.75	2.7	2.2	3.3	2.6	2.3	2.6	2.3			3.3	
Mean IH	1.022	2.225	2.675	1.965	1.096	2.305	1.946	2.398	2.282	1.556	2.17	1.943		1.922		
Min IH	0.33	1.17	2.3	1.38	0.84	1.52	1.59	1.59	1.83	0.91	1.94	1.64				0.33
<b>Filter 1 / Turbidity - NTU</b>																
Max OL	0.191	0.236	0.864	0.244	0.073	0.1	0.1	0.136	0.182	0.152	0.11	0.062			0.864	
Mean OL	0.019	0.022	0.028	0.021	0.019	0.019	0.019	0.02	0.021	0.021	0.021	0.018		0.02		
Min OL	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.009	0.016	0.012	0.01				0.009
<b>Filter 2 / Turbidity - NTU</b>																
Max OL	0.42	0.29	0.58	0.464	0.28	0.24	0.26	0.51	0.48	0.187	0.252	0.092			0.58	
Mean OL	0.02	0.021	0.026	0.023	0.022	0.021	0.022	0.023	0.022	0.024	0.024	0.025		0.023		
Min OL	0.01	0.01	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.021	0.019	0.021				0.01
<b>Treated Water / Cl Residual: Free (Min = 1.25 mg/L) - mg/L</b>																
Max OL	3.67	2.96	4.99	3.14	4.94	3.45	3.21	3.35	3.11	3.153	3.115	2.984			4.99	
Mean OL	2.328	2.234	2.452	2.347	2.34	2.58	2.549	2.506	2.482	2.552	2.532	2.325		2.436		
Min OL	1.29	1.42	1.65	1.87	1.33	1.87	1.95	1.43	1.72	2.136	2.07	1.751				1.29