Ministry of the Environment, Conservation and Parks
Drinking Water and Environmental Compliance Division

Central Region

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February 23, 2022

Jessica Gunby, Chief Administrative Officer
The Township of Ramara
2297 Highway 12, PO Box 130
Brechin, ON, L0K 1B0
(email: jgunby@ramara.ca)

Dear Ms. Gunby

RE: Communal Drinking Water Inspection Report # 1-31425082
South Ramara Drinking Water System
Date of MECP Inspection: February 9, 2022

Please find enclosed the Ministry of the Environment, Conservation and Parks Inspection Report for the South Ramara Drinking Water System (Water Works # 220010681). The physical inspection process took place on February 9, 2022.

The primary focus of this inspection was to confirm compliance with Ministry of the Environment, Conservation and Parks legislation and control documents, as well as conformance with Ministry drinking water related policies for the inspection period. The Ministry is implementing a rigorous and comprehensive approach in the inspection of water systems that focuses on the source, treatment, and distribution components as well as water system management practices.

Section 19 of the Safe Drinking Water Act (Standard of Care) creates a number of obligations for individuals who exercise decision-making authority over municipal drinking water systems. Please be aware that the Ministry has encouraged such individuals, particularly municipal councillors, to take steps to be better informed about the drinking water systems over which they have decision-making authority. These steps could include asking for a copy of this inspection report and a review of its findings. Further information about Section 19 can be found in "Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils" found under "Resources" on the Drinking Water Ontario website at www.ontario.ca/drinkingwater.

In order to measure individual inspection results, the Ministry has established an inspection compliance risk framework based on the principles of the Inspection, Investigation & Enforcement (II&E) Secretariat and advice of internal and risk experts.

The Inspection Summary Rating Record (IRR) provides the Ministry, the system owner and the associated Public Health Units with a summarized quantitative measure of the drinking water system's annual inspection and regulated water quality testing performance. IRR ratings are published (for the previous inspection year) in the Ministry's Chief Drinking Water Inspector's Annual Report.

Please note that due to a change in IT systems, the Inspection Rating Report (IRR) cannot be generated at the same time as the inspection report. The IRR will be sent separately and prior to any public release (typically within 1-2 month of the completion of the inspection).

If you have any questions or concerns regarding the rating, please contact Sheri Broeckel, Drinking Water Program Supervisor, at 705-716-3712.

If you have any questions or concerns regarding this inspection report, please contact the undersigned.

Respectfully,

Mark Kowalyk
Drinking Water Inspector – Provincial Officer # 1707
Barrie District Office
Drinking Water and Environmental Compliance Division
Ministry of the Environment, Conservation and Parks

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Barrie District Office File, MECP

SOUTH RAMARA DRINKING WATER SYSTEM
3001 SUNTRAC DR, RAMARA, ON, L0K 1B0

Inspection Report

System Number:	220010681
Inspection Start Date:	02/09/2022
Inspection End Date:	02/23/2022
Inspected By:	Mark Kowalyk
Badge #:	1707

(signature)

NON-COMPLIANCE/NON-CONFORMANCE ITEMS

This should not be construed as a confirmation of full compliance with all potential applicable legal requirement and BMPs. These inspection findings are limited to the components and/or activities that were assessed, and the legislative framework(s) that were applied. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

If you have any questions related to this inspection, please contact the signed Provincial Officer.

INSPECTION DETAILS

This section includes all questions that were assessed during the inspection.

Ministry Program: Regulated Activity: DRINKING WATER : DW Municipal Residential

Question ID	MRDW1001000	
Question	**Question Type**	**Legislative Requirement**
What was the scope of this inspection?	Information	Not Applicable

Observation

The primary focus of this inspection is to confirm compliance with Ministry of the Environment, Conservation and Parks (MECP) legislation as well as evaluating conformance with ministry drinking water policies and guidelines during the inspection period. The ministry utilizes a comprehensive, multi-barrier approach in the inspection of water systems that focuses on the source, treatment, and distribution components as well as management practices.

This drinking water system is subject to the legislative requirements of the Safe Drinking Water Act, 2002 (SDWA) and regulations made therein, including Ontario Regulation 170/03, Drinking Water Systems" (O.Reg. 170/03). This inspection has been conducted pursuant to Section 81 of the SDWA. This inspection report does not suggest that all applicable legislation and regulations were evaluated. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements. The South Ramara Drinking Water System is owned by the Corporation of the Township of Ramara and has 104 service connections between the Heritage Farm and Mara Shores Estates distribution systems. These lots are located in Part Lot 16 Concession B and Lot 15, Concession C. Since September 1, 2020, the Ontario Clean Water Agency (OCWA) has been the operating authority for the facility, with the Township having had responsibility for the time previous to this date. The South Ramara Drinking Water System is a Large Municipal Residential drinking water system as defined by Ontario Regulation 170/03, The South Ramara Drinking Water System has the drinking water system number 220010681. There are no known designated facilities serviced by the South Ramara Drinking Water System.

The South Ramara Drinking Water System draws water from Lake Simcoe. Treatment consists of chemically assisted filtration and chlorination. Two low lift pumps send water to the treatment plant. Raw water is injected with carbon dioxide for pH adjustment, sodium hypochlorite and poly aluminum chloride. Filtration is achieved in two package treatment units, each including a flocculation tank, settling tank and a mixed media filter. Water is then injected with sodium hypochlorite and contact time is achieved in two clearwells. Two highlift pumps discharge treated water to the distribution system. There are three sample stations, one in a former pumphouse, and 7 hydrants installed which are used for flushing and maintenance purposes.

This inspection was conducted pursuant to section 81 of the Safe Drinking Water Act in order to assess compliance with the requirements of Ontario Regulation 170/03. The drinking water inspection included: physical inspection of the treatment equipment and facility; interview with Ontario Clean Water Agency (OCWA) staff; and a review of relevant documents and data from the period of July 14, 2020 to February 9, 2022 (hereafter referred to as the "inspection review period").

The previous inspection of the South Ramara Drinking Water System was conducted on July 14, 2020.

Question ID	MRDW1000000		
Question		**Question Type**	**Legislative Requirement**
Does this drinking water system provide primary disinfection?		Information	Not Applicable
Observation			
This Drinking Water System provides for both primary and secondary disinfection and distribution of water.			

Question ID	MRDW1011000		
Question		**Question Type**	**Legislative Requirement**
Does the owner have a harmful algal bloom monitoring plan in place?		BMP	Not Applicable
Observation			
The owner had a harmful algal bloom monitoring plan in place. The Ontario Clean Water Agency (OCWA) has implemented a formalized Standard Operating Procedure (SOP) in order to respond to identified blue-green algae blooms.			

Question ID	MRDW1014000		
Question		**Question Type**	**Legislative Requirement**
Is there sufficient monitoring of flow as required by the MDWL or DWWP issued under Part V of the SDWA?		Legislative	SDWA | 31 | (1)
Observation			
There was sufficient monitoring of flow as required by the Municipal Drinking Water Licence or Drinking Water Works Permit issued under Part V of the SDWA. Condition 2.1 of Schedule C of Municipal Drinking Water Licence 147-103 Issue Number 4 requires that for each treatment subsystem, continuous flow measurement and recording shall be undertaken for the flow rate and daily volume of treated water that flows from the treatment subsystem to the distribution system, and the flow rate and daily volume of water that flows into the treatment subsystem. There are three magnetic flow meters installed at the South Ramara Water Treatment Plant, one that measures the raw water entering the South Ramara Water Treatment Plant from Lake Simcoe, one that measures the combined filter effluent and one that measures the water entering the distribution system after the high lift pumps. Each of the flow meters provides a 4-20 mA signal. Raw, filtered and treated water flows are continuously recorded on the SCADA system. Prior to September 1, 2020, when the Ontario Clean Water Agency (OCWA) became the operating authority for the South Ramara Drinking Water System, daily log printouts include the 24 hour flows, flows since midnight, percentage of the allowable raw water taken and min, max and average flows recorded by each of the three flow meters. Between September 2020 to July 21, 2021, after OCWA became the operating authority, a physical log book was used/kept for any operational notes/changes. After July 21, 2021 an electronic log book has been used to capture operational notes/changes.			

Question ID	MRDW1016000		
Question		**Question Type**	**Legislative Requirement**
Is the owner in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the MDWL issued under Part V of the SDWA?		Legislative	SDWA | 31 | (1)
Observation			
The owner was in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the Municipal Drinking Water Licence issued under Part V of the SDWA. Table 1 of Schedule C of Municipal Drinking Water Licence 147-103 Issue Number 4 states that the rated capacity for South Ramara Water Treatment System is 387 m3/day. This value was not exceeded during the inspection review period for the amount of water flowing from the treatment subsystem to the distribution system. There is not a maximum flow rate for South Ramara Drinking Water System in Table 2 of Schedule C of Municipal Drinking Water Licence 147-103 Issue Number 4.			

Question ID	MRDW1030000		
Question		**Question Type**	**Legislative Requirement**
Is primary disinfection chlorine monitoring being conducted at a location approved by MDWL and/or DWWP issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved?		Legislative	SDWA | O. Reg. 170/03 | 7-2 | (1), SDWA | O. Reg. 170/03 | 7-2 | (2)
Observation			
Primary disinfection chlorine monitoring was conducted at a location approved by Municipal Drinking Water Licence and/or Drinking Water Works Permit issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved. The continuous chlorine analyser is fed sample water from a point after the clearwells and the intended CT, prior to water entering the distribution system.			

Question ID	MRDW1032000		
Question		**Question Type**	**Legislative Requirement**
If the drinking water system obtains water from a surface water source and provides filtration, is continuous monitoring of each filter effluent line being performed for turbidity?		Legislative	SDWA | O. Reg. 170/03 | 7-3 | (2)
Observation			
Continuous monitoring of each filter effluent line was being performed for turbidity. Subsection 7-3 (2) (b) of Schedule 7 of Ontario Regulation 170/03 requires that if a drinking water system obtains water from a raw water supply that is surface water and the system provides filtration, the owner of the system shall ensure that sampling and testing for turbidity is carried out by continuous monitoring equipment on each filter effluent line. There is a continuous turbidity analyser for each of the two filter effluent lines. There is also a			

continuous analyser that measures the turbidity of the treated water line to the distribution system.

Question ID	MRDW1033000		
Question		**Question Type**	**Legislative Requirement**
Is the secondary disinfectant residual measured as required for the large municipal residential distribution system?		Legislative	SDWA | O. Reg. 170/03 | 7-2 | (3), SDWA | O. Reg. 170/03 | 7-2 | (4)

Observation

The secondary disinfectant residual was measured as required for the distribution system.
Subsection 7-2 (3) of Schedule 7 of Ontario Regulation 170/03 requires that the owner of a large municipal residential system that provides secondary disinfection and the operating authority for the system shall ensure that at least seven distribution samples are taken each week in accordance with subsection (4) and are tested immediately for free chlorine residual, if the system provides chlorination and does not provide chloramination.
Subsection 7-2 (4) of Schedule 7 of Ontario Regulation 170/03 states that the following rules apply to the distribution samples referred to in subsection (3) unless at least one sample is taken on each day of the week:
1. At least four of the samples must be taken on one day of the week, at least 48 hours after the last sample was taken in the previous week.
2. At least three of the samples must be taken on a second day of the week, at last 48 hours after the last sample was taken on the day referred to in paragraph 1.
3. When more than one sample is taken on the same day of the week under paragraph 1 or 2, each sample must be taken from a different location.
During the inspection review period, distribution free chlorine residuals were measured and recorded daily.

Question ID	MRDW1037000		
Question		**Question Type**	**Legislative Requirement**
Are all continuous monitoring equipment utilized for sampling and testing required by O. Reg.170/03, or MDWL or DWWP or order, equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6?		Legislative	SDWA | O. Reg. 170/03 | 6-5 | (1) 1-4,SDWA | O. Reg. 170/03 | 6-5 | (1)5-10,SDWA | O. Reg. 170/03 | 6-5 | (1.1)

Observation

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 equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6. Section 6.5. (1.1) of Schedule 6 of Ontario Regulation 170/03 requires that the continuous monitoring equipment must cause an alarm to sound immediately at the following locations 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 this section for the parameter:
i. The location where the equipment conducts tests
ii. A location where a person is present, if a person is not always present at the location where the equipment conducts tests.
iii. Every designated facility served by the drinking water system, unless the system is a large municipal residential system or a small municipal residential system.
In the event that the continuous chlorine analyser or turbidity analysers record a value below or above the set points, an audible alarm is initiated. The setpoints meet the requirements of the Table in Schedule 6 of Ontario Regulation 170/03. After two minutes, the alarm is sent to the phone of the on-call Operator. Operators are able to view the data remotely with their phones. The low chlorine set point is high enough that an Operator has time to respond prior to primary disinfection being compromised. Operators regularly test the alarm to ensure it is functioning properly. In the event that the reservoirs are below the low set point, the high lift pumps will lock out. The filters will not go back into service if the effluent turbidity analyser is reading above 0.3 NTU after a backwash cycle.

Question ID	MRDW1038000	
Question	**Question Type**	**Legislative Requirement**
Is continuous monitoring equipment that is being utilized to fulfill O. Reg. 170/03 requirements performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03 and recording data with the prescribed format?	Legislative	SDWA | O. Reg. 170/03 | 6-5 | (1) 1-4
Observation		
Continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements was performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03 and recording data with the prescribed format. The SCADA data records a value every minute. Continuous monitoring data is summarized and can be calculated to demonstrate minimum, maximum and average values for turbidity and chlorine and flow rate for the last 24 hours. Values are recorded in the required format.		

Question ID	MRDW1035000	
Question	**Question Type**	**Legislative Requirement**
Are operators examining continuous monitoring test results and are they examining the results within 72 hours of the test?	Legislative	SDWA | O. Reg. 170/03 | 6-5 | (1) 1-4,SDWA | O. Reg. 170/03 | 6-5 | (1)5-10
Observation		
Operators were examining continuous monitoring test results and they were examining the results within 72 hours of the test. Subsection 6-5. (1) 3. of Schedule 6 of Ontario Regulation 170/03 requires that test results recorded under paragraph 1 or 2 must be examined, within 72 hours after the tests are conducted by a certified operator, in the case of, a large municipal residential system,		

such as South Ramara Drinking Water System.
An Operator reviews the data recorded by the continuous monitoring equipment each day and always reviewed within 72 hours of it being recorded during the inspection review period. The Operating Authority has implemented a system by which operations can review the data remotely with their phones/laptops. As part of the review, the time and name of the Operator who performs the review is electronically recorded and included on the daily log print out.

Question ID	MRDW1040000	
Question	**Question Type**	**Legislative Requirement**
Are all continuous analysers calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation?	Legislative	SDWA | O. Reg. 170/03 | 6-5 | (1) 1-4,SDWA | O. Reg. 170/03 | 6-5 | (1)5-10

Observation

All continuous analysers were calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation. Subsection 6-5 (1) 8 of Schedule 6 of Ontario Regulation 170/03 states that the continuous monitoring equipment must be checked and calibrated in accordance with the manufacturer's instructions. Subsection 6-5(1)10 states that if the manufacturer's instructions do not indicate how often to check and calibrate the continuous monitoring equipment and paragraph 9 does not apply, the equipment must be checked and calibrated as often as necessary to ensure that test results are within the following margins of error: i. In the case of free chlorine residual, 0.05 milligrams per litre, if the concentrations usually measured by the equipment are less than or equal to 1.0 milligrams per litre, and proportionally higher if the concentrations usually measured are greater than 1.0 milligrams per litre,
ii. In the case of free chlorine residual and total chlorine residual measured for the purpose of determining combined chlorine residual, 0.05 milligrams per litre, if the concentrations usually measured by the equipment are less than or equal to 1.0 milligrams per litre, and proportionally higher if the concentrations usually measured are greater than 1.0 milligrams per litre, iii. 0.1 Nephelometric Turbidity Units (NTU), in the case of turbidity.
Most days that Operators attend the pumphouse, they compare the hand held colorimeter value for free chlorine residual with the continuous analyser. In the event that the discrepancy is greater than approximately 0.2 mg/L, the span of the continuous analyser is supposed to be changed, in accordance with the Operations Manual. The hand held units undergo a verification with secondary standards periodically, and are serviced by the manufacturer if the secondary verification is not within the required range. The South Ramara Water Works Operations and Maintenance Manual states that the calibration is to be done annually for the hand held colorimeter and turbidimeter. During the inspection review period, the flow meters were calibrated by a service technician on January 18, 2021 and January 10, 2022. The continuous chlorine analysers were calibrated by a service technician on January 20, 2021 and January 10, 2022.

Question ID	MRDW1108000	
Question	**Question**	**Legislative**

	Type	Requirement
Where continuous monitoring equipment used for the monitoring of free chlorine residual, total chlorine residual, combined chlorine residual or turbidity, required by Regulation 170, an Order, MDWL, or DWWP issued under Part V, SDWA, has triggered an alarm or an automatic shut-off, did a qualified person respond in a timely manner and take appropriate actions?	Legislative	SDWA | O. Reg. 170/03 | 6-5 | (1) 1-4,SDWA | O. Reg. 170/03 | 6-5 | (1)5-10,SDWA | O. Reg. 170/03 | 6-5 | (1.1)
Observation		
Where required continuous monitoring equipment used for the monitoring of chlorine residual and/or turbidity triggered an alarm or an automatic shut-off, a qualified person responded in a timely manner and took appropriate actions. Following a review of log books and the supporting information provided in conjunction with the inspection, it appears that when required, an operator was dispatched and arrived in a timely manner to respond to any alarm occurrences. There were no concerns identified with operator entries in the logs.		

Question ID	MRDW1018000	
Question	**Question Type**	**Legislative Requirement**
Has the owner ensured that all equipment is installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit?	Legislative	SDWA | 31 | (1)
Observation		
The owner had ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit. Based on observations made at the time of inspection, it appears that all equipment installed at the South Ramara Water Treatment Plant is described in Schedule A and Schedule C of Drinking Water Works Permit 147-203 Issue Number 4.		

Question ID	MRDW1023000	
Question	**Question Type**	**Legislative Requirement**
Do records indicate that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a DWWP and/or MDWL issued under Part V of the SDWA at all times that water was being supplied to consumers?	Legislative	SDWA | O. Reg. 170/03 | 1-2 | (2)
Observation		
Records indicated that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a Drinking Water Works Permit and/or Municipal Drinking Water Licence issued under Part V of the SDWA at all times that water was being supplied to consumers. Primary disinfection for the South Ramara Drinking Water System is achieved by chemically assisted filtration and the use of the chlorine contact/concentration time (CT) concept to ensure the provision of effective pathogen inactivation. Two package filtration units, each with a flocculation tank, settling tank and mixed media filter, filter the water after raw		

water is injected with carbon dioxide, sodium hypochlorite and poly aluminum chloride. The effective disinfectant contact time required for the CT concept is attained within the two clearwells, one with an approximate operation volume of 104 m3 and one with an approximate operation volume of 72 m3. The clearwells are configured in series. Following completion of the intended contact time, free chlorine residuals are maintained within the distribution system for secondary disinfection purposes.
In efforts to ensure minimum treatment is provided at all times, a series of fail safes have been incorporated into the SCADA system. The alarm set points are at levels which afford sufficient time for an Operator to respond, prior to the chlorine residual dropping below the level required for primary disinfection. Operators typically perform CT calculations in the event of a low chlorine alarm in order to confirm that primary disinfection has been achieved. Alarms are tested regularly to ensure they are functioning properly. In the event that the low reservoir level is reached an alarm is sent to the on-call Operator and the high lift pumps will lock out if the level reaches 0.65m.
During the inspection review period, the majority of readings that were above or below the alarm set points were the result of maintenance activities, such as cleaning the analysers, changing electrolyte or probes, testing the generator and filter backwashing or air bubbles in the turbidity analyser. Otherwise the on-call Operator attended the site. The SCADA system calculates the percentage of turbidity readings below 0.3 NTU. During the inspection review period the filters produced water with turbidity values below 0.3 NTU when in service in at least 95% of the measurements each month, as required by the Procedure for Disinfection of Drinking Water in Ontario. When the criteria was not met, it was during times that Filter 1 was not in service. Calculations were performed to ensure that when water was being directed to users, the criteria for filter effluent turbidity was met.
During the inspection review period records indicate that primary disinfection was achieved whenever water was being supplied. Data reviewed to assess if primary disinfection was achieved include facility logsheets, continuous analyser data for flows, reservoir levels, chlorine residuals for the treated water point of entry and in the distribution system, turbidity levels for each filter effluent line and the treated water point of entry, and sample results.

Question ID	MRDW1024000	
Question	**Question Type**	**Legislative Requirement**
Do records confirm that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated so that at all times and all locations in the distribution system the chlorine residual was never less than 0.05 mg/l free or 0.25 mg/l combined?	Legislative	SDWA | O. Reg. 170/03 | 1-2 | (2)
Observation		
Records confirmed that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated so that at all times and all locations in the distribution system the chlorine residual was never less than 0.05 mg/l free or 0.25 mg/l combined. Section 1-2. (2) 4. of Schedule 1 of Ontario Regulation 170/03 requires that if the drinking water system's water treatment equipment provides chlorination or chloramination for secondary disinfection, the equipment is operated so that, at all times and at all locations within the distribution system, the free chlorine residual is never less than 0.05 mg/L, if the drinking water system provides chlorination and does not provide chloramination.		

During the inspection review period, there were no free chlorine residual results recorded below 0.05 mg/L. At the time of inspection, the inspector measured a free chlorine residual of 1.90 mg/L at the water treatment plant. The continuous analyser had a reading of 1.74mg/L.

Question ID	MRDW1062000	
Question	**Question Type**	**Legislative Requirement**
Do records or other record keeping mechanisms confirm that operational testing not performed by continuous monitoring equipment is being done by a certified operator, water quality analyst, or person who meets the requirements of O. Reg. 170/03 7-5?	Legislative	SDWA | O. Reg. 170/03 | 7-5
Observation		
Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was being done by a certified operator, emergency substitute operator, water quality analyst, or person who meets the requirements of O. Reg. 170/03 7-5.		

Question ID	MRDW1060000	
Question	**Question Type**	**Legislative Requirement**
Do the operations and maintenance manuals meet the requirements of the DWWP and MDWL issued under Part V of the SDWA?	Legislative	SDWA | 31 | (1)
Observation		
The operations and maintenance manuals met the requirements of the Drinking Water Works Permit and Municipal Drinking Water Licence issued under Part V of the SDWA. Section 16.2 of Schedule B of Municipal Drinking Water Licence 147-103 issue number 4 requires that the operations and maintenance manual or manuals, shall include at a minimum: 16.2.1 The requirements of this licence and associated procedures; 16.2.2 The requirements of the drinking water works permit for the drinking water system; 16.2.3 A description of the processes used to achieve primary and secondary disinfection within the drinking water system, including where applicable: a) A copy of the CT calculations that were used as the basis for primary disinfection under worst case operating conditions; and b) The validated operating conditions for UV disinfection equipment, including a copy of the validation certificate; 16.2.4 Procedures for monitoring and recording the in-process parameters necessary for the control of any treatment subsystem and for assessing the performance of the drinking water system; 16.2.5 Procedures for the operation and maintenance of monitoring equipment; 16.2.6 Contingency plans and procedures for the provision of adequate equipment and material to deal with emergencies, upset conditions and equipment breakdown; 16.2.7 Procedures for dealing with complaints related to the drinking water system, including the recording of the nature of the complaint and any investigation and corrective action taken in respect of the complaint;		

The South Ramara Water Works Operations and Maintenance Manual meets the requirements of the Municipal Drinking Water Licence. The Operating Authority updated the Operations Manual in Jaunaury 2019 to ensure that the descriptions contained and procedures outlined were accurate. In March 2020 the Operators and Classification section was updated to reflect changes to Operator certification.

Question ID	MRDW1071000	
Question	**Question Type**	**Legislative Requirement**
Has the owner provided security measures to protect components of the drinking water system?	BMP	Not Applicable
Observation		
The owner had provided security measures to protect components of the drinking water system. The sample stations and pumphouse are locked. The pumphouse is also alarmed for forced entry. The reservoir hatches are located within the pumphouse building. The intake structure is not marked.		

Question ID	MRDW1073000	
Question	**Question Type**	**Legislative Requirement**
Has the overall responsible operator been designated for all subsystems which comprise the drinking water system?	Legislative	SDWA | O. Reg. 128/04 | 23 | (1)
Observation		
The overall responsible operator has been designated for each subsystem. The South Ramara Drinking Water System is comprised of a Water Distribution Class 1 and Water Treatment Class II subsystem. The Overall Responsible Operator is designated for both of the subsystems		

Question ID	MRDW1074000	
Question	**Question Type**	**Legislative Requirement**
Have operators in charge been designated for all subsystems for which comprise the drinking water system?	Legislative	SDWA | O. Reg. 128/04 | 25 | (1)
Observation		
Operators-in-charge had been designated for all subsystems which comprised the drinking water system. The South Ramara Drinking Water System is comprised of a Water Distribution Class 1 and Water Treatment Class II subsystem. The Operators in Charge are designated for both of the subsystems.		

Question ID	MRDW1075000	
Question	**Question Type**	**Legislative Requirement**
Do all operators possess the required certification?	Legislative	SDWA | O. Reg.

		128/04 | 22
Observation		
All operators possessed the required certification.		

Question ID	MRDW1076000	
Question	**Question Type**	**Legislative Requirement**
Do only certified operators make adjustments to the treatment equipment?	Legislative	SDWA | O. Reg. 170/03 | 1-2 | (2)
Observation		
Only certified operators made adjustments to the treatment equipment.		

Question ID	MRDW1099000	
Question	**Question Type**	**Legislative Requirement**
Do records show that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O. Reg.. 169/03)?	Information	Not Applicable
Observation		
Records did not show that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O. Reg. 169/03). During the course of the inspection review period, one (1) AWQI was observed. AWQI # 156094 - On October 18, 2021, samples were collected from the Mara Shores pumphouse, the Bayview Sample Station and the Suntrac Sample Station. The Mara Shores pumphouse sample showed that Total Coliforms = 1, Escherichia coli = 0 with a free chlorine residual = 1.09 mg/L. Both sample station samples were free of Total Coliforms and Escherichia coli. The Simcoe Muskoka District Health Unit and the Spills Action Centre were notified. The system was flushed and one set of resamples were collected on October 20, 2021. Results received from the Lab did not indicate any further adverse conditions.		

Question ID	MRDW1094000	
Question	**Question Type**	**Legislative Requirement**
Are all water quality monitoring requirements imposed by the MDWL and DWWP being met?	Legislative	SDWA | 31 | (1)
Observation		
All water quality monitoring requirements imposed by the MDWL or DWWP issued under Part V of the SDWA were being met. Condition 5.2 of Schedule C of Municipal Drinking Water Licence 147-103 Issue Number 4 states that for each treatment subsystem or treatment subsystem component identified in column 1 of Table 7 and in addition to any other sampling, testing and monitoring that may be required, sampling, testing and monitoring shall be undertaken for a test parameter listed in column 2 using the sample type identified in column 3 at the sampling		

frequency listed in column 4 and at the monitoring location listed in column 5 of the same row.
Table 7 of Schedule C of Municipal Drinking Water Licence 147-103 Issue Number 4 requires that the point of process water discharge to Lake Simcoe be tested monthly for total suspended solids, pH and aluminum in a manual composite sample. Total Chlorine Residual is to be sampled monthly with a grab sample.
Sampling for the required parameters was conducted at the required frequency during the inspection review period.
Table 3 of Schedule C of Municipal Drinking Water Licence 147-103 Issue Number 4 states that the annual average concentration of Total Suspended Solids is not to exceed 25 mg/L.
During the inspection review period, the average concentration of Total Suspended Solids was 12.1 mg/L. One of the samples collected (December 2021) had results below the method detection limit of 2 mg/L. A value of 2 mg/L was used for this month when calculating the average.

Question ID	MRDW1096000	
Question	**Question Type**	**Legislative Requirement**
Do records confirm that chlorine residual tests are being conducted at the same time and at the same location that microbiological samples are obtained?	Legislative	SDWA | O. Reg. 170/03 | 6-3 | (1)

Observation

Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained. Subsection 6-3. (1) of Schedule 6 of Ontario Regulation 170/03 states that if this Regulation requires a water sample to be taken and tested for a microbiological parameter, the owner of the drinking water system and the operating authority for the system shall ensure that another sample is taken at the same time from the same location and is tested immediately for free chlorine residual, if the system provides chlorination and does not provide chloramination.
During the inspection review period, free chlorine residuals were tested at the same time from the same location as treated water and distribution microbiological samples as required.

Question ID	MRDW1081000	
Question	**Question Type**	**Legislative Requirement**
Are all microbiological water quality monitoring requirements for distribution samples being met?	Legislative	SDWA | O. Reg. 170/03 | 10-2 | (1),SDWA | O. Reg. 170/03 | 10-2 | (2),SDWA | O. Reg. 170/03 | 10-2 | (3)

Observation

All microbiological water quality monitoring requirements for distribution samples were being met. Subsection 10-2. of Schedule 10 of Ontario Regulation 170/03 requires that the owner of a drinking water system and the operating authority for the system shall ensure that if the system serves 100,000 people or less, at least eight distribution samples, plus one additional distribution

sample for every 1,000 people served by the system, are taken every month, with at least one of the samples taken in each week. The owner of the drinking water system and the operating authority for the system shall ensure that each of the samples taken is tested for Escherichia coli and total coliforms and at least 25 per cent of the samples required to be taken are to be tested for general bacteria population expressed as colony counts on a heterotrophic plate count (HPC).
The estimated population of the South Ramara Drinking Water System is approximately 270 people. As such, 8 distribution samples are required to be collected each month. During the inspection review period two distribution samples were taken each week and tested for the required parameters, including all samples being tested for HPC.

Question ID	MRDW1083000	
Question	**Question Type**	**Legislative Requirement**
Are all microbiological water quality monitoring requirements for treated samples being met?	Legislative	SDWA | O. Reg. 170/03 | 10-3

Observation

All microbiological water quality monitoring requirements for treated samples were being met.
Subsection 10-3. of Schedule 10 of Ontario Regulation 170/03 requires that the owner of a drinking water system and the operating authority for the system shall ensure that a water sample is taken at least once every week and tested for Escherichia coli, total coliforms and general bacteria population expressed as colony counts on a heterotrophic plate count.
During the inspection review period a treated water sample was collected each week and tested for the required parameters.

Question ID	MRDW1084000	
Question	**Question Type**	**Legislative Requirement**
Are all inorganic water quality monitoring requirements prescribed by legislation conducted within the required frequency?	Legislative	SDWA | O. Reg. 170/03 | 13-2

Observation

All inorganic water quality monitoring requirements prescribed by legislation were conducted within the required frequency. Subsection 13-2. (1) of Schedule 13 of Ontario Regulation 170/03 requires that the owner of a large municipal residential system and the operating authority for the system shall ensure that, at least one water sample is taken every 12 months, if the system obtains water from a raw water supply that is surface water. Subsection 13-2. (2) of Schedule 13 of Ontario Regulation 170/03 states that the owner of a large municipal residential system and the operating authority for the system shall ensure that each of the samples taken under subsection (1) is tested for every parameter set out in Schedule 23.
During the inspection review period, treated water samples were collected and tested on all Schedule 23 parameters on August 12, 2020 and August 4, 2021, as required.

Question ID	MRDW1085000	
Question	**Question**	**Legislative**

	Type	Requirement
Are all organic water quality monitoring requirements prescribed by legislation conducted within the required frequency?	Legislative	SDWA | O. Reg. 170/03 | 13-4 | (1),SDWA | O. Reg. 170/03 | 13-4 | (2),SDWA | O. Reg. 170/03 | 13-4 | (3)

Observation

All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency. Subsection 13-4. (1) of Schedule 13 of Ontario Regulation 170/03 requires that the owner of a large municipal residential system and the operating authority for the system shall ensure that, at least one water sample is taken every 12 months, if the system obtains water from a raw water supply that is surface water. Subsection 13-4. (2) of Schedule 13 of Ontario Regulation 170/03 states that the owner of a large municipal residential system and the operating authority for the system shall ensure that each of the samples taken under subsection (1) is tested for every parameter set out in Schedule 24.
During the inspection review period, treated water samples were tested for all Schedule 24 parameters on August 12, 2020 and August 4, 2021, as required.

Question ID	MRDW1086000

Question	Question Type	Legislative Requirement
Are all haloacetic acid water quality monitoring requirements prescribed by legislation conducted within the required frequency and at the required location?	Legislative	SDWA | O. Reg. 170/03 | 13-6.1 | (1),SDWA | O. Reg. 170/03 | 13-6.1 | (2),SDWA | O. Reg. 170/03 | 13-6.1 | (3), SDWA | O. Reg. 170/03 | 13-6.1 | (4),SDWA | O. Reg. 170/03 | 13-6.1 | (5),SDWA | O. Reg. 170/03 | 13-6.1 | (6)

Observation

All haloacetic acid water quality monitoring requirements prescribed by legislation are being conducted within the required frequency and at the required location. Section 13-6.1 of Schedule 13 of Ontario Regulation 170/03 requires that the owner of a drinking water system that provides chlorination or chloramination and the operating authority for the system shall ensure that at least one distribution sample is taken in each calendar quarter, from a point in the drinking water system's distribution system, or plumbing that is connected to the drinking water system, that is likely to have an elevated potential for the formation of haloacetic acids (HAA), and have the samples tested for haloacetic acids.

The requirement to sample for HAA came into effect on January 1, 2017. The standard for HAA as a reportable limit came into effect on January 1, 2020.
During the inspection review period, a sample was collected from the South Ramara distribution system on August 12, 2020, November 19, 2020, February 9, 2021, May 12, 2021, August 4, 2021, November 2, 2021, and February 7, 2022, and tested for HAA as required. The average for HAA during the inspection review period was 55.8 ug/L.

Question ID	MRDW1087000	
Question	**Question Type**	**Legislative Requirement**
Have all trihalomethane water quality monitoring requirements prescribed by legislation been conducted within the required frequency and at the required location?	Legislative	SDWA | O. Reg. 170/03 | 13-6 | (1)

Observation

All trihalomethane water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location. Section 13-6 of Schedule 13 of Ontario Regulation 170/03 requires that the owner of a drinking water system that provides chlorination or chloramination and the operating authority for the system shall ensure that at least one distribution sample is taken every three months, from a point in the drinking water system's distribution system, or plumbing that is connected to the drinking water system, that is likely to have an elevated potential for the formation of trihalomethanes (THMs). The samples are to be tested for THMs. During the inspection review period, distribution samples were collected and tested for THMs on November 19, 2020, February 9, 202, May 12, 2021, August 4, 2021, November 2, 2021 and February 7, 2022.. The average for THMs during the inspection review period was 69 ug/L.

Question ID	MRDW1088000	
Question	**Question Type**	**Legislative Requirement**
Are all nitrate/nitrite water quality monitoring requirements prescribed by legislation conducted within the required frequency for the DWS?	Legislative	SDWA | O. Reg. 170/03 | 13-7

Observation

All nitrate/nitrite water quality monitoring requirements prescribed by legislation were conducted within the required frequency for the DWS. Section 13-7. of Schedule 13 of Ontario Regulation 170/03 requires that the owner of a drinking water system and the operating authority for the system shall ensure that at least one water sample is taken every three months and tested for nitrate and nitrite.
During the inspection review period, samples tested for nitrate and nitrite were collected from the treated water point of entry for South Ramara Drinking Water System on November 19, 2020, February 9, 2021, May 12, 2021, August 4, 2021, November 2, 2021 and February 7, 2022.

Question ID	MRDW1089000	
Question	**Question**	**Legislative**

	Type	Requirement
Are all sodium water quality monitoring requirements prescribed by legislation conducted within the required frequency?	Legislative	SDWA | O. Reg. 170/03 | 13-8

Observation

All sodium water quality monitoring requirements prescribed by legislation were conducted within the required frequency. Section 13-8 of Schedule 13 of Ontario Regulation 170/03 requires that the owner of a drinking water system and the operating authority for the system shall ensure that at least one water sample is taken every 60 months and tested for sodium.
Section 6-1.1 (7) of Schedule 6 of Ontario Regulation 170/03 states that if this Regulation requires at least one water sample to be taken every 60 months and tested for a parameter, the owner of the drinking water system and the operating authority for the system shall ensure that at least one sample that is taken during a 60-month period for the purpose of being tested for that parameter is taken not more than 90 days before or after the fifth anniversary of the day a sample was taken for that purpose in the previous 60-month period.
A treated water sample for sodium was last sampled on August 19, 2020 with a follow-up resample on August 24, 2020. The sodium result was reported as required by Schedule 16 of Ontario Regulation 170/03 and the required corrective actions taken.

Question ID	MRDW1090000

Question	Question Type	Legislative Requirement
Where fluoridation is not practiced, are all fluoride water quality monitoring requirements prescribed by legislation conducted within the required frequency?	Legislative	SDWA | O. Reg. 170/03 | 13-9

Observation

All fluoride water quality monitoring requirements prescribed by legislation were conducted within the required frequency. Section 13-9 of Schedule 13 of Ontario Regulation 170/03 requires that if a drinking water system does not provide fluoridation, the owner of the system and the operating authority for the system shall ensure that a water sample is taken at least once every 60 months and tested for fluoride. Section 6-1.1 (7) of Schedule 6 of Ontario Regulation 170/03 states that if this Regulation requires at least one water sample to be taken every 60 months and tested for a parameter, the owner of the drinking water system and the operating authority for the system shall ensure that at least one sample that is taken during a 60-month period for the purpose of being tested for that parameter is taken not more than 90 days before or after the fifth anniversary of the day a sample was taken for that purpose in the previous 60-month period.
The most recent sample tested for fluoride was collected on August 15, 2017. Sampling for fluoride will need to be performed by August 2022.

Question ID	MRDW1100000

Question	Question Type	Legislative Requirement
Did any reportable adverse/exceedance conditions occur during the inspection period?	Information	Not Applicable

Observation

There were reportable adverse/exceedances during the inpsection period. AWQI - 151440 - On August 19, 2020, a 60-month sodium sample was collected from the Heritage Farm water distribution system. The sample collected showed a sodium concentration = 32.0mg/L. Since this sodium concentration exceeds 20mg/L., the Simcoe Muskoka District Health Unit, as well as the Spills Action Centre, were notified.
Resamples that were collected on August 24, 2020 showed a continued elevated sodium concentration of 33.1mg/L. As a result, the Simcoe Muskoka District Health Unit requested that this sodium exceedance is posted on the Township of Ramara's website so that residents on sodium restricted diets are aware and informed.

Question ID	MRDW1101000	
Question	**Question Type**	**Legislative Requirement**
Have corrective actions (as per Schedule 17) been taken to address adverse conditions, including any other steps as directed by the Medical Officer of Health?	Legislative	SDWA | O. Reg. 170/03 | 17-1, SDWA | O. Reg. 170/03 | 17-10 | (1),SDWA | O. Reg. 170/03 | 17-10 | (2),SDWA | O. Reg. 170/03 | 17-11,SDWA | O. Reg. 170/03 | 17-12,SDWA | O. Reg. 170/03 | 17-13,SDWA | O. Reg. 170/03 | 17-14,SDWA | O. Reg. 170/03 | 17-2,SDWA | O. Reg. 170/03 | 17-3,SDWA | O. Reg. 170/03 | 17-4,SDWA | O. Reg. 170/03 | 17-5,SDWA | O. Reg. 170/03 | 17-6,SDWA | O. Reg. 170/03 | 17-9
Observation		
Corrective actions (as per Schedule 17) had been taken to address adverse conditions, including any other steps that were directed by the Medical Officer of Health.		

Question ID	MRDW1104000

Question	Question Type	Legislative Requirement
Were all required verbal notifications of adverse water quality incidents immediately provided as per O. Reg. 170/03 16-6?	Legislative	SDWA | O. Reg. 170/03 | 16-6 | (1),SDWA | O. Reg. 170/03 | 16-6 | (2),SDWA | O. Reg. 170/03 | 16-6 | (3),SDWA | O. Reg. 170/03 | 16-6 | (3.1),SDWA | O. Reg. 170/03 | 16-6 | (3.2), SDWA | O. Reg. 170/03 | 16-6 | (4),SDWA | O. Reg. 170/03 | 16-6 | (5),SDWA | O. Reg. 170/03 | 16-6 | (6)
Observation		
All required notifications of adverse water quality incidents were immediately provided as per O. Reg. 170/03 16-6.		

Question ID	MRDW1059000	
Question	**Question Type**	**Legislative Requirement**
Do the operations and maintenance manuals contain plans, drawings and process descriptions sufficient for the safe and efficient operation of the system?	Legislative	SDWA | O. Reg. 128/04 | 28
Observation		
The operations and maintenance manuals contained plans, drawings and process descriptions sufficient for the safe and efficient operation of the system. The operations and maintenance manuals contained plans, drawings and process descriptions sufficient for the safe and efficient operation of the system.		

Question ID	MRDW1061000	
Question	**Question Type**	**Legislative Requirement**
Are logbooks properly maintained and contain the required information?	Legislative	SDWA | O. Reg. 128/04 | 27 | (1), SDWA | O. Reg. 128/04 | 27 | (2), SDWA | O. Reg. 128/04 | 27 | (3),

		SDWA | O. Reg. 128/04 | 27 | (4), SDWA | O. Reg. 128/04 | 27 | (5), SDWA | O. Reg. 128/04 | 27 | (6), SDWA | O. Reg. 128/04 | 27 | (7)
Observation		
Logbooks were properly maintained and contained the required information.		