

Ministry of the Environment,
Conservation and Parks

Ministère de l'Environnement, de
la Protection de la nature et des Parcs

Barrie District

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October 24, 2022

Attention: Zach Drinkwalter Township of Ramara CAO

**Re: 2022 Drinking Water Inspection Report
South Ramara Drinking Water System**

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

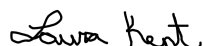
The primary focus of this inspection is to confirm compliance with Ministry of the Environment, Conservation and Parks legislation and authorizing documents, as well as evaluating conformance with Ministry drinking water-related policies and guidelines during the inspection review period.

No issues of non-compliance or best management practices were identified in the inspection. No Provincial Officer's Orders were issued in conjunction with this inspection.

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. Please note that due to a recent change in IT systems, the IRR cannot currently be generated at the same time as the inspection report. The IRR will be sent separately, typically within one to two months, and prior to any public release. IRR ratings are published (for the previous inspection year) in the Ministry's Chief Drinking Water Inspector's Annual Report. 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 regarding the inspection report please feel free to contact the undersigned at (705) 716-5655 or laura.kent@ontario.ca.

Sincerely,



Laura Kent
Water Inspector
Provincial Officer
Barrie District Office, Ministry of the Environment Conservation and Parks

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

System Number: 220010681
Entity: CORPORATION OF THE
TOWNSHIP OF RAMARA
Inspection Start Date: 09/09/2022
Inspection End Date: 10/07/2022
Inspected By: Laura Kent
Badge #: 1123

Laura Kent

(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: DRINKING WATER | **Regulated Activity:**

Question ID	MRDW1001001	Question Type	Information
Question:			
What was the scope of this inspection?			
Legislative Requirement	Not Applicable		
Observation			
<p>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.</p> <p>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.</p> <p>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.</p> <p>The South Ramara Drinking Water System is a Large Municipal Residential drinking water system as defined by Ontario Regulation 170/03 and serves approximately 154 service connections in the Heritage Farm, Mara Shores Estates and Bayview Drive. The South Ramara Drinking Water System is owned by the Corporation of the Township of Ramara and is operated by the Ontario Clean Water Agency (OCWA). 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.</p> <p>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 pumphouse. 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 two sample stations, one in a former pumphouse, here is a continuous chlorine analyser installed. The chlorine analyser is not considered a regulatory device, but used for operational purposes.</p>			

There are 9 hydrants installed in the distribution system which are used for flushing and maintenance purposes.
The drinking water inspection included: physical inspection of the treatment equipment and facility; interview with Operating Authority staff; and a review of relevant documents and data from the period of February 9, 2022 to September 9, 2022 (hereafter referred to as the "inspection review period"). The previous inspection of the South Ramara Drinking Water System was conducted on February 9, 2022.

Question ID	MRDW1000001	Question Type	Information
Question:			
Does this drinking water system provide primary disinfection?			
Legislative Requirement	Not Applicable		
Observation			
This Drinking Water System provides for both primary and secondary disinfection and distribution of water.			

Question ID	MRDW1018001	Question Type	Legislative
Question:			
Has the owner ensured that all equipment is installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit?			
Legislative Requirement	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 as described in Schedule A of Drinking Water Works Permit 147-203 Issue Number 4. The continuous operational chlorine analyser installed in the distribution system at Mara Shores is not included in the Drinking Water Works Permit. Schedule C of Drinking Water Works Permit 147-203 Issue Number 4 contains the addition of carbon dioxide injection system for adjusting pH to optimize coagulation from 2013.			

Question ID	MRDW1114001	Question Type	Legislative
Question:			
Does the owner have evidence that, when required, all legal owners associated with the DWS were notified of the requirements of the Licence & Permit?			

Legislative Requirement	SDWA 31 (1);
Observation	
The owner had evidence that required notifications to all legal owners associated with the Drinking Water System had been made during the inspection period. The Owner notifies all developers/applicants of the requirements of the Licence and Permit during the pre-consultation stage.	

Question ID	MRDW1025001	Question Type	Legislative
Question:			
Were all parts of the drinking water system that came in contact with drinking water (added, modified, replaced or extended) disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit?			
Legislative Requirement	SDWA 31 (1);		
Observation			
All parts of the drinking water system were disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit. Section 2.3 of Schedule B of Drinking Water Works Permit 147-203 Issue Number 4 states that all parts of the drinking water system in contact with drinking water that are added, modified, replaced, extended shall be disinfected in accordance with a procedure approved by the Director or in accordance with the applicable provisions of the following documents:			
a) Until August 3, 2022 the ministry's Watermain Disinfection Procedure, dated November 2015. As of August 4, 2022 the ministry's Watermain Disinfection Procedure, dated August 1, 2020.			
b) Subject to condition 2.3.2, any updated version of the ministry's Watermain Disinfection Procedure;			
c) AWWA C652 – Standard for Disinfection of Water-Storage Facilities;			
d) AWWA C653 – Standard for Disinfection of Water Treatment Plants; and			
e) AWWA C654 – Standard for Disinfection of Wells.			
The Operating Authority has developed a Standard Operating Procedure (SOP) for disinfection of drinking water system components. The SOP states that the required standards are to be followed as per the Drinking Water Works Permit.			

Question ID	MRDW1024001	Question Type	Legislative
Question:			
Do records confirm that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated as required?			
Legislative Requirement	SDWA O. Reg. 170/03 1-2 (2);		

Observation
<p>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.</p> <p>During the inspection review period there were no free chlorine residual results recorded below 0.05 mg/L. The lowest recorded distribution free chlorine reading during the inspection review period was 0.15 mg/L.</p> <p>At the time of inspection, the Inspector measured a free chlorine residual of 1.22 mg/L when the analyser read 1.31 mg/L and the Operator measured 1.11 mg/L at Mara Shores. A second set of residuals were measured with the Inspector having a result of 1.22 mg/L the Operator reading 0.96 mg/L and the analyser reading 1.26 mg/L at Mara Shores.</p>

Question ID	MRDW1038001	Question Type	Legislative
Question:			
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 Requirement	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.			

Question ID	MRDW1035001	Question Type	Legislative
Question:			
Are operators examining continuous monitoring test results and are they examining the results within 72 hours of the test?			
Legislative Requirement	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. During the inspection review period records indicate that trending data was reviewed within 72 hours of the test being conducted. Operators are able to log on remotely to view the continuous analyser data. The Operating Authority has developed a Standard Operating Procedure for how Operators are to complete the review of continuous monitoring data.

Question ID	MRDW1037001	Question Type	Legislative
Question:			
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 Requirement	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. The frequency of recording and the setpoints for turbidity and chlorine monitoring at South Ramara Drinking Water System exceed the standards contained in the Table in Schedule 6 of Ontario Regulation 170/03 for primary disinfection monitoring. There is a continuous chlorine analyser installed at Mara Shores in the distribution system. The Operating Authority does not consider this analyser to be a regulatory analyser. Operators are able to view the free chlorine residuals measured by the continuous analyser remotely. Daily an Operator will log on and view and record the free chlorine residual being measured at that time and record it on the daily spreadsheet for the purpose of secondary disinfection monitoring. The analyser records values every two minutes. The communication lines at the location are not reliable and years ago when the analyser was connected for alarm purposes there were a lot of nuisance alarms, resulting in the Operating Authority determining that the analyser would be considered only operational.			

Question ID	MRDW1040000	Question Type	Legislative
Question:			
Are all continuous analysers calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation?			
Legislative Requirement	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.

Annually a third party performs calibrations on the continuous analysers, including the analyser installed in the distribution system. Operators regularly perform maintenance on the analysers including flushing, probe checks and add or change electrolyte as required. Operators make comparisons of the continuous chlorine analysers with handheld units regularly and make adjustments when the difference is more than approximately 0.2 mg/L. The turbidity analysers were regularly verified with dry standards during the inspection review period.

Question ID	MRDW1108001	Question Type	Legislative
Question:			
Where continuous monitoring equipment used for the monitoring of free chlorine residual, total chlorine residual, combined chlorine residual or turbidity, required by O. Reg. 170/03, 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 Requirement	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. According to the South Ramara logbook an Operator responded to four alarms during the inspection review period. Responses were in a timely manner and appropriate actions were taken for each event. Data recorded by the continuous analysers confirmed that there were no other instances when an alarm should have been generated during the inspection review period.			

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Question ID	MRDW1033001	Question Type	Legislative
Question: Is the secondary disinfectant residual measured as required for the large municipal residential distribution system?			
Legislative Requirement	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 large municipal residential distribution system. There is a continuous chlorine analyser installed in the South Ramara distribution system at Mara Shores. This analyser is considered an operational analyser, not a regulatory analyser, by the Operating Authority. Operators log on to view the value being recorded by the operational analyser once per day and record the value for the purpose of secondary disinfection monitoring. Operators also routinely check the free chlorine residual at other locations in the distribution system. Records were made of at least one distribution free chlorine residual reading each day of the inspection review period.			

Question ID	MRDW1099001	Question Type	Information
Question: 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)?			
Legislative Requirement	Not Applicable		
Observation Records showed 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).			

Question ID	MRDW1081001	Question Type	Legislative
Question: For LMR systems, are all microbiological water quality monitoring requirements for distribution samples being met?			
Legislative Requirement	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
<p>All microbiological water quality monitoring requirements prescribed by legislation for distribution samples in a large municipal residential system 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).</p> <p>The population served by the South Ramara Drinking Water System is less than 1000 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.</p>

Question ID	MRDW1096001	Question Type	Legislative
Question:			
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 Requirement	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.			

Question ID	MRDW1086001	Question Type	Legislative
Question:			
Are all haloacetic acid water quality monitoring requirements prescribed by legislation conducted within the required frequency and at the required location?			
Legislative Requirement	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 were 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 standard of 0.80 mg/L 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 in May 2022 and August 2022 and tested for HAA as required. The average for HAA during the inspection review period was 70.6 ug/L. The running annual average for the two quarters prior to the inspection review period and the two quarters from the inspection review period was 66.4 ug/L.

The Operating Authority monitors the average of HAA for the South Ramara Drinking Water System. At this time no studies have been undertaken to investigate ways that the level of HAA could be reduced. It is recommended that the Owner and Operating Authority consider conducting a study to determine what steps could be taken to reduce the HAA levels, such as alterations to pH adjustment and chemical additions to try and reduce HAA levels.

Question ID	MRDW1087001	Question Type	Legislative
Question:			
Have all trihalomethane water quality monitoring requirements prescribed by legislation been conducted within the required frequency and at the required location?			
Legislative Requirement	SDWA O. Reg. 170/03 13-6 (1); SDWA O. Reg. 170/03 13-6 (2); SDWA O. Reg. 170/03 13-6 (3); SDWA O. Reg. 170/03 13-6 (4); SDWA O. Reg. 170/03 13-6 (5); SDWA O. Reg. 170/03 13-6 (6);		
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 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 trihalomethanes (THMs). The samples are to be tested for THMs. During the inspection review period samples were collected and tested for THMs from the South Ramara distribution system in May 2022 and August 2022. The average for THMs during the inspection review period was 89 ug/L. The running annual average for the two quarters prior to the inspection review period and the two quarters during the inspection review period was 82.3 ug/L. The Operating Authority monitors the average of THMs for the South Ramara Drinking			

Water System. At this time no studies have been undertaken to investigate ways that the level of THMs could be reduced. It is recommended that the Owner and Operating Authority consider conducting a study to determine what steps could be taken to reduce the THM levels, such as alterations to pH adjustment and chemical additions to try and reduce THM levels.

Question ID	MRDW1094001	Question Type	Legislative
Question: Are all water quality monitoring requirements imposed by the MDWL and DWWP being met?			
Legislative Requirement	SDWA 31 (1);		
Observation			
<p>All water quality monitoring requirements imposed by the MDWL or DWWP issued under Part V of the SDWA were being met. Table 3 and Table 7 of Schedule C of Municipal Drinking Water Licence 147-103 Issue Number 4 states that the South Ramara water works filter backwash system must be sampled from the point of discharge to Lake Simcoe monthly for total suspended solids (TSS) with an annual average concentration limit of 25 mg/L and total chlorine residual to be sampled monthly with an annual average concentration limit of 0.02 mg/L.</p> <p>Condition 1.5.6 of Schedule C of Municipal Drinking Water Licence 147-103 Issue Number 4 states that the requirement for the owner to comply with conditions 1.5.1 to 1.5.5 for the Total Chlorine Residual shall come into effect on February 4, 2023.</p> <p>Table 7 of Schedule C of Municipal Drinking Water Licence 147-103 Issue Number 4 requires that pH and aluminum be sampled annually from the point of discharge to Lake Simcoe. There are no limits listed in the Licence for pH and aluminum.</p> <p>During the inspection review period TSS was sampled monthly from the backwash point of discharge. The average during the inspection review period for TSS was 9 mg/L.</p> <p>Two days prior to the inspection review period starting aluminum and pH were sampled from the point of discharge of the backwash water.</p>			

Question ID	MRDW1059000	Question Type	Legislative
Question: Do the operations and maintenance manuals contain plans, drawings and process descriptions sufficient for the safe and efficient operation of the system?			
Legislative Requirement	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 South Ramara Water Works Operations and Maintenance Manual was updated with Ontario Clean Water Agency (OCWA) procedures in December 2021 and the updated Permit and Approval was included in May 2022. The Manual includes an overview of the facility, operation and maintenance programs for the different treatment equipment components, emergency generator and distribution system components. Water quality and flow monitoring maintenance and requirements as well as record and reporting requirements are detailed. The manual includes a CT calculation worksheet. Contingency and Emergency plans are available to deal with potential problems that may arise with the drinking water system.

Question ID	MRDW1060000	Question Type	Legislative
Question:			
Do the operations and maintenance manuals meet the requirements of the DWWP and MDWL issued under Part V of the SDWA?			
Legislative Requirement	SDWA 31 (1);		
Observation			
<p>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:</p> <p>16.2.1 The requirements of this licence and associated procedures;</p> <p>16.2.2 The requirements of the drinking water works permit for the drinking water system;</p> <p>16.2.3 A description of the processes used to achieve primary and secondary disinfection within the drinking water system, including where applicable:</p> <p>a) A copy of the CT calculations that were used as the basis for primary disinfection under worst case operating conditions and other operating conditions, if applicable; and</p> <p>b) The validated operating conditions for UV disinfection equipment, including a copy of the validation certificate;</p> <p>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;</p> <p>16.2.5 Procedures for the operation and maintenance of monitoring equipment;</p> <p>16.2.6 Contingency plans and procedures for the provision of adequate equipment and material to deal with emergencies, upset conditions and equipment breakdown;</p> <p>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.</p> <p>The South Ramara Water Works Operations and Maintenance Manual and Contingency and Emergency Plan meet the requirements of the Municipal Drinking Water Licence.</p>			

Question ID	MRDW1061001	Question Type	Legislative
Question: Are logbooks properly maintained and contain the required information?			
Legislative Requirement	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. The Operating Authority uses electronic logs as well as a number of spreadsheets for the recording of information regarding the South Ramara Drinking Water System. Records include all required information.			

Question ID	MRDW1062001	Question Type	Legislative
Question: 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 Requirement	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, water quality analyst, or person who suffices the requirements of O. Reg. 170/03 7-5.			

Question ID	MRDW1071000	Question Type	BMP
Question: Has the owner provided security measures to protect components of the drinking water system?			
Legislative Requirement	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. Operators regularly check all components to ensure they are secure and have not been tampered with.			

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Question ID	MRDW1073001	Question Type	Legislative
Question: Has the overall responsible operator been designated for all subsystems which comprise the drinking water system?			
Legislative Requirement	SDWA O. Reg. 128/04 23 (1);		
Observation			
The overall responsible operator had been designated for each subsystem. The South Ramara Drinking Water System is comprised of a Water Distribution Class I and Water Treatment Class II subsystem. The Overall Responsible Operator is designated for both of the subsystems. The Operator acting as the ORO is indicated in the electronic logbook on each day that entries are made.			

Question ID	MRDW1074001	Question Type	Legislative
Question: Have operators-in-charge been designated for all subsystems for which comprise the drinking water system?			
Legislative Requirement	SDWA O. Reg. 128/04 25 (1);		
Observation			
Operators-in-charge had been designated for all subsystems which comprise the drinking water system. The South Ramara Drinking Water System is comprised of a Water Distribution Class I and Water Treatment Class II subsystem. The Operator In Charge (OIC) is designated for both of the subsystems. The Operator acting as the OIC is indicated in the electronic logbook on each day that entries are made.			

Question ID	MRDW1075001	Question Type	Legislative
Question: Do all operators possess the required certification?			
Legislative Requirement	SDWA O. Reg. 128/04 22;		
Observation			
All operators possessed the required certification.			

Question ID	MRDW1076001	Question Type	Legislative
Question: Do only certified operators make adjustments to the treatment equipment?			
Legislative Requirement	SDWA O. Reg. 170/03 1-2 (2);		
Observation			
Only certified operators made adjustments to the treatment equipment.			

Question ID	MRDW1117001	Question Type	Information
Question: Are there any other DWS related items that should be recognized in this report?			
Legislative Requirement	Not Applicable		
Observation			
The following items are noted as being relevant to the Drinking Water System: The Operating Authority collected treated water samples to be tested for aluminium at least monthly during the inspection review period to aid in process optimization.			

Question ID	MRDW1012001	Question Type	Legislative
Question: Does the owner have a harmful algal bloom monitoring plan in place that meets the requirements of the MDWL?			
Legislative Requirement	SDWA 31 (1);		
Observation			
<p>The owner had a harmful algal bloom monitoring plan in place. Condition 6 of Schedule C of Municipal Drinking Water Licence (MDWL) 147-103 Issue Number 4 outlines the requirements of the Harmful Algal Bloom monitoring, reporting and sampling plan required to be in place on or before August 5, 2022. The Plan must be implemented annually during but not limited to the warm seasonal period between June 1 and October 31 each year, or as otherwise directed by the Ministry or local Medical Officer of Health.</p> <p>The Harmful Algal Boom Plan prepared by the Operating Authority issued May 18, 2022 meets the requirements of the MDWL. Visual inspection of the intake for blue green algae and sampling of the raw and treated water for microcystin began June 6, 2022 and was completed weekly through to the end of the inspection review period. All microcystin results were below the method detection limit.</p>			

Question ID	MRDW1014001	Question Type	Legislative
Question:			
Is there sufficient monitoring of flow as required by the MDWL or DWWP issued under Part V of the SDWA?			
Legislative Requirement	SDWA 31 (1);		
Observation			
<p>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.</p> <p>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.</p>			

Question ID	MRDW1016001	Question Type	Legislative
Question:			
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 Requirement	SDWA 31 (1);		
Observation			
<p>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.</p>			

Question ID	MRDW1023001	Question Type	Legislative
Question:			

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 Requirement

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 O. Reg. 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. One filter train operates at a time. The effective disinfectant contact time required for the CT concept is attained within the two clearwells, one with an approximate operation volume of 103 m³ and one with an approximate operation volume of 66 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 intended to afford operators time to respond prior to the chlorine residual dropping below the level required for primary disinfection. Operators perform CT calculations in the event of a low chlorine alarm to confirm that primary disinfection has been achieved. Alarms are tested regularly to ensure they are functioning properly.

During the inspection review period readings that were above or below the alarm set points were the result of maintenance activities, such as cleaning the analysers, flushing analysers, performing analyser verifications, changing electrolyte or probes, or testing alarms. In four instances there were readings that were outside of the normal operating range that were not the result of maintenance activities and operators responded to each of these instances. Corrective measures were undertaken, and disinfection was not compromised in each instance.

The filter performance criteria as outlined in section 1 of Schedule E of Municipal Drinking Water Licence 147-103 issue number 4 were met during the inspection review period including filtered water turbidity of less than or equal to 0.3 NTU in 95% of the measurements each month.

In order to determine if primary disinfection was achieved at the South Ramara Drinking Water System during the inspection review period, flow rates, free chlorine residuals, turbidity values, clearwell levels, logsheets and logbooks were reviewed. These records indicate that during the inspection review period the treatment equipment was operated as required to achieve the disinfection requirements whenever water was being supplied.

Question ID	MRDW1030000	Question Type	Legislative
Question: 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 Requirement	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.			

Question ID	MRDW1032001	Question Type	Legislative
Question: 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 Requirement	SDWA O. Reg. 170/03 7-3 (2);		
Observation Continuous monitoring of each filter effluent line was being performed for turbidity.			

Question ID	MRDW1083001	Question Type	Legislative
Question: For LMR systems, are all microbiological water quality monitoring requirements for treated samples being met?			
Legislative Requirement	SDWA O. Reg. 170/03 10-3;		
Observation All microbiological water quality monitoring requirements prescribed by legislation for treated samples were being met. Subsection 10-3 of Schedule 10 of Ontario Regulation 170/03 requires that the owner of a large municipal residential drinking water system and the operating authority for the system shall ensure that a treated 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. A week is defined in section 1 of Ontario Regulation 170/03 as a period of seven days that begins on Sunday and ends on the following Saturday. During the inspection review period a treated water sample was collected each week and tested for the required parameters.			

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Question ID	MRDW1084001	Question Type	Legislative
Question:			
Are all inorganic water quality monitoring requirements prescribed by legislation conducted within the required frequency?			
Legislative Requirement	SDWA O. Reg. 170/03 13-2;		
Observation			
<p>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 and tested for every parameter set out in Schedule 23 if the system obtains water from a raw water supply that is surface water such as South Ramara Drinking Water System.</p> <p>During the inspection review period treated water samples were tested for all Schedule 23 parameters on August 3, 2022. Prior to that, treated water samples were tested for all Schedule 23 parameters on August 4, 2021.</p>			

Question ID	MRDW1088000	Question Type	Legislative
Question:			
Are all nitrate/nitrite water quality monitoring requirements prescribed by legislation conducted within the required frequency for the DWS?			
Legislative Requirement	SDWA O. Reg. 170/03 13-7;		
Observation			
<p>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.</p> <p>During the inspection review period samples tested for nitrate and nitrite were collected as required from the treated water point of entry for South Ramara Drinking Water System in May 2022 and August 2022.</p>			

Question ID	MRDW1089000	Question Type	Legislative
Question:			

Are all sodium water quality monitoring requirements prescribed by legislation conducted within the required frequency?	
Legislative Requirement	SDWA O. Reg. 170/03 13-8;
Observation	
<p>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.</p> <p>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 and 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.</p> <p>The most recent treated water sample tested for sodium was collected on August 12, 2020 from the South Ramara Drinking Water System with a result of 32 mg/L. A resample was collected to be tested for sodium on August 24, 2020 with a result of 33.1 mg/L. Sodium results greater than 20 mg/L are an ongoing occurrence for the South Ramara Drinking Water System.</p>	

Question ID	MRDW1090000	Question Type	Legislative
Question:			
Where fluoridation is not practiced, are all fluoride water quality monitoring requirements prescribed by legislation conducted within the required frequency?			
Legislative Requirement	SDWA O. Reg. 170/03 13-9;		
Observation			
<p>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.</p> <p>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 and 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.</p>			

A treated water sample was collected on August 3, 2022 and tested for fluoride. Prior to that, a sample was collected on August 15, 2017, from the treated water sample point at South Ramara Drinking Water System and tested for fluoride.

Question ID	MRDW1085001	Question Type	Legislative
Question:			
Are all organic water quality monitoring requirements prescribed by legislation conducted within the required frequency?			
Legislative Requirement	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			
<p>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 and tested for every parameter set out in Schedule 24 if the system obtains water from a raw water supply that is surface water such as South Ramara Drinking Water System.</p> <p>During the inspection review period treated water samples were tested for all Schedule 24 parameters on August 3, 2022. Prior to that, treated water samples were tested for all Schedule 24 parameters on August 4, 2021.</p>			