Ontario

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0Ministry of the Environment,
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Ministère de l'Environnement, de
la Protection de la nature et des Parcs

District de Barrie

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August 18, 2022

Attention: Zach Drinkwalter Township of Ramara CAO

Re: 2022 Drinking Water Inspection Report
Brechin and Lagoon City Drinking Water System

Please find enclosed the Ministry of the Environment, Conservation and Parks Inspection Report for Brechin and Lagoon City Drinking Water System (Water Works # 210001273). The physical inspection process took place on July 22, 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

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

CC Nick Leroux, Ontario Clean Water Agency, Senior Operations Manager, nleroux@owca.com
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BRECHIN & LAGOON CITY DRINKING WATER SYSTEM
2 POPLAR CRES, RAMARA, ON, L0K 1B0

Inspection Report

System Number:	210001273
Entity:	CORPORATION OF THE TOWNSHIP OF RAMARA
Inspection Start Date:	07/22/2022
Inspection End Date:	08/15/2022
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			

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 Brechin and Lagoon City Drinking Water System is owned by the Corporation of the Township of Ramara and operated by the Ontario Clean Water Agency (OCWA) and serves an estimated population of 2,618 people in the communities of Brechin and Lagoon City. The Brechin and Lagoon City Drinking Water System is categorized as a large municipal residential drinking water system, as defined by Ontario Regulation 170/03 and operates under DWS number 210001273.
The Brechin and Lagoon City Drinking Water System draws water from Lake Simcoe. Treatment consists of chemically assisted filtration and chlorination. Three low lift pumps draw water from Lake Simcoe. Raw water is injected with carbon dioxide for pH adjustment, sodium hypochlorite and polyaluminum chloride. Water is then directed to four spiral flow flocculators and two filter-absorbers. Water is then injected with sodium hypochlorite and directed to the clearwell. Five high lift pumps discharge treated water to the distribution system. There is an elevated storage tower in the town of Brechin.
The drinking water inspection included: physical inspection of the treatment equipment and facility; interview with OCWA staff; and a review of relevant documents and data from the period of December 9, 2021 to July 22, 2022 (hereafter referred to as the "inspection review period"). The previous inspection of the Brechin and Lagoon City Drinking Water

System was conducted on December 9, 2021.

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. Primary disinfection is provided by chemically assisted filtration and sodium hypochlorite disinfection.			

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. During the inspection installed equipment appeared to meet the description contained in Schedule A of Drinking Water Works Permit 147-201 Issue Number 5. Schedule C of Drinking Water Works Permit 147-201 Issue Number 5 has the addition of carbon dioxide injection system for adjusting pH to optimize coagulation.			

Question ID	MRDW1021001	Question Type	Legislative
Question: Is the owner/operating authority able to demonstrate that, when required during the inspection period, Form 2 documents were prepared in accordance with their Drinking Water Works Permit?			
Legislative Requirement	SDWA | 31 | (1);		
Observation			
The owner/operating authority was in compliance with the requirement to prepare Form 2 documents as required by their Drinking Water Works Permit during the inspection period. During the inspection review period two Form 2s were completed for the Brechin and			

Lagoon City Drinking Water System. One for the partial replacement of plant control PLC for high lift pump upgrades and the other for the replacement of the sodium hypochlorite day tank and the Stern Pac day tank.

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 147-201 Issue Number 5 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			
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. During the inspection review period the lowest chlorine residual measured in the Brechin and Lagoon City distribution system was 0.66 mg/L. At the time of inspection, the Inspector measured a free chlorine residual of 0.83 mg/L at the Operating Authority office.			

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 Brechin and Lagoon City 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. Subsection 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 or turbidity analysers record a value below or above the set points an alarm is sent to an Operator. The setpoints exceed the requirements of the Table in Schedule 6 of Ontario Regulation 170/03. The low chlorine alarm setpoint is at a level high enough to try and afford an operator enough time to respond before primary disinfection is compromised. Operators regularly test the chlorine and turbidity alarms to ensure they are functioning properly.			

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. Operators change probes and electrolyte as required. Operators make comparisons of the continuous analysers with handheld units. According to the records provided, the pre chlorine analyser was compared to the handheld colorimeter once per month each month of the inspection review period, except for it being done five times in February 2022, twice in June 2022 and four times in July 2022. The primary disinfection chlorine analyser was compared to the handheld unit nine times each month of the inspection review period, except for it being done ten times in March 2022, five times in February 2022 and seven times in April 2022 and July 2022. An Operator calibrated the distribution chlorine analyser once in May 2022 according to the records provided. In the event that the discrepancy is greater than approximately 0.2 mg/L, the span of the continuous analyser is changed. The handheld units undergo a verification with secondary standards periodically, and are serviced by a third party annually.

Comparisons of the train 1 and train 2, treated water and raw water continuous turbidity analysers and the handheld turbidimeter were completed once per month with the exception that the raw water turbidity analyser was compared twice in February 2022 and three times in March 2022. No comparisons were done for train 1 in April 2022. During the portion of July covered in this inspection only the raw water turbidity analyser was compared to the handheld turbidimeter.

At the time of inspection the Inspector measured a free chlorine residual of 1.67 mg/L from the treatment plant lab using a colourimeter that had been verified with secondary

standards on the day of inspection, the Operator measured a free chlorine residual of 1.68 mg/L and the continuous analyser read 1.62 mg/L at the same time.

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. In the event of a low chlorine alarm the on-call Operator is notified and the high lift pumps lock out. If the filter effluent continuous chlorine analysers have a reading above 0.3 NTU the on-call Operator is notified. In the event that the final turbidity is above 1.0 NTU or the clearwell level is high or low the on-call operator is notified. In the event of a low clearwell level alarm the high lift pumps lockout. In the event that the Brechin tower level is low the on-call operator is notified. Operators are able to log on remotely to see the SCADA system and determine if a response is needed. Operators responded appropriately in a timely manner for alarm conditions during the inspection review period.

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. 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.

There is a continuous chlorine analyser installed in the Brechin and Lagoon City distribution system at Pump Station #8. Operators recorded at least one distribution free chlorine residual reading each day of the inspection review period on a spreadsheet or in the logbook. The continuous analyser does not generate an alarm to the on call operator in the event of a reading below 0.05 mg/L. Operators routinely check the free chlorine residual at other locations in the distribution system.

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

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).
The population served by the Brechin and Lagoon City Drinking Water System is approximately 2,650 people. As such, 10 distribution samples are required to be collected

each month.
During the inspection review period the distribution microbiological sampling requirements were exceeded with three distribution samples being taken each week and tested for the required parameters, including all samples being tested for HPC.

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 Brechin Lagoon City distribution system in February 2022 and May 2022 and tested for HAA as required. The average for HAA during the inspection review period was 64.75 ug/L.			

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 Brechin Lagoon City distribution system in February 2022 and May 2022. The average for THMs during the inspection review period was 84.5 ug/L.
At the time of inspection the Operating Authority was undertaking a study to determine where THMs were forming in the treatment process in efforts to lower the concentration.

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 Lagoon City Water Works Operations and Maintenance Manual was updated with Ontario Clean Water Agency (OCWA) procedures in December 2021 and the updated Permit and Licence were 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

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 147-101 Issue Number 5 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 other operating conditions, if applicable; 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 Lagoon City Water Works Operations and Maintenance Manual and Contingency and Emergency Plan meet the requirements of the Municipal Drinking Water Licence.

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 Brechin and Lagoon City 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 treatment plant are locked. The treatment plant is also alarmed for forced entry. The tower in Brechin is locked and has a locked fence surrounding it. No trespassing signage and the Township's contact information are prominently displayed at the treatment building and the elevated water reservoir. The Operating Authority has a contingency plan to be used in the event of a security breach.

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 Brechin and Lagoon City 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 Brechin and Lagoon City Drinking Water System is comprised of a Water Distribution Class I and Water Treatment Class II subsystem. The Operators In Charge are 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	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			
The owner had a harmful algal bloom monitoring plan in place. Condition 6 of Schedule C of Municipal Drinking Water Licence (MDWL) 147-101 Issue Number 5 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. 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.			

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			
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 147-101 Issue Number 5 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 four magnetic flow meters installed at the Brechin and Lagoon City Water Treatment Plant. One flow meter measures the raw water flow, one measures the treated water flow entering the distribution system and there is a flow meter installed on each of the filter effluent lines. Each of the flow meters provides a 4-20 mA signal. Raw, filtered and treated water flows are continuously recorded on the SCADA system.			

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			
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 147-101 Issue Number 5 states that the rated capacity for Brechin and Lagoon City Drinking Water System is 4,000 m3/day. This value was not exceeded during the inspection review period. There is no maximum flow rate identified in Table 2 of Schedule C.			

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 Brechin and Lagoon City Drinking Water System is achieved by chemically assisted filtration and chlorination with the use of the chlorine contact/concentration time (CT) concept to ensure the provision of effective pathogen inactivation. The effective disinfectant contact time required for the CT concept is attained within the 1,091 m3 clear well. 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. Fail safes include, the low alarm set point being at a level which affords sufficient time for an Operator to respond, prior to the chlorine residual dropping below the level required for primary disinfection. Operators perform CT calculations regularly. The low chlorine alarm will lock out the high lift pumps. In the event that the filter turbidity is above 0.3 NTU, the treated water turbidity is above 1.0 NTU or the			

clearwell level is above or below the thresholds the on-call Operator is notified.
In order to determine if primary disinfection was achieved at the Brechin and Lagoon CIty Drinking Water System during the inspection review period, flow rates, free chlorine residuals, turbidity values, clear well levels, pH values, monthly sheets and the logsheets were reviewed. These records indicate that during the inspection review period the treatment equipment was operated as required to achieve the disinfection requirements, including both filter trains producing water with turbidity of less than or equal to 0.3 NTU in 95% of the measurements each month.

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. The treated water continuous chlorine analyser is fed water after the clearwell prior to water entering the distribution system.			

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. Section 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 (HPC).
During the inspection review period a treated water sample was collected each week and tested for the required parameters.

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

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.
Subsection 6-1.1 (5) of Schedule 6 of Ontario Regulation 170/03 states that if this Regulation requires at least one water sample to be taken every 12 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 12-month period for the purpose of being tested for that parameter is taken not more than 30 days before or after the first anniversary of the day a sample was taken for that purpose in the previous 12-month period.
The most recent treated water samples tested for every Schedule 23 parameter were collected on August 4, 2021. Prior to that, samples were collected and tested for all parameters listed in Schedule 23 on August 12, 2020.

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

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 Brechin and Lagoon City Drinking Water System in February 2022 and May 2022 as required.

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

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 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.
The most recent treated water sample tested for sodium was collected on August 12, 2020 from the Brechin and Lagoon City Drinking Water System with a result of 34.8 mg/L. A resample was collected to be tested for sodium on August 24, 2020 with a result of 31.5 mg/L. Sodium results greater than 20 mg/L are an ongoing occurrence for the Brechin and Lagoon City Drinking Water System.

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	
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 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. The most recent treated water sample was collected and tested for fluoride on August 15, 2017. Prior to that a sample was collected on August 22, 2012 and tested for fluoride from the treated water sample point at the Brechin and Lagoon City Drinking Water System.	

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			
All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency. Section 13-4 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. Subsection 6-1.1 (5) of Schedule 6 of Ontario Regulation 170/03 states that if this Regulation requires at least one water sample to be taken every 12 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 12-month period for the purpose of being tested for that parameter is taken not more than 30 days before or after the first anniversary of the day a sample was taken for that purpose in the previous 12-month period. The most recent treated water samples tested for every Schedule 24 parameter were			

collected on August 4, 2021. Prior to that, samples were collected and tested for all parameters listed in Schedule 24 on August 12, 2020.