

February 15, 2022

Town of Lakeshore
419 Notre Dame St.
Belle River, ON N0R 1A0

File: SI-ES-LA-540

Attention: Mr. Truper McBride, CAO

Re: Municipality of Lakeshore Drinking Water System - Inspection Report

Please find enclosed the Inspection Report for the inspection of the Lakeshore Drinking Water System (DWS# # 260091507) on December 10, 2021.

The format of the enclosed report has been updated, and you will note that the non-compliance and/or non-conformance items are now detailed at the beginning of the report. All questions that were assessed are included in the Inspection Details Section.

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

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

If you have any questions or concerns regarding this report, please call me at (226) 280-1406.

Yours truly,



Emily Awad
Water Inspector, Provincial Officer #1823
Drinking Water and Environmental Compliance Division
Sarnia/Windsor District

Encl.

cc: Garry Punt, Team Leader – Water Management, Krystal Kalbol, Corporate Leader – Operations, Albert Dionne, Division Leader – Water Management, Kyle Davis, Water Compliance, Town of Lakeshore;
Nicole Dupuis, Chief Executive Officer, Kristy McBeth, Director of Health Protection, Phil Wong, Manager, Health Inspection Department, Victoria Peczulis, Manager, Environmental Health, Windsor-Essex County Health Unit;
Marc Bechard, Supervisor, Ministry of the Environment, Conservation and Parks;
Katie Stammier, Project Manager Source Water Protection, Essex Region Conservation Authority.



MUNICIPALITY OF LAKESHORE DRINKING WATER SYSTEM
492 LAKEVIEW DR, LAKESHORE, ON, N0R 1A0

Inspection Report

System Number: 260091507
Inspection Start Date: 12/06/2021
Inspection End Date: 02/15/2022
Inspected By: Emily Awad
Badge #: 1823

A handwritten signature in black ink, appearing to read "Emily Awad".

(signature)

NON-COMPLIANCE/NON-CONFORMANCE ITEMS

The following item(s) have been identified as non-compliance/non-conformance, based on a "No" response captured for a legislative or best management practice (BMP) question (s), respectively.

Question Group: Treatment Processes

Question ID	MRDW1025000		
Question	Question Type	Legislative Requirement	
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	SDWA 31 (1)	
Observation/Corrective Action(s)			
All parts of the drinking water system were not disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit. Commissioning Forms for the two new watermain were reviewed. Documentation was not complete; the following information was not included: pre-disinfection swabbing and flushing completed, method of disinfection (e.g. spray, slug, tablet/continuous feed), initial and/or final chlorine concentration, disinfection chemical meets the AWWA and NSF/ANSI/CAN 60 Standards, decrease in chlorine concentration, and schematic showing location microbiological samples were taken. Therefore it could not be determined if the watermain was disinfected as per the Watermain Disinfection Procedure (2015). As per the new Permit, Schedule B, Condition 2.3, the new Watermain Disinfection Procedure, dated August 1, 2020, was to be adopted by November 21, 2021 (6 months after the date of the Permit). By March 15, 2022, the Watermain Commissioning Form shall be updated to meet the requirements of the 2020 Watermain Disinfection Procedure and training on this procedure shall be provided to all operational staff. On January 26, 2021, a sample of the filter media was physically collected from filter #3. No disinfection of the sampling equipment was conducted. As per Schedule B, section 2.3 of the Permit, disinfection should have been conducted in accordance with the Ministry's and AWWA's disinfection procedures. Condition 2.3.1 of the Permit states: For greater clarity, where an activity has occurred that could introduce contamination, including but not limited to repair, maintenance, or physical/video inspection, all equipment that may come in contact with the drinking water system shall be disinfected in accordance with the requirements of condition 2.3. above. Due to the fact that the filter consists of granular activated carbon (GAC), disinfection of the filter with chlorine is not recommended. Because of this, the equipment should have been disinfected prior to use as per ANSI/AWWA procedure C653-20 (Section 4.4.3.5).			

INSPECTION DETAILS

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

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

Question ID	MRDW1001000		
Question	Question Type	Legislative Requirement	
What was the scope of this inspection?	Information	Not Applicable	
Observation			
The primary focus of this inspection is to confirm compliance with Ministry of the Environment, Conservation and Parks (MECP) legislation as well as evaluating conformance with ministry drinking water policies and guidelines during the inspection period. The ministry utilizes a comprehensive, multi-barrier approach in the inspection of water systems that focuses on the source, treatment, and distribution components as well as management practices. This drinking water system is subject to the legislative requirements of the Safe Drinking Water Act, 2002 (SDWA) and regulations made therein, including Ontario Regulation 170/03, "Drinking Water Systems" (O.Reg. 170/03). This inspection has been conducted pursuant to Section 81 of the SDWA. This inspection report does not suggest that all applicable legislation and regulations were evaluated. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements. This review also includes an assessment of compliance/conformance in relation to the following: • Drinking Water Operator and Water Quality Analyst Certification Regulation (O. Reg. 128/04) • Drinking Water System Licence 031-101, Issue Number 4, issued May 21, 2021 • Drinking Water Works Permit 031-201, Issue Number 5, issued May 21, 2021 • Ontario Drinking Water Quality Standards (ODWQS; O. Reg. 169/03) based on water quality data generated since the previous inspection. An unannounced inspection was conducted on December 10, 2021. The undersigned officer took a chlorine residual sample from the distribution system on January 18, 2022. A follow-up phone interview took place on January 21, 2022. The inspection covers the period from November 1, 2020 to November 30, 2021.			

Question ID	MRDW1000000		
Question		Question Type	Legislative Requirement
Does this drinking water system provide primary disinfection?		Information	Not Applicable
Observation			

This Drinking Water System provides for both primary and secondary disinfection and distribution of water.

Question ID	MRDW1011000	
Question	Question Type	Legislative Requirement
Does the owner have a harmful algal bloom monitoring plan in place?	BMP	Not Applicable
Observation		
The owner had a harmful algal bloom monitoring plan in place.		

Question ID	MRDW1012000	
Question	Question Type	Legislative Requirement
Does the owner have a harmful algal bloom monitoring plan in place that meets the requirements of the MDWL?	Legislative	SDWA 31 (1)
Observation		
The owner had a harmful algal bloom monitoring plan in place. The harmful algal bloom plan was completed by the required date in the MDWL (November 15, 2021). Operator training on the new HAB plan took place in November 2021. Two cameras were installed at the lowlift for HAB monitoring; one facing the lake and the other facing the shoreline. The cameras filter out sunlight and have extensive zoom capabilities. The recordings are on a 14-day loop. On July 22, 2021, the Municipality reported a total microcystin result of 0.29 ug/L in a raw sample collected on July 19, 2021. There was also a detection in the raw sample from the Stoney Point WTP intake. There were no detections of total microcystin in the treated water from either plant. The Municipality notified the Windsor-Essex County Health Unit (WECHU) and the undersigned officer notified the downstream WTP (Windsor) and the Essex Region Conservation Authority (ERCA). WECHU had been to the nearby Belle River beach on July 19th for microbiological sampling but a bloom was not observed at that time. The Municipality also indicated that no bloom was visible in the lake at that point. The subsequent raw sample collected on July 23 at the Lakeshore WTP also had a detection of total microcystin (0.70 ug/L). A bloom was now visible in Lake St. Clair near the intake. The plant began reducing filter run times. On July 30th, the undersigned officer directed the Municipality to increase visual monitoring to daily and microcystin sampling to twice per week. Based on these results, WECHU issued a microcystin advisory, as a precaution, due to the upcoming long weekend. Provincial Officer D. Racz collected a shoreline sample at Belle River Beach on August 3, 2021. The sample was analysed at the Ministry lab for total microcystin using the enzyme-linked immunosorbent assay (ELISA) method (E3469), the same method that the private lab uses for the samples taken by the Municipality; the result was 11.02 ug/L. The sample was also analysed using the time-of flight mass spectrometry (QToF/MS) method (E3450), which quantifies 12 of the known microcystin variants. Three variants were detected: Microcystin-LR=0.58, Microcystin-		

LA=0.51 and Microcystin-RR=0.084 ug/L. The Ontario Drinking Water Quality Standard for Microcystin-LR in treated or distribution samples is 1.5 ug/L, based on Health Canada's maximum acceptable concentration. All of the treated samples collected by the Water Treatment Plant were below method detection limits.

On August 12, 2021, the Municipality reported that they had adjusted the coagulant dosage to optimize the clarifier retention time. The bloom was no longer visible by September 17th so the Municipality was directed to revert back to one sample per week. Raw sample total microcystin ranged from below method detection limit to a high of >5 ug/L on August 20, 2021 (see Appendix A).

During review of historical microcystin results, a detection in a treated sample (0.30 ug/L) from September 2, 2019 was discovered. The corresponding raw sample result was >5 ug/L. The operating authority confirmed with the lab that this treated sample result was accurate. For the raw result, the lab indicated that any result over 3 ug/L has increasing error ratios and therefore they report it with the ">" qualifier as they cannot be sure of the accuracy. The operating authority indicated that a pilot study on the performance and life of the filter media will be commencing in 2022. The filter media is the original media since the commissioning of the plant in 2009. This bench test study will determine when the filter media will need to be replaced. The Municipality is also trying to determine a raw water microcystin concentration that should trigger operational changes, in order to prevent microcystin from getting through the filters and into the treated water. It is recommended that this raw concentration trigger point should initiate the addition of the powdered activated carbon, which will aid in the removal of microcystins at the clarifier stage of treatment, prior to the filters.

Question ID	MRDW1014000		
Question	Question Type	Legislative Requirement	
Is there sufficient monitoring of flow as required by the MDWL or DWWP issued under Part V of the SDWA?	Legislative	SDWA 31 (1)	
Observation			
There was sufficient monitoring of flow as required by the Municipal Drinking Water Licence or Drinking Water Works Permit issued under Part V of the SDWA.			
Condition 2.1, Schedule C of MDWL 031-101 for Municipality of Lakeshore Drinking Water System requires continuous flow measurement and recording to be undertaken for:			
• The flow rate and daily volume of treated water that flows from the treatment subsystem to the distribution system, • The flow rate and daily volume of water that flows into the treatment subsystem.			
Endress & Hauser Promag magnetic type meters are installed on each of the raw inlet supplies to the upflow clarifiers, four in total; raw flow is the sum of these meters. At the site inspection, the raw flow into the plant (viewed on the SCADA screen) was 116.7 L/s. Endress & Hauser Promag meters are also installed on each filter effluent line and the two filter effluent headers which draw water into the UV reactor units. An Endress & Hauser magnetic type meter is installed on the high-lift discharge header to the distribution system. At the site inspection, the treated flow into			

the distribution system (from the high lift pumping station) was 182.6 L/s. Additionally flow meters are installed to measure filter backwash and waste residual treatment flows. Flows from these meters are recorded on the SCADA system Historian server.

Question ID	MRDW1016000	
Question	Question Type	Legislative Requirement
Is the owner in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the MDWL issued under Part V of the SDWA?	Legislative	SDWA 31 (1)
Observation		
The owner was in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the Municipal Drinking Water Licence issued under Part V of the SDWA.		
Condition 1.1, Schedule C of MDWL 031-101 prescribes a maximum allowable daily volume of treated water from the treatment subsystem to the distribution system of 36,400 m ³ /day. Record review indicates the maximum flow (15,757 m ³ /day) from treatment to distribution during the inspection period occurred in May 2021 at 43% of the rated capacity of the plant.		

Question ID	MRDW1030000	
Question	Question Type	Legislative Requirement
Is primary disinfection chlorine monitoring being conducted at a location approved by MDWL and/or DWWP issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved?	Legislative	SDWA O. Reg. 170/03 7-2 (1), SDWA O. Reg. 170/03 7-2 (2)
Observation		
Primary disinfection chlorine monitoring was conducted at a location approved by Municipal Drinking Water Licence and/or Drinking Water Works Permit issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved.		
In the new MDWL, chlorine has been added to the log removal credits in Schedule E. A ProMinent D1C continuous chlorine monitor/controller with CLE probe measures free chlorine on the reservoir outlet line. This location is prior to the post-reservoir injection point for free chlorine top-up/trim which is periodically employed to boost the concentration of secondary disinfectant directed to the distribution system. Free chlorine residual data from this location was provided at 3 minute intervals, and ranged from 0.034 to 2.14 mg/L. At the inspection, the free chlorine residual at this location (from the continuous meter) was 1.46 mg/L. At the inspection, the free chlorine was measured at the plant effluent location and was 1.26 mg/L (continuous analyser: 1.43 mg/L).		

Question ID	MRDW1032000	
Question	Question Type	Legislative Requirement
If the drinking water system obtains water from a surface	Legislative	SDWA O. Reg.

water source and provides filtration, is continuous monitoring of each filter effluent line being performed for turbidity?		170/03 7-3 (2)
Observation		
Continuous monitoring of each filter effluent line was being performed for turbidity. Filter effluent turbidity values are measured by Hach 1720E turbidity sensors with SC100 controllers. Results are recorded by the SCADA Historian system and each has an SD card backup. During the inspection, all four filters had operating turbidimeters (Filter #1=0.022, Filter #2=0.018, Filter #3=0.018, and Filter #4=0.027 NTU). Filter turbidity data was provided at 3 minute intervals for the inspection period. Data review showed that turbidity was monitored continuously and any shutdowns due to power failure or maintenance were documented in the logbooks.		

Question ID	MRDW1033000	
Question	Question Type	Legislative Requirement
Is the secondary disinfectant residual measured as required for the large municipal residential distribution system?	Legislative	SDWA O. Reg. 170/03 7-2 (3), SDWA O. Reg. 170/03 7-2 (4)
Observation		
The secondary disinfectant residual was measured as required for the distribution system. Logs show that distribution system free chlorine residuals were taken and measured at least seven times per week as required; four and three times on separate days, with the sets of measurements being made at least 48 hours apart.		

Question ID	MRDW1037000	
Question	Question Type	Legislative Requirement
Are all continuous monitoring equipment utilized for sampling and testing required by O. Reg.170/03, or MDWL or DWWP or order, equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6?	Legislative	SDWA O. Reg. 170/03 6-5 (1) 1-4,SDWA O. Reg. 170/03 6-5 (1)5-10,SDWA O. Reg. 170/03 6-5 (1.1)
Observation		
All continuous monitoring equipment utilized for sampling and testing required by O. Reg.170/03, or Municipal Drinking Water Licence or Drinking Water Works Permit or order, were equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6. The low chlorine alarm setting for the CT analyser is 0.75 mg/L. Low and low-low alarms for secondary disinfection free chlorine level leaving the plant are also set at 1.0 and 0.8 mg/L,		

respectively. Filter turbidity alarm and filter-to-waste set-points are similarly setup in SCADA to respond to measured tests from these analysers, including high and high-high alarms of 0.3 NTU and 1.0 NTU and a filter to waste set point of 0.9 NTU. The 1.0 NTU setting triggers a filter shutdown. Operational alarms for clarifier effluent turbidity prior to filtration are set at 3 NTU. Alarms are enunciated via SCADA as an audible horn in the plant and visual display at the SCADA terminal. Critical alarms are also alarmed out to a security company who is required to contact a sequence of contact numbers starting with the on-call operator's phone. The plant is not staffed 24 hours per day, but an operations shift is conducted from 7:00 AM to 3:30 PM.

In response to the two incidents where UV was lost due to power outages (detailed below), and due to the fact that chlorine can now be used for primary disinfection log removal credits, the ministry recommended the addition of a CT alarm to alert operators when the required CT is not being met. On October 27, 2021, the operating authority confirmed that the CT monitoring via SCADA had been reviewed and an alarm on the CT calculation in SCADA was added. This alarm was tested by removing the chlorine sensor from reservoir 2 and allowing the reading to drop to a point that CT was not achieved. The audible alarm in the plant and a callout to Security One was verified.

Question ID	MRDW1038000	
Question	Question Type	Legislative Requirement
Is continuous monitoring equipment that is being utilized to fulfill O. Reg. 170/03 requirements performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03 and recording data with the prescribed format?	Legislative	SDWA O. Reg. 170/03 6-5 (1) 1-4
Observation		
Continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements was performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03 and recording data with the prescribed format.		
O. Reg. 170, Section 6-5(1), requires the continuous monitoring equipment to record the date, time, sampling location and result of every test for the parameter with at least the minimum frequency prescribed as follows:		
1. Free chlorine residual required to achieve primary disinfection: 5 minutes;		
2. Filter effluent turbidity: 15 minutes.		
Free chlorine residual at the Reservoir #2 outlet (for CT) was provided in 3 minute intervals. Filter turbidity was also provided in 3 minute intervals. The operating authority reported that on August 5, 2021, the PLC shutdown, which then caused the plant to shutdown. Continuous monitoring equipment continued to operate while the PLC was down.		

Question ID	MRDW1039000	
Question	Question Type	Legislative Requirement

If primary disinfection equipment that does not use chlorination or chloramination is provided, has the owner and operating authority ensured that the equipment has a recording device that continuously records the performance of the disinfection equipment?	Legislative	SDWA O. Reg. 170/03 1-6 (3)
Observation		
The owner and operating authority ensured that the primary disinfection equipment had a recording device that continuously recorded the performance of the disinfection equipment.		
As per Condition 1.6 in Schedule C of the Licence, the UV disinfection equipment monitors UV calculated dose, flow rate, transmittance and lamp status continuously.		

Question ID	MRDW1042000	
Question	Question Type	Legislative Requirement
If UV disinfection is used were duty sensors and reference UV sensors checked and calibrated as per the requirements of Schedule E of the MDWL or at a frequency as otherwise recommended by the UV equipment manufacturer?	Legislative	SDWA 31 (1)
Observation		
All UV sensors were checked and calibrated as required.		
As per "EPA Disinfection Guidance Manual for the Final LT2ESWTR" (2006), UV sensors were calibrated monthly by H2flow for TrojanUV. The reference sensor was validated on July 17, 2020 and is scheduled to be revalidated prior to June 2023.		

Question ID	MRDW1035000	
Question	Question Type	Legislative Requirement
Are operators examining continuous monitoring test results and are they examining the results within 72 hours of the test?	Legislative	SDWA O. Reg. 170/03 6-5 (1) 1-4, SDWA O. Reg. 170/03 6-5 (1) 5-10
Observation		
Operators were examining continuous monitoring test results and they were examining the results within 72 hours of the test.		
Operators examine continuous monitoring data daily. In accordance with the operating authority's Routine Plant Rounds standard operating procedure, and as reflected in the project logs, reviews of continuous monitoring results are completed once per day and recorded in the operating logbook.		

Question ID	MRDW1040000	
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Question	Question Type	Legislative Requirement
Are all continuous analysers calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation?	Legislative	SDWA O. Reg. 170/03 6-5 (1) 1-4,SDWA O. Reg. 170/03 6-5 (1)5-10
Observation		
All continuous analysers were calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation.		
Records show that continuous chlorine and turbidity analysers, as well as handheld meters, are verified/calibrated on a regular basis. Maintenance and calibrations are tracked in the Antero work order system and documented in the operating authority's logbooks and instrument calibration logs. Continuous analysers are verified monthly against a lab bench test and a handheld meter, respectively; maintenance is completed if required (e.g. flushing and cleaning of sensors). Calibration certificates were provided for the annual instrument calibrations and maintenance by the manufacturer and/or instrument supplier representatives: filter turbidimeters (July 14/21); chlorine analysers in the plant and at the Belle River tower (July 13-14/21); flowmeters (July 13/21); and portable turbidimeters/colorimeters (July 15/21).		

Question ID	MRDW1108000	
Question	Question Type	Legislative Requirement
Where continuous monitoring equipment used for the monitoring of free chlorine residual, total chlorine residual, combined chlorine residual or turbidity, required by Regulation 170, an Order, MDWL, or DWWP issued under Part V, SDWA, has triggered an alarm or an automatic shut-off, did a qualified person respond in a timely manner and take appropriate actions?	Legislative	SDWA O. Reg. 170/03 6-5 (1) 1-4,SDWA O. Reg. 170/03 6-5 (1)5-10,SDWA O. Reg. 170/03 6-5 (1.1)
Observation		
Where required continuous monitoring equipment used for the monitoring of chlorine residual and/or turbidity triggered an alarm or an automatic shut-off, a qualified person responded in a timely manner and took appropriate actions.		
Water plant operating logs reviewed indicate that certified operators responded to alarms in a timely manner and took appropriate actions.		

Question ID	MRDW1109000	
Question	Question Type	Legislative Requirement
If the system uses equipment for primary disinfection other than chlorination or chloramination and the equipment has malfunctioned, lost power or ceased to provide the	Legislative	SDWA O. Reg. 170/03 1-6 (1)

appropriate level of disinfection, causing an alarm or an automatic shut-off, did a qualified person respond in a timely manner and take appropriate actions?		
Observation		
When the primary disinfection equipment, other than that used for chlorination or chloramination, has failed causing an alarm to sound or an automatic shut-off to occur, a certified operator responded in a timely manner and took appropriate actions. UV reactor units shutdown as designed on abnormal conditions and alarms. The UV system SCADA control incorporates an auto-start and switchover function to the standby unit. Nonetheless, a UV critical alarm requires an operator's immediate attendance to confirm the status of operations. Critical alarms are documented in the Critical Control Limit Exceedances Binder. There were 7 instances recorded of critical alarms for low UV calculated dosage. Upon review of the logbooks, there were two instances (Nov. 29, 2020 and July 23, 2021), where a critical UV alarm was noted in the logbook but was not included in the Critical Control Limit Exceedance log. In most cases, the response to plant and UV alarm conditions documented in the logbook were sufficient. Operators are reminded to document alarms and corrective actions in the Facility Logbook as well as in the Critical Control Limit Exceedances Binder. In addition, as per Condition 1.6.4, Schedule C of the Licence, a monthly UV alarm summary report shall be prepared, and include the time, date and duration of each UV equipment alarm.		

Question ID	MRDW1018000	
Question	Question Type	Legislative Requirement
Has the owner ensured that all equipment is installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit?	Legislative	SDWA 31 (1)
Observation		
The owner had ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit. UV valve actuators (as described below) were observed on both UV trains during the site inspection. Only UV2 was in service during the inspection. On September 8, 2021, the Municipality notified the Director that they would be switching polymer coagulant aid within the next 30-45 days. The polymer aid Superfloc C-1592 PG was replaced with Zeta 8812 (US), both of which are polyacrylamide polymers. The pH study has been completed. There are no plans to proceed with any pH adjustments at this time.		

Question ID	MRDW1020000	
Question	Question Type	Legislative Requirement
Is the owner/operating authority able to demonstrate that,	Legislative	SDWA 31 (1)

when required during the inspection period, Form 1 documents were prepared in accordance with their Drinking Water Works Permit?		
Observation		
The owner/operating authority was in compliance with the requirement to prepare Form 1 documents as required by their Drinking Water Works Permit during the inspection period. A Form 1 "Record of Watermains Authorized as a Future Alteration" document was prepared for: 1. Watermain replacement of existing cast iron watermain on Mill Street from existing 600 mm diameter watermain on Cty Rd. 22 to the north end of the Mill St. cul-de-sac. Work includes installation of 157m of 150mm diameter PVC watermain, new appurtenances, and new water services. Date: Dec. 9, 2021. 2. Watermain replacement on Railway Ave., Sixth St. and Seventh St., including valves, hydrants and services. Date: Aug. 18, 2021. The operating authority is reminded that as per Condition 3.3 in Schedule B of the Permit, Form 1's should be completed prior to the watermain addition, modification, replacement or extension being placed into service.		

Question ID	MRDW1021000	
Question	Question Type	Legislative Requirement
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	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. A Form 2 "Record of Minor Modifications or Replacement to the Drinking Water System" document was prepared for: 1. Installation of AUMA actuator's, control system and UPS system on existing Trojan UV effluent control valves ("PWBUV2" and "PWBUV4"). These actuator allow for closing capabilities in the event of a prolonged power outage. Valves tested successfully at 2 min closure. Date: Sept. 22, 2021; 2. Replacement of prominent "Reservoir Influent Free Chlorine", "Reservoir 1 Free Chlorine" and "Reservoir 1 Total Chlorine" chlorine analysers with new Prominent Dulcometer multi parameter controller dialog DACb units. Date: August 12, 2021. The operating authority is reminded that as per Condition 4.6 in Schedule B of the Permit, Form 2's should be completed prior to the modified or replaced components being placed into service.		

Question ID	MRDW1023000	
Question	Question	Legislative

	Type	Requirement
Do records indicate that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a DWWP and/or MDWL issued under Part V of the SDWA at all times that water was being supplied to consumers?	Legislative	SDWA O. Reg. 170/03 1-2 (2)
Observation		
Records indicated that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a Drinking Water Works Permit and/or Municipal Drinking Water Licence issued under Part V of the SDWA at all times that water was being supplied to consumers. Operating logs and continuous monitoring data from November 2020 to November 2021 were reviewed. SCADA data was provided in 3 minute intervals for the parameters below. In order to claim applicable Cryptosporidium oocyst and Giardia cyst removal credits, the Procedure for Disinfection of Drinking Water Supplies in Ontario states that performance must meet filtered water turbidity of less than or equal to 0.3 NTU in 95% of the turbidity measurements each month. The performance standard was met at each filter in each month (99.25% to 100% of the time). The Disinfection Procedure requires that in order to be considered conventional filtration and meet or exceed the 2.5 log Giardia cyst removal, the 2.0 log Cryptosporidium oocyst removal and 2.0 log virus removal credits, the filtration process must use a chemical coagulant at all times when the treatment plant is in operation. Review of the coagulant flow data showed that all instances of prolonged coagulant interruption or low flow corresponded to plant shutdowns or calibrations. Review of UV calculated dosage data indicated that adequate UV disinfection was consistently provided, with the exception of two reported instances. In general, when the UV equipment is not operating as designed, flow should automatically shutdown. On August 13, 2021, there was a brief power outage which caused flow to pass through UV untreated for approximately 8 minutes. On October 10, 2021, there was another loss of UV due to intermittent power outages, in which flow continued for approximately 50 minutes. Upon review of the Critical Control Point Limit Exceedances, another such incident was noted on February 4, 2021. The logs showed that 28 m3 passed through the UV untreated, lasting approximately 4 minutes. For the August 13th incident, the lack of power prevented the valve that stops flow through the UV system from closing, and water continued to flow through UV1 without any treatment. The free chlorine residuals upstream of the reservoir (1.45 mg/L) and downstream of the reservoir (1.57 mg/L) were sufficient. In addition, there was 38.3 hours of retention time in the reservoir. On September 21, 2021, the UV valve actuators were installed to address this issue, which was highlighted during the last inspection (see description below). In addition, chlorine was added to the log removal credits in Schedule E of the new licence. For the October 10th incident, both of the UV trains shut down and their safety valves closed preventing water flow to the reservoir. When power was restored via the generator, the UV2 train failed to start, triggering the UV1 train to start and the safety valve re-opened. However, UV2 train's safety valve also opened and allowed approximately 168 m3 of non-UV treated water to enter the reservoir. It was unknown		

why this had occurred. The logbook noted that UV2 valve only closed to 93% and continued to feed water through both UV trains causing a vacuum on chlorine which resulted in elevated chlorine in the reservoir influent. The operating authority provided the manually calculated CT removal in 5 minute intervals for the time period that the UV was down and review indicated that CT was met throughout this incident. The undersigned officer directed the operating authority to monitor and manually calculate the CT achieved versus required in 5 minute intervals during any future power outages, to ensure that CT is being met at all times, until the valve issue was investigated and resolved. A contractor installed some additional safety hardware on the UV system on October 27, 2021 to resolve this issue.

On all other occasions, the UV disinfection equipment maintained a continuous passthrough UV dose of at least 40mJ/cm² while operating as required by Condition 1.6 in Schedule C of the Licence.

The reservoir #2 free chlorine residual, which the CT is based on, and plant effluent free chlorine residual data showed that chlorine was maintained above the alarm setpoints and only dropped below those limits during analyser calibrations, generator tests, or power outages, all of which were documented in the logbook. Manual CT calculations are completed by operators daily for the hours 12am to 7am. At all other times, the SCADA system calculates the CT achieved to ensure it is meeting the required CT. As described above, a CT alarm was added to the SCADA in October 2021.

Question ID	MRDW1024000		
Question		Question Type	Legislative Requirement
Do records confirm that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated so that at all times and all locations in the distribution system the chlorine residual was never less than 0.05 mg/l free or 0.25 mg/l combined?		Legislative	SDWA O. Reg. 170/03 1-2 (2)
Observation			
Records confirmed that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated so that at all times and all locations in the distribution system the chlorine residual was never less than 0.05 mg/l free or 0.25 mg/l combined.			
On August 30, 2021, a free chlorine residual of 0.04 mg/L was measured during routine trihalomethane (THM) sampling at dead-end station LSW-005 at County Rd. 31/Hwy 401. The sampling station was flushed and the free chlorine residual increased to 0.48 mg/L at 10:39 and then to 0.93 mg/L at 10:42am. An autoflusher was installed at the station. The Municipality also indicated that autoflushers were installed at two other dead-end stations in the distribution system during this inspection period.			
Other than this incident, free chlorine residuals ranged from 0.37 to 2.00 mg/L in the distribution system, never falling below 0.05mg/L. On January 18, 2022, the undersigned officer measured chlorine residuals at Station LSW-005. The free chlorine residual was 0.97 mg/L and the total chlorine residual was 1.36 mg/L.			

Question ID	MRDW1025000	
Question	Question Type	Legislative Requirement
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	SDWA 31 (1)
Observation		
All parts of the drinking water system were not disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit. Commissioning Forms for the two new watermain were reviewed. Documentation was not complete; the following information was not included: pre-disinfection swabbing and flushing completed, method of disinfection (e.g. spray, slug, tablet/continuous feed), initial and/or final chlorine concentration, disinfection chemical meets the AWWA and NSF/ANSI/CAN 60 Standards, decrease in chlorine concentration, and schematic showing location microbiological samples were taken. Therefore it could not be determined if the watermain was disinfected as per the Watermain Disinfection Procedure (2015). As per the new Permit, Schedule B, Condition 2.3, the new Watermain Disinfection Procedure, dated August 1, 2020, was to be adopted by November 21, 2021 (6 months after the date of the Permit). By March 15, 2022, the Watermain Commissioning Form shall be updated to meet the requirements of the 2020 Watermain Disinfection Procedure and training on this procedure shall be provided to all operational staff. On January 26, 2021, a sample of the filter media was physically collected from filter #3. No disinfection of the sampling equipment was conducted. As per Schedule B, section 2.3 of the Permit, disinfection should have been conducted in accordance with the Ministry's and AWWA's disinfection procedures. Condition 2.3.1 of the Permit states: For greater clarity, where an activity has occurred that could introduce contamination, including but not limited to repair, maintenance, or physical/video inspection, all equipment that may come in contact with the drinking water system shall be disinfected in accordance with the requirements of condition 2.3. above. Due to the fact that the filter consists of granular activated carbon (GAC), disinfection of the filter with chlorine is not recommended. Because of this, the equipment should have been disinfected prior to use as per ANSI/AWWA procedure C653-20 (Section 4.4.3.5).		

Question ID	MRDW1026000	
Question	Question Type	Legislative Requirement
If primary disinfection equipment that does not use chlorination or chloramination is provided, is the equipment equipped with alarms or shut-off mechanisms that satisfy the standards described in Section 1-6 (1) of Schedule 1 of Ontario Regulation 170/03?	Legislative	SDWA O. Reg. 170/03 1-6 (1)
Observation		

The primary disinfection equipment was equipped with alarms or shut-off mechanisms that satisfied the standards described in Section 1-6 (1) of Schedule 1 of Ontario Regulation 170/03.

The two Trojan UV Swift units are equipped with four manufacturer supplied photodiode sensors (one per lamp) which monitor UV intensity within the reactors. A low UV dosage alarm setting of 50 mJ/cm² (internal alarm) and a low-low setting of 40 mJ/cm², which shuts down the units are programmed (default from manufacturer). Reactor lockout on low dosage or failure is accomplished via motorized valves located just downstream of the reactor units. The alarms are enunciated audibly and visually at the site and via SCADA to the operator on-call pager through the security company.

During the site inspection, the new UV valve actuators and the battery backup were observed. This newly installed hardware ensures that the UV flow valves can close in the event of a power outage. During a brief power outage, the relay timer is triggered so that the actuators will complete a full cycle (to closed position) by means of the battery backup. Once the actuator has closed the valve, and the predetermined delay time has been achieved, the actuator will be returned to utility power and the UV start-up sequence can begin with the valves opening.

Question ID	MRDW1062000	
Question	Question Type	Legislative Requirement
Do records or other record keeping mechanisms confirm that operational testing not performed by continuous monitoring equipment is being done by a certified operator, water quality analyst, or person who meets the requirements of O. Reg. 170/03 7-5?	Legislative	SDWA O. Reg. 170/03 7-5
Observation		
Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was being done by a certified operator, water quality analyst, or person who suffices the requirements of O. Reg. 170/03 7-5.		
For the calibration and lab analysis records reviewed, operational testing such as total chlorine residual, pH, temperature, conductivity, hardness, colour and aluminum residual, conducted during regular compliance, operational and additional program sampling, was done by the operating authority's certified operators.		

Question ID	MRDW1060000	
Question	Question Type	Legislative Requirement
Do the operations and maintenance manuals meet the requirements of the DWWP and MDWL issued under Part V of the SDWA?	Legislative	SDWA 31 (1)
Observation		
The operations and maintenance manuals met the requirements of the Drinking Water Works Permit and Municipal Drinking Water Licence issued under Part V of the SDWA.		

The SOPs meet the requirements of Condition 16.2, Schedule B of the Licence. Copies of the Licence and Permit are kept in a separate binder which is available to operators in the control room. Similarly, standard operating procedures and contingencies are maintained for the distribution group within the "Lakeshore Water Supply System - Operations & Maintenance/Contingency Plan Manual" binder. A copy of the UV validation certificate, as required by Condition 16.2.3, Schedule B of the Licence, was provided at a previous inspection.

The operating authority indicated that they do not have an SOP for filter maintenance. The operating authority shall review the manufacturer manuals and create an SOP containing the instructions for filter maintenance (frequency of inspection, replacement, etc) as well as procedures to ensure there is no cross contamination during maintenance and inspection/sampling.

Question ID	MRDW1071000		
Question	Question Type	Legislative Requirement	
Has the owner provided security measures to protect components of the drinking water system?	BMP	Not Applicable	
Observation			
The owner had provided security measures to protect components of the drinking water system.			
The John George Facility is gated around the perimeter and all outer doors are locked with keycard access. Visitors must be buzzed in for access. The facility is equipped with security cameras monitored by operators in the SCADA room. The low lift building is in a separate brick structure which is not fully fenced, although it has security fencing with padlocked gates installed to prevent access to the side and rear of the compound. The outward facing walls are windowless walls and are equipped with lockable steel security doors. The building is equipped with remote camera monitoring, intruder door contact alarms and keycode access.			

Question ID	MRDW1073000		
Question	Question Type	Legislative Requirement	
Has the overall responsible operator been designated for all subsystems which comprise the drinking water system?	Legislative	SDWA O. Reg. 128/04 23 (1)	
Observation			
The overall responsible operator has been designated for each subsystem.			
The plant supervisor is the designated overall responsible operator (ORO) for the system and he holds a class 3 water treatment certification matching the water treatment subsystem 3 classification of the plant. The backup ORO for the treatment system also holds a class 3 certification and the backup ORO for the distribution system holds a class 3 certification exceeding the water distribution subsystem 2 classification of the distribution system.			

Question ID	MRDW1074000		
Question	Question	Legislative	

	Type	Requirement
Have operators in charge been designated for all subsystems for which comprise the drinking water system?	Legislative	SDWA O. Reg. 128/04 25 (1)
Observation		
Operators-in-charge had been designated for all subsystems which comprised the drinking water system.		
The operator on call each week is the designated Operator in Charge (OIC) of Operations. For both treatment and distribution subsystems, the OIC for each shift is identified in the designated field in the Daily Operational Log book.		

Question ID	MRDW1075000	
Question	Question Type	Legislative Requirement
Do all operators possess the required certification?	Legislative	SDWA O. Reg. 128/04 22
Observation		
All operators possessed the required certification.		

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

Question ID	MRDW1099000	
Question	Question Type	Legislative Requirement
Do records show that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O. Reg.. 169/03)?	Information	Not Applicable
Observation		
Records did not show that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O. Reg. 169/03).		
On March 15, 2021, a treated sample had a total coliform of 1 CFU/100ML. The other duplicate sample was clear and the chlorine residual was 1.62 mg/L free, 1.82 mg/L total. Resamples were taken on March 16th and 17th and no total coliforms were detected.		

Question ID	MRDW1094000		
Question	Question Type	Legislative Requirement	
Are all water quality monitoring requirements imposed by the MDWL and DWWP being met?	Legislative	SDWA 31 (1)	
Observation	All water quality monitoring requirements imposed by the MDWL or DWWP issued under Part V of the SDWA were being met.		
Condition 1.6 under Schedule C of the Drinking Water System Licence requires the owner and operating authority to continuously monitor and record flow rate, calculated UV dose, UV transmittance and UV lamp status with a minimum testing/reading and recording frequency of every five minutes. Data output includes the recording of all of these parameters at a frequency of at least every three minutes.			
Condition 4.4 under Schedule C of the Drinking Water System Licence requires monthly sampling of composite samples of total suspended solids (TSS) from the waste residual discharge point. The annual average cannot exceed 15 mg/L. The annual average for 2020 was 5.98 mg/L. The average for this portion of 2021 (January to November) was 6.4 mg/L.			

Question ID	MRDW1096000		
Question		Question Type	Legislative Requirement
Do records confirm that chlorine residual tests are being conducted at the same time and at the same location that microbiological samples are obtained?		Legislative	SDWA O. Reg. 170/03 6-3 (1)
Observation			
Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.			
Chlorine residual measurements were observed on all laboratory chain of custody sheets.			

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

O. Regulation 170/03, Sch.10-2 requires the owner and operating authority to take a minimum of one sample per week and at least 36 samples per month from the distribution system. All samples must be analysed for E. coli and total coliforms. In addition, at least 25% of the distribution microbiological samples must be analysed for heterotrophic plate count (HPC). The operating authority collected 40-56 samples per month from 77 sampling stations throughout the distribution system. Samples were analysed for E.coli, total coliform, and more than 25% of the samples (16-25 samples/month) were tested for HPC.

Question ID	MRDW1083000		
Question		Question Type	Legislative Requirement
Are all microbiological water quality monitoring requirements for treated samples being met?		Legislative	SDWA O. Reg. 170/03 10-3
Observation			
All microbiological water quality monitoring requirements for treated samples were being met.			
O. Regulation 170/03, Sch. 10-3 requires the owner and operating authority to sample treated water once per week and analyse them for E. coli, total coliforms and HPC. For the period reviewed, duplicate treated water samples were taken at the High Lift pump building each week.			

Question ID	MRDW1084000		
Question		Question Type	Legislative Requirement
Are all inorganic water quality monitoring requirements prescribed by legislation conducted within the required frequency?		Legislative	SDWA O. Reg. 170/03 13-2
Observation			
All inorganic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.			
Provided that previous sample results haven't exceeded one-half the maximum acceptable concentration (MAC) for any parameter under O. Regulation 170/03, Schedule 23, Schedule 13-2 requires that samples must be taken and analysed for Schedule 23 parameters every 12 months (+/- 30 days) for a surface water supply. The required samples were taken December 16, 2020 and then again November 23, 2021, within the prescribed time frame. No parameters exceeded one-half the MAC listed in O. Reg. 169/03.			

Question ID	MRDW1085000		
Question	Question Type	Legislative Requirement	
Are all organic water quality monitoring requirements prescribed by legislation conducted within the required frequency?	Legislative	SDWA O. Reg. 170/03 13-4 (1),SDWA O. Reg. 170/03 13-	

		4 (2),SDWA O. Reg. 170/03 13-4 (3)
Observation		
All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency. Provided that previous sample results haven't exceeded one-half the MAC for any parameter under O. Regulation 170/03, Schedule 24, Schedule 13-4 requires that samples must be taken and analysed for Schedule 24 parameters every 12 months (+/- 30 days) for a surface water supply. The required samples were taken December 1, 2020, within the prescribed time frame. Another sample was taken November 23, 2021. Benzo(a)pyrene was below the method detection limit (0.006 ug/L); however, this detection limit exceeded half of the MAC. No other parameters exceeded one-half the MAC listed in O. Reg. 169/03.		

Question ID	MRDW1086000	
Question	Question Type	Legislative Requirement
Are all haloacetic acid water quality monitoring requirements prescribed by legislation conducted within the required frequency and at the required location?	Legislative	SDWA O. Reg. 170/03 13-6.1 (1),SDWA O. Reg. 170/03 13-6.1 (2),SDWA O. Reg. 170/03 13-6.1 (3), SDWA O. Reg. 170/03 13-6.1 (4),SDWA O. Reg. 170/03 13-6.1 (5),SDWA O. Reg. 170/03 13-6.1 (6)
Observation		
All haloacetic acid water quality monitoring requirements prescribed by legislation are being conducted within the required frequency and at the required location. As required under O. Regulation 170/03, Schedule 13-6.1, samples must be taken and analysed for haloacetic acid quarterly (60-120 days after previous sample). Samples were taken within the prescribed time frame. The running annual average (RAA) was 5.55 ug/L.		

Question ID	MRDW1087000	
Question	Question Type	Legislative Requirement
Have all trihalomethane water quality monitoring requirements prescribed by legislation been conducted	Legislative	SDWA O. Reg. 170/03 13-6 (1)

within the required frequency and at the required location?		
Observation		
All trihalomethane water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location.		
As required under O. Regulation 170/03, Schedule 13-6 (2), samples must be taken and analysed for trihalomethanes quarterly (60-120 days after previous sample). Samples were taken within the prescribed time frame. The RAA was 32.5 ug/L. Due to the low chlorine measured at sample station LSW-005 on August 31, 2021, the THM sample was taken at LSW-004 instead. All the other samples were taken at LSW-005. Samples were also taken from treated water at the High Lift pump building quarterly and the RAA was 16.75 ug/L.		

Question ID	MRDW1088000	
Question	Question Type	Legislative Requirement
Are all nitrate/nitrite water quality monitoring requirements prescribed by legislation conducted within the required frequency for the DWS?	Legislative	SDWA O. Reg. 170/03 13-7
Observation		
All nitrate/nitrite water quality monitoring requirements prescribed by legislation were conducted within the required frequency for the DWS.		
During the inspection review period, one treated water sample was collected quarterly (from the high lift pump station) for nitrate and nitrite, as prescribed in Schedule 13-7 of O.Regulation 170/03. Nitrate concentrations ranged from 0.1 to 1.4 mg/L, well below the standard of 10 mg/L, and nitrite concentrations were all below the method detection limit (0.01-0.1 mg/L), as well as the standard of 1 mg/L.		

Question ID	MRDW1089000	
Question	Question Type	Legislative Requirement
Are all sodium water quality monitoring requirements prescribed by legislation conducted within the required frequency?	Legislative	SDWA O. Reg. 170/03 13-8
Observation		
All sodium water quality monitoring requirements prescribed by legislation were conducted within the required frequency.		
O. Regulation 170/03, Schedule 13-8 requires sampling and analysis of sodium every 60 months. The sample for sodium was last taken on November 23, 2021 and the result was 8.7 mg/L. The previous sample was taken on November 13, 2019. A sample was also taken from the distribution system for sodium on December 1, 2020 and the result was 12.1 mg/L.		

Question ID	MRDW1090000	
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Question	Question Type	Legislative Requirement
Where fluoridation is not practiced, are all fluoride water quality monitoring requirements prescribed by legislation conducted within the required frequency?	Legislative	SDWA O. Reg. 170/03 13-9
Observation		
All fluoride water quality monitoring requirements prescribed by legislation were conducted within the required frequency.		
O. Regulation 170/03, Schedule 13-9 requires sampling and analysis of fluoride every 60 months. The sample for fluoride was taken on November 23, 2021 and the result was 0.1 mg/L (below the method detection limit). The previous sample was taken on December 1, 2020. A sample was also taken from the distribution system for fluoride on the same day and the result was also below detection (0.1 mg/L).		

Question ID	MRDW1100000	
Question	Question Type	Legislative Requirement
Did any reportable adverse/exceedance conditions occur during the inspection period?	Information	Not Applicable
Observation		
There were reportable adverse/exceedances during the inspection period.		

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

		Reg. 170/03 17-4,SDWA O. Reg. 170/03 17-5,SDWA O. Reg. 170/03 17-6,SDWA O. Reg. 170/03 17-9
Observation		
Corrective actions (as per Schedule 17) had been taken to address adverse conditions, including any other steps that were directed by the Medical Officer of Health.		

Question ID	MRDW1113000	
Question	Question Type	Legislative Requirement
Have all changes to the system registration information been provided to the Ministry within ten (10) days of the change?	Legislative	SDWA O. Reg. 170/03 10.1 (3)
Observation		
All changes to the system registration information were provided within ten (10) days of the change.		

Question ID	MRDW1104000	
Question	Question Type	Legislative Requirement
Were all required verbal notifications of adverse water quality incidents immediately provided as per O. Reg. 170/03 16-6?	Legislative	SDWA O. Reg. 170/03 16-6 (1),SDWA O. Reg. 170/03 16-6 (2),SDWA O. Reg. 170/03 16-6 (3),SDWA O. Reg. 170/03 16-6 (3.1),SDWA O. Reg. 170/03 16-6 (3.2),SDWA O. Reg. 170/03 16-6 (4),SDWA O. Reg. 170/03 16-6 (5),SDWA O. Reg. 170/03 16-6 (6)
Observation		
All required notifications of adverse water quality incidents were immediately provided as per O. Reg. 170/03 16-6.		

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Question ID	MRDW1059000	
Question	Question Type	Legislative Requirement
Do the operations and maintenance manuals contain plans, drawings and process descriptions sufficient for the safe and efficient operation of the system?	Legislative	SDWA O. Reg. 128/04 28
Observation		
The operations and maintenance manuals contained plans, drawings and process descriptions sufficient for the safe and efficient operation of the system. The operations manual, created by the plant's design engineer, details unit operations. The associated record drawings for the water plant, including process and instrumentation diagrams, are available for reference by operators on map racks in the boardroom. Distribution system manuals contain general and specific procedures and directions related to distribution maintenance and repair activities, and contingencies. Distribution operators have access to maps produced on the owner's GIS system. The GIS maps identify locations of watermain, water services, hydrants, valves, blow-offs, and curb-stops as well as archived drawings/maps. Water distribution operators access this system via tablets or the garage computer.		

Question ID	MRDW1061000	
Question	Question Type	Legislative Requirement
Are logbooks properly maintained and contain the required information?	Legislative	SDWA O. Reg. 128/04 27 (1), SDWA O. Reg. 128/04 27 (2), SDWA O. Reg. 128/04 27 (3), SDWA O. Reg. 128/04 27 (4), SDWA O. Reg. 128/04 27 (5), SDWA O. Reg. 128/04 27 (6), SDWA O. Reg. 128/04 27 (7)
Observation		
Logbooks were properly maintained and contained the required information. The Municipality began using electronic logbooks in November 2021, in conjunction with the physical logbooks.		



2021 Microcystin Results

Total Microcystin in Raw Samples from Lakeshore WTP 2021

