# Ministry of the Environment, Conservation and Parks

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July 15, 2021

The Corporation of the Town of Cobourg 55 King St. W, Cobourg, Ontario K9A 2M2

Attention: Tracey Vaughan, CAO

RE: Cobourg Drinking Water System (220000825)

File: SI NO CO KI 540

Enclosed is a copy of the inspection report prepared for the Cobourg Drinking Water System under the Ministry's focused inspection protocol to assess compliance with Safe Drinking Water Act legislation. The report is based on conditions encountered at the time of inspection, and subsequent follow-up.

Any items under the heading "Non-Compliance with Regulatory Requirements and Actions Required" are linked to incidents of non-compliance with regulatory requirements contained within the Act, a regulation, or site-specific approvals, licenses, permits, orders or instructions.

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

In order to measure individual inspection results, the Ministry has established an inspection compliance risk framework based on the principles of the Inspection, Investigation & Enforcement (II&E) Secretariat and advice of internal/external risk experts. The Inspection Summary Rating Record (IRR) provides the Ministry, the system owner and the local Public Health Unit 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 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.

I would like to thank staff for the assistance afforded to me during this compliance assessment. If you have any questions or concerns please contact myself or Jacqueline Fuller, Water Compliance Supervisor, Peterborough District Office at 705-768-0436.

Yours truly,

**Brittney Wielgos** 

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Water Inspector

Ministry of the Environment, Conservation and Parks
Drinking Water and Environmental Compliance Division
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Peterborough, ON K9J 3C7
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CC:

Larry Spyrka, Manager of Capital Projects, Lakefront Utility Services
Sarah Whitton, Water Compliance Coordinator, Lakefront Utility Services
Dr. Natalie Bocking, Medical Officer of Health, Haliburton, Kawartha, Pine Ridge District Health Unit

Linda Laliberte, CAO/Secretary – Treasurer, Ganaraska Region Conservation Authority Jacqueline Fuller, Water Compliance Supervisor, Peterborough District Office, MECP



COBOURG DRINKING WATER SYSTEM 6 D'ARCY ST, COBOURG, ON, K9A 3Z4

## **Inspection Report**

System Number: 220000825 Inspection Start Date: 06/08/2021 Inspection End Date: 07/15/2021

Inspected By: Brittney Wielgos

Badge #: 754

(signature)

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### 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 undersigned Provincial Officer.

#### INSPECTION DETAILS

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

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

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

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

This drinking water system is subject to the legislative requirements of the Safe Drinking Water Act, 2002 (SDWA) and regulations made therein, including Ontario Regulation 170/03, "Drinking Water Systems" (O.Reg. 170/03). This inspection has been conducted pursuant to Section 81 of the SDWA.

This inspection report does not suggest that all applicable legislation and regulations were evaluated. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements. On June 8, 2021, Provincial Officer Brittney Wielgos began an announced focused inspection of the Cobourg Drinking Water System. The onsite physical inspection took place on July 7, 2021.

The inspection included a compliance assessment of applicable Ministry of Environment, Conservation and Parks (MECP) legislation, an inspection of the procedures within the treatment and distribution system, and a review of records.

Records reviewed in conjunction with this inspection include:

- -Drinking Water Works Licence No. 137-101 Issue Number 3 (The Licence); and,
- -Drinking Water Works Permit No. 137-201 Issue Number 2 (The Permit)
- -Permit to Take Water (PTTW) No. 6423-8XHF2

This inspection was conducted pursuant to section 81 of the Safe Drinking Water Act in order to assess compliance with the requirements of Ontario Regulation 170/03. The drinking water inspection included: physical inspections of the equipment and facilities; interviews with operating authority staff; and, a review of relevant documents from the period of July 22, 2020 to July 7, 2021(hereafter referred to as the "inspection review period").

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. The Cobourg Drinking Water System (the System) is owned by the Corporation of the Town of Cobourg and operated by Lakefront Utility Services Inc. (LUSI). The System consists of a convention water treatment plant; two (2) elevated storage tanks with rechlorination; and a booster pumping station with rechlorination. Raw water is obtained from Lake Ontario via a single 1,050 mm diameter intake pipe located approximately 850 m south of the water treatment plant and at a depth of 8.8 m.

The System delivers treated water through two (2) pressure zones and consists of approximately 126 kilometers of distribution watermain and 6,350 residential and non-residential service connections. The System serves approximately 19,544 people. The System operates under Drinking Water System No. 220000825 and is classified as a Class 3 Water Treatment Subsystem and Class 3 Water Distribution Subsystem.

Question ID MRDW1011000		
Question	Question Type	Legislative Requirement
Does the owner have a harmful algal bloom monitoring plan in place?	ВМР	Not Applicable

#### Observation

The owner had a harmful algal bloom monitoring plan in place. LUSI has developed and implemented a 'Harmful Algal Bloom Monitoring Plan', dated January 29, 2021. The plan provides details on a normal sampling plan, which consists of proactive sampling and analysis of microcystin in the raw water on a monthly basis during the period of June 1 - October 31.

The plan outlines the following: how LUSI will respond to suspected or occurring harmful algal blooms; a sampling escalation policy; communication; and response.

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	· <u> </u>	
The owner had a harmful algal bloom monitoring plan in plac	e.	

Question ID MRDW1014000	П	IV == == == ==
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)

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. At the time of the inspection sufficient flow meters were installed to permit the continuous measurement of the flow rates and daily volume of treated water that flows from the treatment subsystem into the distribution system in accordance with Condition 2 of Schedule C of the Licence.

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 of Schedule C of the Licence requires that the System not be operated to exceed the rated capacity of:

Cobourg Drinking Water System: 36,368 m³/day

The rated capacity was not exceeded during the inspection review period. The maximum treated flow for the inspection review period was 11,248 m³/day in June 2021.

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. Primary disinfection chlorine monitoring is conducted at the end of the chlorine contact chamber via an online chlorine analyser.

Question ID MRDW1032000		
Question	Question Type	Legislative Requirement
If the drinking water system obtains water from a surface water source and provides filtration, is continuous monitoring of each filter effluent line being performed for	Legislative	SDWA   O. Reg. 170/03   7-3   (2)

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Continuous monitoring of each filter effluent line was being performed for turbidity. The Cobourg Drinking Water System consists of two dual-media gravity filters. The filters consist of a 600 mm layer of granular activated carbon (GAC), on top of a 300 mm thick layer of silica sand. Filter time and turbidity are monitored by SCADA. Operators manually initiate filter backwash via SCADA based on run time, loss of head and effluent water turbidity.

Each filter is equipped with an online turbidity analyzer.

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. LUSI operators collect an average of eight free chlorine and total chlorine residual samples each week within the distribution system.

Furthermore, secondary disinfection residual is measured using three continuous analysers located at the Ewart Street Booster Pumping Station, Zone 1 and Zone 2 Elevated tanks and recorded and reviewed on SCADA.

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)

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. At the time of the inspection, the continuous analyser alarms provided were:

Contact Chamber Effluent:

Upper limit - 3.5 mg/L

Lower Limit - 1.0 mg/L

Filter Effluent Turbidity: 0.3 NTU

Question ID MRDW1038000			
	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	

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 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. The System is inspected on a daily basis by a licenced operator to monitor the process, perform operational duties, maintenance and respond to customer concerns. The System is equipped with a SCADA system that continuously monitors process parameters. Daily checks include reviewing the previous 24 hour SCADA trending.

The SCADA system is equipped with an auto-dialler that has been programmed to contact the answering service or LUSI personnel whenever conditions deviate from the program setting.

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

All continuous analysers were calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation.

Question ID	MRDW1108000		
Question		Question Type	Legislative Requirement
monitoring of fre combined chlorin Regulation 170, a Part V, SDWA, I	s monitoring equipment used for the se chlorine residual, total chlorine residual, ne residual or turbidity, required by an Order, MDWL, or DWWP issued under has triggered an alarm or an automatic shutted person respond in a timely manner and 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)

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.

Question ID MRDW1018000			
Question		Question Type	Legislative Requirement
	ensured that all equipment is installed in the Schedule A and Schedule C of the Drinking 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. The Drinking Water Works Permit 137-201 outlines the equipment installed throughout the Cobourg Drinking Water System which includes the drinking water treatment plant, two elevated storage tanks with rechlorination and a booster pumping station.

During the physical inspection, a comparison between the equipment described in the permit and the equipment installed on site was performed.

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)

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 seven (7) Form 2 - Record of Minor Modifications or Replacements to the Drinking Water System were prepared.

The Form 2 documents reviewed suggests that the documents were prepared in accordance with the Drinking Water Works Permit.

Question ID MRDW1023000		
Question	Question Type	Legislative Requirement
Do records indicate that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a DWWP and/or MDWL issued under Part V of the SDWA at all times that water was being supplied to consumers?	Legislative	SDWA   O. Reg. 170/03   1-2   (2)

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. The Procedure for Disinfection of Drinking Water in Ontario requires a drinking water system that obtains water from a raw water supply which is surface water, have a treatment process that is capable of producing water of equal or better quality than a combination of well-operated chemically assisted filtration and disinfection process would provide. This treatment must provide and overall performance with a minimum 2-log (99%) removal or inactivation of Cryptosporidium oocysts, a 3-log (99.9%) removal or inactivation of Giardia cysts and a 4-log (99.99%) removal or inactivation of viruses before water is delivered to the first consumer.

The log removal attributed to specific treatment processes at the Cobourg Drinking Water System are stated in the MDWL 137-101 under Schedule E: conventional filtration and chlorination. Operational requirements are listed for each process in order to meet the log removal/inactivation stipulated.

The conventional filtration component requires: a chemical coagulant to be used at all times when the treatment plant is in operation; effective backwash procedures and continuous monitoring of the filtrate turbidity.

Primary disinfection is achieved using chlorine gas. Chlorine is injected into filtered water as it leaves the backwash well. The contact chamber is comprised of two cells that are designed to provide appropriate baffling. The contact tank outlet chlorine residual is used to calculate contact time.

A review of records, including backwash procedures; review of continuous monitoring data of the filtrate turbidity; logbook entries and maintenance records, suggest that the System was operated in a manner that achieved the deign capabilities required under the Procedure for Disinfection of Drinking Water in Ontario and O.Reg. 170/03.

Question ID	MRDW1024000		38 and 8
Question		Question	Legislative

	Туре	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	Legislative	SDWA   O. Reg. 170/03   1-2   (2)
was never less than 0.05 mg/l free or 0.25 mg/l combined?  Observation	l	<u> </u>

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. A review of records confirmed that water treatment equipment that provides chlorination for secondary disinfection purposes was operated in a manner to fulfill the requirements under clause 1-2 (2) 4 of Schedule 1, O. Reg. 170/03.

The chlorine residual is continuously monitored by SCADA at the booster station, water tower #1 and water tower #2. If additional disinfection is necessary, sodium hypochlorite can be added via an on-line pump.

A review of free chlorine residual grab samples taken form the Cobourg distribution system indicate that the free chlorine residual was greater than 0.05 mg/L at all times during the inspection review period.

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)

All parts of the drinking water system were disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit.

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. Based on the review of records

during the inspection review period, it appears that only certified operators performed operational tests.

Question ID	MRDW1060000		
Question		Question Type	Legislative Requirement
	ons and maintenance manuals meet the f the DWWP and MDWL issued under Part V	Legislative	SDWA   31   (1)
Observation			
	and maintenance manuals met the requirement nicipal Drinking Water Licence issued under P		

Question ID MRDW1071000		
Question	Question Type	Legislative Requirement
Has the owner provided security measures to protect components of the drinking water system?	ВМР	Not Applicable

The owner had provided security measures to protect components of the drinking water system.

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.

Subsection 23(1) of O. Reg. 128/04 "Certification of Drinking-Water System Operators and Water Quality Analysts" states that a municipal residential drinking water system must have a designated overall responsible operator

(ORO). The ORO shall be an operator who holds a certificate for that type of subsystem (e.g. water distribution subsystem) and that is of the same class or higher than the class of that subsystem.

The Operational Plan for Cobourg and Hamilton Distribution contains Appendix E 'Responsibilities and Authorities', the appendix identifies competencies required and responsibilities for all individuals whose duties directly affect drinking water quality. LUSI appoints the Manager of Capital Water Projects as the ORO for the Cobourg Drinking Water System. Operators identify the ORO in the logbook each day of the year during daily system checks.

The Cobourg Drinking Water Treatment Plant is classified as a Water Treatment Subsystem Class 3 and Water Distribution Subsystem Class 3. During the inspection review period, Larry Spyrka,

Manager of Water Capital Projects possessed a Water Distribution and Supply Subsystem Class 3 certification that expires on May 31, 2023 and a Water Treatment Subsystem Class 3 certificate that expires on October 31, 2023.

During the inspection review period, the ORO and alternates possessed the appropriate operator certificates to serve in this capacity.

Question ID	MRDW1074000		
Question		Question Type	Legislative Requirement
Have operators	s in charge been designated for all subsystems	Legislative	SDWA   O. Reg.
for which com	prise the drinking water system?		128/04   25   (1)
Observation			

Operators-in-charge had been designated for all subsystems which comprised the drinking water system. LUSI designates all operators with the exception of Operators in Training as Operator in Charge (OIC). The OIC is identified each day in the daily logbook.

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

Question ID	MRDW1099000		
Question		Question Type	Legislative Requirement
the inspection tables 1, 2 and	ow that all water sample results taken during review period did not exceed the values of 3 of the Ontario Drinking Water Quality Reg 169/03)?	Information	Not Applicable
Observation			
	ed that all water sample results taken during thus of tables 1, 2 and 3 of the Ontario Drinking		

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169/03).

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		

#### Observation

All water quality monitoring requirements imposed by the MDWL or DWWP issued under Part V of the SDWA were being met. Section 4.2, 4.3 and 4.4 of Schedule C of the MDWL 137-101 prescribes that the collection and analysis of process wastewater discharged to Lake Ontario.

Table 7 of Section 4.4 of Schedule C of the MDWL prescribes monthly composite samples of wastewater and analysis of suspended solids (TSS). Section 1.5 of Schedule C prescribes that the annual average concentration of Total Suspended Solids shall not exceed 25 mg/L.

Records provided for the inspection review period indicate that the System monitors TSS using monthly composite grab samples.

The annual average concentration (mg/L) of TSS in 2020 was <2 mg/L MDL. A parameter below the method detection limit indicated by (<), cannot be detected as the concentration is lower than the minimum concentration that can be measured and reported with 99% certainty.

Question ID MRDW1096000		<u> </u>
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)

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 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)

All microbiological water quality monitoring requirements for distribution samples were being met. Schedule 10, Section 10-2 of O.Reg.170/03 indicates that at least eight distribution samples plus one additional distribution sample for every 1,000 people served by the system are to be taken each month with at least one sample being taken each week.

The population served, based on service connections, is approximately 19,544, indicating twenty-seven (27) samples are to be taken each month and tested for E.coli and total coliform, with at least 25% of those also being tested for heterotrophic plate count (HPC).

Distribution sample results reviewed for the inspection review period indicated that eight (8) samples were collected each week.

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. Section 10-3 of Schedule 10 of O. Reg. 170/03 requires that the Owner of a drinking water system and the Operating Authority for the system ensure that a water sample is taken at least once every week and tested for E. coli, total coliforms and general bacteria population expressed as colony counts on a heterotrophic plate count.

A review of sample records provided during the inspection period indicates that one treated water sample was collected from the System 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. Section 13-2 (1) of Schedule 13 of O. Reg. 170/03 states that the owner of a large municipal drinking water system and the operating authority for the system shall ensure that at least one water sample is taken every 36 months, if the system obtains water from a raw water supply that is ground water. The owner shall ensure that each of the samples taken is tested for every parameter set out in Schedule 23.

Samples for Schedule 23 inorganic parameters were analyzed on January 11, 2021.

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)

All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency. Section 13-4 (1) of Schedule 13 of O. Reg. 170/03 states that the owner of a large municipal drinking water system and the operating authority for the system shall ensure that at least one water sample is taken every 36 months, if the system obtains water from a raw water supply that is ground water. The owner shall ensure that each of the samples taken is tested for every parameter set out in Schedule 24.

Samples for Schedule 24 organic parameters were analyzed on January 11, 2021.

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. Schedule 13-11 of O. Reg. 170/03 requires 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.

Results provided by LUSI indicate that sampling was conducted every three months as required.

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

#### Observation

All trihalomethane water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location. Section 13-6 of Schedule 13 of O. Reg. 170/03 requires that the owner of a drinking water system that provides chlorination and the operating authority for the system ensure that at least one distribution sample is taken every three months, from a point in the drinking water system's distribution system, or plumbing that is connected to the drinking water system, that is likely to have an elevated potential for the formation of trihalomethanes. Each sample shall be tested for trihalomethanes.

Results provided by LUSI indicate that sampling was conducted every three months as required.

Question ID	MRDW1088000		
Question		Question Type	Legislative Requirement
	nitrite water quality monitoring requirements egislation conducted within the required he DWS?	Legislative	SDWA   O. Reg. 170/03   13-7

#### Observation

All nitrate/nitrite water quality monitoring requirements prescribed by legislation were conducted within the required frequency for the DWS. Section 13-7 of Schedule 13 of O. Reg. 170/03 requires that the owner of a drinking water system and the operating authority for the system ensure that at least one water sample is taken every three months and tested for nitrate and nitrite.

Results provided by LUSI indicate that sampling was conducted a minimum of every three months.

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. Section 13-8 of Schedule 13 of O. Reg. 170/03 requires that the owner of a drinking water system and the operating authority for the system ensure that at least

one water sample is taken every 60 months and tested for sodium.

Results provided by LUSI indicate that sampling was last completed September 16, 2019.

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

#### Observation

All fluoride water quality monitoring requirements prescribed by legislation were conducted within the required frequency. Section 13-9 of Schedule 13 of O. Reg. 170/03 requires that the owner of a drinking water system and the operating authority for the system ensure that at least one water sample is taken every 60 months and tested for fluoride.

Results provided by the LUSI indicate that sampling was last completed September 16, 2019.

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

#### Observation

There were reportable adverse/exceedances during the inpsection period. On October 26, 2020, an adverse water quality incident (AWQI) was reported due to observational issue of air entering the plumbing, observed at 309, 310, 35 and 216 Lakeview Court, Cobourg. LUSI indicated Kawartha Lawn Sprinkler Systems flushed an irrigation system with air for winter shut down at 310 and 316 Lakeview Court, Cobourg.

LUSI staff immediately contacted the Haliburton Kawartha Pine Ridge (HKPR) Health Unit and Spills Action Centre to report the observation.

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

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	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

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. On October 26, 2020, an adverse water quality incident (AWQI) was reported due to observational issue of air entering the plumbing, observed at 309, 310, 35 and 216 Lakeview Court, Cobourg. LUSI indicated Kawartha Lawn Sprinkler Systems flushed an irrigation system at 310 and 316 Lakeview Court with air for winter shut down. Air entered plumbing at 309, 310, 315 and 216 Lakeview Court.

LUSI staff immediately flushed the system and contacted the Haliburton Kawartha Pine Ridge (HKPR) Health Unit and Spills Action Centre to report the observation.

Corrective actions include flushing, micro sample collected and verified free chlorine residual, observed at - 1.45 mg/L

A sample collected on October 26, 2020 at the dead end hydrant of Lakeveiw Court did not indicate the presence of E.coli or total coliform.

Question	Question Type	Legislative Requirement
Have corrective actions (as per Schedule 18) been taken to address adverse conditions, including any other steps as directed by the Medical Officer of Health?	Legislative	SDWA   O. Reg.   170/03   18-10     (1),SDWA   O.   Reg. 170/03   18-   11,SDWA   O.   Reg. 170/03   18-   12,SDWA   O.   Reg. 170/03   18-

13,SDWA   O.
Reg. 170/03   18-
14,SDWA   O.
Reg. 170/03   18-
2,SDWA   O.
Reg. 170/03   18-
3,SDWA   O.
Reg. 170/03   18-
4,SDWA   O.
Reg. 170/03   18-
5,SDWA   O.
Reg. 170/03   18-
6,SDWA   O.
Reg. 170/03   18-
9

Corrective actions (as per Schedule 18) 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 change.	ded within ten (	10) days of the

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 w Reg. 170/03 16-6.	ere immediately provided as per O.

Question ID MRDW1114000				
Question	Question Type	Legislative Requirement		
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	SDWA   31   (1)		

The owner had evidence that all required notifications to all legal owners associated with the Drinking Water System had been made during the inspection period. LUSI has developed and implemented a procedure 'QMS-P09 Communications' to describe the method of communication with the owner of the drinking water system.

Item 7 'Evidence of Transmittal' of the procedure describes where formal communication or the transmittal of documents is made between the owner and operation authority, verification of the communication or transmittal via email or report shall be documented. This includes: meetings with the owner/operating authority; water committee; council meetings; annual/summary/operation report; management review and infrastructure review.

# APPLICATION OF THE RISK METHODOLOGY

# USED FOR MEASURING MUNICIPAL RESIDENTIAL DRINKING WATER SYSTEM INSPECTION RESULTS



The Ministry of the Environment (MOE) has a rigorous and comprehensive inspection program for municipal residential drinking water systems (MRDWS). Its objective is to determine the compliance of MRDWS with requirements under the Safe Drinking Water Act and associated regulations. It is the responsibility of the municipal residential drinking water system owner to ensure their drinking water systems are in compliance with all applicable legal requirements.

This document describes the risk rating methodology, which has been applied to the findings of the Ministry's MRDWS inspection results since fiscal year 2008-09. The primary goals of this assessment are to encourage ongoing improvement of these systems and to establish a way to measure this progress.

MOE reviews the risk rating methodology every three years.

The Ministry's Municipal Residential Drinking Water Inspection Protocol contains 15 inspection modules consisting of approximately 100 regulatory questions. Those protocol questions are also linked to definitive guidance that ministry inspectors use when conducting MRDWS inspections.

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The questions address a wide range of regulatory issues, from administrative procedures to drinking water quality monitoring. The inspection protocol also contains a number of non-regulatory questions.

A team of drinking water specialists in the ministry assessed each of the inspection protocol regulatory questions to determine the risk (not complying with the regulation) to the delivery of safe drinking water. This assessment was based on established provincial risk assessment principles, with each question receiving a risk rating referred to as the Question Risk Rating. Based on the number of areas where a system is deemed to be non-compliant during the inspection, and the significance of these areas to administrative, environmental, and health consequences, a risk-based inspection rating is calculated by the ministry for each drinking water system.

It is important to be aware that an inspection rating less than 100 per cent does not mean the drinking water from the system is unsafe. It shows areas where a system's operation can improve. The ministry works with owners and operators of systems to make sure they know what they need to do to achieve full compliance.

The inspection rating reflects the inspection results of the specific drinking water system for the reporting year. Since the methodology is applied consistently over a period of years, it serves as a comparative measure both provincially and in relation to the individual system. Both the drinking water system and the public are able to track the performance over time, which encourages continuous improvement and allows systems to identify specific areas requiring attention.

The ministry's annual inspection program is an important aspect of our drinking water safety net. The ministry and its partners share a common commitment to excellence and we continue to work toward the goal of 100 per cent regulatory compliance.

## **Determining Potential to Compromise** the Delivery of Safe Water

The risk management approach used for MRDWS is aligned with the Government of Ontario's Risk Management Framework. Risk management is a systematic approach to identifying potential hazards, understanding the likelihood and consequences of the hazards, and taking steps to reduce their risk if necessary and as appropriate.

The Risk Management Framework provides a formula to be used in the determination of risk:

## RISK = LIKELIHOOD × CONSEQUENCE (of the consequence)

Every regulatory question in the inspection protocol possesses a likelihood value (L) for an assigned consequence value (C) as described in **Table 1** and **Table 2**.

TABLE 1:				
Likelihood of Consequence Occurring	Likelihood Value			
0% - 0.99% (Possible but Highly Unlikely)	L = 0			
1 – 10% (Unlikely)	L=1			
11 – 49% (Possible)	L = 2			
50 – 89% (Likely)	L = 3			
90 - 100% (Almost Certain)	L = 4			

TABLE 2:				
Consequence	Consequence Value			
Medium Administrative Consequence	C = 1			
Major Administrative Consequence	C = 2			
Minor Environmental Consequence	C = 3			
Minor Health Consequence	C = 4			
Medium Environmental Consequence	C = 5			
Major Environmental Consequence	C = 6			
Medium Health Consequence	C = 7			
Major Health Consequence	C = 8			

The consequence values (0 through 8) are selected to align with other risk-based programs and projects currently under development or in use within the ministry as outlined in **Table 2**.

The Question Risk Rating for each regulatory inspection question is derived from an evaluation of every identified consequence and its corresponding likelihood of occurrence:

- All levels of consequence are evaluated for their potential to occur
- Greatest of all the combinations is selected.

The Question Risk Rating quantifies the risk of non-compliance of each question relative to the others. Questions with higher values are those with a potentially more significant impact on drinking water safety and a higher likelihood of occurrence. The highest possible value would be  $32 (4 \times 8)$  and the lowest would be  $0 (0 \times 1)$ .

**Table 3** presents a sample question showing the risk rating determination process.

TABLE 3:							
Does the Opera	tor in Charge en	sure that the equ	ipment and pro	cesses are moni	tored, inspected	and evaluated?	
	Risk = Likelihood × Consequence						
C=1	C=2	C=3	C=4	C=5	C=6	C=7	C=8
Medium Administrative Consequence	Major Administrative Consequence	Minor Environmental Consequence	Minor Health Consequence	Medium Environmental Consequence	Major Environmental Consequence	Medium Health Consequence	Major Health Consequence
L=4 (Almost Certain)	L=1 (Unlikely	L=2 (Possible)	L=3 (Likely)	L=3 (Likely)	L=1 (Unlikely	L=3 (Likely)	L=2 (Possible)
R=4	R=2	R=6	R=12	R=15	R=6	R=21	R=16

## Application of the Methodology to Inspection Results

Based on the results of a MRDWS inspection, an overall inspection risk rating is calculated. During an inspection, inspectors answer the questions related to regulatory compliance and input their "yes", "no" or "not applicable" responses into the Ministry's Laboratory and Waterworks Inspection System (LWIS) database. A "no" response indicates noncompliance. The maximum number of regulatory questions asked by an inspector varies by: system (i.e., distribution, stand-alone); type of inspection (i.e., focused, detailed); and source type (i.e., groundwater, surface water).

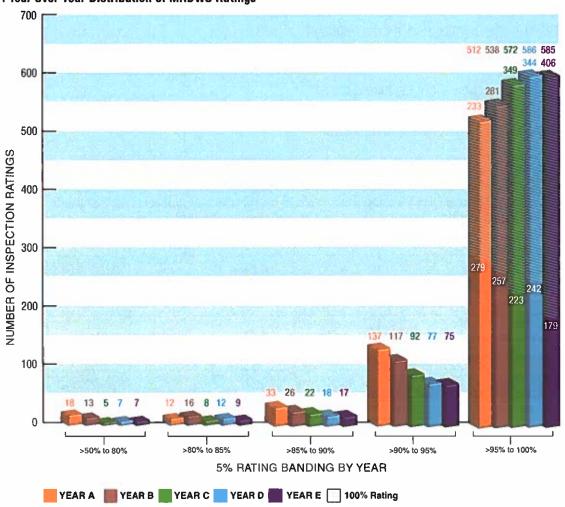
The risk ratings of all non-compliant answers are summed and divided by the sum of the risk ratings of all questions asked (maximum question rating). The resulting inspection risk rating (as a percentage) is subtracted from 100 per cent to arrive at the final inspection rating.

## **Application of the Methodology for Public Reporting**

The individual MRDWS Total Inspection Ratings are published with the ministry's Chief Drinking Water Inspector's Annual Report.

**Figure 1** presents the distribution of MRDWS ratings for a sample of annual inspections. Individual drinking water systems can compare against all the other inspected facilities over a period of inspection years.

Figure 1: Year Over Year Distribution of MRDWS Ratings



## **Reporting Results to MRDWS Owners/Operators**

A summary of inspection findings for each system is generated in the form of an Inspection Rating Record (IRR). The findings are grouped into the 15 possible modules of the inspection protocol,

which would provide the system owner/operator with information on the areas where they need to improve. The 15 modules are:

- 1. Source
- 2. Permit to Take Water
- 3. Capacity Assessment
- 4. Treatment Processes
- 5. Treatment Process Monitoring
- 6. Process Wastewater
- 7. Distribution System
- 8. Operations Manuals
- 9. Logbooks
- 10. Contingency and Emergency Planning
- 11. Consumer Relations
- 12. Certification and Training
- 13. Water Quality Monitoring
- 14. Reporting, Notification and Corrective Actions
- 15. Other Inspection Findings

For further information, please visit www.ontario.ca/drinkingwater

## Ministry of the Environment, Conservation and Parks - Inspection Summary Rating Record (Reporting Year - 2021-2022)

**DWS Name:** COBOURG DRINKING WATER SYSTEM

**DWS Number: 220000825** 

DWS Owner: CORPORATION OF THE TOWN OF COBOURG

**Municipal Location: COBOURG** 

Regulation: O.REG. 170/03

**DWS Category:** DW Municipal Residential

Type of Inspection: Focused
Inspection Date: Jun-8-2021

Ministry Office: Peterborough District Office

### **Maximum Risk Rating: 524**

Inspection Module	Non Compliance Rating
Source	0/0
Capacity Assessment	0/30
Treatment Processes	0/214
Operations Manuals	0/14
Logbooks	0/14
Certification and Training	0 / 42
Water Quality Monitoring	0/112
Reporting & Corrective Actions	0/98
Overall - Calculated	0 / 524

Inspection Risk Rating: 0.00%

Final Inspection Rating: 100.00%

#### Ministry of the Environment, Conservation and Parks - Detailed Inspection Rating Record (Reporting Year - 2021-2022)

**DWS Name: COBOURG DRINKING WATER SYSTEM** 

**DWS Number: 220000825** 

DWS Owner Name: CORPORATION OF THE TOWN OF COBOURG

Municipal Location: COBOURG

Regulation: O.REG. 170/03

DWS Category: DW Municipal Residential

**Type of Inspection:** Focused **Inspection Date:** Jun-8-2021

Ministry Office: Peterborough District Office

All legislative requirements were met. No detailed rating scores.

**Maximum Question Rating: 524** 

Inspection Risk Rating: 0.00%

FINAL INSPECTION RATING: 100.00%