

Ministry of the Environment,
Conservation & Parks

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

Owen Sound District Office

Bureau de district d'Owen Sound

101 17th Street East, 3rd Floor
Owen Sound ON N4K 0A5

Tel.: 519-371-2901

Fax.: 519-371-2905

101 17^{ème} rue Est, 3^e étage

Owen Sound ON N4K 0A5

Tél. : 519-371-2901

Télééc. : 519-371-2905

June 23, 2022

Sent by Email: edance@huronkinloss.com

The Corporation of the Township of Huron-Kinloss
21 Queen Street
P.O. Box 130
Ripley, Ontario
N0G 2R0

Attention: Emily Dance
Clerk

Dear Ms. Dance:

Re: 2022/2023 Inspection Report
Lucknow Drinking Water System
Drinking Water Licence 087-103, Issue #3
Drinking Water Works Permit 087-203, Issue #4

Please find enclosed the inspection report for the Lucknow Drinking Water System (DWS# 220002663). This year's announced inspection was conducted on April 13, 2022.

Section 19 of the Safe Drinking Water Act (Standard of Care) creates a number of obligations for individuals who exercise decision-making authority over municipal drinking water systems. Please be aware that the Ministry has encouraged such individuals, particularly municipal councilors, 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 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 Units with a summarized quantitative measure of the drinking water system's annual inspection and regulated water quality testing performance.

Please note that due to a 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).

IRR ratings are published (for the previous inspection year) in the Ministry's Chief Drinking Water Inspectors' Annual Report. If you have any questions or concerns regarding the rating, please contact John Ritchie, District Manager, at (519) 377-1058.

Likewise, if you have any questions or concerns regarding this report, please call me at (519) 374-0231.

Yours truly,



Heather Lovely
Water Compliance Inspector
Phone: 519-374-0231
e-mail: heather.lovely@ontario.ca

Enclosure

- ec:
- Dr. Ian Arra, Medical Officer of Health, Grey-Bruce Health Unit
 - Andrew Barton, Environmental Health Manager, Grey-Bruce Health Unit
 - Phil Beard, General Manager, Maitland Valley Conservation Authority
 - Nancy Mayhew, Overall Responsible Operator, Veolia Water Canada
 - John Yungblut, Director of Public Works, Township of Huron-Kinloss
 - John Ritchie, District Manager, Owen Sound District Office, Ministry of the Environment, Conservation & Parks
- c: File SI-BR-HK-HA-540 (2022)

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Appendix A: Stakeholder Appendix



LUCKNOW DRINKING WATER SYSTEM (WELLS 4 & 5)
600 HAVELOCK ST, HURON-KINLOSS, ON, N0G 2R0

Inspection Report

System Number: 220002663

Entity: THE CORPORATION OF THE
TOWNSHIP OF HURON-KINLOSS
VEOLIA WATER CANADA INC.

Inspection Start Date: 04/05/2022

Inspection End Date: 06/23/2022

Inspected By: Heather Lovely

Badge #: 1680

Inspected By: Marc Bechard

Badge #: 918

Inspected By: John Ritchie

Badge #: 1157


(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: Other Inspection Findings

Question ID	MRDW1115001	Question Type	Legislative
Question:			
Were the inspection questions sufficient to address other non-compliance items identified during the inspection period?			
Legislative Requirement	Not Applicable		
Observation/Corrective Action(s)			
<p>The following instance(s) of non-compliance were also noted during the inspection:</p> <p>The standpipe is in disrepair; however, the owner is in the process of constructing a new elevated water tank.</p> <p>The standpipe within the Lucknow drinking water distribution system does not conform to the Safe Drinking Water Act 11 (1.2.ii), maintained in a fit state of repair requirement. The standpipe needs to be replaced since it is 91 years old and has clearly deteriorated over time with cracks in the concrete foundation visible. The most recent inspection report of the standpipe was in 2007 shows the interior is painted with a "grease paint" which does not meet current AWWA standards for coating material for finished water storage facilities. The owner and operating authority are aware of these issues and applied for and have recently received funding to assist with the costs to replace the standpipe.</p> <p>The owner has been progressing in the replacement of the standpipe over the past several years and has received, Authorization to Alter the Drinking Water System issued by the Ministry of the Environment and Climate Change (June 20, 2016, DWWP 087-203, Schedule C).</p> <p>The Municipality of Huron-Kinloss received approximately \$3.5 million from federal and provincial "Green Stream Funding". The municipality will provide the remaining funds to complete the following:</p> <ul style="list-style-type: none"> • approximately 225 meters of watermain replacement; • construction of a new, elevated water storage facility; • demolition of the existing standpipe. <p>Construction of the new elevated water tank is planned for the spring of 2023.</p>			

The owner is reminded to provide a Director Notification to the ministry before the new elevated tank is placed into service.

In addition, on November 3, 2021, the operating authority proactively notified the ministry that a weekly well level for Lucknow # 5 was missed in the first week of October, which is a requirement in the Permit to Take Water (PTTW #7631-AQYS3J).

Staff have reviewed the requirements of the PTTW, and no further action is required.

INSPECTION DETAILS

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

Ministry Program: DRINKING WATER | **Regulated Activity:**

Question ID	MRDW1001001	Question Type	Information
Question: What was the scope of this inspection?			
Legislative Requirement	Not Applicable		
Observation			
<p>The primary focus of this inspection is to confirm compliance with Ministry of the Environment, Conservation and Parks (MECP) legislation as well as evaluating conformance with ministry drinking water policies and guidelines during the inspection period. The ministry utilizes a comprehensive, multi-barrier approach in the inspection of water systems that focuses on the source, treatment, and distribution components as well as management practices.</p> <p>This drinking water system is subject to the legislative requirements of the Safe Drinking Water Act, 2002 (SDWA) and regulations made therein, including Ontario Regulation 170/03, "Drinking Water Systems" (O. Reg. 170/03). This inspection has been conducted pursuant to Section 81 of the SDWA.</p> <p>This inspection report does not suggest that all applicable legislation and regulations were evaluated. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.</p> <p>On April 13, 2022 Water Inspector, Heather Lovely, met with ORO, Nancy Mayhew, to inspect the Lucknow Drinking Water System (DWS) concurrently with South Lucknow Distribution System (DS). The site inspection included both pump houses, herein referred to as "Lucknow 4" and "Lucknow 5", as well as the standpipe. The Lucknow DWS is located in the Municipality of Huron-Kinloss and Veolia Water Canada is the Operating Authority of the drinking water system on behalf of the municipality (owner).</p> <p>The inspection period for this report is from the date of the last inspection, May 14, 2021 to the date of the current inspection, April 13, 2022.</p>			

Question ID	MRDW1000001	Question Type	Information
Question: Does this drinking water system provide primary disinfection?			

Legislative Requirement	Not Applicable
Observation	
<p>This Drinking Water System provides for both primary and secondary disinfection and distribution of water.</p> <p>This DWS has two pump houses (Wells 4 & 5) that use sodium hypochlorite to provide primary disinfection of groundwater.</p>	

Question ID	MRDW1018001	Question Type	Legislative
Question:			
Has the owner ensured that all equipment is installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit?			
Legislative Requirement	SDWA 31 (1);		
Observation			
<p>The owner had ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit.</p> <p>Note: The new Drinking Water Works Permit (087-203, Issue 4) that was issued on April 29, 2021 lists the pre-contact chlorine residual analyzer installed at the Lucknow Well 5 pump house under the components of Schedule A.</p>			

Question ID	MRDW1021001	Question Type	Legislative
Question:			
Is the owner/operating authority able to demonstrate that, when required during the inspection period, Form 2 documents were prepared in accordance with their Drinking Water Works Permit?			
Legislative Requirement	SDWA 31 (1);		
Observation			
<p>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.</p> <p>There were two Form 2s completed for the Lucknow DWS relevant to the inspection review period.</p> <p>One Form 2 was completed on January 17, 2022, for the replacement of the well flow control valve with a variable frequency drive and replacement of the flow meter with a new magnetic flow meter at Lucknow 4. These components were placed into service on</p>			

January 19, 2022.

The second Form 2 was completed on March 8, 2022, for the replacement of the Sensus turbine flow meter with a new Endress Hauser magnetic flow meter and associated pipes at Lucknow 5. These components were placed into service on March 11, 2022.

Question ID	MRDW1025001	Question Type	Legislative
Question:			
Were all parts of the drinking water system that came in contact with drinking water (added, modified, replaced or extended) disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit?			
Legislative Requirement	SDWA 31 (1);		
Observation			
All parts of the drinking water system were disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit.			
Procedure No. L-OM-09 of the Lucknow Operations and Maintenance Manual refers to the ministry's Watermain Disinfection Procedure and AWWA disinfection standards (section 14). The new DWWP (087-203, Issue 4), condition 2.3, Schedule B states that as of November 6, 2021, the ministry's Watermain Disinfection Procedure, dated August 1, 2020 is applicable.			

Question ID	MRDW1024001	Question Type	Legislative
Question:			
Do records confirm that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated as required?			
Legislative Requirement	SDWA O. Reg. 170/03 1-2 (2);		
Observation			
Records confirmed that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated so that at all times and all locations in the distribution system the chlorine residual was never less than 0.05 mg/l free or 0.25 mg/l combined.			

Question ID	MRDW1038001	Question Type	Legislative
Question:			
Is continuous monitoring equipment that is being utilized to fulfill O. Reg. 170/03			

requirements performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03 and recording data with the prescribed format?	
Legislative Requirement	SDWA O. Reg. 170/03 6-5 (1)1-4;
Observation	
<p>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.</p> <p>Continuous monitoring of free chlorine to achieve primary disinfection is recorded at a frequency of once every 2.5 minutes, which is more frequently than legislatively required at 5 minute intervals.</p>	

Question ID	MRDW1035001	Question Type	Legislative
Question:			
Are operators examining continuous monitoring test results and are they examining the results within 72 hours of the test?			
Legislative Requirement	SDWA O. Reg. 170/03 6-5 (1)1-4; SDWA O. Reg. 170/03 6-5 (1)5-10;		
Observation			
<p>Operators were examining continuous monitoring test results and they were examining the results within 72 hours of the test.</p> <p>Typically, operators review all of the SCADA trend information generated for drinking water systems operated by Veolia each weekday and note any anomalies in the SCADA Daily Operating Logs. Records demonstrate that the SCADA trend data review interval was less than 72 hours throughout the inspection time frame.</p>			

Question ID	MRDW1037001	Question Type	Legislative
Question:			
Are all continuous monitoring equipment utilized for sampling and testing required by O. Reg. 170/03, or MDWL or DWWP or order, equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6?			
Legislative Requirement	SDWA O. Reg. 170/03 6-5 (1)1-4; SDWA O. Reg. 170/03 6-5 (1)5-10; SDWA O. Reg. 170/03 6-5 (1.1);		
Observation			

All continuous monitoring equipment utilized for sampling and testing required by O. Reg. 170/03, or Municipal Drinking Water Licence or Drinking Water Works Permit or order, were equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6.

The Lucknow 4 chlorine monitor was set to alarm if the free chlorine residual falls to 0.6 mg/L and would lockout the DWS at 0.5 mg/L. The alarm set point meets legislative requirements and was above the free chlorine residual threshold to meet CT requirements, which is 0.26 mg/L under maximum flow conditions.

The Lucknow 5 chlorine monitor was set to alarm if the free chlorine residual falls to 0.7 mg/L and would lockout the DWS at 0.6 mg/L. The alarm set point meets the legislative requirements and was above the free chlorine residual threshold to meet CT requirements, which is 0.27 mg/L under maximum flow conditions.

In addition, the pre-contact chlorine monitor alarm set point is 0.9 mg/L with lockout at 0.8 mg/L. This continuous monitor is not legislatively required but is helpful to ensuring improperly disinfected water is not directed to consumers.

Question ID	MRDW1040000	Question Type	Legislative
Question:			
Are all continuous analysers calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation?			
Legislative Requirement	SDWA O. Reg. 170/03 6-5 (1)1-4; SDWA O. Reg. 170/03 6-5 (1)5-10;		
Observation			
All continuous analysers were calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation.			
The continuous analyzers are checked daily, calibrated weekly and cleaned monthly as per manufacturer's instructions (Operations Manual document: L-OM-13).			

Question ID	MRDW1108001	Question Type	Legislative
Question:			
Where continuous monitoring equipment used for the monitoring of free chlorine residual, total chlorine residual, combined chlorine residual or turbidity, required by O. Reg. 170/03, an Order, MDWL, or DWWP issued under Part V, SDWA, has triggered an alarm or an automatic shut-off, did a qualified person respond in a timely manner and take appropriate actions?			

Legislative Requirement	SDWA O. Reg. 170/03 6-5 (1)1-4; SDWA O. Reg. 170/03 6-5 (1)5-10; SDWA O. Reg. 170/03 6-5 (1.1);
Observation	
<p>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.</p> <p>The ORO provided a database export Excel file of the alarm history for each month of the inspection period. The alarm history review included examination of each alarm for the Lucknow DWS, plus the corresponding SCADA log-in information as well as the pump house and after-hours logbooks. Operators responded to alarms in an appropriate and timely manner.</p>	

Question ID	MRDW1033001	Question Type	Legislative
Question:			
Is the secondary disinfectant residual measured as required for the large municipal residential distribution system?			
Legislative Requirement	SDWA O. Reg. 170/03 7-2 (3); SDWA O. Reg. 170/03 7-2 (4);		
Observation			
<p>The secondary disinfectant residual was measured as required for the large municipal residential distribution system.</p> <p>The free chlorine residual was measured every day from the distribution system during the inspection period with all measurements above 0.05 mg/L.</p>			

Question ID	MRDW1099001	Question Type	Information
Question:			
Do records show that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O. Reg. 169/03)?			
Legislative Requirement	Not Applicable		
Observation			
Records showed that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O. Reg. 169/03).			

Question ID	MRDW1081001	Question Type	Legislative
Question: For LMR systems, are all microbiological water quality monitoring requirements for distribution samples being met?			
Legislative Requirement	SDWA O. Reg. 170/03 10-2 (1); SDWA O. Reg. 170/03 10-2 (2); SDWA O. Reg. 170/03 10-2 (3);		
Observation			
All microbiological water quality monitoring requirements prescribed by legislation for distribution samples in a large municipal residential system were being met.			
Based on a population of 1,100 residents, the Lucknow DWS (donor) is required to take nine (8+1) microbiological distribution samples per month, with at least one taken each week. Usually three (3) distribution samples were taken each week and tested for E. coli and total coliforms, therefore more distribution sampling than legislatively required. This sampling was conducted each week with the longest time between sampling events of 8 days on one occasion during the inspection period.			
All samples within the inspection period resulted in no detection of E. coli or total coliforms. Typically, two-thirds of these samples (average = 67%) were tested for microbial Heterotrophic Plate Count (HPC) with results ranging from 10 to 30 c.f.u./1mL.			

Question ID	MRDW1096001	Question Type	Legislative
Question: Do records confirm that chlorine residual tests are being conducted at the same time and at the same location that microbiological samples are obtained?			
Legislative Requirement	SDWA O. Reg. 170/03 6-3 (1);		
Observation			
Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.			

Question ID	MRDW1086001	Question Type	Legislative
Question: Are all haloacetic acid water quality monitoring requirements prescribed by legislation conducted within the required frequency and at the required location?			
Legislative Requirement	SDWA O. Reg. 170/03 13-6.1 (1); SDWA O. Reg. 170/03 13-6.1 (2); SDWA O. Reg. 170/03 13-6.1 (3);		

	SDWA O. Reg. 170/03 13-6.1 (4); SDWA O. Reg. 170/03 13-6.1 (5); SDWA O. Reg. 170/03 13-6.1 (6);
Observation	
<p>All haloacetic acid water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location.</p> <p>Total Haloacetic Acids (HAAs) were sampled quarterly throughout the inspection review period with sampling events occurring between 85 and 98 days. This is within the legislative requirements (60-120 days). Typically, HAAs were sampled close to the pump houses, as per the requirement to sample where there is a higher likelihood of elevated HAAs. HAAs generally form at the beginning of the distribution system or may be found just past the chlorination point if the right humic acids are present. There were six (6) samples taken on three (3) dates with consistent results of 5.3 ug/L, the minimum detection limit of the laboratory test.</p> <p>The standard for Haloacetic Acids is 80 ug/L, expressed as a Running Annual Average (RAA). The RAA for this facility at the time of the inspection was 5.46 ug/L. Sampling for HAAs will be due again in the next quarter, i.e., within the April to June 2022 time frame.</p>	

Question ID	MRDW1087001	Question Type	Legislative
Question:			
Have all trihalomethane water quality monitoring requirements prescribed by legislation been conducted within the required frequency and at the required location?			
Legislative Requirement	SDWA O. Reg. 170/03 13-6 (1); SDWA O. Reg. 170/03 13-6 (2); SDWA O. Reg. 170/03 13-6 (3); SDWA O. Reg. 170/03 13-6 (4); SDWA O. Reg. 170/03 13-6 (5); SDWA O. Reg. 170/03 13-6 (6);		
Observation			
<p>All trihalomethane water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location.</p> <p>Trihalomethanes (THMs) were sampled quarterly throughout the inspection review period with sampling events occurring between 85 and 98 days. This is within the legislative requirements (60-120 days). There were nine (9) samples taken on three (3) dates with results ranging from 6.7 to 14 ug/L and a Running Annual Average of 10.41 ug/L, less than the Ontario Drinking Water Quality Standard (ODWQS) of 100 ug/L. THM sampling occurred at a variety of sites that are located at the farthest extremities of the distribution system, i.e., at sites where there is a higher likelihood for elevated THM levels.</p> <p>Sampling for THMs will be due again in the next quarter, i.e., within the April to June 2022 time frame.</p>			

Question ID	MRDW1054001	Question Type	Information
Question: For stand alone connected distribution systems, if the receiving system is claiming the exemptions to O. Reg. 170/03 available under subsection 5(4), does the agreement with the donor satisfy the requirements prescribed by subsection 5(4)?			
Legislative Requirement	Not Applicable		
Observation			
The receiving system was claiming exemptions to O. Reg. 170/03 available under subsection 5(4), and the agreement with the donor satisfied the requirements prescribed by subsection 5(4).			
There is a water agreement between the Township of Huron-Kinloss (donor) and the Township of Ashfield-Colborne-Wawanosh (ACW) (receiver) that meets the requirements as per O. Reg. 170/03 Section 5(4)iii(A). This Water Agreement is established in ACW By-law 69-2015.			

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

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

The Lucknow Operations and Maintenance Manual fulfills the requirements stipulated in the DWWP.

Question ID	MRDW1061001	Question Type	Legislative
Question: Are logbooks properly maintained and contain the required information?			
Legislative Requirement	SDWA O. Reg. 128/04 27 (1); SDWA O. Reg. 128/04 27 (2); SDWA O. Reg. 128/04 27 (3); SDWA O. Reg. 128/04 27 (4); SDWA O. Reg. 128/04 27 (5); SDWA O. Reg. 128/04 27 (6); SDWA O. Reg. 128/04 27 (7);		
Observation			
Logbooks were properly maintained and contained the required information.			
Logbooks are properly maintained and include specified daily checks, alarm summary, work order section as well as daily events and observations.			

Question ID	MRDW1062001	Question Type	Legislative
Question: Do records or other record keeping mechanisms confirm that operational testing not performed by continuous monitoring equipment is being done by a certified operator, water quality analyst, or person who meets the requirements of O. Reg. 170/03 7-5?			
Legislative Requirement	SDWA O. Reg. 170/03 7-5;		
Observation			
Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was being done by a certified operator, water quality analyst, or person who suffices the requirements of O. Reg. 170/03 7-5.			

Question ID	MRDW1071000	Question Type	BMP
Question: Has the owner provided security measures to protect components of the drinking water system?			
Legislative Requirement	Not Applicable		
Observation			
The owner had provided security measures to protect components of the drinking water			

system.

The pump houses (4 and 5) are visited daily by an operator and each site, including the standpipe, has signage, metal screens on the windows and keyed lock entry. In addition, the PLC panels alarm when opened.

Question ID	MRDW1073001	Question Type	Legislative
Question: Has the overall responsible operator been designated for all subsystems which comprise the drinking water system?			
Legislative Requirement	SDWA O. Reg. 128/04 23 (1);		
Observation			
The overall responsible operator had been designated for each subsystem.			
The Overall Responsible Operator during the inspection period was Nancy Mayhew with Veolia Water Canada. The ORO for each day is noted in the pump house logbooks.			

Question ID	MRDW1074001	Question Type	Legislative
Question: Have operators-in-charge been designated for all subsystems for which comprise the drinking water system?			
Legislative Requirement	SDWA O. Reg. 128/04 25 (1);		
Observation			
Operators-in-charge had been designated for all subsystems which comprise the drinking water system.			
The Operator-In-Charge (OIC) is designated and documented each day in the pump house logbooks.			

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

All operators possessed the required certification.

The Lucknow DWS is classified as a Class 2 Water Distribution and Supply Subsystem. Persons making operational adjustments to the Lucknow DWS are required to hold, or be deemed to hold, a valid Class 2 Water Distribution and Supply (WD&S) operator's certificate. During the inspection period, there were primarily five (5) operators who did most of the operational checks and sampling for the Lucknow DWS. All of these operators had adequate and current certification for the inspection period, including an operator with a Class 1 WD&S who worked under the direction of a certified operator.

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

Question ID	MRDW1115001	Question Type	Legislative
Question: Were the inspection questions sufficient to address other non-compliance items identified during the inspection period?			
Legislative Requirement	Not Applicable		
Observation The following instance(s) of non-compliance were also noted during the inspection: The standpipe is in disrepair; however, the owner is in the process of constructing a new elevated water tank. The standpipe within the Lucknow drinking water distribution system does not conform to the Safe Drinking Water Act 11 (1.2.ii), maintained in a fit state of repair requirement. The standpipe needs to be replaced since it is 91 years old and has clearly deteriorated over time with cracks in the concrete foundation visible. The most recent inspection report of the standpipe was in 2007 shows the interior is painted with a "grease paint" which does not meet current AWWA standards for coating material for finished water storage facilities. The owner and operating authority are aware of these issues and applied for and have recently received funding to assist with the costs to replace the standpipe. The owner has been progressing in the replacement of the standpipe over the past several			

years and has received, Authorization to Alter the Drinking Water System issued by the Ministry of the Environment and Climate Change (June 20, 2016, DWWP 087-203, Schedule C).

The Municipality of Huron-Kinloss received approximately \$3.5 million from federal and provincial "Green Stream Funding". The municipality will provide the remaining funds to complete the following:

- approximately 225 meters of watermain replacement;
- construction of a new, elevated water storage facility;
- demolition of the existing standpipe.

Construction of the new elevated water tank is planned for the spring of 2023.

The owner is reminded to provide a Director Notification to the ministry before the new elevated tank is placed into service.

In addition, on November 3, 2021, the operating authority proactively notified the ministry that a weekly well level for Lucknow # 5 was missed in the first week of October, which is a requirement in the Permit to Take Water (PTTW #7631-AQYS3J).

Staff have reviewed the requirements of the PTTW, and no further action is required.

Question ID	MRDW1007001	Question Type	Legislative
Question:			
Is the owner maintaining the production well(s) in a manner sufficient to prevent entry into the well of surface water and other foreign materials?			
Legislative Requirement	SDWA O. Reg. 170/03 1-2 (1);		
Observation			
The owner was maintaining the production well(s) in a manner sufficient to prevent entry into the well of surface water and other foreign materials.			
The Lucknow DWS source wells (4 and 5) are located within the respective pump houses. Although Water Well Records (Well #4 - 1401878, and Well #5 - 1401880) do not include documentation on the annular seal, a review of over 12 years (January 2010 to April 2022) of raw water test results does not indicate these wells are under influence from surface water. Of the 2542 samples taken during that time frame, there were only six (6) instances of the presence of total coliform detected in October 2011, September 2017, October 2017 as well as April, June and November 2021. In all instances the result was 1 cfu/100 mL for total coliforms and there were no instances of E. coli detected in the raw water of the production wells.			

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Question ID	MRDW1009001	Question Type	Legislative
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Question:
Are measures in place to protect the groundwater and/or GUDI source in accordance with any MDWL and DWWP issued under Part V of the SDWA?

Legislative Requirement	SDWA 31 (1);
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Observation

Measures were in place to protect the groundwater and/or GUDI source in accordance with the Municipal Drinking Water Licence and Drinking Water Works Permit issued under Part V of the SDWA.

A below grade well inspection was conducted on April 5, 2021, of the Lucknow 5 well by W. D. Hopper & Sons Ltd. The subsequent report provides the following observations and recommendations.

- casing is moderately coated with mineral deposits, especially just above the bedrock interface.
- No major corrosion points visible. The well still pumps good volume & water is still low turbidity.
- Due to age and a few visible corrosion areas close watch on turbidity is recommended.

A below grade well inspection was conducted on September 10, 2021, of the Lucknow 4 well by W.D. Hopper & Sons Ltd. The subsequent report provides the following observations and recommendations.

- ** The well casing is moderately to heavily coated with mineral deposits.
- ** Major corrosion points in the casing are visible and some are noted in pictures above.
- ** Due to age and a number of visible corrosion areas, cleaning the well would make other trouble areas in the casing more visible.
- ** This would further help to determine the life span left for this well.
- ** If the casing is not cleaned keep a very close watch on the turbidity and bacteria samples.

Section L-OM-18 "Well Inspection and Maintenance Plan" of the Lucknow DWS Operations and Maintenance Manual stipulates the data that is reviewed annually to determine if and when additional measures are required to address the condition of the well, e.g. raw water turbidity. This data is summarized in the Lucknow DWS Annual and Summary report each year.

Question ID	MRDW1014001	Question Type	Legislative
Question:			
Is there sufficient monitoring of flow as required by the MDWL or DWWP issued under Part V of the SDWA?			
Legislative Requirement	SDWA 31 (1);		
Observation			
There was sufficient monitoring of flow as required by the Municipal Drinking Water Licence or Drinking Water Works Permit issued under Part V of the SDWA.			
Flow measurement conditions 2.1.1 and 2.1.2 (Schedule C) of the MDWL (087-103) state flow rate and volume of water into the treatment subsystem and the distribution subsystem must be recorded daily. Each pump house has one flow meter to measure the flow rate of raw water into the treatment system from each of the production wells. There is no treated water flow meter, however, the raw water flow meters reflect the amount of water entering the distribution system.			
A new magnetic flow meter was installed in both the Lucknow 4 and Lucknow 5 pump houses within the current inspection period.			

Question ID	MRDW1016001	Question Type	Legislative
Question:			
Is the owner in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the MDWL issued under Part V of the SDWA?			
Legislative Requirement	SDWA 31 (1);		
Observation			
The owner was in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the Municipal Drinking Water Licence issued under Part V of the SDWA.			
The DWWP (087-203, Issues 4) does not stipulate a maximum flow rate, however, the MDWL (087-103, Issue 3) specifies the rated capacity for Well 4 as 1245 m ³ /day and Well 5 as 3276 m ³ /day. There were no exceedances of the rated capacities within the inspection period. The maximum volume taken during the inspection period was 625.53 m ³ /day and 807.52 m ³ /day for Lucknow 4 and Lucknow 5 respectively.			
There were several recorded instantaneous flow rate exceedances (> 37.9 L/s) due to flow meter issues at Lucknow 5 in February and March 2022, but all occurrences were less than 1 minute in duration. These exceedances were addressed with the installation of a new			

magnetic flow meter at Lucknow 5 in March 2022.

Lucknow 4 was offline October 2021 to January 2022 while a new well pump and pump controller were installed.

Question ID	MRDW1023001	Question Type	Legislative
Question:			
Do records indicate that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a DWWP and/or MDWL issued under Part V of the SDWA at all times that water was being supplied to consumers?			
Legislative Requirement	SDWA O. Reg. 170/03 1-2 (2);		
Observation			
Records indicated that the treatment equipment was operated in a manner that achieved the design capabilities required under O. Reg. 170/03 or a Drinking Water Works Permit and/or Municipal Drinking Water Licence issued under Part V of the SDWA at all times that water was being supplied to consumers.			
There were no Adverse Water Quality Incidents and no evidence that improperly disinfected water was directed to consumers within the Lucknow DWS during the inspection period.			

Question ID	MRDW1030000	Question Type	Legislative
Question:			
Is primary disinfection chlorine monitoring being conducted at a location approved by MDWL and/or DWWP issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved?			
Legislative Requirement	SDWA O. Reg. 170/03 7-2 (1); SDWA O. Reg. 170/03 7-2 (2);		
Observation			
Primary disinfection chlorine monitoring was conducted at a location approved by Municipal Drinking Water Licence and/or Drinking Water Works Permit issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved.			

Question ID	MRDW1083001	Question Type	Legislative
Question:			

For LMR systems, are all microbiological water quality monitoring requirements for treated samples being met?	
Legislative Requirement	SDWA O. Reg. 170/03 10-3;
Observation	
All microbiological water quality monitoring requirements prescribed by legislation for treated samples were being met.	
E. coli and total coliforms were sampled weekly from the treated water at each pump house, with the greatest period between sampling events of 8 days on one occasion. All samples resulted in no detection of E. coli or total coliform (n=81). HPC was also measured for 100% of the required samples and results ranged from 10 to 320 cfu/1mL.	

Question ID	MRDW1084001	Question Type	Legislative
Question:			
Are all inorganic water quality monitoring requirements prescribed by legislation conducted within the required frequency?			
Legislative Requirement	SDWA O. Reg. 170/03 13-2;		
Observation			
All inorganic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.			
The Operating Authority sampled all of the O. Reg 170/03 Schedule 23 inorganic parameters from each pump house on June 22, 2021, with no exceedances.			
Arsenic was sampled quarterly since this parameter has often exceeded the half of the Maximum Allowable Concentration (MAC) threshold with results ranging from 2.5 to 5.8 mg/L (25% to 58% MAC) during the inspection period. The most recent exceedance of the half-MAC arsenic threshold occurred on 8-Nov-2021.			
All other Schedule 23 results from June 2021 were below the reportable threshold (0.1% -32.1% maximum allowable concentration).			
The Lucknow DWS is categorized as a large municipal residential system with a ground water source, therefore, as per O. Reg. 170/03 Schedule 13-3, inorganic parameters stipulated in O. Reg. 170/03 Schedule 23 parameters are due to be sampled again in 36 months, or in June 2024. Arsenic sampling needs to be sampled quarterly until the results from two consecutive three-month periods are below half of the standard (i.e., less than 0.005 mg/L).			

Question ID	MRDW1093001	Question Type	Legislative
Question:			
If the owner is required to conduct sampling under Schedule 13 of O. Reg. 170/03, have they increased the frequency of monitoring for any Schedule 13-2 or 13-4 parameter(s) as a result of having exceeded half the value of an applicable ODWQS?			
Legislative Requirement	SDWA O. Reg. 170/03 13-5 (1); SDWA O. Reg. 170/03 13-5 (2);		
Observation			
The owner was required to increase frequency of monitoring as a result of having exceeded half the value of an applicable ODWQS of a Schedule 13-2 or 13-4 parameter(s) and the increased monitoring was conducted.			
Schedule 13-5. (1) states that if a test result obtained under section 13-2 or 13-4 for a parameter exceeds half of the standard prescribed for the parameter in Schedule 2 of the Ontario Drinking-Water Quality Standards, the frequency of sampling for that parameter shall be increased to every three months until there are two consecutive three-month periods in which the results do not exceed half of the prescribed standard (for ground water sources).			
Under Schedule 2 of O. Reg. 169\02, the Ontario Drinking Water Quality Standard for arsenic is 0.01 mg/L. Samples taken from Lucknow 4 on June 22, 2021, and Lucknow 5 on June 22, 2021, and November 8, 2021, had arsenic results greater than 50% of the MAC. Therefore, quarterly sampling will need to be implemented for at least the first and second quarters of 2022, depending on the results.			

Question ID	MRDW1088000	Question Type	Legislative
Question:			
Are all nitrate/nitrite water quality monitoring requirements prescribed by legislation conducted within the required frequency for the DWS?			
Legislative Requirement	SDWA O. Reg. 170/03 13-7;		
Observation			
All nitrate/nitrite water quality monitoring requirements prescribed by legislation were conducted within the required frequency for the DWS.			
Nitrates and nitrites are required to be sampled every three months. Nitrates and nitrites were sampled throughout the inspection review period with sampling events occurring between 70 and 98 days. This is within the legislative requirements (60-120 days). All results were below each respective reportable threshold and a fraction of the Maximum Allowable Concentration (0.06-0.3% MAC). The results for Nitrate + Nitrite (as Nitrogen) were 0.006 mg/L or 0.007 mg/L during the inspection time frame, lower than the ODWQS of			

10.0 mg/L.

Question ID	MRDW1089000	Question Type	Legislative
Question: Are all sodium water quality monitoring requirements prescribed by legislation conducted within the required frequency?			
Legislative Requirement	SDWA O. Reg. 170/03 13-8;		
Observation			
All sodium water quality monitoring requirements prescribed by legislation were conducted within the required frequency.			
Sodium is required to be taken and tested once every 5 years or 60 months. Lucknow DWS was most recently sampled for sodium on July 27, 2021, with results of 11.1 and 12.8 mg/L. These sodium concentrations are below the reportable threshold of 20 mg/L. (Sodium has an aesthetic standard of 200 mg/L although a result exceeding 20 mg/L must be reported as this level may impact people on sodium reduced diets.)			
Sodium sampling is due again in July 2026.			

Question ID	MRDW1090000	Question Type	Legislative
Question: Where fluoridation is not practiced, are all fluoride water quality monitoring requirements prescribed by legislation conducted within the required frequency?			
Legislative Requirement	SDWA O. Reg. 170/03 13-9;		
Observation			
All fluoride water quality monitoring requirements prescribed by legislation were conducted within the required frequency.			
Fluoride is required to be sampled once every 5 years or 60 months and was most recently sampled from treated water at each pump house on August 15, 2017 with results of 1.75 and 1.78 mg/L. These results were in exceedance of the ODQWS of 1.5 mg/L and the subsequent resample results were ranged from 1.72 to 1.74 mg/L (n=4), with two samples taken at each pump house. The Grey Bruce Health Unit is aware of the relatively high fluoride levels which are naturally occurring in this area. The municipality provides this information to consumers through bi-annual newsletters sent out with tax notices. Fluoride is next due to be sampled in August 2022.			

Question ID	MRDW1085001	Question Type	Legislative
Question: Are all organic water quality monitoring requirements prescribed by legislation conducted within the required frequency?			
Legislative Requirement	SDWA O. Reg. 170/03 13-4 (1); SDWA O. Reg. 170/03 13-4 (2); SDWA O. Reg. 170/03 13-4 (3);		
Observation			
<p>All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.</p> <p>The Operating Authority sampled all of the O. Reg 170/03 Schedule 24 organic parameters (n = 2 X 44 = 88) on June 22, 2021, at both pump houses with no exceedances. All results were below the reportable threshold (0-40% maximum allowable concentration). The Lucknow DWS is categorized as a large municipal residential system with a ground water source, therefore, as per O. Reg. 170/03 Schedule 13-4, organic parameters stipulated in O. Reg. 170/03 Schedule 24 are due to be sampled again in 36 months, or in June 2024.</p>			

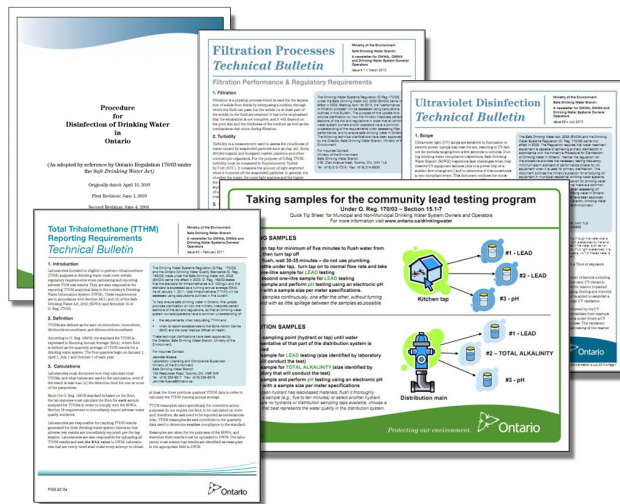
Stakeholder Appendix

Key Reference and Guidance Material for Municipal Residential Drinking Water Systems

Many useful materials are available to help you operate your drinking water system. Below is a list of key materials owners and operators of municipal residential drinking water systems frequently use.

To access these materials online click on their titles in the table below or use your web browser to search for their titles. Contact the Public Information Centre if you need assistance or have questions at 1-800-565-4923/416-325-4000 or picemail.moe@ontario.ca.

For more information on Ontario's drinking water visit www.ontario.ca/drinkingwater and email drinking.water@ontario.ca to subscribe to drinking water news.



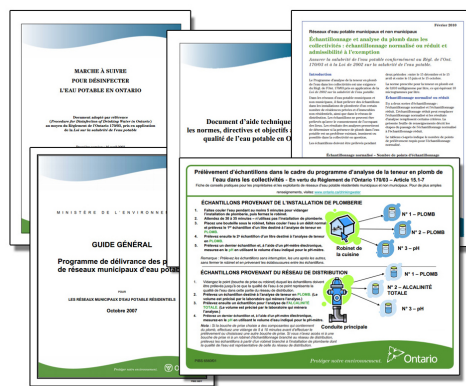
PUBLICATION TITLE	PUBLICATION NUMBER
Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils	7889e01
FORMS: Drinking Water System Profile Information, Laboratory Services Notification, Adverse Test Result Notification Form	7419e, 5387e, 4444e
Procedure for Disinfection of Drinking Water in Ontario	4448e01
Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids	7152e
Total Trihalomethane (TTHM) Reporting Requirements Technical Bulletin (February 2011)	8215e
Filtration Processes Technical Bulletin	7467
Ultraviolet Disinfection Technical Bulletin	7685
Guide for Applying for Drinking Water Works Permit Amendments, Licence Amendments, Licence Renewals and New System Applications	7014e01
Certification Guide for Operators and Water Quality Analysts	
Guide to Drinking Water Operator Training Requirements	9802e
Taking Samples for the Community Lead Testing Program	6560e01
Community Sampling and Testing for Lead: Standard and Reduced Sampling and Eligibility for Exemption	7423e
Guide: Requesting Regulatory Relief from Lead Sampling Requirements	6610
Drinking Water System Contact List	7128e
Technical Support Document for Ontario Drinking Water Quality Standards	4449e01

ontario.ca/drinkingwater

Principaux guides et documents de référence sur les réseaux résidentiels municipaux d'eau potable

De nombreux documents utiles peuvent vous aider à exploiter votre réseau d'eau potable. Vous trouverez ci-après une liste de documents que les propriétaires et exploitants de réseaux résidentiels municipaux d'eau potable utilisent fréquemment.

Pour accéder à ces documents en ligne, cliquez sur leur titre dans le tableau ci-dessous ou faites une recherche à l'aide de votre navigateur Web. Communiquez avec le Centre d'information au public au 1 800 565-4923 ou au 416 325-4000, ou encore à picemail.moe@ontario.ca si vous avez des questions ou besoin d'aide.



Pour plus de renseignements sur l'eau potable en Ontario, consultez le site www.ontario.ca/eaupotable ou envoyez un courriel à drinking.water@ontario.ca pour suivre l'information sur l'eau potable.

TITRE DE LA PUBLICATION	NUMÉRO DE PUBLICATION
Prendre soin de votre eau potable – Un guide destiné aux membres des conseils municipaux	7889f01
Renseignements sur le profil du réseau d'eau potable, Avis de demande de services de laboratoire, Formulaire de communication de résultats d'analyse insatisfaisants et du règlement des problèmes	7419f, 5387f, 4444f
Marche à suivre pour désinfecter l'eau potable en Ontario	4448f01
Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids (en anglais seulement)	7152e
Total Trihalomethane (TTHM) Reporting Requirements: Technical Bulletin (février 2011) (en anglais seulement)	8215e
Filtration Processes Technical Bulletin (en anglais seulement)	7467
Ultraviolet Disinfection Technical Bulletin (en anglais seulement)	7685
Guide de présentation d'une demande de modification du permis d'aménagement de station de production d'eau potable, de modification du permis de réseau municipal d'eau potable, de renouvellement du permis de réseau municipal d'eau potable et de permis pour un nouveau réseau	7014f01
Guide sur l'accréditation des exploitants de réseaux d'eau potable et des analystes de la qualité de l'eau de réseaux d'eau potable	
Guide sur les exigences relatives à la formation des exploitants de réseaux d'eau potable	9802f
Prélèvement d'échantillons dans le cadre du programme d'analyse de la teneur en plomb de l'eau dans les collectivités	6560f01
Échantillonnage et analyse du plomb dans les collectivités : échantillonnage normalisé ou réduit et admissibilité à l'exemption	7423f
Guide: Requesting Regulatory Relief from Lead Sampling Requirements (en anglais seulement)	6610
Liste des personnes-ressources du réseau d'eau potable	7128f
Document d'aide technique pour les normes, directives et objectifs associés à la qualité de l'eau potable en Ontario	4449f01

ontario.ca/eaupotable