Ministry of the Environment, Conservation & Parks

Owen Sound District Office

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July 4, 2024

Sent by Email: jwhite@huronkinloss.com

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

Attention: Jennifer White
Clerk

Dear Ms. White:

Re: 2024/2025 Inspection Report
Lucknow Drinking Water System
Drinking Water Licence 087-103, Issue #3
Drinking Water Works Permit 087-203, Issue #5

Please find enclosed the inspection report for the Lucknow Drinking Water System (DWS# 220002663). This year's announced inspection was conducted on May 3, 2024.

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. The IRR for each drinking water system is published in the Ministry's Chief Drinking Water Inspector's Annual Report.

Also enclosed is the Ministry's guidance document that describes the risk rating methodology which has been applied to the findings of the Ministry's municipal residential drinking water system inspection results. If you have any questions or concerns regarding the rating, please contact Water Compliance Supervisor, Marc Bechard, at (519) 383-3778.

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

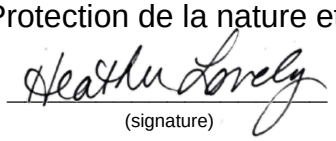
ec:
- Dr. Ian Arra, Medical Officer of Health, Grey-Bruce Health Unit
- Andrew Barton, Environmental Health Manager, Grey-Bruce Health Unit
- Phil Beard, General Manager, Maitland Valley Conservation Authority
- Steven Walmsley, Overall Responsible Operator, Veolia Water Canada
- Sarah Telford, Compliance Coordinator, Veolia Water Canada
- John Yungblut, Director of Public Works, Township of Huron-Kinloss
- Marc Bechard, Water Compliance Supervisor, Owen Sound and Sarnia District Office, Ministry of the Environment, Conservation & Parks

c: File SI-BR-HK-HA-540 (2024)

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

INSPECTION REPORT

Entity:	THE CORPORATION OF THE TOWNSHIP OF HURON-KINLOSS VEOLIA WATER CANADA INC.
Inspection Start Date:	April 30, 2024
Site Inspection Date:	May 16, 2024
Inspection End Date:	July 03, 2024
Inspected By:	Heather Lovely
Badge #:	1680
Inspected By:	Marc Bechard
Badge #:	918



(signature)

INTRODUCTION

Purpose

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.

Scope

On May 3, 2024, Water Compliance Officer, Heather Lovely initiated the announced drinking water inspections of the Lucknow drinking water system (DWS) and South Lucknow distribution system (DS) remotely.

Operator, Kole Kennedy, emailed to the author of this report, May 1, 2024, date-stamped photos for Lucknow pump houses 4 and 5 of the following:
1) Free chlorine residual analyzer - showing the digital display and make and model
2) Logbook entry for April 30, 2024
3) ANSI certified sodium hypochlorite in secondary containment
4) Flow meter - showing make and model
5) Wellhead
6) Exterior of Lucknow 5 showing repair

On May 16, 2024, Heather Lovely met with Operator, Ryan MacKay, to conduct the site inspection that included Lucknow pump house 4, Lucknow pump house 5 and the new elevated water tower that was put into service on November 8, 2023. The previous water tower has been removed from the lot that is adjacent to the new water tower.

The South Lucknow DS is owned by the Municipality of Ashfield-Colborne-Wawanosh (ACW). The South Lucknow DS is a stand-alone distribution system that has no outstations and "receives" treated water from their "donor" system, the Lucknow Drinking Water System which is owned by the Municipality of Huron-Kinloss. There is a water supply agreement (as per O.

Reg. 170/03, s5(4)) between the municipalities, ACW and Huron-Kinloss, which authorizes the Operating Authority, Veolia Water Canada, to operate the South Lucknow DS as an extension of the Lucknow DWS including water testing and monitoring. The inspection period for this report is from the date of the last inspection, May 5, 2023, to May 3, 2024.

Note: A new Drinking Water Works Permit is # 087-203 Issue 5, was issued during the inspection period on January 16, 2024. The updated DWWP reflects the new elevated storage tank with all associated piping, valves, electrical and mechanical equipment, instrumentation, and operation control, including the control of flow into the tank via a manual valve complete with manual bypass, and an online free chlorine analyzer for chlorine residual monitoring/alarming.

Systems/Components

WELL #4 RAW
Type: Source Sub Type: Ground
Well No.4 is used to supply water to the system when the output from primary production well No.5 proves insufficient to meet the demand of the system. The 200 mm diameter well is located inside a pumphouse, near the intersection of Hamilton and Havelock Streets in a community park. It is equipped with a vertical turbine pump rated at 9.5 L/s, with a 75 mm discharge line connected to the well pump header, with a 100 mm diameter turbine flow meter in the header.

WELL #5 RAW
Type: Source Sub Type: Ground
Constructed in 1967, Lucknow Well No.5 is the main production well for the system. The well is located inside a pumphouse adjacent to a senior's care facility at the intersection of Bob and Delhi Streets. The 203 mm diameter casing well is drilled to a depth of 58.8 m into the limestone-dolostone bedrock aquifer.
According to the well record summary report the well takes water from within the bedrock at a depth of 47.5m. The well is equipped with a lineshaft turbine pump rated at 32.8 L/s at a TDH of 66.1 m with a 150 mm diameter discharge line connected to the well pump header, which contains a 150 mm diameter turbine flow meter.

PUMPHOUSE #4 TREATED
Type: Treated Water POE Sub Type: Pumphouse
The Well No.4 pumphouse is located in a community park near the intersection of Hamilton and Havelock Streets.
The pumphouse contains supply, treatment and control facilities used in the production of drinking water.
The disinfection system utilizes sodium hypochlorite and consists of a 230 L chemical storage tank, two chemical metering pumps (one duty, one spare), with a feed line connected to the well

pump discharge line.
Chlorine contact time at Well No. 4 is provided by a 90 m, 450 mm diameter contact water main. Chlorine residuals and turbidity levels are continuously monitored by on-line instrumentation to verify the pumphouse is supplying safe drinking water to the system. The following was provided by the Overall Responsible Operator May 12, 2015.
As per the Procedure for Disinfection of Drinking Water in Ontario
Inactivation Requirements: 2-log removal/inactivation of viruses
Average pre-treatment water pH range: 7.5 - 8
Average pre-treatment water temperature (oC): 7.5 - 8°C
CT – Concentration * Time to meet inactivation requirements = CT 4
(T10 is the length of time during which not more than 10% of the influent Water would pass through that process.)
Baffle ratio - Baffle condition (poor, average, superior), T10/T Ratio = 1.0 BF
Contact Water Main: (DR18 PVC, 0.437 m ID x 90 m)
Volume Capacity (m^3): 13.499 m^3
Maximum permitted flow rate (m^3/min) = 0.865 m^3/min
Effective contact time @ max flow (min) = 15.605 minutes
Minimum Disinfection Residual Concentration (mg/L) = 0.26 mg/L
Therefore, a minimum free chlorine concentration of 0.26 mg/L is required to meet primary disinfection at maximum flow rate.

PUMPHOUSE #5 TREATED
Type: Treated Water POE Sub Type: Pumphouse
Well No.5 pumphouse is located at the intersection of Bob and Delhi Streets and contains supply, treatment and control facilities used in the production of drinking water.
The disinfection system utilizes sodium hypochlorite. It consists of a 230 L chemical storage tank, two chemical metering pumps (one duty, one spare), and a feed line connected to the well pump discharge line.
Chlorine contact time at Well No. 5 is provided by a 230 m, 450 mm diameter contact water main. Chlorine residuals and turbidity levels are continuously monitored by on-line instrumentation to verify the pumphouse is supplying safe drinking water to the system.
In September 2016, the Operating Authority installed a second chlorine analyzer prior to the contact watermain in order to give operators a more time to resolve an issue before a low chlorine event could create an adverse water quality incident.
Under the current Permit an amendment to Schedule A was not required and is therefore not listed in the Permit.
The following was provided by the Overall Responsible Operator May 12, 2015.
As per the Procedure for Disinfection of Drinking Water in Ontario
Inactivation Requirements: 2-log removal/inactivation of viruses
Average pre-treatment water pH range: 7.5 - 8
Average pre-treatment water temperature (oC): 7.5 - 8°C
CT – Concentration * Time to meet inactivation requirements = CT 4

(T10 is the length of time during which not more than 10% of the influent water would pass through that process.)
Baffle ratio - Baffle condition (poor, average, superior), T10/T Ratio = 1.0 BF
Contact Water Main: (DR18 PVC, 0.437 m ID x 230 m)
Volume Capacity (m^3): 34.497 m^3
Maximum permitted flow rate (m^3/min) = 2.275 m^3/min
Effective contact time @ max flow (min) = 15.163 minutes
Minimum Disinfection Residual Concentration (mg/L) = 0.27 mg/L
Therefore, a minimum free chlorine concentration of 0.27 mg/L is required to meet primary disinfection at maximum flow rate.
NOTE: During flushing, flows are sometimes just under 41 L/s (2.460 m^3/min) therefore, a minimum free chlorine concentration of 0.29 mg/L would be required to meet primary disinfection during flushing or elevated flow rates.

FIRE PUMPHOUSE
A third pumphouse, located near the intersection of Campbell Street and Ross Street, contains a diesel booster pump designed to increase water pressure in the event of a fire. To the operating authority's knowledge, this pump has not been needed for many years. Maintenance of the pump is carried out by the fire department. The pumphouse did contain an old well, which was not used and was disconnected from the system. The well was properly abandoned as per O. Reg. 903 on June 29, 2004.

DISTRIBUTION SYSTEM
The distribution system serves the community of Lucknow with an estimated population of approximately 1,726 residents (based on most recent Canadian census results) with approximately 664 connections, plus 10 Lucknow South properties in the Municipality of Ashfield-Colborne-Wawanosh in Huron County. Distribution main sizes consist of 2, 4-, 6-, 8-, and 10-inch pipes. There are 49 hydrants connected to the distribution system.
The Lucknow water system through a 260-meter water main extension, southward along Lucknow Line (Huron County Road No. 1), supplies drinking water to approximately 12 properties in the Municipality of Ashfield-Colborne-West Wawanosh in Huron County. This section of the distribution system is known as South Lucknow (water works #260003123).
In 2005 the Township of Ashfield-Colborne-West Wawanosh entered a written agreement with the Township of Huron-Kinloss with the understanding that Huron-Kinloss will operate the Lucknow water system's secondary disinfection equipment to maintain an adequate chlorine residual throughout the South Lucknow distribution system and to sample and test the water in South Lucknow as if it were part of the Lucknow water distribution system.

STANDPIPE
The Lucknow water system had elevated storage in the form of a standpipe located on Wheeler Street. The operations manual indicated the total volume of the standpipe was 1128 m3. The standpipe was built in 1931. The interior of the standpipe was painted with a "grease paint"

which AWWA no longer accepts as suitable coating material for finished water storage facilities. The standpipe was examined via a camera on June 21, 2007, by RTD Quality Services Inc, water samples were taken, and the health unit had no concerns or recommendations. On June 20, 2016, the owner received a Schedule C: Authorization to Alter the Drinking Water System for DWWP 087-203. This standpipe was decommissioned in the fall of 2023.

ELEVATED STORAGE TANK
A newly constructed elevated water storage tank was put into production in November 2023. It is located at 520 Stauffer Street, Lucknow ON with access at 656-Wheeler Street, Lucknow ON. This site is on the property adjacent to the previous standpipe.
The elevated storage tank has a capacity of 1,600m3 and a top water level of 317.6 masl including a 300 mm diameter combined inlet/outlet riser pipe on the elevated tank site, along with watermain and storm sewer upgrades on the elevated tank site, the former standpipe site and on the adjacent Wheeler Street and Victoria Street.
Overflow and floor drains discharge to a site catch basin which connects to a storm sewer on Victoria Street.
Overflow and floor drains discharge to a site catch basin which connects to a storm sewer on Victoria Street.
Issue 5 of the DWWP (087-202) reflects the new elevated storage tank with all associated piping, valves, electrical and mechanical equipment, instrumentation, and operation control, including the control of flow into the tank via a manual valve complete with manual bypass, and an online free chlorine analyzer for chlorine residual monitoring/alarming.

Permissions/Approvals

- The Lucknow Municipal Drinking Water License is # 087-103 Issue 3, expires April 28, 2026.
- The Lucknow Drinking Water Works Permit is # 087-203 Issue 5, issued January 16, 2024.
- The Permit to Take Water #7631-AQYS3J, issued on July 11, 2017 expires September 30, 2027.
- Operational Plan #: 087-403, Operating Authority#; 087-OA1

MDWL Schedule E: Pathogen Log Removal/Inactivation Credits
Well #4
Minimum Disinfection Required: 2 log removal/inactivation of Viruses
Disinfection Credits Assigned: 2+ log removal/ inactivation of Viruses via Chlorination (CT: watermain)

Well #5
Minimum Disinfection Required: 2 log removal/inactivation of Viruses
Disinfection Credits Assigned: 2+ log removal/ inactivation of Viruses via Chlorination (CT:

watermain)
Lucknow Well No. 4, constructed in 1957 is drilled into the limestone-dolostone bedrock aquifer to a depth of 54.8 m.

NON-COMPLIANCE

This should not be construed as a confirmation of full compliance with all potential applicable legal requirements. These inspection findings are limited to the components and/or activities that were assessed, and the legislative framework(s) that were applied. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

If you have any questions related to this inspection, please contact the signed Provincial Officer.

RECOMMENDATIONS

This should not be construed as a confirmation of full conformance with all potential applicable BMPs. These inspection findings are limited to the components and/or activities that were assessed, and the legislative framework(s) that were applied. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

If you have any questions related to this inspection, please contact the signed Provincial Officer.

INSPECTION DETAILS

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

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

Question ID	DWMR1007001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 1-2 | (1)1;

Question:
Was the owner maintaining the production well(s) in a manner sufficient to prevent entry into the well of surface water and other foreign materials?

Compliance Response(s)/Corrective Action(s)/Observation(s):
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 May 2024) of raw water test results does not indicate these wells are under influence from surface water. Of the 2978 samples taken during that time frame, there were only seven (7) instances of the presence of total coliform detected, the most recent of which was 15-Apr-2024. There was also one instance of E. coli being detected in the raw water with a result of 1 cfu/100 mL from a sample taken on 15-Apr-2024.

Question ID	DWMR1009001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | 31 | (1);

Question:
Were measures in place to protect the groundwater and/or GUDI source in accordance with the Municipal Drinking Water Licence and Drinking Water Works Permit?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Measures were in place to protect the groundwater and/or GUDI source.

Conditions 16.2.8, 16.2.9 and 16.2.10 of Schedule B of Municipal Drinking Water License 087-103, Issue 3 prescribe that the Lucknow DWS Operations and Maintenance Manual must include a well inspection and maintenance program that includes the following:

•An inspection schedule for all wells associated with the drinking water system, including all production wells, stand-by wells, test wells and monitoring wells;

•Well inspection and maintenance procedures for the entire well structure of each well

including all above and below grade well components; and
•Remedial action plans for situations where an inspection indicates non-compliance with respect to regulatory requirements and/or risk to raw well water quality.
These requirements are met within section LU-OM-18 "Well Inspection and Maintenance Plan" of the Lucknow DWS Operations and Maintenance Manual. This procedure specifies the following:
"Above Ground - A quick visual inspection of the area around all the wells should be conducted at every visit. This includes making sure the area around the well casings is sanitary, that the well caps/well heads are securely in place and ensuring that all potential contamination sources are kept away from the wells.
Below Ground - A formal inspection of the production wells should occur every time a pump is to be pulled from the well." [Summary report criteria specified.]
In addition, the procedure stipulates remedial action plans. The raw water (quality and quantity) trend data and well pump performance is reviewed annually and the owner and a Licensed Well Contractor will be contacted to conduct a below grade well inspection in the event a deterioration is noted (>25% compared to the historic average).

A summary of the most recent below grade well inspections (BGWI) and due date for next BGWI, if there are no issues as per O&M Procedure LU-OM-18, as well as noted observations from the respective BGWIs.
•Lucknow 4 – drilled in 1957. Most recent BGWI: 21- September-2021. Due again in 2031. "The well casing is moderately to heavily coated with mineral deposits. If the casing is not cleaned keep a very close watch on the turbidity and bacteria samples."
•Lucknow 5 - drilled in 1967. Most recent BGWI: 5-April-2021. Due again in 2031. "casing is moderately coated with mineral deposits, especially just above the bedrock interface. Due to age and a few visible corrosion areas close watch on turbidity is recommended."

Question ID	DWMR1014001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | 31 | (1);

Question:
Was flow monitoring performed as required by the Municipal Drinking Water Licence or Drinking Water Works Permit?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Flow monitoring was performed as required.

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.

Question ID	DWMR1016001	Question Type	Legislative

Legislative Requirement(s):
SDWA | 31 | (1);

Question:
Was the owner in compliance with the conditions associated with maximum flow rate or the rated/operational capacity in the Municipal Drinking Water Licence?

Compliance Response(s)/Corrective Action(s)/Observation(s):
The owner was in compliance with the conditions associated with maximum flow rate and/or the rated/operational capacity conditions.

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 m3/day and Well 5 as 3276 m3/day. There were no exceedances of the rated capacities within the inspection period.

In addition, there were no exceedances of the following thresholds of the Permit to Take Water (# 5315-CK476V) during the inspection period:
Lucknow 4
Maximum Flow Rate: 865 L/min (14.4 L/s)
Maximum Daily Volume: 935,000 L/day (935 m3/day)

Lucknow 5
Maximum Flow Rate: 2500 L/min (41.6 L/s)
Maximum Daily Volume: 2,000,000 L/day (2000 m3/day)

Question ID	DWMR1018001	Question Type	Legislative

Legislative Requirement(s):
SDWA | 31 | (1);

Question:
Did the owner ensure that equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit?

Compliance Response(s)/Corrective Action(s)/Observation(s):
The owner ensured that equipment was installed as required.

Question ID	DWMR1021001	Question Type	Legislative

Legislative Requirement(s):
SDWA | 31 | (1);

Question:
Were Form 2 documents prepared as required?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Form 2 documents were prepared as required.

The following were replaced at the Lucknow 4 and Lucknow 5 pump houses during the inspection period.
• Hach CL17 were replaced with Hach CL17sc chlorine analyzers
• Hach SC200 were replaced with Hach SC4500 analyzer controllers

A Form 2 was completed for the analyzer controller replacement at Lucknow 5 that was replaced in March 2024. This Form 2 was completed on a precautionary basis since it states it was "like for like" treatment equipment replacement.

While a Form 2 is not required for a "like for like" treatment equipment replacement, the operating authority is reminded of the importance of maintaining adequate supporting documentation. Logbook entries need to note "like for like" replacements and include the old equipment make and model as well as the new equipment make and model. In addition, to demonstrate an equipment replacement was "like of like", the operating authority needs to maintain supporting documentation that is available upon inspection, e.g., manufacturer's equipment specifications for the old and new units.

Question ID	DWMR1025001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | 31 | (1);

Question:
Were all parts of the drinking water system that came in contact with drinking water disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit?

Compliance Response(s)/Corrective Action(s)/Observation(s):
All parts of the drinking water system were disinfected as required.

Consulting firm, Landmark Structures, prepared a "Disinfection Plan for Town of Huron-Kinloss Lucknow Elevated Water Storage Tank" report prior to the tank being connected to the distribution system. This plan provided detailed steps to the commissioning the of the new Lucknow Elevated Tank (LET) to ensure adherence to "AWWA Standard for Disinfection of Water-Storage Facilities – AWWA C652-02".

On 26-June-2024, the owner provided a letter prepared by engineering consultants, B.M. Ross and Associates Ltd., that stated the disinfection plan had been followed and all necessary disinfection procedures competed in the commissioning of the new LET. The following is an excerpt from the letter:
"The only variance to their submitted plan was that the existing water distribution pressures were not able to completely fill the water tower, so a booster pump was brought in to assist

with filling while the operators reconfigured the programming at the existing well sites and adjusted them to the new pressures established by the new water tower."

In addition, the watermain disinfection records and microbiological sampling results for the connection of the new LET to distribution system were also reviewed.

Question ID	DWMR1023001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 1-2 | (2);

Question:
Did records indicate that the treatment equipment was operated in a manner that achieved the design capabilities prescribed by O. Reg. 170/03, Drinking Water Works Permit and/or Municipal Drinking Water Licence at all times that water was being supplied to consumers?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Records indicated that the treatment equipment was operated in a manner that achieved the design capabilities prescribed.

There was one Adverse Water Quality Incident (AWQI #164789) that occurred within the inspection time frame were due to the detection of total coliform and E. coli in distributed water. However, records indicate that the treatment equipment was operated in a manner that always achieved the design capabilities while water was being supplied to consumers.

Question ID	DWMR1024001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 1-2 | (2);

Question:
Did records confirm that the water treatment equipment which provides chlorination or chloramination for secondary disinfection was operated as required?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Records confirmed that the water treatment equipment which provides chlorination or chloramination for secondary disinfection was operated as required.

Question ID	DWMR1033001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 7-2 | (3); SDWA | O. Reg. 170/03 | 7-2 | (4);

Question:
Was secondary disinfectant residual tested as required for the large municipal residential distribution system?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Secondary disinfectant residual was tested as required.

The free chlorine residual was measured each day in the distribution system during the inspection period, with the minimum measurement of 0.82 mg/L on October 13, 2023 (n=364).

Question ID	DWMR1030001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 7-2 | (1); SDWA | O. Reg. 170/03 | 7-2 | (2);

Question:
Was primary disinfection chlorine monitoring being conducted at a location approved by Municipal Drinking Water Licence and/or Drinking Water Works Permit or at/near a location where the intended CT had just been achieved?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Primary disinfection chlorine monitoring was conducted as required.

Question ID	DWMR1035001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 6-5 | (1)1-4;

Question:
Were operators examining continuous monitoring test results and did they examine the results within 72 hours of the test?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Operators were examining continuous monitoring test results as required.

Typically, operators review all of the SCADA trend information generated for drinking water systems operated by Veolia four times per week and note any anomalies in the SCADA Daily Operating Logs. There were two occasions when the SCADA logbook entry did not include a date but the date was known from the previous and subsequent logbook entries. Records demonstrated that the SCADA trend data review interval was less than 72 hours throughout the inspection time frame. The operating authority is reminded of the importance of ensuring the date and time of SCADA reviews are clearly documented.

Question ID	DWMR1038001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 6-5 | (1)1-4;

Question:
Was continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements performing tests for the parameters with at least the minimum frequency and recording data with the prescribed format?

Compliance Response(s)/Corrective Action(s)/Observation(s):
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 and recording data with the prescribed format.

Continuous monitoring of free chlorine to achieve primary disinfection is recorded at a frequency of once every 3 minutes, which is more frequently than legislatively required at 5 minute intervals.

Question ID	DWMR1037001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 6-5 | (1)5-10; SDWA | O. Reg. 170/03 | 6-5 | (1.1);

Question:
Were 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, equipped with alarms or shut-off mechanisms that satisfied the standards described in Schedule 6?

Compliance Response(s)/Corrective Action(s)/Observation(s):
All required continuous monitoring equipment utilized for sampling and testing were equipped with alarms or shut-off mechanisms that satisfied the standards

At the time of the inspection the Lucknow 4 chlorine monitor was set to alarm if the free chlorine residual falls to 0.7 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 at the Lucknow 5 pump house has an alarm set point of 0.6 mg/L with lockout at 0.7 mg/L. This continuous monitor is not legislatively required but is helpful to ensuring improperly disinfected water is not directed to consumers.

Question ID	DWMR1040001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 6-5 | (1)1-4; SDWA | O. Reg. 170/03 | 6-5 | (1)5-10;

Question:
Were all continuous analysers calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation?

Compliance Response(s)/Corrective Action(s)/Observation(s):
All continuous analysers were calibrated, maintained, and operated as required.

The continuous analyzers are checked daily, calibrated weekly and cleaned monthly as per manufacturer's instructions (Operations Manual document: LU-OM-13).

Question ID	DWMR1108001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 6-5 | (1)5-10; SDWA | O. Reg. 170/03 | 6-5 | (1.1);

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, Municipal Drinking Water Licence, Drinking Water Works Permit, or order triggered an alarm or an automatic shut-off, did a qualified person respond as required and take appropriate actions?

Compliance Response(s)/Corrective Action(s)/Observation(s):
A qualified person responded as required and took appropriate actions.

The SCADA Daily Reports summaries, SCADA database alarm summaries and respective logbook entries (pump house and SCADA logbooks) were reviewed for the inspection period. For alarm events that were not addressed in the logbooks, the SCADA data, including the respective free chlorine residual and flow rate each minute, was requested, and reviewed. Data review confirmed there were no adverse events since low chlorine alarms were short in duration and occurred when there was no flow directing water to consumers. Operators responded to alarms in an appropriate and timely manner.

Question ID	DWMR1099001	**Question Type**	Information

Legislative Requirement(s):
Not Applicable

Question:
Do records show that water provided by the drinking water system met the Ontario Drinking Water Quality Standards?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Records showed that not all water sample results met the Ontario Drinking Water Quality Standards.

There were exceedances of the total coliform and E. coli Ontario Drinking Water Quality Standards (ODWQS) during the inspection period from a sample taken on 8-April-2024 from distributed water at both pump houses of the drinking water system.

Question ID	DWMR1083001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 10-3;

Question:
Were treated microbiological sampling requirements prescribed by Schedule 10-3 of O. Reg. 170/03 for large municipal residential systems met?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Treated microbiological sampling requirements were 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 9 days on one occasion. All samples resulted in no detection of E. coli or total coliforms (n=106). HPC was also measured with these microbiological samples with results ranging from 10 to 30 cfu/1mL (average = 10.28 cfu/1 mL).

Question ID	DWMR1081001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 10-2 | (1); SDWA | O. Reg. 170/03 | 10-2 | (2); SDWA | O. Reg. 170/03 | 10-2 | (3);

Question:
Were distribution microbiological sampling requirements prescribed by Schedule 10-2 of O. Reg. 170/03 for large municipal residential systems met?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Distribution microbiological sampling requirements were met.

Based on a population of 1,100 residents, the Lucknow DWS 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. Sampling was conducted weekly with a maximum of 9 days between sampling events on one occasion during the inspection period.

Total coliform and E. coli were detected from a sample taken from the old fire hall in the distribution system on 8-April-2024, both with a result of 1 cfu/100 mL. This was reported to the ministry under AWQI # 164789. All other 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 70 c.f.u./1mL (average = 10.7 cfu/1mL).

Question ID	DWMR1096001	Question Type	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 6-3 | (1);

Question:
Did records confirm that chlorine residual tests were conducted at the same time and location as microbiological samples?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Records confirmed that chlorine residual tests were conducted as required.

Question ID	DWMR1084001	Question Type	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 13-2;

Question:
Were inorganic parameter sampling requirements prescribed by Schedule 13-2 of O. Reg. 170/03 met?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Inorganic parameter sampling requirements were met.

The Operating Authority sampled the O. Reg 170/03 Schedule 23 inorganic parameters from each pump house on June 22, 2021, with no exceedances. There were eight (8) arsenic samples taken from treated water at the Lucknow 4 and 5 pump houses during the inspection review period that ranged 34% to 57% of the Maximum Allowable Concentration (MAC). Three (3) of the four (4) arsenic samples taken from Lucknow 5 were greater than 50% MAC and were most recently taken on February 12, 2024. Arsenic samples from Lucknow 4 did not exceed 50% MAC, with results ranging from 34% to 45% MAC.

The remaining Schedule 23 parameters had results that ranged from 0.1% to 32.1% of the respective MACs.

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	DWMR1085001	Question Type	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 13-4 | (1); SDWA | O. Reg. 170/03 | 13-4 | (2); SDWA | O. Reg. 170/03 | 13-4 | (3);

Question:
Were organic parameter sampling requirements prescribed by Schedule 13-4 of O. Reg. 170/03 met?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Organic parameter sampling requirements were met.

The Operating Authority sampled the O. Reg 170/03 Schedule 24 organic parameters (n = 2 X 44 = 88) on June 22, 2021, from treated water 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.

Question ID	DWMR1093001	Question Type	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 13-5 | (1); SDWA | O. Reg. 170/03 | 13-5 | (2);

Question:
If any Schedule 13-2 or 13-4 parameter(s) exceeded half the Ontario Drinking Water Quality Standard, did the owner increase the frequency of monitoring as required by Schedule 13-5 of O. Reg. 170/03?

Compliance Response(s)/Corrective Action(s)/Observation(s):
A Schedule 13-2 or 13-4 parameter(s) exceeded half the ODWQS value, and the owner increased the frequency of monitoring as required.

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. There were eight (8) arsenic samples taken during the inspection review period that ranged from 34% to 57% of the Maximum Allowable Concentration (MAC). Three (3) of the four (4) arsenic samples taken from Lucknow 5 were greater than 50% MAC and were

most recently taken on February 12, 2024. Arsenic samples from Lucknow 4 did not exceed 50% MAC, with results ranging from 34% to 45% MAC.

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	DWMR1086001	**Question Type**	Legislative

Legislative Requirement(s):
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);

Question:
Were haloacetic acid sampling requirements prescribed by Schedule 13-6 of O. Reg. 170/03 met?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Haloacetic acid sampling requirements were met.

Total Haloacetic Acids (HAAs) were sampled quarterly throughout the inspection review period with sampling events occurring between 84 and 105 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 eight (8) samples taken on four (4) dates with consistent results of 5.3 ug/L. The standard for Haloacetic Acids (80 ug/L) is expressed as a Running Annual Average (RAA). The RAA for this facility at the time of the inspection was 5.3 ug/L.

Sampling for HAAs will be due again in the next quarter, i.e., within the April to June 2024 time frame.

Question ID	DWMR1087001	**Question Type**	Legislative

Legislative Requirement(s):
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);

Question:
Were trihalomethane sampling requirements prescribed by Schedule 13-6 of O. Reg. 170/03 met?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Trihalomethane sampling requirements were met.

Trihalomethanes (THMs) were sampled quarterly throughout the inspection review period with sampling events occurring between 84 and 105 days. This is within the legislative requirements (60-120 days).

There were twelve (12) samples taken on four (4) dates with results ranging from 2.0 to 15 ug/L and a Running Annual Average of 8.57 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. THM sampling was also conducted in the South Lucknow Distribution System. Sampling for THMs will be due again in the next quarter, i.e., within the April to June 2024 time frame.

Question ID	DWMR1088001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 13-7;

Question:
Were nitrate/nitrite sampling requirements prescribed by Schedule 13-7 of O. Reg. 170/03 met?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Nitrate/nitrite sampling requirements were met.

Nitrates and nitrites are required to be sampled every three months. Nitrates and nitrites were sampled from the treated water at both pump houses throughout the inspection review period with sampling events occurring between 84 and 105 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 (0.06-0.4% MAC).

Question ID	DWMR1089001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 13-8;

Question:
Were sodium sampling requirements prescribed by Schedule 13-8 of O. Reg. 170/03 met?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Sodium sampling requirements were met.

Sodium is required to be taken and tested once every 5 years or 60 months. The treated water from both Lucknow pump houses was most recently sampled for sodium on July 27,

2021, with results of 11.1 and 12.8 mg/L. The sampling interval was 62 months from the previous treated water sodium sampling which is within the required timeframe of not more than 90 days before or after the fifth anniversary date. 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 will be due again in July 2026.

Question ID	DWMR1090001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 13-9;

Question:
Where fluoridation is not practiced, were fluoride sampling requirements prescribed by Schedule 13-9 of O. Reg. 170/03 met?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Fluoride sampling requirements were met.

Fluoride is required to be sampled every 60 months and was most recently sampled from treated water at each pump house on September 6, 2022, with results of 1.69 and 1.59 mg/L. These results are in exceedance of the ODQWS of 1.5 mg/L and the subsequent resample results were 1.5 and 1.7 mg/L. 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 September 2027.

Question ID	DWMR1104001	**Question Type**	Legislative

Legislative Requirement(s):
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);

Question:
Were immediate verbal notification requirements for adverse water quality incidents met?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Immediate verbal notification requirements for adverse water quality incidents were met.

The Operating Authority provided verbal notification to Spills Action Centre and the Grey Bruce Health Unit within approximately 1.5 hours of receiving the verbal notice from the lab.

Written notification was submitted to the Spills Action Centre approximately 5 hours after receiving notice from the lab.

Question ID	DWMR1101001	Question Type	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 17-1; SDWA | O. Reg. 170/03 | 17-10 | (1); SDWA | O. Reg. 170/03 | 17-11; SDWA | O. Reg. 170/03 | 17-12; SDWA | O. Reg. 170/03 | 17-13; SDWA | O. Reg. 170/03 | 17-14; SDWA | O. Reg. 170/03 | 17-2; SDWA | O. Reg. 170/03 | 17-3; SDWA | O. Reg. 170/03 | 17-4; SDWA | O. Reg. 170/03 | 17-5; SDWA | O. Reg. 170/03 | 17-6; SDWA | O. Reg. 170/03 | 17-9;

Question:
For large municipal residential systems, were corrective actions, including any steps directed by the Medical Officer of Health, taken to address adverse conditions?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Corrective actions were taken to address adverse conditions.

There was one (1) AWQI during the inspection period.
The required corrective actions in response to an AWQI involving the detection of E. coli and total coliforms involves:
1. Immediately resample and test at the site of the AWQI as well as upstream and downstream at 24 and 48 hours.
2. Increase the chlorine dose.
3. Flush watermains and maintain free chlorine residual of at least 0.2 mg/L.
4. Take steps as directed by the medical officer of health.

While the required corrective actions were completed by operating authority staff the AWQI reporting forms were erroneous and unclear. After the site inspection, the operating authority provided documentation that staff had reviewed the proper AWQI reporting requirements on June 12, 2024.

No further actions are required.

Question ID	DWMR1113001	Question Type	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 10.1 | (3);

Question:
Were changes to the system registration information provided to the ministry within ten (10) days of the change?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Changes to the system registration information were provided as required.

At the time of the inspection the profile information was current having been updated in March 2024 with new owner and OA contact information.

It was noted that the previous ORO made their last logbook entry on 18-Jan-2024. The operating authority is reminded that changes to profile information are to be submitted to the ministry within 10 days of the change taking effect.

Question ID	DWMR1054001	**Question Type**	Information

Legislative Requirement(s):
Not Applicable

Question:
Was an agreement in place that satisfied the requirements prescribed by subsection 5(4) of O. Reg. 170/03?

Compliance Response(s)/Corrective Action(s)/Observation(s):
The agreement in place satisfied the requirements.

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	DWMR1055001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 5 | (5);

Question:
If there were standalone distribution systems connected to this donor system, was the owner of the donor system in compliance with all agreements made under subsection 5(4) of O. Reg. 170/03?

Compliance Response(s)/Corrective Action(s)/Observation(s):
The owner of the donor system was in compliance with all agreements.

The owner of the Lucknow DWS conforms to the requirements of the O. Reg. 170/03 5(4) agreement and has agreed in to ensure secondary disinfection is maintained at sufficient levels, to sample and test the water and to conduct lead sampling in the South Lucknow DS.

Question ID	DWMR1060001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | 31 | (1);

Question:
Did the operations and maintenance manual(s) meet the requirements of the Municipal Drinking Water Licence?

Compliance Response(s)/Corrective Action(s)/Observation(s):
The operations and maintenance manual(s) met the requirements of the Municipal Drinking Water Licence.

The owner and operating authority are reminded that updates are needed for the Lucknow Operations Manual regarding the new water tower that was brought into service on 8-Nov-2023.

Question ID	DWMR1062001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 7-5;

Question:
Did records or other record keeping mechanisms confirm that operational testing not performed by continuous monitoring equipment was done by a certified operator, water quality analyst, or person who met the requirements of Schedule 7-5 of O. Reg. 170/03?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was done by a certified operator, water quality analyst, or person who met the requirements of Schedule 7-5 of O. Reg. 170/03.

Question ID	DWMR1071001	**Question Type**	BMP

Legislative Requirement(s):
Not Applicable

Question:
Did the owner provide security measures to protect components of the drinking water system?

Compliance Response(s)/Corrective Action(s)/Observation(s):
The owner 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. The standpipe is also locked and alarmed.

Question ID	DWMR1073001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 128/04 | 23 | (1);

Question:
Was an overall responsible operator designated for all subsystems which comprise the

drinking water system?

Compliance Response(s)/Corrective Action(s)/Observation(s):
An overall responsible operator was designated for all subsystem.

The Overall Responsible Operator (ORO) for each day is noted in the pump house logbooks. Gary Nicholson was the ORO from May 5, 2023, to January 18, 2024, and had valid certification. Steve Walmsley was the ORO for the inspection period from January 19, 2024, to May 3, 2024. Steve Walmsley has current Water Treatment Subsystem Class 4 and Water Distribution Subsystem Class 4 certifications.

Jeff Johnston fulfills ORO duties when Steve Walmsley is unavailable. Jeff Johnston has current Water Treatment Subsystem Class 2 and Water Distribution Subsystem Class 2 certifications.

Question ID	DWMR1074001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 128/04 | 25 | (1);

Question:
Were operators-in-charge designated for all subsystems which comprise the drinking water system?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Operators-in-charge were designated for all subsystems.

The Operator-In-Charge (OIC) is designated and documented each day in the pump house logbooks.

Question ID	DWMR1075001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 128/04 | 22;

Question:
Were all operators certified as required?

Compliance Response(s)/Corrective Action(s)/Observation(s):
All operators were certified as required.

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 five (5) operators who performed the operational checks and sampling for the Lucknow DWS. These operators had valid certification for the inspection period, including an operator with Operator in Training (OIT) certificate for Water Treatment Subsystem who worked under the direction of a certified operator.

Although there were five (5) operators who performed the operational checks and sampling during the inspection period, each month there were three or four operators working within the DWS. Two of these operators no longer work for the operating authority, and since February 2024 three (3) consistently work within the DWS.

Question ID	DWMR1076001	**Question Type**	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 170/03 | 1-2 | (2);

Question:
Were adjustments to the treatment equipment only made by certified operators?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Adjustments to the treatment equipment were only made by certified operators.

Appendix A

Inspection Rating Report (IRR)

Ministry of the Environment, Conservation and Parks - Inspection Summary Rating Record (Reporting Year - 2024-25)

DWS Name:	LUCKNOW DRINKING WATER SYSTEM (WELLS 4 & 5)
DWS Number:	220002663
DWS Owner:	THE CORPORATION OF THE TOWNSHIP OF HURON-KINLOSS
Municipal Location:	HURON-KINLOSS
Regulation:	O.REG. 170/03
DWS Category:	DW Municipal Residential
Type of Inspection:	Focused
Compliance Assessment Start Date:	Apr-30-2024
Ministry Office:	Owen Sound District Office

Maximum Risk Rating: 511

Inspection Module	Non Compliance Risk (X out of Y)
Capacity Assessment	0/30
Certification and Training	0/42
Distribution System	0/14
Logbooks	0/14
Operations Manuals	0/14
Reporting & Corrective Actions	0/70
Source	0/14
Treatment Processes	0/193
Water Quality Monitoring	0/120
Overall - Calculated	**0/511**

Inspection Risk Rating:	**0.00%**

Final Inspection Rating:	**100.00%**

Inspection Rating Record Generated On 2024-07-04 (Inspection ID: 1-351626379)

DWS Name:	LUCKNOW DRINKING WATER SYSTEM (WELLS 4 & 5)
DWS Number:	220002663
DWS Owner Name:	THE CORPORATION OF THE TOWNSHIP OF HURON-KINLOSS
Municipal Location:	HURON-KINLOSS
Regulation:	O.REG. 170/03
DWS Category:	DW Municipal Residential
Type of Inspection:	Focused
Compliance Assessment Start Date:	Apr-30-2024
Ministry Office:	Owen Sound District Office

All legislative requirements were met. No detailed rating scores.

Maximum Question Rating: 511

Inspection Risk Rating:	**0.00%**

FINAL INSPECTION RATING:	**100.00%**

Appendix B

Risk Methodology Used for Measuring Municipal Residential Drinking Water System Inspection Results

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 (4×8) and the lowest would be 0 (0×1).

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

TABLE 3:

Does the Operator in Charge ensure that the equipment and processes are monitored, 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 non-compliance. 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).

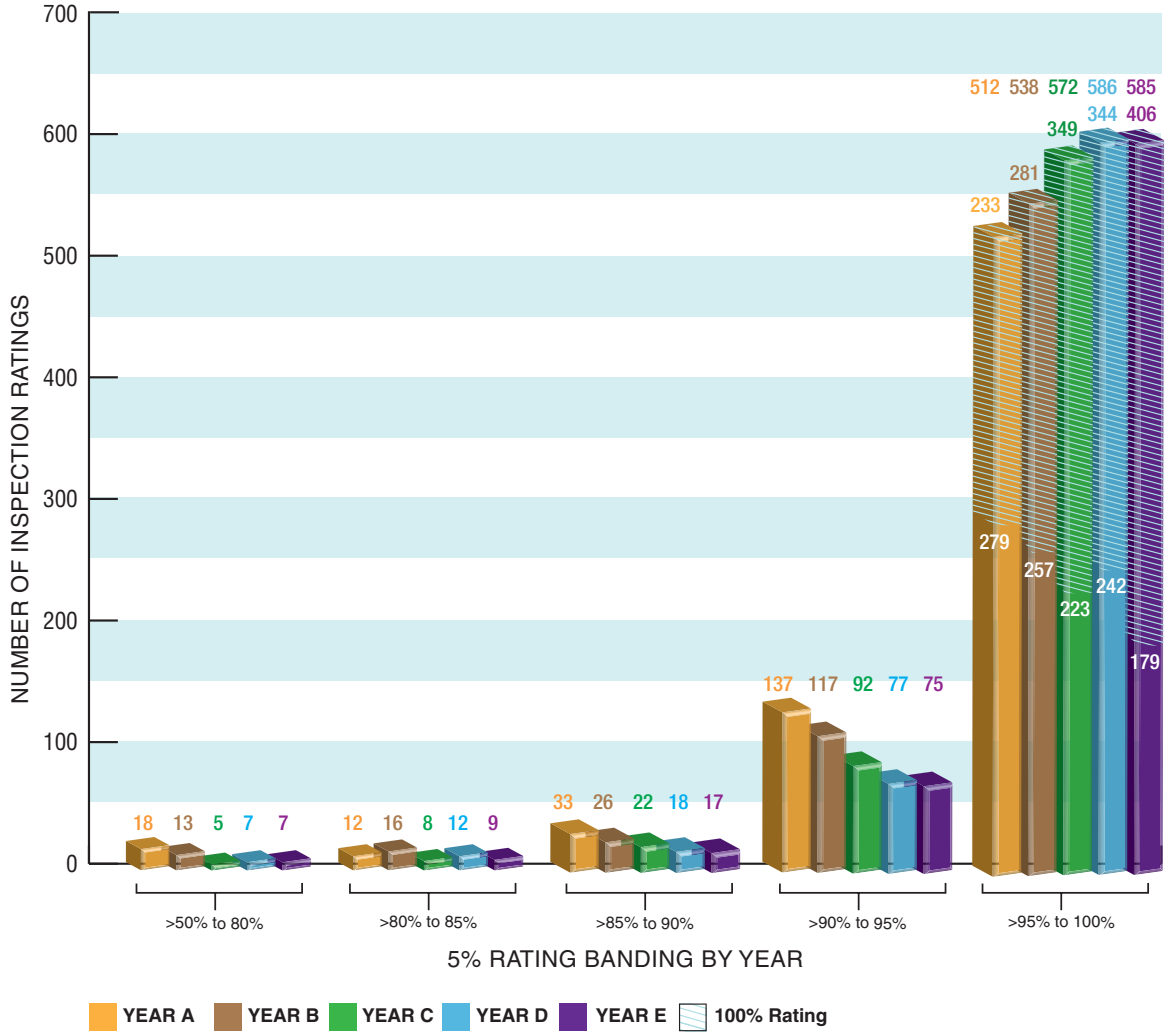
The risk ratings of all non-compliant answers are summed and divided by the sum of the risk ratings of all questions asked (maximum question rating). The resulting inspection risk rating (as a percentage) is subtracted from 100 per cent to arrive at the final inspection rating.

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**

Appendix C

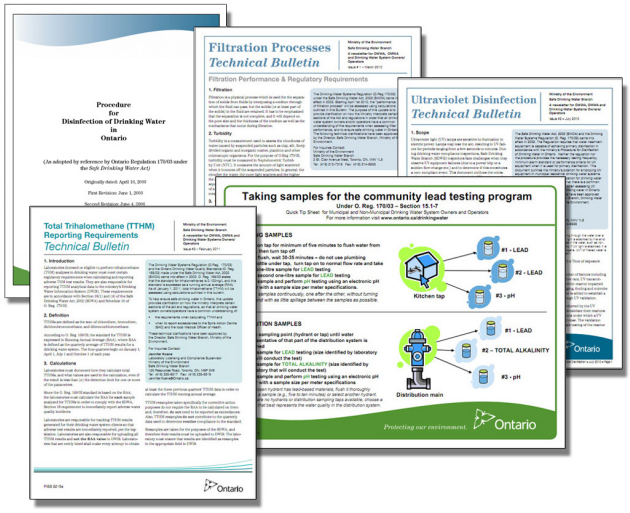
Stakeholder Appendix

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

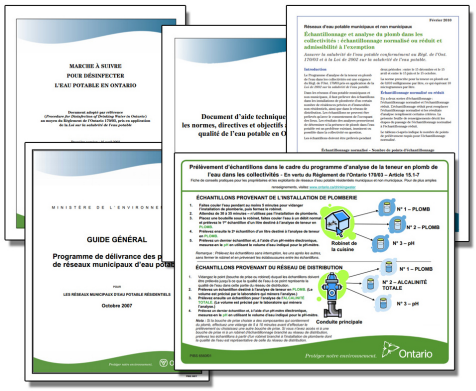
PIBS 8990b01

Ontario

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 Thrihalomethanes 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

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