Ontario

Ministry of the Environment, Conservation and Parks

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December 13, 2024 by Email

The Corporation of the Township of Mattice-Val Côté
500 Hwy 11, PO Box 129
Mattice, ON P0L 1T0

Attention: Guylaine Coulombe, CAO/Clerk

Re: Mattice Drinking Water System No. 210001781
2024-2025 Inspection Report 1-328635800

Enclosed is the Mattice Drinking Water System Inspection Report and the corresponding Inspection Rating Report (IRR) resulting from an announced, focused inspection conducted on November 6, 2024. This report provides an assessment of compliance and conformance based on observations and information available during the inspection review period only.

The IRR is a summarized quantitative measure of the drinking water system's annual inspection and is published in the Ministry's Chief Drinking Water Inspector's Annual Report. The Risk Methodology document describes the risk rating methodology which has been applied to the findings of the Ministry's municipal residential drinking water system inspection results. These documents can be found under Appendix C of this report.

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 councillors, to take steps to be better informed about the drinking water systems over which they have decision making authority. These steps could include asking for a copy of this inspection report and a review of its findings. Further information about Section 19 can be found in "Taking Care of Your Drinking Water: A guide for members of municipal council" found under "Resources" on the Drinking Water Ontario website at www.ontario.ca/drinkingwater

Electronic copies of this report have been sent to OCWA as the operating authority of the drinking water system. Copies have also been forwarded to the Porcupine Health Unit and the Ministry of Natural Resources and Forestry in accordance with the Ministry's Municipal Drinking Water Inspection Protocol.

If you have any questions or concerns about this inspection report, please contact me at (705) 262-0540 or by email at connie.croisier@ontario.ca.

Regards,

Connie Croisier | Water Compliance Officer, Provincial Officer Badge No. 2049
Northern Region, Timmins District - Drinking Water and Environmental Compliance Division
Ministry of the Environment, Conservation and Parks

cc: Michael Case, Process and Compliance Technician – Ontario Clean Water Agency
Serge Audet, Overall Responsible Operator – Ontario Clean Water Agency
Claude Rancourt, Sr Operations Manager – Ontario Clean Water Agency
Sherry Ilersich, Water Compliance Supervisor – Ministry of the Environment, Conservation and Parks
Sue Lajoie, Manager of Environmental Health – Porcupine Health Unit
Kaitlin McCaw, Program Coordinator Environmental Health – Porcupine Health Unit
Wesley Woods, District Manager – Ministry of Natural Resources and Forestry

MATTICE DRINKING WATER SYSTEM
Physical Address: 249 PARKVIEW RD, , MATTICE-VAL COTE, ON P0L 1T0

INSPECTION REPORT

System Number:	210001781
Entity:	CORPORATION OF MATTICE-VAL CÔTÉ ONTARIO CLEAN WATER AGENCY
Inspection Start Date:	November 06, 2024
Site Inspection Date:	November 06, 2024
Inspection End Date:	December 04, 2024
Inspected By:	Connie Croisier
Badge #:	2049

_____
(signature)

INTRODUCTION

Purpose

This announced, focused inspection was conducted to confirm compliance with Ministry of the Environment, Conservation and Parks' (MECP) legislation and conformance with ministry drinking water policies and guidelines.

Scope

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 and the operation of the system.

The inspection of the drinking water system included both the physical inspection of the component parts of the system listed in section 4 "Systems Components" of the report and the review of data and documents associated with the operation of the drinking water system during the review period.

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.

Facility Contacts and Dates

The Mattice drinking water system is owned by the Corporation of the Township of Mattice-Val Côté and operated by the Ontario Clean Water Agency (OCWA). The system serves an estimated population of 542 and is categorized as a Large Municipal Residential System. Information reviewed for this inspection covered the time period of September 15, 2023, to October 31, 2024.

The Water Compliance Officer met with Michel Plourde, Operator-in-Charge, Natalie Bureau, Operator-in-Training, and Michael Case, Process and Compliance Technician, as part of the inspection process.

Systems/Components

All locations associated with primary disinfection were visited as part of this inspection. The

following sites were visited as part of the inspection of the drinking water system:

- Mattice Water Treatment Plant (249 Parkview Rd, Mattice)

Permissions/Approvals

This drinking water system was subject to specific conditions contained within the following permissions and/or approvals (please note this list is not exhaustive) at the time of the inspection in addition to the requirements of the SDWA and its regulations:

- Municipal Drinking Water Licence 291-101 Issue No. 3
- Drinking Water Works Permit 291-201 Issue No. 4
- Permit to Take Water No. 0836-AXHN4F

NON-COMPLIANCE

The following item(s) have been identified as non-compliance, based on a "No" response captured for a legislative question(s). For additional information on each question see the Inspection Details section of the report.

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

Item	Question	Compliance Response/Corrective Action(s)
NC-1	**Question ID:** DWMR1037001 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?	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 not equipped with alarms or shut-off mechanisms that satisfied the standards described in Schedule 6 or the relief conditions of the Municipal Drinking Water Works Licence. Corrective Action: The operating authority contacted NorthernTel once the issue was discovered on May 7, 2024. The phone line was repaired the next day and operators conducted critical alarm testing to verify that the system was functioning accordingly. It can be noted that the WTP was operating under normal conditions while the phone lines were down and that operators remained on-site during the day to monitor the system. No additional action required at this time.

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	DWMR1012001	**Question Type**	Legislative

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

Question:
Did the owner have a harmful algal bloom monitoring plan in place that met the requirements of the Municipal Drinking Water Licence?

Compliance Response(s)/Corrective Action(s)/Observation(s):
The owner had a harmful algal bloom monitoring plan in place which met the requirements.

Condition 6.0 of Schedule C to Municipal Drinking Water Licence (MDWL) No. 291-101 requires the owner to develop and keep up to date a Harmful Algal Bloom (HAB) monitoring, reporting and sampling plan to be implemented when a potential HAB is suspected or present. The owner shall have the Plan in place on or before September 1, 2021.

OCWA's standard operating procedure for HAB Monitoring, Reporting and Sampling at the Mattice WTP was issued on May 25, 2020, and most recently updated on May 18, 2023. The Plan thoroughly describes the visual monitoring, sampling, and reporting processes for HABs that meets the requirements of the Licence.

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.

Condition 2.1 of Schedule C to the MDWL requires continuous flow measurement and recording to be undertaken for:

2.1.1 - The flow rate and daily volume of treated water that flows from the treatment subsystem to the distribution system (treated water flow).

2.1.2 - The flow rate and daily volume of water that flows into the treatment subsystem (raw water flow).

The Mattice WTP is equipped with two raw water flowmeters upstream of each treatment train/filter and one treated water flowmeter on the high lift pump common discharge header located at the end of the treatment process which measures flow to the distribution system. The filter effluent and backwash lines are also equipped with individual flowmeters. Raw and treated flow are continuously measured and recorded using the Supervisory Control and Data Acquisition (SCADA) 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.

Condition 1.1 of Schedule C to the MDWL requires that the maximum daily volume of water that flows from the treatment subsystem to the distribution system does not exceed the rated capacity of 905 m^3/day.

The maximum daily volume of treated water supplied to the distribution system during the inspection period was 256.20 m^3/day which equates to 28% of the rated capacity. The average daily volume of water directed to the distribution system was approximately 161.87 m^3/day (18% of the rated capacity).

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.

The Drinking Water System Description found under Schedule A of Drinking Water Works Permit (DWWP) No. 291-201 lists all components and associated equipment for the Mattice DWS. A physical inspection of the treatment works confirmed that all equipment was installed in accordance with the DWWP.

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 owner and operating authority for the system prepared three (3) "Form 2 – Record of Minor Modifications or Replacements to the Drinking Water System" documents for the following undertakings:

- Replacement of the backwash pump with a like-for-like model, as authorized by Condition 4.1.4 of Schedule B to the DWWP

- Replacement of the filter effluent piping, as authorized by Condition 4.3.1

- Installation of a variable frequency drive (VFD) for the treated water pump TWP-521, as authorized by Condition 4.2.1

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.

A review of the facility logbook, disinfection procedures and bacteriological samples confirmed that all parts of the drinking water system were disinfected in accordance with AWWA standards.

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.

Section 1-4 of Schedule 1 to O. Reg. 170/03 requires the owner of a drinking water system that obtains raw water from a surface water supply to ensure provision of water treatment equipment that is designed to be capable of achieving, at all times, primary disinfection in accordance with the Ministry's Procedure for Disinfection of Drinking Water in Ontario, including:
- at least 99% (2-log) removal/inactivation of Cryptosporidium oocysts
- at least 99.9% (3-log) removal/inactivation of Giardia cysts
- at least 99.99% (4-log) removal/inactivation of viruses by the time water enters the distribution system.

The Mattice WTP is a conventional filtration system which obtains its raw water supply from the Missinaibi River. The system is designed to meet a minimum of 2-log removal of Cryptosporidium oocysts, 2.5-log removal of Giardia cysts and 2-log removal/inactivation of viruses through conventional filtration, and an additional 0.5-log removal of Giardia cysts and 2+log removal/inactivation of viruses through chlorination, thus meeting the requirements above.

In order to receive the required removal/inactivation credits set out in Schedule E of the MDWL, the following criteria must be met for conventional filtration:
1. A chemical coagulant shall be used at all times when the treatment plant is in operation.
2. Chemical dosage shall be monitored and adjusted in response to variations in raw water quality.
3. Effective backwash procedures shall be maintained.
4. Turbidity shall be continuously monitored from each filter.
5. Performance criterion for filtered water turbidity of less than or equal to 0.3 NTU in 95% of the measurements each month shall be met for each filter.

Information provided for this inspection period confirmed that the Mattice WTP operated in accordance with the above criteria for conventional filtration. A review of the turbidity data confirmed that the filter effluent met the performance measure of 0.3 NTU or less 95% of the time for each individual month, with most months achieving 0.3 NTU or less 100% of the time.

In addition to conventional filtration, the following criteria for chlorination must be met in order to receive the assigned removal/inactivation credits:
1. Sampling and testing for free chlorine residual shall be carried out by continuous monitoring equipment in the treatment process at or near a location where the intended contact time (CT) has just been completed in accordance with the Ministry's Procedure for Disinfection of Drinking Water in Ontario; and
2. At all times, CT provided shall be greater than or equal to the CT required to achieve the log removal credits assigned.

In order to ensure effective pathogen removal/inactivation to the required level through

disinfection, the CT disinfection concept must be applied. The Disinfection Procedure defines the CT concept as using the combination of disinfectant residual concentration (C) and the effective disinfection contact time (T) to quantify the capability of a chemical disinfection system in providing pathogen inactivation. Using this concept involves the determination of CT values required at the actual variable operating conditions and ensuring that the disinfection process achieves these values at all times.

For this drinking water system, a CT value of 71.53 mg/L*minute is required in order to achieve primary disinfection. Information provided by the operating authority indicates that the baffled clearwell for chlorine contact provides a minimum T of approximately 329 minutes based on maximum flows produced by the high lift pumps and a baffling factor of 0.5. Based on the worst-case parameters listed in OCWA's standard operating procedure for Chlorine Contact Time (treated flow rate of 11.8 L/s, clearwell and pump chamber levels of 1.5 m, pH of 9.0, free chlorine residual of 0.40 mg/L, temperature of 0.5°C), a CT value of 131.89 mg/L*min is achieved, thus providing adequate disinfection. As such, free chlorine residuals following contact time must be maintained above 0.4 mg/L to ensure the required CT of 71.53 mg/L*minute is achieved.

For this inspection period, during worst-case conditions for highest treated flow rates and the corresponding lowest clearwell/pump chamber levels and free chlorine residuals, the required CT of 71.53 mg/L*minute was met or exceeded at all times.

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.

The minimum combined chlorine residual recorded in the distribution system was 0.67 mg/L on February 27, 2024.

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.

Subsection 7-2(3) of Schedule 7 to O. Reg. 170/03 requires the owner and operating authority to ensure that at least seven (7) distribution samples are taken each week and tested immediately for combined chlorine residual if the system provides chloramination for secondary disinfection.

Distribution chlorine residual testing must also be conducted in accordance with Subsection 7-2(4) of Schedule 7 to O. Reg. 170/03 such that:

1) At least four of the samples must be taken on one day of the week, at least 48 hours after the last sample was taken in the previous week.

2) At least three of the samples must be taken on a second day of the week, at least 48 hours after the last sample was taken on the day referred to in paragraph 1.

3) When more than one sample is taken on the same day of the week under paragraph 1 or 2, each sample must be taken from a different location.

A review of the distribution chlorine residual logs for the inspection period confirmed that secondary chlorine testing was conducted in accordance with the above requirements. Operators routinely collected four samples at different locations one day early in the week and three samples on a second day at least 48 hours after the last sample date in the same week.

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.

Subsection 7-2(1) of Schedule 7 to O.Reg.170/03 requires the owner of a drinking water system that provides chlorination for primary disinfection to sample and test for free chlorine residual using continuous monitoring equipment in the treatment process at or near the location where the intended contact time (CT) has just been achieved in accordance with the Ministry's Procedure for Disinfection of Drinking Water in Ontario.

This sampling point is located on the high lift pump common discharge header and represents the location where water is taken from the clearwell (where CT is achieved) and directed to

the distribution system.

Question ID	DWMR1032001	Question Type	Legislative

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

Question:
If the drinking water system obtained water from a surface water source and provided filtration, was continuous monitoring of each filter effluent line performed for turbidity?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Continuous monitoring of each filter effluent line was performed for turbidity.

Subsection 7-3(2) of Schedule 7 to O. Reg. 170/03 requires the owner and operating authority of a drinking water system that obtains its raw water supply from surface water and provides filtration to sample and test for turbidity using continuous monitoring equipment on each filter effluent line.

Turbidity is continuously monitored by Hach turbidimeters located on the effluent line of each filter. A review of the continuous monitoring data for the inspection period confirmed that filter effluent turbidity was measured and recorded at all times when water was being produced.

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.

Continuous monitoring data is reviewed remotely Monday through Friday during an operating shift and by the on-call operator on weekends using OCWA's Outpost data management system (Wonderware). Operators document instantaneous readings and minimum/maximum values from the previous day to the Wonderware Data Review Sheet and make note of any observations or abnormal conditions. Continuous monitoring data from the SCADA system is also reviewed on-site when operators attend the WTP at least three days per week.

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.

Subsection 6-5(1)1 of Schedule 6 to O. Reg. 170/03 requires the owner and operating authority for the system to ensure that continuous monitoring equipment, except when no water is being directed to users of water sampled by the equipment, tests for the parameter with at least the minimum frequency specified in the Table, and records the date, time, sampling location and result of every test. The Table specifies a minimum testing and recording frequency of 5 minutes for free chlorine residual required to achieve primary disinfection, and a minimum frequency of 15 minutes for turbidity.

A review of the continuous monitoring data from the SCADA system confirmed that the free chlorine residual and turbidity analyzers met the minimum testing and recording frequencies for the duration of the inspection period. There were no gaps in data that did not correlate to times when the plant was not producing water or for maintenance of the analyzers. Operators conducted handheld tests during all repair and maintenance activities in order to ensure the required monitoring frequency was maintained.

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 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 not equipped with alarms or shut-off mechanisms that satisfied the standards described in Schedule 6 or the relief conditions of the Municipal Drinking Water Works Licence.

Corrective Action:

The operating authority contacted NorthernTel once the issue was discovered on May 7, 2024. The phone line was repaired the next day and operators conducted critical alarm testing to verify that the system was functioning accordingly. It can be noted that the WTP was operating under normal conditions while the phone lines were down and that operators remained on-site during the day to monitor the system. No additional action required at this time.

Further details are as follows:

Subsections 6-5(1)5 and 6-5(1.1) of Schedule 6 to O. Reg. 170/03 requires continuous monitoring equipment to be equipped with an automatic shut-off or designed and operated such that an alarm sounds immediately at the following locations if the equipment malfunctions, loses power, or a test result for a parameter is above or below the alarm standard:
i) The location where the equipment conducts tests.
ii) A location where a person is present, if a person is not always present at the location where the equipment conducts tests.

Further, the Table in Section 6-5 of Schedule 6 to O. Reg. 170/03 imposes the following Minimum and Maximum Alarm Standards for continuous monitoring equipment:
1) No less than 0.1 mg/L less than the concentration of free chlorine residual that is required to achieve primary disinfection
2) No greater than 1.0 NTU for filter effluent turbidity monitoring.

In accordance with OCWA's standard operating procedure for Chlorine Contact Time, the minimum free chlorine residual required to ensure primary disinfection is achieved under worst-case conditions is 0.40 mg/L. On the day of the inspection, the regulatory alarm for low primary disinfection was set at a free chlorine residual of 0.60 mg/L, and the filter effluent turbidity alarm was set at 1.0 NTU which meets the above requirements. Both alarms are linked to an auto-dialer which alerts the on-call operator if free chlorine residual or filter effluent turbidity reaches these setpoints or if the analyzers malfunction or lose power, and the filters are configured to shut-down until the system is restored.

**Non-Compliance:

On May 7, 2024, the telephone line which services the Mattice WTP was damaged and service to the alarm dialer was lost until the afternoon of May 8, 2024. As a result, no callouts could be generated during this time. Although the filters are equipped with an automatic shut-off, there is no feature that ensures that no water is directed to users of water sampled by the free chlorine residual analyzer in the event of a low free chlorine residual or analyzer malfunction/failure. This is a violation of subsections 6-5(1)5 and 6-5(1.1) which requires continuous monitoring equipment to be equipped with an automatic shut-off, or designed and operated such that an alarm that sounds immediately at the location where the equipment conducts tests or a location where a person is present if the equipment malfunctions, loses power, or a test result for a parameter is above or below the alarm standard.

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.

Operators check all continuous monitoring equipment as part of their daily rounds and perform in-house verifications. Maintenance activities are conducted when required and OCWA's instrumentation technicians calibrate all regulatory and process monitoring equipment and portable handheld analyzers. A review of the calibration records for the inspection period confirmed that the filter effluent turbidity analyzers are calibrated on a quarterly basis, and the free and total chlorine residual analyzers (including the continuous analyzer that monitors free chlorine residual for primary disinfection) are calibrated twice per year. Calibration dates for the inspection period were December 28, 2023, January 23, 2024, February 14, 2024, March 12, 2024, May 22, 2024, July 29, 2024, and August 27, 2024.

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.

A review of the continuous monitoring data and corresponding logbook entries confirmed that operators addressed all alarm scenarios in a timely manner and took appropriate action.

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 all water sample results met the Ontario Drinking Water Quality Standards.

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.

Section 10-3 of Schedule 10 to O. Reg. 170/03 requires the owner and operating authority for the system to ensure that at least one sample of treated water is collected weekly and tested for E. coli, total coliforms, and general bacteria population expressed as colony counts on a heterotrophic plate count (HPC).

A review of the water quality data confirmed that all microbiological monitoring requirements for treated water were met for the duration of the inspection period.

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.

Section 10-2 of Schedule 10 to O. Reg. 170/03 requires the owner and operating authority for the system to ensure that at least eight (8) water samples are collected monthly from the distribution system (based on an estimated population of 542) with at least one sample collected each week. Samples must be tested for E. coli and total coliforms, and at least 25% of the samples must be tested for general bacteria population expressed as colony counts on a heterotrophic plate count (HPC).

A review of the water quality data for the inspection period confirmed that the above microbiological monitoring requirements for the distribution system were consistently met. Operators routinely collected two distribution system samples each week and had them tested for E. coli and total coliforms and had one of the samples tested for HPC.

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.

Subsection 13-2(a) of Schedule 13 to O. Reg. 170/03 requires the owner and operating authority for the system to ensure that at least one treated water sample is collected every 12 months and tested for all parameters set out in Schedule 23 to O. Reg. 170/03 (inorganics).

Monitoring of Schedule 23 parameters was completed on October 22, 2024, and previously on October 24, 2023.

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.

Subsection 13-4(a) of Schedule 13 to O. Reg. 170/03 requires the owner and operating authority for the system to ensure that at least one treated water sample is collected every 12 months and tested for all parameters set out in Schedule 24 to O. Reg. 170/03 (organics).

Monitoring of Schedule 24 parameters was completed on October 22, 2024, and previously on October 24, 2023.

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.

Section 13-6.1 of Schedule 13 to O. Reg. 170/03 requires the owner and operating authority for the system to ensure that at least one water sample is taken in each calendar quarter from a point in the distribution system that is likely to have an elevated potential for the formation of haloacetic acids (HAA), and have the sample(s) tested for HAAs. The Ontario Drinking Water Quality Standard (ODWQS) for HAAs is 80 µg/L expressed as a running annual average (RAA) of quarterly results.

A review of the water quality data for the inspection period confirmed that sampling for HAAs was conducted on October 24, 2023, January 9, 2024, April 9, 2024, July 16, 2024, September 10, 2024, and October 22, 2024. The current RAA is 46.9 µg/L based on these results.

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.

Section 13-6 of Schedule 13 to O. Reg. 170/03 requires the owner and operating authority for the system to ensure that at least one water sample is taken in each calendar quarter from a point in the distribution system that is likely to have an elevated potential for the formation of trihalomethanes (THM), and have the sample(s) tested for THMs. The ODWQS for THMs is 100.0 µg/L expressed as a RAA of quarterly results.

A review of the water quality data for the inspection period confirmed that sampling for THMs was conducted on October 24, 2023, January 9, 2024, April 9, 2024, July 16, 2024, September 10, 2024, and October 22, 2024. The current RAA is 64.7 µg/L based on these

results.

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.

Section 13-7 of Schedule 13 to O. Reg. 170/03 requires the owner and operating authority for the system to ensure that at least one treated water sample is taken every three months and tested for nitrate and nitrite.

A review of the water quality data for the inspection period confirmed that samples were collected on October 24, 2023, January 9, 2024, April 9, 2024, July 16, 2024, and October 22, 2024.

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.

Section 13-8 of Schedule 13 to O. Reg. 170/03 requires the owner and operating authority for the system to ensure that at least one sample of treated water is taken every 60 months and tested for sodium.

The most recent sample was collected on October 11, 2022, and previously on October 18, 2017. Both samples resulted in an exceedance of the ODWQS for sodium (20 mg/L). The Porcupine Health Unit issued a letter to health care providers in the area to advise of the high sodium content in the water supply.

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.

Section 13-9 of Schedule 13 to O. Reg. 170/03 requires the owner and operating authority for the system to ensure that at least one sample of treated water is taken every 60 months and tested for fluoride.

The most recent sample was collected on October 11, 2022, and previously on October 18, 2017.

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) adverse water quality incident (AWQI) reported during the inspection period:

AWQI 163620: On September 26, 2023, the operating authority for the system reported a HAA RAA exceedance for the third calendar quarter of 2023. The RAA was calculated to be 80.8 µg/L.

In accordance with Section 17-10 of Schedule 17 to O. Reg. 170/03, the required corrective action in response to HAA and THM RAA exceedances is to take such other steps as directed by the Medical Officer of Health. The Porcupine Health Unit did not provide additional action upon receipt of the notification. It can be noted that efforts have been made to reduce the formation of HAA's by optimizing the alum dose to enhance coagulation, increasing process and treated pH, and maintaining free chlorine residual levels within the target operating range.

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.

Multiple binders are available at the Mattice WTP which consist of various operations and maintenance manuals, contingency and facility emergency plans, standard operating procedures, and the drinking water system operational plan. A review of the manuals available on-site confirmed that the requirements of Condition 16.0 of Schedule B to the MDWL were met.

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 following security measures are currently in place for the Mattice DWS:

- All access doors are steel-constructed and kept locked at all times
- The WTP and low-lift pumphouse are equipped with exterior lighting
- The WTP is equipped with an intrusion alarm system
- Keys and alarm codes are restricted to authorized personnel
- All components of the DWS are visited by operations staff at least three days per week

Note: There were no reports of intrusion or vandalism during the inspection period

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.

OCWA has designated Serge Audet as the Overall Responsible Operator (ORO) and possesses the required certification for the system, categorized as "Water Treatment Subsystem Class 2" and "Water Distribution Subsystem Class 1".

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.

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.

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

Drinking Water System Components Description

DWS Component Information Report for 210001781

as of 12-DEC-2024

Drinking Water System Profile Information

DWS #	210001781
MOE Assigned Name	Mattice Drinking Water System
Category	LMRS
Regulation	O.REG 170/03
DWS Type	Water Treatment Plant
Source Type	Surface Water
Address	249 Parkview Road, Mattice, Ontario, P0L 1T0, Canada
Region	Northern Region
District	Timmins District
Municipality	Mattice-Val Cote
Public Health Unit	Porcupine Health Unit

LWIS Component Name	LWIS Component Type	LWIS Component Sub-Type	Component Address	Comments
	Gilles Bisson			
Raw Water	Source	Surface Water		The raw water source for the Mattice Drinking Water System is the Missinaibi River. Raw water enters the system via one of two raw water (one standby) pumps, each rated at 11.0 L/s. Both raw water pumps are located in the wet well building adjacent to the river. The raw water inlet valve opens on instruction from the programmable logic controller (PLC) following initiation of plant start up on low clearwell level. The valve closes automatically on plant shutdown.
Distribution (Water Inspection)	Other	Other		The Mattice Distribution System has an estimated 249 service connections and serves a population of approximately 600. The system has 25 fire hydrants and 13 dead end locations. The piping of the system consists of mainly PVC piping and ductile iron.
Water Treatment Plant	Plant Classification	Class Ii		The Mattice Water Treatment Plant building is approximately 30 m X 18.4 m and houses a dual package water treatment plant, chlorine contact tank, chemical storage, dosing equipment, four high lift pumps, an office, a laboratory and personnel facilities. The treatment process is an automatic, gravity flow operation consisting of two-process trains with a treatment capacity of 5.3 L/s or 905 m3/day.
Treated Water	Treated Water Poe	Primary Treatment		Treatment is a dual train package water treatment plant consisting of one flash mixing and coagulation chamber, two-stage flocculation made up of four flocculation tanks, two up flow clarifiers with tube settlers and two dual media filters. Filters are backwashed based on elapsed time. Backwash water and sludge from the bottom of the clarifiers are automatically removed and discharged to the sanitary sewer. The treated water enters a baffled

DWS Component Information Report for 210001781

as of 12-DEC-2024

LWIS Component Name	LWIS Component Type	LWIS Component Sub-Type	Component Address	Comments
				chlorine contact tank that has a capacity of 808 m3. Ammonium sulphate is added at the discharge of the chlorine contact tank to produce a combined chlorine residual before entering the distribution system.

APPENDIX B

Key Reference and Guidance Material for Municipal Residential Drinking Water Systems

February 2, 2023

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 below or use your web browser to search for their titles. Contact the Ministry if you need assistance or have questions at 1-866-793-2588 or waterforms@ontario.ca.
For more information on Ontario's drinking water visit www.ontario.ca/page/drinking-water

Click on the publication below to access it

- Drinking Water System Profile Information Form - 012-2149E
- Laboratory Services Notification Form – 012-2148E
- Adverse Test Result Notification Form – 012-4444E
- Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils
- Procedure for Disinfection of Drinking Water in Ontario
- Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids
- Filtration Processes Technical Bulletin
- Ultraviolet Disinfection Technical Bulletin
- Guide for Applying for Drinking Water Works Permit Amendments, & License Amendments
- Certification Guide for Operators and Water Quality Analysts
- Training Requirements for Drinking Water Operator
- Community Sampling and Testing for Lead: Standard and Reduced Sampling and Eligibility for Exemption
- Drinking Water System Contact List – 7128E01
- Ontario's Drinking Water Quality Management Standard - Pocket Guide
- 2020 Watermain Disinfection Procedure
- List of Licensed Laboratories

2023-02-09

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 ci-dessous ou faites une recherche à l'aide de votre navigateur Web.

Communiquez avec le ministère au 1-866-793-2588, ou encore à waterforms@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/fr/page/eau-potable

Cliquez sur la publication pour y accéder

- **Renseignements sur le profil du réseau d'eau potable - 012-2149F**
- **Avis de demande de services de laboratoire – 012-2148F**
- **Avis de résultats d'analyse insatisfaisants et de règlement des problèmes – 012-4444F**
- **Prendre soin de votre eau potable - Un guide destiné aux membres des conseils municipaux**
- **Marche à suivre pour désinfecter l'eau potable en Ontario**
- **Stratégies pour minimiser les trihalométhanes et les acides haloacétiques de sous-produits de désinfection**
- **Filtration Processes Technical Bulletin (en anglais seulement)**
- **Ultraviolet Disinfection Technical Bulletin (en anglais seulement)**
- **Guide de présentation d'une demande de modification du permis d'aménagement de station de production d'eau potable**
- **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**
- **Exigences d'exploitant d'eau potable en formation**
- **Échantillonnage et analyse du plomb dans les collectivités : échantillonnage normalisé ou réduit et admissibilité à l'exemption**
- **Liste des personnes-ressources du réseau d'eau potable**
- **L'eau potable en Ontario - Norme de gestion de la qualité - Guide de poche**
- **2020 Watermain Disinfection Procedure (en anglais seulement)**
- **Laboratoires autorisés**

APPENDIX C

Inspection Rating Report (IRR) and

Risk Methodology Document

DWS Name:	MATTICE DRINKING WATER SYSTEM
DWS Number:	210001781
DWS Owner:	CORPORATION OF MATTICE-VAL CÔTÉ
Municipal Location:	MATTICE-VAL COTE
Regulation:	O.REG. 170/03
DWS Category:	DW Municipal Residential
Type of Inspection:	Focused
Compliance Assessment Start Date:	Nov-6-2024
Ministry Office:	Timmins District Office

Maximum Risk Rating: 471

Inspection Module	Non Compliance Risk (X out of Y)
Capacity Assessment	0/30
Certification and Training	0/42
Logbooks	0/14
Operations Manuals	0/14
Reporting & Corrective Actions	0/45
Source	0/0
Treatment Processes	21/214
Water Quality Monitoring	0/112
Overall - Calculated	**21/471**

Inspection Risk Rating:	**4.46%**

Final Inspection Rating:	**95.54%**

DWS Name:	MATTICE DRINKING WATER SYSTEM
DWS Number:	210001781
DWS Owner Name:	CORPORATION OF MATTICE-VAL CÔTÉ
Municipal Location:	MATTICE-VAL COTE
Regulation:	O.REG. 170/03
DWS Category:	DW Municipal Residential
Type of Inspection:	Focused
Compliance Assessment Start Date:	Nov-6-2024
Ministry Office:	Timmins District Office

Non-Compliance Question(s)	Non Compliance Risk
Treatment Processes	
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?	21
Overall - Total	**21**

Maximum Question Rating: 471

Inspection Risk Rating:	**4.46%**
FINAL INSPECTION RATING:	**95.54%**

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.

PIBS 6797e

Ontario

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).

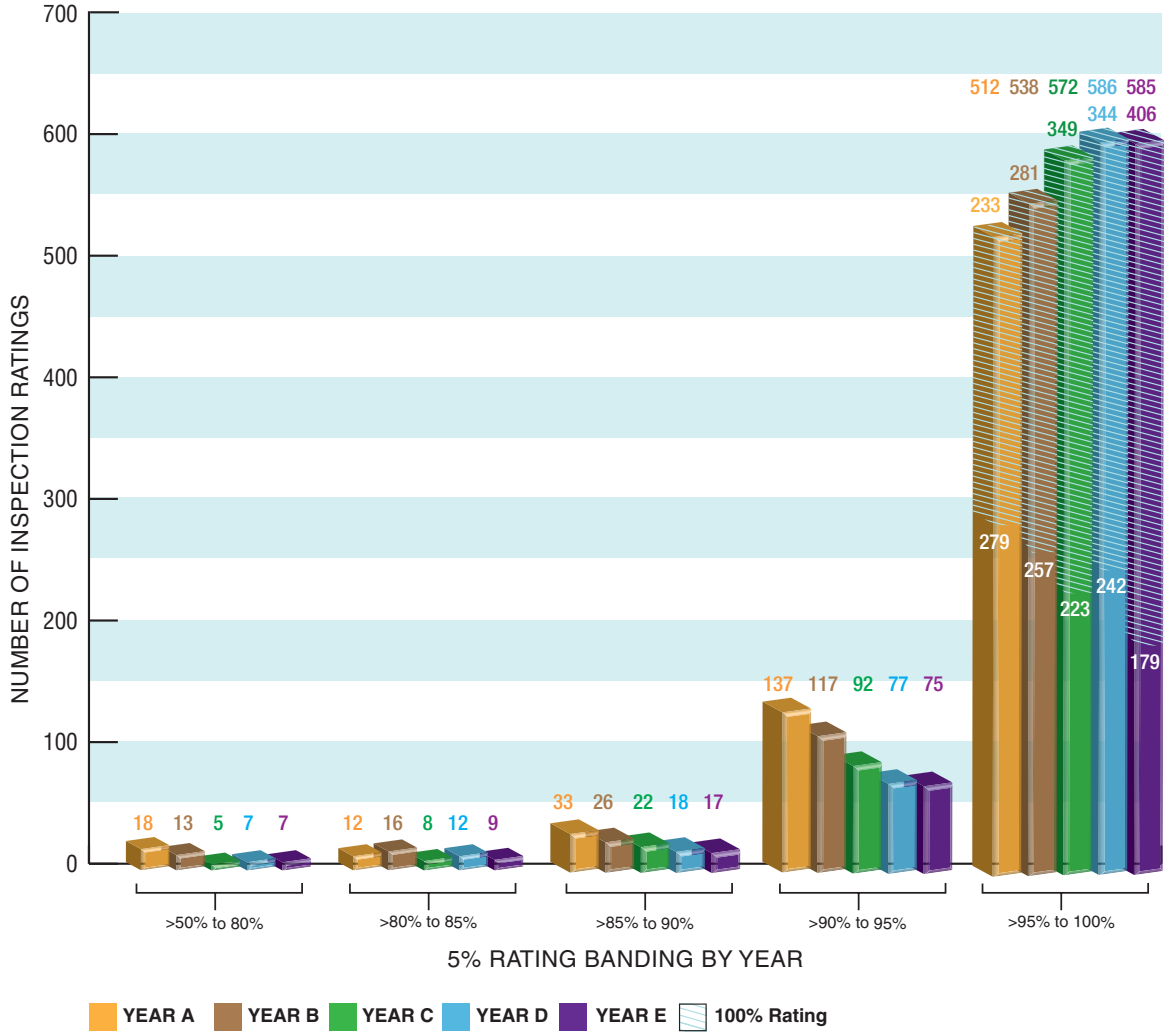
The risk ratings of all non-compliant answers are summed and divided by the sum of the risk ratings of all questions asked (maximum question rating). The resulting inspection risk rating (as a percentage) is subtracted from 100 per cent to arrive at the final inspection rating.

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**

APPLICATION DE LA MÉTHODOLOGIE EN MATIÈRE DE RISQUES AFIN DE MESURER LES RÉSULTATS D'INSPECTION DES RÉSEAUX D'EAU POTABLE RÉSIDENTIELS MUNICIPAUX

Le ministère de l'Environnement (MEO) possède un programme d'inspection rigoureux et exhaustif pour les réseaux d'eau potable résidentiels municipaux. Son objectif vise à déterminer la conformité des réseaux d'eau potable résidentiels municipaux aux exigences prévues par la *Loi de 2002 sur la salubrité de l'eau potable* et les règlements afférents. Les propriétaires de réseaux d'eau potable résidentiels municipaux ont la responsabilité de s'assurer que leurs réseaux d'eau potable se conforment à toutes les exigences légales applicables.

Ce document décrit la méthodologie d'évaluation des risques qui a été appliquée aux constatations tirées des résultats d'inspection des réseaux d'eau potable résidentiels municipaux du ministère depuis l'exercice 2008-2009. Le but premier de cette évaluation est d'encourager l'amélioration continue de ces réseaux et d'établir une manière de mesurer ce progrès.

Le MEO examine la méthodologie en matière d'évaluation du risque tous les trois ans afin de tenir compte des modifications législatives et sociétales qui affectent les niveaux de risque acceptables. À la suite du plus récent examen, la méthodologie a été modifiée afin de présenter un mode de mesure amélioré pour l'évaluation du risque et de la sécurité liés à l'exploitation des réseaux d'eau potable résidentiels municipaux.

Le protocole d'inspection des réseaux d'eau potable résidentiels municipaux du ministère comporte jusqu'à 14 modules d'inspection et environ 120 questions réglementaires. Ces questions du protocole sont également liées à l'orientation définitive que les inspecteurs du ministère utilisent lorsqu'ils inspectent les réseaux d'eau potable résidentiels municipaux. Les questions abordent un large éventail de problèmes réglementaires, allant des procédures administratives au contrôle de la qualité de l'eau potable. De plus, le protocole

PIBS 6797f

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d'inspection contient un certain nombre d'autres questions qui ne touchent pas la réglementation.

Une équipe de spécialistes de l'eau potable du ministère a évalué chaque question réglementaire du protocole d'inspection pour déterminer le risque (non-conformité au règlement) qui existe à l'approvisionnement d'une eau potable salubre. Cette évaluation était fondée sur des principes d'évaluation des risques établis pour la province et chaque question s'est vue attribuer un indice de risque, appelé indice de risque de la question. Selon le nombre de domaines auquel un réseau est réputé ne pas se conformer au cours de l'inspection et l'importance de ces domaines sur les conséquences administratives, environnementales et sanitaires, un indice d'inspection basé sur le risque est calculé par le ministère pour chaque réseau d'eau potable.

Il est important de souligner qu'un indice d'inspection inférieur à 100 pour cent ne signifie pas nécessairement que l'eau potable du réseau est insalubre. Il indique les domaines du fonctionnement du réseau qui peuvent être améliorés. Pour ce faire, le ministère veille à ce que les propriétaires et les exploitants de réseau d'eau potable sachent ce qu'ils doivent faire pour être conformes.

L'indice d'inspection reflète les résultats d'inspection de ce réseau d'eau potable pour l'année sur laquelle porte le rapport. Depuis que la méthodologie est appliquée systématiquement sur plusieurs années, elle sert de mesure comparative tant à l'échelle provinciale que pour un réseau particulier. Tant le réseau d'eau potable que le public peuvent faire un suivi du rendement au fil du temps, ce qui encourage l'amélioration continue et permet aux réseaux d'identifier les domaines précis qui nécessitent une attention particulière.

Le programme d'inspection annuelle du ministère est un élément important du filet de sécurité qui veille à la qualité de l'eau potable. Le ministère et ses partenaires sont engagés à faire preuve d'excellence et nous continuons à faire des progrès en vue d'atteindre l'objectif de 100 pour cent en matière de conformité réglementaire.

Déterminer les risques d'atteinte à l'intégrité d'un approvisionnement en eau potable

L'approche en matière de gestion des risques utilisée pour les réseaux d'eau potable résidentiels municipaux est conforme au Cadre de gestion des risques du gouvernement de l'Ontario. La gestion des risques est une méthode systématique pour identifier les dangers potentiels, comprendre la probabilité et les conséquences de ces dangers et prendre des mesures pour réduire les risques si cela s'avère nécessaire et approprié.

Le Cadre de gestion des risques donne une formule qui sert à déterminer les risques :

RISQUE = PROBABILITÉ × CONSÉQUENCE
(de la conséquence)

Chaque question réglementaire du protocole d'inspection possède une valeur de probabilité (P) pour une valeur de conséquence assignée (C), comme on le voit dans les **tableaux 1 et 2**.

TABLEAU 1

Probabilité d'occurrence de la conséquence	Valeur de la probabilité
0 % à 0,99 % (possible, mais fort improbable)	P = 0
1 à 10 % (improbable)	P = 1
11 à 49 % (possible)	P= 2
50 à 89 % (probable)	P = 3
90 à 100 % (presque certaine)	P = 4

TABLEAU 2

Conséquence	Valeur de la conséquence
Conséquence administrative moyenne	C = 1
Conséquence administrative majeure	C = 2
Conséquence environnementale mineure	C = 3
Conséquence sanitaire mineure	C = 4
Conséquence environnementale moyenne	C = 5
Conséquence environnementale majeure	C = 6
Conséquence sanitaire moyenne	C = 7
Conséquence sanitaire majeure	C = 8

Les valeurs de conséquence (de 0 à 8) sont choisies afin de s'harmoniser avec les autres programmes fondés sur le risque et les projets actuellement en cours d'élaboration ou d'utilisation au sein du ministère, tel qu'illustré dans le **tableau 2**.

L'indice de risque de la question de l'inspection prévue par le règlement provient d'une évaluation de chaque conséquence identifiée et correspond à la probabilité d'occurrence :

- tous les niveaux de conséquence sont évalués relativement à leur potentiel d'occurrence;
- la plus grande parmi toutes les combinaisons est choisie.

L'indice de risque de la question quantifie le risque de non-conformité de chaque question par rapport aux autres. Les questions avec les valeurs les plus élevées sont celles qui ont un impact possiblement plus important sur la salubrité de l'eau potable et une probabilité d'occurrence supérieure. La valeur la plus élevée possible est 32 (4×8) et la plus basse est 0 (0×1).

Le **tableau 3** présente une question type et montre le processus de détermination de l'indice de risque.

TABLEAU 3

L'exploitant responsable s'assure-t-il que l'équipement et les processus sont contrôlés, inspectés et évalués?							
Risque = probabilité × conséquence							
C=1	C=2	C=3	C=4	C=5	C=6	C=7	C=8
Conséquence administrative moyenne	**Conséquence administrative majeure**	**Conséquence environnementale mineure**	**Conséquence sanitaire mineure**	**Conséquence environnementale moyenne**	**Conséquence environnementale majeure**	**Conséquence sanitaire moyenne**	**Conséquence sanitaire majeure**
P=4 (presque certaine)	P=1 (improbable)	P=2 (possible)	P=3 (probable)	P=3 (probable)	P=1 (improbable)	P=3 (probable)	P=2 (possible)
R=4	**R=2**	**R=6**	**R=12**	**R=15**	**R=6**	**R=21**	**R=16**

Application de la méthodologie aux résultats d'inspection

Un indice d'inspection global est calculé en fonction des résultats de l'inspection des réseaux d'eau potable résidentiels municipaux. Lors d'une inspection, les inspecteurs répondent aux questions reliées à la conformité réglementaire et inscrivent leurs réponses sous la forme de « oui », « non » ou « sans objet » dans la base de données du système d'information en matière d'eau potable (SIEP) du ministère. Un « non » indique la non-conformité. Le nombre maximal de questions réglementaires posées par un inspecteur varie selon le réseau (relié ou indépendant), le type d'inspection (ciblée ou détaillée) et le type de source (eau souterraine ou eau de surface).

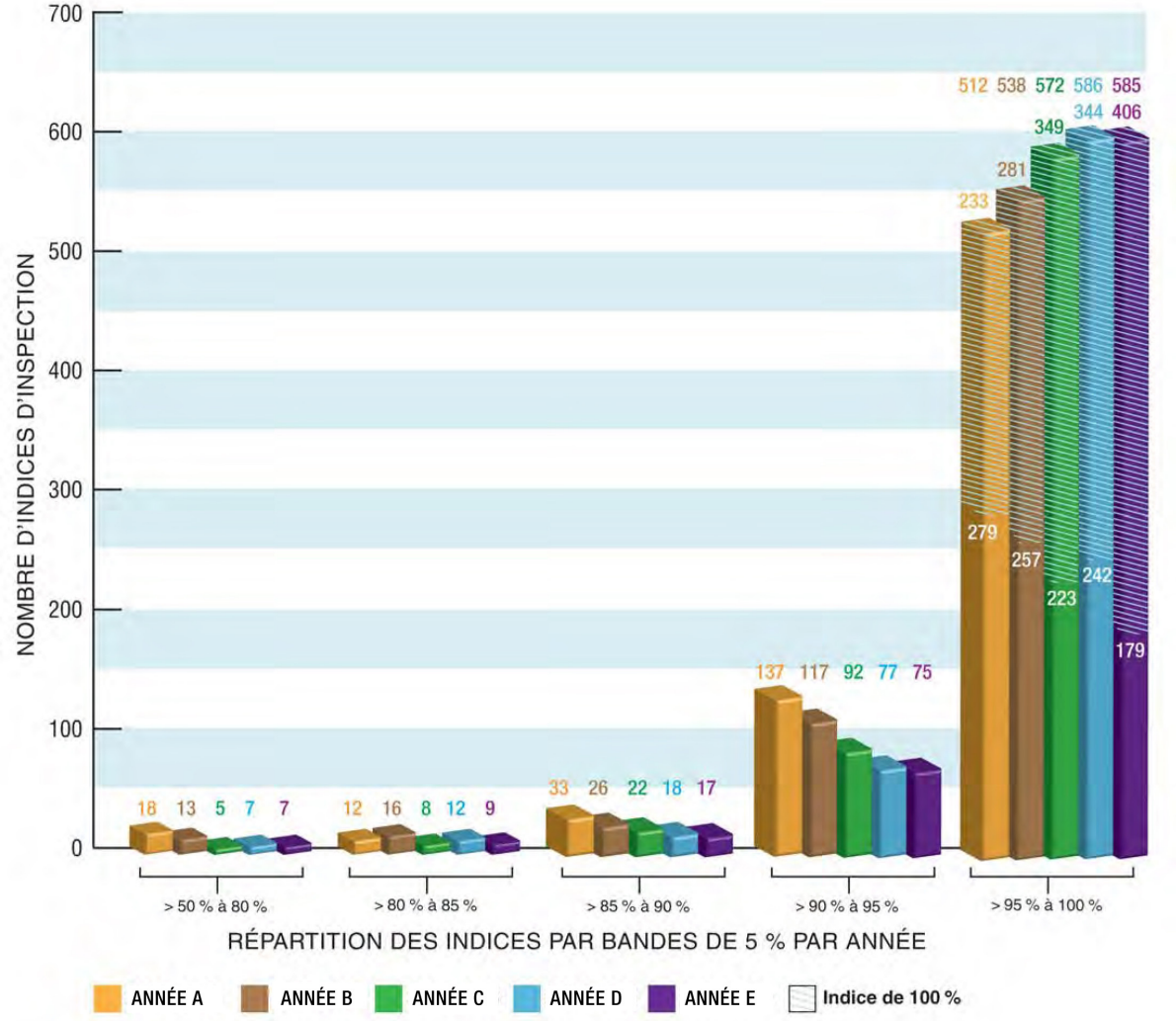
Les indices de risque de toutes les réponses non conformes sont totalisés et divisés par la somme des indices de risque de toutes les questions posées (indice des questions maximal). L'indice de risque d'inspection (en pourcentage) qui en résulte est soustrait de 100 pour cent afin d'obtenir l'indice d'inspection final.

Application de la méthodologie relative aux rapports publics

Les indices d'inspection totaux de chaque réseau d'eau potable résidentiel municipal sont publiés dans le rapport annuel de l'inspecteur en chef de l'eau potable du ministère.

La **Figure 1** donne la distribution des indices relatifs aux réseaux d'eau potable résidentiels municipaux à partir d'un échantillon d'inspections annuelles. Chaque réseau d'eau potable peut se comparer aux autres réseaux inspectés au cours d'une période donnée.

Figure 1 : Distribution sur douze mois des indices relatifs aux réseaux d'eau potable résidentiels municipaux



Transmission des résultats aux propriétaires et aux exploitants de réseaux d'eau potable résidentiels municipaux

Un sommaire des constatations d'inspection relatives à chaque réseau est généré sous la forme d'un dossier de l'indice d'inspection (DII). Les constatations sont regroupées dans les 14 modules possibles du protocole d'inspection, ce qui fournit au propriétaire ou à l'exploitant d'un réseau des renseignements sur les domaines qui doivent être améliorés. Les 14 modules sont :

1. Source
2. Permis de prélèvement d'eau
3. Évaluation de la capacité
4. Procédés de traitement
5. Procédé pour les eaux usées
6. Réseau de distribution
7. Manuels d'exploitation
8. Registres
9. Planification des interventions et des mesures d'urgence
10. Relations avec les consommateurs
11. Agrément et formation
12. Contrôle de la qualité de l'eau
13. Déclarations, avis et mesures correctives
14. Autres conclusions de l'inspection

Renseignements : **www.ontario.ca/eaupotable**