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Ontario

Aug 29th, 2023

Ms. Brooke Lambert
Director of Public Works
The Township of Wellington North
PO Box 125
7490 Sideroad 7W
Kenilworth, Ontario
N0G 2E0

Dear Ms. Lambert,

SUBJECT : 2023 MECP Inspection Report – Arthur Well Supply (DWS # 220000040)

Please find enclosed the Ministry of the Environment, Conservation and Parks (`MECP' or the `Ministry') Inspection Report for the inspection of the Arthur WS, which was recently conducted.

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

Any items under the heading "Non-Compliance with Regulatory Requirements and Actions Required" are linked to incidents of non-compliance with regulatory requirements contained within the Act, a Regulation, or site-specific Approvals, Licences, Permits, Orders or instructions.

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

http://www.ontario.ca/environment-and-energy/taking-care-your-drinking-water-guide-members-municipal-councils.

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.

… 2.

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.

If you have any questions regarding any other aspects of this report, please feel free to contact myself or the Drinking Water Supervisor (Lisa Williamson) at this office at (519) 826-4255.

Thankyou.

Yours truly,

Rick Neubrand
Senior Environmental Officer / Inspector
Ministry of the Environment, Conservation and Parks
Drinking Water and Environmental Compliance Division
Guelph District Office

Encl: Reports (1)

CC : Shari Dahmer - GRCA
: Phil Wong – WDGHU
: Corey Schmidt - TWN
: Sara McDougal – TWN
: Lisa Williamson - MECP

ARTHUR DRINKING WATER SYSTEM
109 WELLS ST, WELLINGTON NORTH, ON, N0G 1A0

INSPECTION REPORT

System Number:	220000040
Entity:	CORPORATION OF THE COUNTY OF WELLINGTON
Inspection Start Date:	July 25, 2023
Inspection End Date:	August 28, 2023
Inspected By:	Rick Neubrand
Badge #:	773

(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

This drinking water system (DWS) is owned and operated by; The Township of Wellington North.

The system serves an estimated population of 2628 people and is categorized as a Large Municipal Residential System. Information reviewed for this inspection covered the time period of July 25th, 2022 to August 3rd, 2023.

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:
- Pumphouse # 7 with Well 7B
- Pumphouse # 8 with Wells 8A and 8B

- North Water Tower

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 (DWL) # 113-201, Issue #3
- Municipal Drinking Water Works Permit (DWWP) #113-101, Issue # 3
- Permit To Take Water (PTTW) # 8202-9DNKD3

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	DWMR1000000	**Question Type**	Information

Legislative Requirement(s):
Not Applicable

Question:
Does this drinking water system provide primary disinfection?

Compliance Response(s)/Corrective Action(s)/Observation(s):
This drinking water system provides for both primary and secondary disinfection and distribution of water.

Primary disinfection is provided through the usage of chlorination (sodium hypochlorite injection). Sodium silicate injection is used for iron sequestration.

Question ID	DWMR1007000	**Question Type**	Legislative

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

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

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.

In assessing all wells during this inspection, no significant erosion or maintenance issues were found to be present.

According to Water Well Record #6712921, the annular space for Well 7B was filled with cement grout and bentonite from ground level to a depth of 40 feet. According to Water Well Records #6714775 and 6714776, the annular spaces for Well 8A and Well 8B were each filled with cement grout from ground level to a depth of 183 feet.

Sections 16.2.7 - 16.2.9 of Schedule B in the MDWL requires that an inspection schedule for all wells associated with the drinking water system be included in the operations and maintenance manual. There must be inspection and maintenance procedures for the entire well structure of each well including all above and below grade 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.

The Township of Wellington-North has established a well inspection program that includes inspections of the production wells on an annual basis. Also, a detailed assessment of the wells, including below grade components, is set to be scheduled approximately every 10 years, if feasible.

With respect to next below grade (video) inspections, the owner reported that:
- Well 7 was last inspected on Oct 15, 2019.
- Well 8A was last inspected November 13, 2013.
- Well 8B was last inspected on October 3, 2013.
No significant concerns were noted.

Question ID	DWMR1009000	**Question Type**	Legislative

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

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

Compliance Response(s)/Corrective Action(s)/Observation(s):
Measures were in place to protect the groundwater and/or GUDI source in accordance with the Municipal Drinking Water Licence and Drinking Water Works Permit issued under Part V of the SDWA.

During the course of this inspection, the owner reported that the inspections completed by the Risk Management Official (RMO - for the Township of Wellington North) indicated that there was no nutrient spreading activities on the agricultural land/crops close to the Arthur well 7 or other pumphouses in 2022 or to date in 2023

During a previous inspection, the owner reported that an adjacent landowner had applied commercial fertilizer and treated corn seed within 100 m of wells 8A and 8B. This is within the WHPA-A groundwater protection zone for the wells and is contrary to the Nutrient Management Act. The owner also provided documentation which indicated that the local Ministry Agricultural Compliance Officer had followed up with the adjacent farmer and stopped the action.

During this inspection, crops were noted just north of the Well 7 pumphouse. Although, the owner was unaware of any fertilizer or nutrient application activities in this area, the RMO advised that fertilizer application is not a significant drinking water threat for Well 7B and therefore is not subject to a prohibition like manure spreading. The RMO conducts inspections to enforce the manure prohibition in place within 100 metres of this well. Based on these inspections there was no evidence of manure spreading in 2022 or to date in 2023 at the property just north of the Well 7 pumphouse. It is recommended that the owner continue to monitor agricultural activities on lands adjacent to their wells, and report any improper land applications to the Ministry.

For reporting purposes, the Township of Wellington North is subject to two Source Protection Plans (based on watershed or Conservation Authority boundaries): Grand River Plan and the Saugeen Valley, Grey Sauble, Northern Bruce Peninsula Plan (Saugeen Valley). Although the Ausable Bayfield Maitland Valley (ABMV - Maitland Valley) Plan also encompasses part of the municipality, there are no reporting requirements associated with that Plan for the Township. In 2023, all Source Protection Plans were in effect. Updates to the Grand River Source Protection Plan are starting in Fall of 2023

On page 5 of the 2019 Annual Report of the PTTW, it is stated that: "The O'Donnell domestic well responds significantly to operation of well 7B but it is located south of the Arthur well 7B wellhead protection area. We would expect the wellhead protection area to include this area. Monitoring well WN - MW1/00 (DO) responds significantly to the operation of Wells 8A and 8B but is shown in the capture area for Well 7B. Similarly we would expect that the wellhead protection area for wells 8A and 8B would include this area." It is recommended this be considered the next time the source protection plans are revised.

Question ID	DWMR1014000	**Question Type**	Legislative

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

Question:
Is there sufficient monitoring of flow as required by the MDWL or DWWP issued under Part V of the SDWA?

Compliance Response(s)/Corrective Action(s)/Observation(s):
There was sufficient monitoring of flow as required by the Municipal Drinking Water Licence or Drinking Water Works Permit issued under Part V of the SDWA.

Section 2.1 of Schedule C in the Municipal Drinking Water Licence (MDWL) outlines the requirements for flow measurement and recording. For this system, continuous flow measurement and recording shall be undertaken for the flow rate (L/s) and daily volume (m3/day) of treated water that flows from the treatment subsystem into the distribution system, as well as water that flows into the treatment subsystem. For this system, each well is equipped with a flow meter that in essence serves as a treated flow meter due to the treatment occurring within contact piping rather than a reservoir.

Question ID	DWMR1016000	**Question Type**	Legislative

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

Question:
Is the owner in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the MDWL issued under Part V of the SDWA?

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

rated capacity conditions in the Municipal Drinking Water Licence issued under Part V of the SDWA.

Schedule C, Section 1.1 of the MDWL dictates a rated capacity of 1,961 m³/day for Well Pumphouse 7, and 2,255 m³/day for Well Pumphouse 8.
Records provided indicate that the maximum daily flow volumes for the 2022/2023 inspection period were;
- Well 7 pumphouse was 958 m3 in Sept 2022, which is 48.9% of that pumphouse's approved volume,
- Well 8a/8b pumphouse was 1161 m3 in June 2023, which is 51.4 % of that pumphouse's approved volume.
Flow rates for these wells were not exceeded during the inspection review period, except for minor periods involving maintenance of the DWS or short term anomolies.
From January 1st to December 31st, 2022, a total of 361,192.61 cubic meters of water was treated and pumped to the drinking water system. The average daily water demand was 989.14 cubic meters. The highest daily use of water (all wells combined) occurred in June 2023 when 1,534 cubic meters of water was pumped. This represents 36.4% of the DWS's allowable volume.

Question ID	DWMR1018000	**Question Type**	Legislative

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

Question:
Has the owner ensured that all equipment is 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 had ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit.

No significant changes in treatment equipment have occurred since the last inspection.

Question ID	DWMR1114000	**Question Type**	Legislative

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

Question:
Does the owner have evidence that, when required, all legal owners associated with the DWS were notified of the requirements of the Licence & Permit?

Compliance Response(s)/Corrective Action(s)/Observation(s):
The owner had evidence that required notifications to all legal owners associated with the Drinking Water System had been made during the inspection period.

The Township has advised all engineers / developers that they must comply with the Township's Municipal Servicing Standards, which states the following under section E2: "Developer's

Engineer must comply with the requirements of the Ontario Safe Drinking Water Act (SDWA) and all applicable regulations made in accordance to the act, including but not limited to the Drinking Water Works Permits (DWWP) and the Municipal Drinking Water Licence (MDWL). DWWP and MWDL are available from the Township's Water Department and it is the responsibility of the developer's engineer to obtain copies as necessary."

Please see attached link to Township of Wellington North Municipal Servicing Standards on the township website.

https://www.wellington-north.com/sites/default/files/2023-04/WN%20Municipal%20Standards-2023%20Update-Final.pdf

Question ID	DWMR1025000	**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 (added, modified, replaced or extended) 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 in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit.

Question ID	DWMR1023000	**Question Type**	Legislative

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

Question:
Do records indicate that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a DWWP and/or MDWL issued under Part V of the SDWA at all times that water was being supplied to consumers?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Records indicated that the treatment equipment was operated in a manner that achieved the design capabilities required under O. Reg. 170/03 or a Drinking Water Works Permit and/or Municipal Drinking Water Licence issued under Part V of the SDWA at all times that water was being supplied to consumers.

The Arthur Drinking Water System obtains water from ground water sources. The treatment system consists of disinfection using sodium hypochlorite and is capable of achieving an overall performance that provides, at a minimum, 2-log (99%) removal or inactivation of viruses prior to the first consumer.

The minimum required CT value for this system has been determined to be 4 mg/L·min, and a free chlorine residual of 0.50 mg/L has been deemed to be the minimum level required to achieve the required CT at both the 7B and 8A/8B pumphouses.

Records provided for the inspection period indicate that proper disinfection was achieved when water was being supplied to consumers.

Question ID	DWMR1024000	**Question Type**	Legislative

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

Question:
Do records confirm that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes 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 purposes was operated so that at all times and all locations in the distribution system the chlorine residual was never less than 0.05 mg/l free or 0.25 mg/l combined.

The owner checks distribution system FCRs daily by grab sample.

Question ID	DWMR1033000	**Question Type**	Legislative

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

Question:
Is the secondary disinfectant residual measured as required for the large municipal residential distribution system?

Compliance Response(s)/Corrective Action(s)/Observation(s):
The secondary disinfectant residual was measured as required for the large municipal residential distribution system.

Distribution system chlorine residuals were measured on a daily basis (grab samples) during the inspection review period.

Question ID	DWMR1030000	**Question Type**	Legislative

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

Question:
Is primary disinfection chlorine monitoring being conducted at a location approved by MDWL and/or DWWP issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved?

Compliance Response(s)/Corrective Action(s)/Observation(s):

Primary disinfection chlorine monitoring was conducted at a location approved by Municipal Drinking Water Licence and/or Drinking Water Works Permit issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved.

Both pumphouses have both a pre-contact time (process) FCR analyzer and post-contact time (legislative) continuous FCR analyzer. The post-contact time chlorination analyzers take water for sampling at the ends of the contact mains.

Question ID	DWMR1035000	**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:

Are operators examining continuous monitoring test results and are they examining the results within 72 hours of the test?

Compliance Response(s)/Corrective Action(s)/Observation(s):

Operators were examining continuous monitoring test results and they were examining the results within 72 hours of the test.

Question ID	DWMR1038000	**Question Type**	Legislative

Legislative Requirement(s):

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

Question:

Is continuous monitoring equipment that is being utilized to fulfill O. Reg. 170/03 requirements performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03 and recording data with the prescribed format?

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 specified in the Table in Schedule 6 of O. Reg. 170/03 and recording data with the prescribed format.

In reviewing the site's Supervisory Control and Data Acquisition (SCADA) data, the owner provided backup data from on-site historians for any omissions from broadcast channel data as well. Regular SCADA data was provided in 5 minute intervals.

Question ID	DWMR1037000	**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; SDWA | O. Reg. 170/03 | 6-5 | (1.1);

Question:

Are all continuous monitoring equipment utilized for sampling and testing required by O. Reg. 170/03, or MDWL or DWWP or order, equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6?

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 equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6.

Alarms are set for FCR levels (well ahead of minimum limits of 0.5 mg/L - CT proper disinfection) on both the pre-contact piping (operational analyzers) and post-contact piping (legislative analyzers), for optimum response ability. The well pumps are set to lock out if the free chlorine residual levels drop below the low-low setpoint level of 0.65 mg/L at the post-contact chlorine analyzers.
During the inspection, both pumphouses were tested for low FCR alarms. Both alarmed out to the on-call operator during these tests.

Question ID	DWMR1040000	**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:

Are 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, in accordance with the manufacturer's instructions or the regulation.

Portable colourimeters are used to calibrate the continuous FCR analyzers. Portable colourimeters are professionally calibrated annually and were last calibrated on February 14, 2023. The online analyzers were last professionally checked on February 22, 2023. Certificates were provided for these assessments.

Question ID	DWMR1108000	**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; 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, an Order, MDWL, or DWWP issued under Part V, SDWA, has triggered an alarm or an automatic shut-off, did a qualified person respond in a timely manner and take appropriate actions?

Compliance Response(s)/Corrective Action(s)/Observation(s):

Where required continuous monitoring equipment used for the monitoring of chlorine residual and/or turbidity triggered an alarm or an automatic shut-off, a qualified person responded in a timely manner and took appropriate actions.

Operators kept detailed notes in logbooks which explained alarm notifications and other events / anomalies in the DWS.

Question ID	DWMR1099000	**Question Type**	Information

Legislative Requirement(s):

Not Applicable

Question:

Do records show that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O. Reg. 169/03)?

Compliance Response(s)/Corrective Action(s)/Observation(s):

Records showed that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O. Reg. 169/03).

Question ID	DWMR1081000	**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:

For LMR systems, are all microbiological water quality monitoring requirements for distribution samples being met?

Compliance Response(s)/Corrective Action(s)/Observation(s):

All microbiological water quality monitoring requirements prescribed by legislation for distribution samples in a large municipal residential system were being met.

Question ID	DWMR1083000	**Question Type**	Legislative

Legislative Requirement(s):

SDWA | O. Reg. 170/03 | 10-3;

Question:

For LMR systems, are all microbiological water quality monitoring requirements for treated samples being met?

Compliance Response(s)/Corrective Action(s)/Observation(s):

All microbiological water quality monitoring requirements prescribed by legislation for treated samples were being met.

Question ID	DWMR1096000	Question Type	Legislative

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

Question:
Do records confirm that chlorine residual tests are being conducted at the same time and at the same location that microbiological samples are obtained?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.

Question ID	DWMR1084000	Question Type	Legislative

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

Question:
Are all inorganic water quality monitoring requirements prescribed by legislation conducted within the required frequency?

Compliance Response(s)/Corrective Action(s)/Observation(s):
All inorganic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.

Inorganics were sampled for on August 8, 2018 for Pumphouse 7, and November 16, 2020 for Pumphouse 8. Sampling for these parameters were undertaken again at both pumphouses on Aug 23, 2021 to get a common sampling date for both pumphouses. These sample parameters are required to be sampled every 36 months.

Question ID	DWMR1085000	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:
Are all organic water quality monitoring requirements prescribed by legislation conducted within the required frequency?

Compliance Response(s)/Corrective Action(s)/Observation(s):
All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.

Organics were sampled for on August 8, 2018 for Pumphouse 7, and November 16, 2020 for Pumphouse 8. Sampling for these parameters were undertaken again at both pumphouses on Aug 23, 2021 to get a common sampling date for both pumphouses. These sample parameters

are required to be sampled every 36 months.

Question ID	DWMR1086000	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:
Are all haloacetic acid water quality monitoring requirements prescribed by legislation conducted within the required frequency and at the required location?

Compliance Response(s)/Corrective Action(s)/Observation(s):
All haloacetic acid water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location.

HAAs were sampled in the distribution system on the following dates:
- August 15, 2022
- November 7, 2022
- February 13, 2023
and
May 8, 2023.
There were no exceedances of this parameter. This sample parameter is required to be sampled quarterly.

Question ID	DWMR1087000	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:
Have all trihalomethane water quality monitoring requirements prescribed by legislation been conducted within the required frequency and at the required location?

Compliance Response(s)/Corrective Action(s)/Observation(s):
All trihalomethane water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location.

THMs were sampled in the distribution system on the following dates:
- August 15, 2022
- November 7, 2022
- February 13, 2023
and
May 8, 2023.
There were no exceedances of this parameter. This sample parameter is required to be

sampled once every three months. The Annual Running Average (ARA) was last calculated to be 21.75 ug/L. The limit is 100.

Question ID	DWMR1088000	Question Type	Legislative

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

Question:
Are all nitrate/nitrite water quality monitoring requirements prescribed by legislation conducted within the required frequency for the DWS?

Compliance Response(s)/Corrective Action(s)/Observation(s):
All nitrate/nitrite water quality monitoring requirements prescribed by legislation were conducted within the required frequency.

Nitrates and Nitrites were sampled at the treated water entry points (both pumphouses) on the following dates:
- August 15, 2022
- November 7, 2022
- February 13, 2023
and
May 8, 2023.
There were no exceedances of this parameter. This sample parameter is required to be sampled every three months.

Question ID	DWMR1089000	Question Type	Legislative

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

Question:
Are all sodium water quality monitoring requirements prescribed by legislation conducted within the required frequency?

Compliance Response(s)/Corrective Action(s)/Observation(s):
All sodium water quality monitoring requirements prescribed by legislation were conducted within the required frequency.

Sodium sampling was conducted for Pumphouse 7 on September 10, 2018 and results exceeded the 20 mg/L reportable limit (36.6 mg/L). An adverse water quality incident (AWQI) was reported (#114425), with resampling results of Sept 18, 2018 confirming the levels were greater than 20 mg/L (also 36.6 mg/L). Sodium sampling for Pumphouse 8 was conducted on November 9, 2015 (results slightly higher than 20 mg/L) and again on November 16, 2020 at 22.4 mg/L. This was not reported as elevated sodium for the DWS as elevated sodium levels had been already reported within the last 5 years. This sample parameter is required to be sampled every 60 months.
Sodium is expected to be sampled again in September 2023.

Question ID	DWMR1090000	Question Type	Legislative

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

Question:
Where fluoridation is not practiced, are all fluoride water quality monitoring requirements prescribed by legislation conducted within the required frequency?

Compliance Response(s)/Corrective Action(s)/Observation(s):
All fluoride water quality monitoring requirements prescribed by legislation were conducted within the required frequency.

Sampling for fluoride at Pumphouse 7 was last conducted on September 10, 2018. Test results were 1.30 mg/L. Sampling for fluoride at Pumphouse 8 was last conducted on November 16, 2020 at 0.35 mg/L. The established drinking water standard for fluoride of 1.5 mg/L. This sample parameter is required to be sampled every 60 months. This is expected to be sampled again in September 2023.

Question ID	DWMR1059000	Question Type	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 128/04 | 28;

Question:
Do the operations and maintenance manuals contain plans, drawings and process descriptions sufficient for the safe and efficient operation of the system?

Compliance Response(s)/Corrective Action(s)/Observation(s):
The operations and maintenance manuals contained plans, drawings and process descriptions sufficient for the safe and efficient operation of the system.

No changes since last inspection.

Question ID	DWMR1060000	Question Type	Legislative

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

Question:
Do the operations and maintenance manuals meet the requirements of the DWWP and MDWL issued under Part V of the SDWA?

Compliance Response(s)/Corrective Action(s)/Observation(s):
The operations and maintenance manuals met the requirements of the Drinking Water Works Permit and Municipal Drinking Water Licence issued under Part V of the SDWA.

Question ID	DWMR1061000	Question Type	Legislative

Legislative Requirement(s):
SDWA | O. Reg. 128/04 | 27 | (1); SDWA | O. Reg. 128/04 | 27 | (2); SDWA | O. Reg. 128/04 | 27 | (3); SDWA | O. Reg. 128/04 | 27 | (4); SDWA | O. Reg. 128/04 | 27 | (5); SDWA | O. Reg. 128/04 | 27 | (6); SDWA | O. Reg. 128/04 | 27 | (7);

Question:
Are logbooks properly maintained and contain the required information?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Logbooks were properly maintained and contained the required information.

Logsheets are filled out daily at each pumphouse and SCADA data checkbooks are located at the main office in the Arthur sewage treatment plant (STP).

Question ID	DWMR1062000	**Question Type**	Legislative

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

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

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 being done by a certified operator, water quality analyst, or person who suffices the requirements of O. Reg. 170/03 7-5.

Question ID	DWMR1071000	**Question Type**	BMP

Legislative Requirement(s):
Not Applicable

Question:
Has the owner provided security measures to protect components of the drinking water system?

Compliance Response(s)/Corrective Action(s)/Observation(s):
The owner had provided security measures to protect components of the drinking water system.

Pumphouses are well lit and have remote notification security systems in place. Operators make routine visits to pumphouses at differing times, which adds to better security measures.

Question ID	DWMR1073000	**Question Type**	Legislative

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

Question:
Has the overall responsible operator been designated for all subsystems which comprise the

drinking water system?

Compliance Response(s)/Corrective Action(s)/Observation(s):
The overall responsible operator had been designated for each subsystem.

The Manager, Environmental & Development Services is permanently designated as the ORO for the Township's Drinking Water Systems. Other Operators may be required to act in the absence of the Manager and a memo is sent out to notify staff.

Question ID	DWMR1074000	**Question Type**	Legislative

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

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

Compliance Response(s)/Corrective Action(s)/Observation(s):
Operators-in-charge had been designated for all subsystems which comprise the drinking water system.

The operator that completes the daily well check is designated the Operator-In-Charge (OIC) for that facility during regular working hours. The on-call operator is designated the OIC after regular working hours and on weekends. Operators are on-call for one week on a rotational basis.

Question ID	DWMR1075000	**Question Type**	Legislative

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

Question:
Do all operators possess the required certification?

Compliance Response(s)/Corrective Action(s)/Observation(s):
All operators possessed the required certification.

Question ID	DWMR1076000	**Question Type**	Legislative

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

Question:
Do only certified operators make adjustments to the treatment equipment?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Only certified operators made adjustments to the treatment equipment.

DWS – Stakeholder Guidance Material Reference Sheet

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 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/drinkingwater

PUBLICATION TITLE	PUBLICATION NUMBER
FORMS: Drinking Water System Profile Information Laboratory Services Notification Adverse Test Result Notification	 012-2149E 012-2148E 012-4444E
Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils	Website
Procedure for Disinfection of Drinking Water in Ontario	Website
Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids	Website
Filtration Processes Technical Bulletin	Website
Ultraviolet Disinfection Technical Bulletin	Website
Guide for Applying for Drinking Water Works Permit Amendments, & License Amendments	Website
Certification Guide for Operators and Water Quality Analysts	Website
Guide to Drinking Water Operator Training Requirements	9802E
Community Sampling and Testing for Lead: Standard and Reduced Sampling and Eligibility for Exemption	Website
Drinking Water System Contact List	7128E01
Ontario's Drinking Water Quality Management Standard - Pocket Guide	Website
Watermain Disinfection Procedure	Website
List of Licensed Laboratories	Website

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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 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/eaupotable

TITRE DE LA PUBLICATION	NUMÉRO DE PUBLICATION
Renseignements sur le profil du réseau d'eau potable Avis de demande de services de laboratoire Avis de résultats d'analyse insatisfaisants et de règlement des problèmes	012-2149F 012-2148F 012-4444F
Prendre soin de votre eau potable - Un guide destiné aux membres des conseils municipaux	Site Web
Marche à suivre pour désinfecter l'eau portable en Ontario	Site Web
Stratégies pour minimiser les trihalométhanes et les acides haloacétiques de sous-produits de désinfection	Site Web
Filtration Processes Technical Bulletin (en anglais seulement)	Site Web
Ultraviolet Disinfection Technical Bulletin (en anglais seulement)	Site Web
Guide de présentation d'une demande de modification du permis d'aménagement de station de production d'eau potable	Site Web
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	Site Web
Guide sur les exigences relatives à la formation des exploitants de réseaux d'eau potable	9802F
Échantillonnage et analyse du plomb dans les collectivités : échantillonnage normalisé ou réduit et admissibilité à l'exemption	Site Web
Liste des personnes-ressources du réseau d'eau potable	Site Web
L'eau potable en Ontario - Norme de gestion de la qualité - Guide de poche	Site Web
Procédure de désinfection des conduites principales	Site Web
Laboratoires autorisés	Site Web

Ontario

DWS – DWS Inspection Rating Report and Risk Methodology statement

Ministry of the Environment, Conservation and Parks - Inspection Summary Rating Record (Reporting Year - 2023-24)

DWS Name:	ARTHUR DRINKING WATER SYSTEM
DWS Number:	220000040
DWS Owner:	CORPORATION OF THE COUNTY OF WELLINGTON
Municipal Location:	GUELPH
Regulation:	O.REG. 170/03
DWS Category:	DW Municipal Residential
Type of Inspection:	Focused
Inspection Date:	Jul-25-2023
Ministry Office:	Guelph District Office

Maximum Risk Rating: 458

Inspection Module	Non Compliance Risk (X out of Y)
Capacity Assessment	0/30
Certification and Training	0/42
Logbooks	0/18
Operations Manuals	0/28
Reporting & Corrective Actions	0/25
Source	0/14
Treatment Processes	0/189
Water Quality Monitoring	0/112
Overall - Calculated	**0/458**

Inspection Risk Rating:	**0.00%**

Final Inspection Rating:	**100.00%**

Inspection Rating Record Generated On 2023-08-29 (Inspection ID: 1-188786562)

DWS Name:	ARTHUR DRINKING WATER SYSTEM
DWS Number:	220000040
DWS Owner Name:	CORPORATION OF THE COUNTY OF WELLINGTON
Municipal Location:	GUELPH
Regulation:	O.REG. 170/03
DWS Category:	DW Municipal Residential
Type of Inspection:	Focused
Inspection Date:	Jul-25-2023
Ministry Office:	Guelph District Office

All legislative requirements were met. No detailed rating scores.

Maximum Question Rating: 458

Inspection Risk Rating:	**0.00%**

FINAL INSPECTION RATING:	**100.00%**

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).

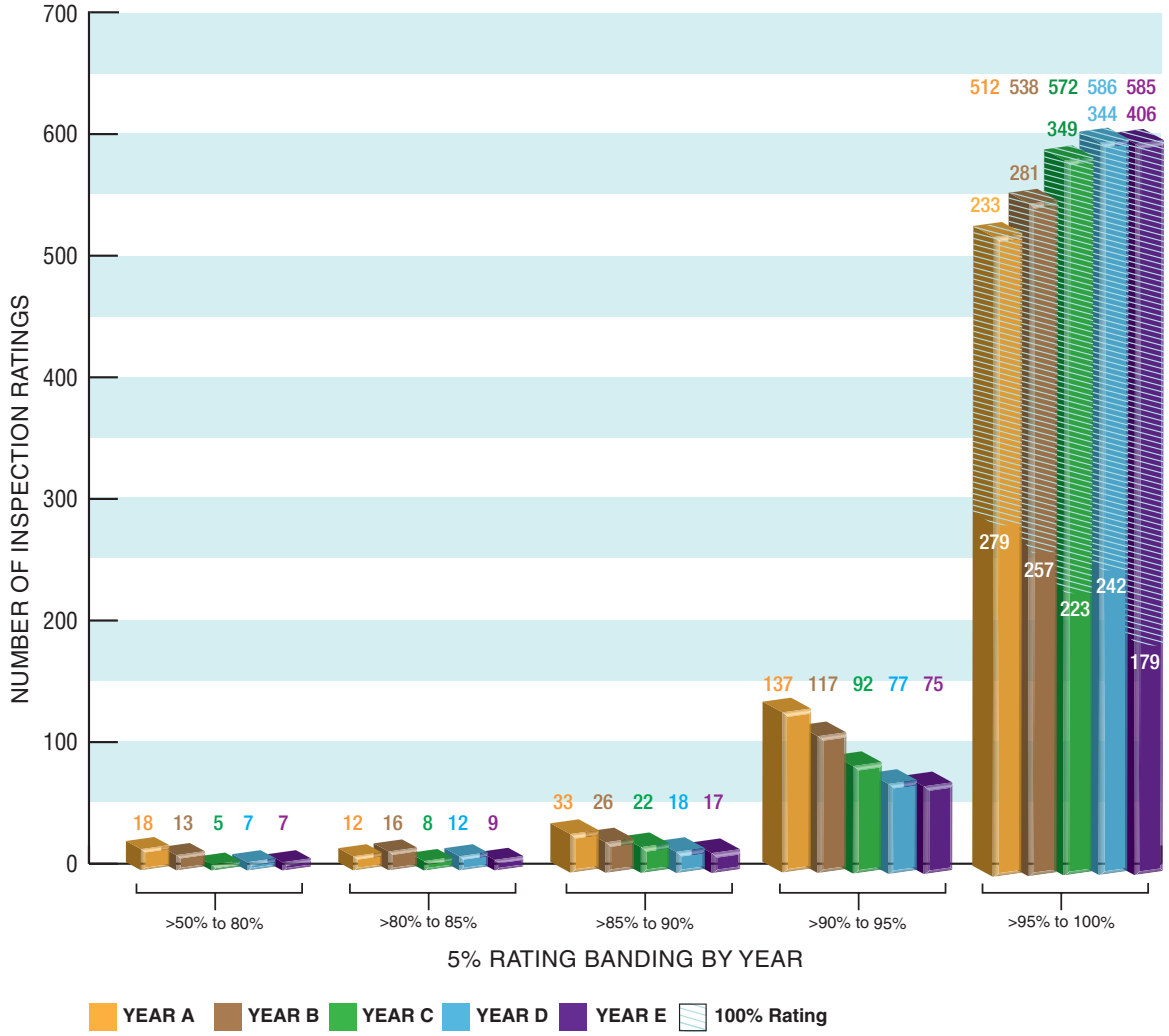
The risk ratings of all non-compliant answers are summed and divided by the sum of the risk ratings of all questions asked (maximum question rating). The resulting inspection risk rating (as a percentage) is subtracted from 100 per cent to arrive at the final inspection rating.

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**