

Ministry of the Environment,
Conservation and Parks

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

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August 10, 2023

Holly Grant
CAO & Municipal Clerk
The Corporation of the Township of Cramahe
1 Toronto Road, P.O. Box 357
Colborne, ON K0K 1S0

Dear Ms. Grant,

**Re: Colborne Drinking Water System No. 220000790
2023-2024 Compliance Inspection Report**

Enclosed is the report of the 2023-24 inspection of the Colborne DWS and the corresponding Inspection Rating Report (IRR) and Risk Methodology document.

Section 19 of the Safe Drinking Water Act (Standard of Care) creates a number of obligations for individuals who exercise decision-making authority over municipal drinking water systems. Please be aware that the Ministry has encouraged such individuals, particularly municipal councilors, to take steps to be better informed about the drinking water systems over which they have decision-making authority. These steps could include asking for a copy of this inspection report and a review of its findings. Further information about Section 19 can be found in "Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils" on the Drinking Water Ontario website at <https://www.ontario.ca/environment-and-energy/taking-care-your-drinking-water-guide-members-municipal-councils>.

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 or concerns regarding the rating, please feel free to contact me or Water Supervisor (A) Brad Jackson at 705-768-9245. I would be pleased to answer any questions or provide additional clarification.

Sincerely,

A handwritten signature in blue ink that reads "Viktoria Light".

Viktoria Light
Provincial Officer #1100
Drinking Water Program Inspector
Eastern Region
Ministry of Environment, Conservation and Parks
Enclosure (1)

c: Phill Kelly, Manager of Transportation & Environmental Services
 Colin Macdonald, Water System Supervisor, Aquatech Canadian Water Services Inc.
 Larry Spyrka, Manager of Water Capital Projects, Lakefront Utility Services Inc.
 Adam Taggart, Supervisor, Distribution and Systems, Lakefront Utility Services Inc.
 Dr. Natalie Bocking, Medical Officer of Health, Haliburton Kawartha Pine Ridge HU
 Rhonda Bateman, CAO/Secretary-Treasurer, Lower Trent Conservation Authority
 Office File



COLBORNE DRINKING WATER SYSTEM
321 PURDY RD, CRAMAHE, ON, K0K 1S0
INSPECTION REPORT

System Number: 220000790

Entity: THE CORPORATION OF THE
TOWNSHIP OF CRAMAHE
LAKEFRONT UTILITY SERVICES
INC.

Inspection Start Date: June 02, 2023

Inspection End Date: August 09, 2023

Inspected By: Viktoria Light

Badge #: 1100



signature

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 | <p>Question ID: DWMR1061000</p> <p>Are logbooks properly maintained and contain the required information?</p> | <p>Logbooks were not properly maintained and/or did not contain the required information.</p> <p>Required Actions #4:</p> <p>The owner and operating authority for the Colborne DWS shall ensure that an operator-in-charge or a person authorized by an operator-in-charge records, at a minimum, the following information in the logs or other record-keeping mechanisms in respect of each operating shift, in accordance with section 27 of O.Reg.128?04.</p> <ul style="list-style-type: none"> • Any departures from normal operating procedures that occurred during the shift and the time they occurred. • Any special instructions that were given during the shift to depart from normal operating procedures and the person who gave the instructions. • Any unusual or abnormal conditions that were observed in the subsystem during the shift, any action that was taken and any conclusions drawn from the observations. • Any equipment that was taken out of service or ceased to operate during the shift and any action taken to maintain or repair equipment during the shift. <p>Additional Required Actions related to this non-compliance are included in the 'Other Non-compliances' section of this report.</p> |
| NC-2 | <p>Question ID: DWMR1115000</p> | <p>Actions Required #3 (Cont'd):</p> |

Were the inspection questions sufficient to address other non-compliance items identified during the inspection period?

B. The owner and operating authority for the Colborne DWS shall ensure that the minimum (low-low) chlorine residual alarm is increased to a minimum of 0.46 mg/L when water temperature drops below 5oC in order to ensure that primary disinfection is achieved under worst case operating conditions during winter months. By August 31, 2023, the owner of the operating authority for the Colborne DWS shall develop and implement a procedure for minimum chlorine residual alarm adjustment at the on-line analyzer monitoring primary disinfection process.

A copy of the procedure shall be submitted to the signed Provincial Officer by August 31, 2023.

Actions Required #4 (Cont'd):

By August 31, 2023, the operating authority for the Colborne DWS shall develop and include in Operations Manual a procedure for logbook documentation of all activities associated with operation of drinking water system and the time they occurred, including low/low-low chlorine residual alarm events.

The procedure shall include, but not be limited to, the requirement to document the following information during each event:

- The time the low/low-low chlorine alarm was initiated/received.
- The time the operator arrived to the site.
- The chlorine residual reading observed at the time of the arrival, as well as the status of production pumps (raw water flow).
- The lowest chlorine residual observed/documented by the SCADA system during the incident, and the duration of chlorine residual below the alarm level.
- CT calculations conducted, if necessary, to confirm the provision of primary disinfection during the incident.
- Observations and reasons for low chlorine residuals
- Corrective actions taken to repair the

| | |
|--|--|
| | <p>equipment and bring chlorine residual to 'normal' operating levels.</p> <ul style="list-style-type: none">• Reporting carried out to authorities, if warranted. <p>By August 31, 2023, a copy of the logbook documentation procedure prescribed above shall be submitted to the signed Provincial Officer.</p> |
| <p>NC-3 Question ID: DWMR1007000</p> <p>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?</p> | <p>The owner was not maintaining the production well(s) in a manner sufficient to prevent entry into the well of surface water and other foreign materials.</p> <p>Required Action #1:</p> <p>The owner of the Colborne DWS shall ensure that the well that serves as an entry point of raw water supply is constructed and maintained to prevent surface water and other foreign materials from entering the well, in accordance with Schedule 1-2 of O.Reg.170/03.</p> <p>By August 31, 2023, the owner of the Colborne DWS shall ensure that the cracks in the annular space around the production Well #1A are properly sealed to prevent surface water and other material from entering the well.</p> <p>By August 31, 2023, the owner of the Colborne DWS shall ensure that the surface drainage is such that water will not collect or pond in the vicinity of the production Well #1A.</p> <p>By August 31, 2023, the owner of the Colborne DWS shall ensure that the production Well #2 is equipped with a drainage port to ensure that condensation water is not accumulating and ponding within the motor shaft casing.</p> <p>By August 31, 2023, the owner of the Colborne DWS shall submit to the signed Provincial Officer photographs confirming completion of works prescribed in the above paragraphs.</p> |
| <p>NC-4 Question ID: DWMR1033000</p> | <p>The secondary disinfectant residual was not measured as required for the large municipal</p> |

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

residential distribution system.

Required Action #2:

The owner and the operating authority for the Colborne DWS shall ensure that distribution chlorine residuals are collected and measured twice each week, at four (4) and three (3) different locations, respectively.

The owner and the operating authority for the Colborne DWS shall ensure that three (3) distribution samples collected during the week are collected at least 48 hours after four (4) distribution samples were collected on that week.

By August 31, 2023, the owner and the operating authority shall prepare and submit to the below signed Provincial Officer a written operating procedure for distribution chlorine residual sampling & testing.

NC-5 **Question ID:**
DWMR1037000

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?

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 satisfy the standards described in Schedule 6.

Required Actions #3:

A. The owner and the operating authority for the Colborne DWS must ensure that the continuous monitoring equipment monitoring primary disinfection process have a feature that ensures that no water is directed to users of water sampled by the equipment in the event that the equipment malfunctions or loses power or a test result for a parameter is above the maximum alarm standard or below the minimum alarm standard, in accordance with section 5 of Schedule 6-5 of O.Reg.170/03.

Alternatively, the owner and operating authority for the Colborne DWS must ensure that the continuous monitoring equipment monitoring

primary disinfection process causes an alarm to signal immediately at the following locations if the equipment malfunctions or loses power or a test result for a parameter is above the maximum alarm standard or below the minimum 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.

By August 31, 2023, the operating authority for the Colborne DWS shall develop and implement a procedure for monthly tests of the automatic system shutdown triggered by the low and low-low chlorine alarms set at the on-line analyzer monitoring primary disinfection process.

A copy of the procedure, as well as a completed test log for the month of August 2023, shall be submitted to the signed Provincial Officer by August 31, 2023.

Additional Required Actions related to this non-compliance are included in the 'Other Non-compliances' section of this report.

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 | DWMR1001000 | Question Type | Information |
|---|-------------|---------------|-------------|
| Legislative Requirement(s): Not Applicable | | | |
| Question: What was the scope of this inspection? | | | |
| <p>Compliance Response(s)/Corrective Action(s)/Observation(s):</p> <p>The primary focus of this inspection is to confirm compliance with Ministry of the Environment, Conservation and Parks (MECP) legislation as well as evaluating conformance with ministry drinking water policies and guidelines during the inspection period. The ministry utilizes a comprehensive, multi-barrier approach in the inspection of water systems that focuses on the source, treatment, and distribution components as well as management practices.</p> <p>This drinking water system is subject to the legislative requirements of the Safe Drinking Water Act, 2002 (SDWA) and regulations made therein, including Ontario Regulation 170/03, "Drinking Water Systems" (O. Reg. 170/03). This inspection has been conducted pursuant to Section 81 of the SDWA.</p> <p>This inspection report does not suggest that all applicable legislation and regulations were evaluated. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.</p> <p>On June 2, 2023, Provincial Officer Viktoria Light started an announced inspection of the Colborne Drinking Water System (DWS). The owner and the operating authority for the system were notified of the inspection on May 26, 2023. Colin MacDonald of Aquatech Canadian Water Services Inc. and Ted Joynt of the Township of Cramahe were in attendance during the inspection. The Colborne DWS is located at 321 Purdy Road in Colborne. The drinking water system serves population of approximately 2,255 people. The source of the drinking water is two (2) drilled wells classified as secure ground water wells. Please note that all references to the "inspection review period" refer to the elapsed time since the previous Ministry Compliance Inspection was completed. In this inspection report, "inspection review period" refers to the period between May 1, 2022, and May 31, 2023. The Colborne DWS is a Class 3 Water Distribution and Supply Subsystem. During the inspection review period, the Colborne DWS was operated under authority of the following control documents:</p> <ul style="list-style-type: none"> • Permit to Take Water Number 8612-BNENBH (issued April 11, 2020), • Drinking Water Works Permit Number 138-201, Issue Number 3 (issued November 5, 2021), | | | |

and

- Municipal Drinking Water Licence Number 138-101, Issue Number 4 (issued November 5, 2021).

The drinking-water system inspection included a visual inspection of the wells, treatment facility and elevated tank, document review and operator interview.

No audit samples were collected during the inspection.

| 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. | | | |

| 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 not maintaining the production well(s) in a manner sufficient to prevent entry into the well of surface water and other foreign materials. | | | |
| Required Action #1: The owner of the Colborne DWS shall ensure that the well that serves as an entry point of raw water supply is constructed and maintained to prevent surface water and other foreign materials from entering the well, in accordance with Schedule 1-2 of O.Reg.170/03. By August 31, 2023, the owner of the Colborne DWS shall ensure that the cracks in the annular space around the production Well #1A are properly sealed to prevent surface water and other material from entering the well. By August 31, 2023, the owner of the Colborne DWS shall ensure that the surface drainage is such that water will not collect or pond in the vicinity of the production Well #1A. By August 31, 2023, the owner of the Colborne DWS shall ensure that the production Well #2 is equipped with a drainage port to ensure that condensation water is not accumulating and ponding within the motor shaft casing. By August 31, 2023, the owner of the Colborne DWS shall submit to the signed Provincial Officer photographs confirming completion of works prescribed in the above paragraphs. | | | |

The production Well #1A is located approximately 10 metres northwest of the pumphouse. The well was constructed by International Water Supply Ltd. in December 2015 and commissioned in 2022.

The well extends approximately 40 cm above the grade and is equipped with manufactured well cap furnished with screened air vent.

It was noted during the visual inspection that the annular space was sealed, but there were significant cracks in the bentonite seal.

It was further noted that the surface in the immediate vicinity of the well was not properly graded to prevent pooling of surface water around the well.

The production Well #2 is located in the wellhouse located approximately 5 metres south of the pumphouse. The well is positioned on a 30 cm high concrete pedestal.

During the visual inspection of the well it was observed that a significant amount of water (likely from condensation) was accumulated inside motor shaft casing.

| 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. | | | |
| Section 16 of Schedule B of the current Municipal Drinking Water Licence (MDWL) requires the development of an inspection schedule for all wells associated with the water treatment system, well inspection and maintenance procedures for the entire well structure of each well, and remedial action plans for situations where an inspection indicates non-compliance with respect to the regulatory requirements and/or risk to raw well water quality. 'Well Maintenance Program' procedure was contained in the Operations & Maintenance Manual. The procedure prescribed weekly water level monitoring, annual preventative maintenance and a 10-year full well inspection by a licenced well contractor. No 2022 and 2023 annual well preventative maintenance records were provided during the inspection. | | | |

| 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.

Magnetic flow meters are installed at the Well #1A and the Well #2 raw water discharge lines.

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|--------------------|-------------|----------------------|-------------|
| 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.

Part 1.0 of Schedule C of the current MDWL limits the maximum daily volume of treated water that flows from the treatment system to the distribution system to 3,283 m³/day. The monthly flow summaries were reviewed for the inspection period. The rated capacity for the flow into the distribution system has not been exceeded during inspection period. The maximum daily volume of treated water entering the distribution system of 1,987.20 m³/day was recorded on April 12, 2023.

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|--------------------|-------------|----------------------|-------------|
| 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.

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|--|--------------|----------------------|-------------|
| Question ID | DWMMR1025000 | 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. 'Watermain & Appurtenance Policy 2022' and 'Watermain Break for Township of Cramahe Procedure' were developed by the operating authority in August 2022 and April 2023. Watermain & Appurtenance Policy 2022, Watermain Break for Township of Cramahe and MECP Watermain Disinfection Procedure August 2020 are included in the Operations & Maintenance Manual. A category 2 watermain break at Victoria and Earl Streets was reported to the authorities on April 11, 2023. No record of watermain break was provided during the inspection. The local Health Unit issued a Boil Water Advisory on April 11, 2023. Two sets of bacteriological samples were collected at the site upon completion of repairs. Two (2) additional category 1 watermain breaks were documented on April 13, 2023, and May 29, 2023. Copy of watermain records were reviewed during the inspection. Fittings and clamp were disinfected in accordance with procedures. | | | |

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|--|--------------|----------------------|-------------|
| Question ID | DWMMR1023000 | 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 Colborne DWS obtains water from a secure ground water source. The treatment system must be capable of achieving an overall performance that provides, at a minimum, 2-log removal | | | |

or inactivation of viruses.

The primary disinfection free chlorine residual is continuously measured at the end of the chlorine contact piping and recorded on a SCADA system. The daily instantaneous analyzer chlorine residual and grab sample free and total chlorine residuals are recorded each weekday in the log sheets. The minimum free chlorine residual required to achieve primary disinfection in the worst-case conditions is 0.38 mg/L, according to CT calculations included in the Operations Manual. It was noted, however, that the CT calculations use the temperature of 5oC for the worst-case operating conditions. Operating authority confirmed during the inspection that water temperature often drops below 5oC during winter months.

The minimum (low-low) and low chlorine residual alarms and automatic system shutdown are set at 0.45 mg/L and 0.65 mg/L, respectively, at the chlorine analyzer monitoring primary disinfection process.

The monthly log sheets and SCADA data were reviewed for the inspection period. During this period, there were several incidents of chlorine residual below the minimum alarm level. In majority of cases, the system had automatically shut down and no improperly treated water was directed to users. However, there were a number of incidents when well pump started or continued to run while chlorine residuals were below the minimum alarm levels. Refer to Action Required #3 for required corrective actions related to alarm response.

Between May 1, 2022 and May 31, 2023, the Colborne DWS provided the required minimum level of treatment with chlorine disinfection.

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|---|-------------|----------------------|-------------|
| 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. | | | |
| Since the last inspection, the minimum distribution total chlorine residual of 0.83 mg/L was measured at the sampling location on Parliament Street on November 1, 2022 and February 3, 2023. | | | |

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|---|-------------|----------------------|-------------|
| 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 not measured as required for the large municipal residential distribution system.

Required Action #2:

The owner and the operating authority for the Colborne DWS shall ensure that distribution chlorine residuals are collected and measured twice each week, at four (4) and three (3) different locations, respectively.

The owner and the operating authority for the Colborne DWS shall ensure that three (3) distribution samples collected during the week are collected at least 48 hours after four (4) distribution samples were collected on that week.

By August 31, 2023, the owner and the operating authority shall prepare and submit to the below signed Provincial Officer a written operating procedure for distribution chlorine residual sampling & testing.

The Colborne DWS serves population of approximately 2,255.

The system is classified as a large municipal residential drinking water system and the owner and operating authority for the system must ensure that distribution system chlorine residuals are measured twice each week at four (4 samples on one day of the week) and three (3 samples on another day of the week) distribution system sampling points.

The owner and operating authority for the drinking water system must ensure that first and second set of samples taken during each week are collected at least 48 hours apart.

The review of the operation logs revealed that in May and June 2022, only one (1) distribution chlorine residual was measured each weekday, contrary to Schedule 7-2 of O.Reg.170/03.

It was noted during the document review that in July 2022, the operating authority for the Colborne DWS initiated distribution sampling twice each week, in accordance with regulatory requirements.

However, it was observed that no fourth sample was collected first day of the week on October 4, 2022; December 27, 2022; February 7, 2023; February 14, 2023; March 7, 2023; and March 21, 2023.

It was further noted that samples taken on August 2nd and August 4, 2022; November 29th and December 1st, 2022; April 12th and April 14th, 2023; and May 3rd and May 5th, 2023, were collected less than 48 hours apart, contrary to the regulatory requirements.

| | | | |
|---|--------------|----------------------|-------------|
| Question ID | DWMMR1030000 | 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.

The primary disinfection free chlorine residual was measured at the end of the chlorine contact pipe.

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|--------------------|-------------|----------------------|-------------|
| 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.

The 72-hour review of continuous data was documented in the logbook by operation staff. No time period reviewed, and the type of parameter reviewed was documented in the logbook. It was revealed during the document review that on July 15, 2022, during the 72-hour continuous data review the duty operator did not observe and document that on July 14, 2022, the primary disinfection chlorine residual dropped below the low alarm limit of 0.65 mg/L for approximately 4 minutes and to low-low alarm level of 0.45 at 21:29. Furthermore, on December 14, 2022, the primary disinfection chlorine residual dropped below the low chlorine alarm level for approximately 4 minutes, and at 12:44 the chlorine residual dropped below low-low alarm level of 0.45 mg/L. The well pump shut down, but no alarm was initiated to prompt operator response. On December 15, 2022, during the 72-hour continuous data review, the duty operator did not observe and document the low chlorine level incident that occurred on December 14th. Details of the type of data reviewed, the range/duration of data reviewed, the observation of unusual or below the low and low-low chlorine alarm readings and the time and the duration of unusual readings, were not documented in the logbook.

Refer to Action Required item #4 for logbook documentation requirements.

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|--------------------|-------------|----------------------|-------------|
| 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.

The primary disinfection free chlorine residual is continuously measured by an on-line analyzer and trended on the SCADA system. The minimum, maximum and average chlorine residuals are documented every 5 minutes. The date and time are recorded with every test result.

| 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 not equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6. | | | |
| Required Actions #3: | | | |
| A. The owner and the operating authority for the Colborne DWS must ensure that the continuous monitoring equipment monitoring primary disinfection process have a feature that ensures that no water is directed to users of water sampled by the equipment in the event that the equipment malfunctions or loses power or a test result for a parameter is above the maximum alarm standard or below the minimum alarm standard, in accordance with section 5 of Schedule 6-5 of O.Reg.170/03. | | | |
| Alternatively, the owner and operating authority for the Colborne DWS must ensure that the continuous monitoring equipment monitoring primary disinfection process causes an alarm to signal immediately at the following locations if the equipment malfunctions or loses power or a test result for a parameter is above the maximum alarm standard or below the minimum 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.

By August 31, 2023, the operating authority for the Colborne DWS shall develop and implement a procedure for monthly tests of the automatic system shutdown triggered by the low and low-low chlorine alarms set at the on-line analyzer monitoring primary disinfection process. A copy of the procedure, as well as a completed test log for the month of August 2023, shall be submitted to the signed Provincial Officer by August 31, 2023.

Additional Required Actions related to this non-compliance are included in the 'Other Non-compliances' section of this report.

The minimum chlorine residual required to achieve primary disinfection is 0.38 mg/L, according to the CT calculations included in the Operations Manual. It was noted that the CT calculations did not consider the coldest temperature of 0.5°C as the worst-case operating condition. CT of 6 mg/L.min and chlorine residual of 0.56 mg/L is required when the temperature drops below 5°C.

At the time of the inspection, the minimum (low-low) and low chlorine alarms are set at 0.45 mg/L and 0.65 mg/L, respectively, at the continuous analyzer measuring free chlorine residual at the end of chlorine contact pipe. Operating authority confirmed during the inspection that the low chlorine alarm is equipped with a 300-seconds delay and low-low chlorine alarm is equipped with a 10-seconds delay. It was also confirmed during the inspection that both alarms are associated with an automatic system shutdown.

It was revealed during the inspection document review that there were several incidents when primary disinfection chlorine residual dropped below low and low-low alarm level, but the well pump shutdown was not automatically initiated. The following are examples when system shutdown was not initiated when primary disinfection chlorine residual dropped below 0.45 mg/L, or when production started while primary disinfection chlorine residual was below the low-low chlorine alarm level:

- September 3, 2022, at 19:33, the Well #1A started when concentration of primary disinfection chlorine residual was below 0.45 mg/L. The well #1A did not shut down for 3 minutes.
- September 3, 2022, at 21:58, the Well #2 started and remained running for 3 minutes when concentration of primary disinfection chlorine residual was at 0.00 mg/L.
- September 9, 2022, at 1:15, the Well #1A remained running for 3 minutes when primary disinfection chlorine residual dropped below 0.00 mg/L.
- September 9, 2022, the Well #1A did not shutdown when primary disinfection chlorine residual dropped below 0.65 mg/L at 8:54 and further to 0.03 mg/L at 9:03. The Well #1A remain running throughout the incident.
- September 10, 2022, at 5:08, the Well #1A started when the concentration of primary disinfection chlorine residual was at 0.38 mg/L. The Well #1A remain running even when chlorine residual dropped to 0.13 mg/L at 5:19.

- September 10, 2022, at 13:56, the Well #1A remained running when primary disinfection chlorine residual dropped below 0.45 mg/L, and further to 0.11 mg/L at 13:58.
- January 13, 2023, the Well #1A remained running when primary disinfection chlorine residual dropped below 0.45 mg/L between 22:27 and 22:28.

The low and low-low chlorine alarms did not trigger an automatic system shutdown or chlorine alarm callout.

| 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. | | | |
| <p>The on-line chlorine analyzer (Deplox 400), installed at the Colborne DWS, was calibrated, cleaned and zeroed by the operation staff every 6 weeks. Calibration activities were documented in the logbook.</p> <p>The hand-held chlorine and turbidity analyzer (HANNA) was calibrated by operation staff on a quarterly basis.</p> | | | |

| 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. | | | |

Since the last compliance inspection, there were several incidents of low and low-low chlorine alarm triggered by the continuous monitoring equipment.
It was reported by the operating authority during the inspection that low and low-low chlorine alarms trigger an automatic system shutdown and a pageable alarm.
As noted above in this inspection report, not all incidents of low and low-low chlorine alarm triggered an automatic system shutdown and/or operator response.
The operating authority responded to incident that did trigger an alarm. Not all incidents of low/low-low chlorine alarms were sufficiently documented in the logbook.
Refer to Action Required item #4 for corrective actions related to proper documentation.

| 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). The laboratory analytical test results were reviewed for the period from May 1, 2022, to May 31, 2023. Test results of drinking water samples taken during the inspection period showed that chemical and microbiological parameters were below the Ontario Drinking Water Standards in all collected samples. | | | |

| 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. | | | |

The Colborne distribution system serves a population of approximately 2,255 residents. The system is classified as a large municipal residential system, and the owner and operating authority for the system is required to collect at a minimum ten (10) distribution samples each month and have them tested for the prescribed bacteriological parameters. During the inspection period, the operation staff collected three (3) distribution samples each week, on average twelve (12) distribution samples each month, for microbiological analysis. Free and total chlorine residuals were measured at the time of sampling. All distribution samples were tested for total coliform and E. coli. At a minimum, 25% of all samples collected in a month were tested for heterotrophic plate count bacteria.

| 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. | | | |
| During the inspection period, water samples were collected from a designated treated water tap on a weekly basis and tested for total coliforms, E. coli and heterotrophic plate count bacteria. | | | |

| 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.

Treated water samples were collected and tested for inorganic parameters listed in Schedule 24 every 12 months, in accordance with Schedule 13-4 of O.Reg.170/03.
The sampling and testing for inorganic parameters were conducted on March 21, 2023.

| | | | |
|--------------------|-------------|----------------------|-------------|
| 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.

Treated water samples were collected and tested for organic parameters listed in Schedule 24 every 12 months, in accordance with Schedule 13-4 of O.Reg.170/03.
The sampling and testing for organic parameters were conducted on March 21, 2023.

| | | | |
|--------------------|-------------|----------------------|-------------|
| 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.

Since the last ministry inspection, three (3) haloacetic acid samples were collected in a distribution system on a quarterly basis. Samples were collected on July 5, 2022; September 6, 2022; December 13, 2022, and March 7, 2023.
The running annual average of haloacetic acids in the samples collected in the past four quarters was 3.58 µg/L.

| 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. | | | |
| <p>Since the last ministry inspection, three (3) trihalomethane samples were collected at extremities of the distribution system on July 5, 2022; September 6, 2022; December 13, 2022, and March 7, 2023. The running annual average of trihalomethanes samples collected in the last four quarters was 1.97 µg/L.</p> | | | |

| 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. | | | |
| <p>The owner and the operating for the Colborne DWS must ensure that at least one water sample is taken every three months and tested for nitrate and nitrite. Nitrate & nitrite samples were collected at the treatment facility on June 6, 2022; September 6, 2022; December 13, 2022 and March 7, 2023.</p> | | | |

The concentration of nitrates and nitrites in all collected samples was below the Ontario Drinking Water Quality Standard (ODWS) of 10 mg/L and 1 mg/L, respectively.

| | | | |
|--|-------------|----------------------|-------------|
| 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. | | | |
| <p>The owner of a drinking water system and the operating authority for the system must ensure that at least one water sample is taken every 60 months and tested for sodium. A sodium sample was collected on March 7, 2023. The concentration of sodium in this treated water sample was 5.9 mg/L.</p> | | | |

| | | | |
|---|-------------|----------------------|-------------|
| 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. | | | |
| <p>If a drinking water system does not provide fluoridation, the owner of the system and the operating facility for the system must ensure that a treated water sample is taken at least once every 60 months and is tested for fluoride, in accordance with Schedule 13-9 of O.Reg.170/03. The last fluoride sample was collected on September 16, 2019. The fluoride concentration in the collected sample was below method detection limit of 0.09 mg/L.</p> | | | |

| | | | |
|--|-------------|----------------------|-------------|
| Question ID | DWMR1101000 | 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 LMR Systems, have corrective actions (as per Schedule 17 of O. Reg. 170/03) been taken to address adverse conditions, including any other steps as directed by the Medical Officer of Health?

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

Corrective actions (as per Schedule 17), including any other steps that were directed by the Medical Officer of Health, had been taken to address adverse conditions.

Due to a watermain break on April 11, 2023 a Boil Water Advisory was issued by the local HU and distributed to all affected customers on April 11, 2023. The watermain break was repaired, the system in the affected area was flushed and two consecutive bacteriological samples were collected on April 11 and 12, 2023, in accordance with local HU directions.

| Question ID | DWMR1104000 | Question Type | Legislative |
|-------------|-------------|---------------|-------------|
|-------------|-------------|---------------|-------------|

Legislative Requirement(s):

SDWA | O. Reg. 170/03 | 16-6 | (1); SDWA | O. Reg. 170/03 | 16-6 | (2); SDWA | O. Reg. 170/03 | 16-6 | (3); SDWA | O. Reg. 170/03 | 16-6 | (3.1); SDWA | O. Reg. 170/03 | 16-6 | (3.2); SDWA | O. Reg. 170/03 | 16-6 | (4); SDWA | O. Reg. 170/03 | 16-6 | (5); SDWA | O. Reg. 170/03 | 16-6 | (6);

Question:

Were all required verbal notifications of adverse water quality incidents immediately provided as per O. Reg. 170/03 16-6?

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

All required notifications of adverse water quality incidents were immediately provided as per O. Reg. 170/03 16-6.

Since the last compliance inspection in May 2022, a single incident of category 2 watermain break resulting in a system pressure loss was reported to the authorities on April 11, 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.

Element 6 of the Operational Plan contains treatment process description. Process flow diagram is included in the Operations Manual.

| Question ID | DWMR1060000 | Question Type | Legislative |
|--|-------------|---------------|-------------|
| <p>Legislative Requirement(s): SDWA 31 (1);</p> | | | |
| <p>Question: Do the operations and maintenance manuals meet the requirements of the DWWP and MDWL issued under Part V of the SDWA?</p> | | | |
| <p>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.</p> <p>The Operations & Maintenance Manual for the Township of Cramahe contained CT requirements and calculations, community complaints procedure and form, well maintenance program and annual preventive maintenance procedure, adverse water quality procedure, procedure for responding to high and low chlorine alarms, calibration and cleaning procedure for Deplox 400 chlorine analyzer, watermain break procedure, contingency plan, etc.</p> | | | |

| Question ID | DWMR1061000 | Question Type | Legislative |
|---|-------------|---------------|-------------|
| <p>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);</p> | | | |
| <p>Question: Are logbooks properly maintained and contain the required information?</p> | | | |
| <p>Compliance Response(s)/Corrective Action(s)/Observation(s): Logbooks were not properly maintained and/or did not contain the required information.</p> <p>Required Actions #4:</p> <p>The owner and operating authority for the Colborne DWS shall ensure that an operator-in-charge or a person authorized by an operator-in-charge records, at a minimum, the following information in the logs or other record-keeping mechanisms in respect of each operating shift, in</p> | | | |

accordance with section 27 of O.Reg.128?04.

- Any departures from normal operating procedures that occurred during the shift and the time they occurred.
- Any special instructions that were given during the shift to depart from normal operating procedures and the person who gave the instructions.
- Any unusual or abnormal conditions that were observed in the subsystem during the shift, any action that was taken and any conclusions drawn from the observations.
- Any equipment that was taken out of service or ceased to operate during the shift and any action taken to maintain or repair equipment during the shift.

Additional Required Actions related to this non-compliance are included in the 'Other Non-compliances' section of this report.

The operation logbook contained the date, the time the operator arrived and departed the facility, ORO and OIC designation and the time of data review (trends/reports/SCADA). It was noted that during calibration and cleaning activities on the on-line chlorine analyzer the operation staff did not document that and when the low/low-low chlorine alarms were received. Furthermore, the operator did not perform and document chlorine residual verification checks by collecting a grab sample to confirm the accuracy of the on-line chlorine analyzer. The following are example dates when the above information was not documented in the logbook: May 19, 2022; June 30, 2022; August 11, 2022; September 3, 2022; October 19, 2022; March 9, 2023; April 26, 2023 and May 29, 2023.

It was noted that during many incidents of low/low-low chlorine residual alarm the operation staff did not document the time when the alarm was received, the chlorine analyzer readings at the time of the arrival to the site, the status of the well pumps and plant flows upon arrival to the site, the lowest chlorine residual recorded during the incident and CT calculations conducted to confirm the provision of primary disinfection, chlorine residual verification checks conducted to confirm the accuracy of the on-line chlorine analyzer and the reason(s) for low/low-low chlorine residual alarms. During the low/low-low chlorine residual incidents, the corrective actions included backflush of the chlorine contact piping and inspection of quills, but operation staff did not fully investigate the reasons for low chlorine residuals and did not increase chlorine dosage during these events to bring the chlorine residuals to above alarm levels.

| 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.

Distribution system and treated water chlorine residuals measured by a hand-held instrument were recorded in the logbook and operation logs along with operator's initials. All operators working at the Colborne DWS were appropriately certified to conduct operational tests.

| | | | |
|--|-------------|----------------------|-----|
| 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. | | | |
| Properties around the Colborne water treatment facility and elevated tank are fenced. The pumphouse access door is locked and equipped with a security alarm system. | | | |

| | | | |
|--|-------------|----------------------|-------------|
| 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 Colborne DWS is classified as a Class 3 Water Distribution and Supply Subsystem. Until October 2022, Brian Springer was the designated ORO for the Colborne DWS. Mr. Springer held a valid Class 4 and WD&SS certificate. As of October 2022, the ORO responsibility was placed with Rakesh Sharma. Mr. Sharma holds a valid WD&SS certificate. The ORO designation is documented in the logbook each workday. | | | |

| | | | |
|--|--------------|----------------------|-------------|
| Question ID | DWMMR1074000 | 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 following operation staff was eligible to assume the Operator-in-Charge role: <ul style="list-style-type: none"> • Colin MacDonald (WD&SS Class 1) • Stephanie Chong (WD&SS Class 3) OIC designation is recorded in electronic logbook each workday. | | | |

| | | | |
|--|--------------|----------------------|-------------|
| Question ID | DWMMR1075000 | 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. In addition to the operators listed above, the following staff operated the Colborne DWS during the inspection period: <ul style="list-style-type: none"> • Ananda Ingale (WD&SS OIT) • Brett Pollard (WTS OIT) | | | |

| | | | |
|---|--------------|----------------------|-------------|
| Question ID | DWMMR1076000 | 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. | | | |

| | | | |
|--|-------------|----------------------|-------------|
| Question ID | DWMR1115000 | Question Type | Legislative |
| Legislative Requirement(s): Not Applicable | | | |
| Question: Were the inspection questions sufficient to address other non-compliance items identified during the inspection period? | | | |
| Compliance Response(s)/Corrective Action(s)/Observation(s): Actions Required #3 (Cont'd): B. The owner and operating authority for the Colborne DWS shall ensure that the minimum (low-low) chlorine residual alarm is increased to a minimum of 0.46 mg/L when water temperature drops below 5oC in order to ensure that primary disinfection is achieved under worst case operating conditions during winter months. By August 31, 2023, the owner of the operating authority for the Colborne DWS shall develop and implement a procedure for minimum chlorine residual alarm adjustment at the on-line analyzer monitoring primary disinfection process. A copy of the procedure shall be submitted to the signed Provincial Officer by August 31, 2023. Actions Required #4 (Cont'd): By August 31, 2023, the operating authority for the Colborne DWS shall develop and include in Operations Manual a procedure for logbook documentation of all activities associated with operation of drinking water system and the time they occurred, including low/low-low chlorine residual alarm events. The procedure shall include, but not be limited to, the requirement to document the following information during each event: <ul style="list-style-type: none"> • The time the low/low-low chlorine alarm was initiated/received. • The time the operator arrived to the site. • The chlorine residual reading observed at the time of the arrival, as well as the status of production pumps (raw water flow). • The lowest chlorine residual observed/documentated by the SCADA system during the incident, and the duration of chlorine residual below the alarm level. • CT calculations conducted, if necessary, to confirm the provision of primary disinfection during the incident. • Observations and reasons for low chlorine residuals • Corrective actions taken to repair the equipment and bring chlorine residual to 'normal' operating levels. • Reporting carried out to authorities, if warranted. By August 31, 2023, a copy of the logbook documentation procedure prescribed above shall be submitted to the signed Provincial Officer. | | | |

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

DWS Name: COLBORNE DRINKING WATER SYSTEM
DWS Number: 220000790
DWS Owner: THE CORPORATION OF THE TOWNSHIP OF CRAMAHE
Municipal Location: CRAMAHE

Regulation: O.REG. 170/03
DWS Category: DW Municipal Residential
Type of Inspection: Focused
Inspection Date: Jun-2-2023
Ministry Office: Peterborough District Office

Maximum Risk Rating: 499

| Inspection Module | Non Compliance Risk (X out of Y) |
|--------------------------------|----------------------------------|
| Capacity Assessment | 0/30 |
| Certification and Training | 0/42 |
| Logbooks | 4/18 |
| Operations Manuals | 0/28 |
| Other Inspection Findings | 0/0 |
| Reporting & Corrective Actions | 0/66 |
| Source | 14/14 |
| Treatment Processes | 42/189 |
| Water Quality Monitoring | 0/112 |
| Overall - Calculated | 60/499 |

Inspection Risk Rating: 12.02%

Final Inspection Rating: 87.98%

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

DWS Name: COLBORNE DRINKING WATER SYSTEM
DWS Number: 220000790
DWS Owner Name: THE CORPORATION OF THE TOWNSHIP OF CRAMAHE
Municipal Location: CRAMAHE

Regulation: O.REG. 170/03
DWS Category: DW Municipal Residential
Type of Inspection: Focused
Inspection Date: Jun-2-2023
Ministry Office: Peterborough District Office

| Non-Compliance Question(s) | Non Compliance Risk |
|---|---------------------|
| Logbooks | |
| Are logbooks properly maintained and contain the required information? | 4 |
| Other Inspection Findings | |
| Were the inspection questions sufficient to address other non-compliance items identified during the inspection period? | 0 |
| Source | |
| 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? | 14 |
| Treatment Processes | |
| 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? | 21 |
| Is the secondary disinfectant residual measured as required for the large municipal residential distribution system? | 21 |
| Overall - Total | 60 |

Maximum Question Rating: 499

| | |
|--------------------------------|---------------|
| Inspection Risk Rating: | 12.02% |
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| FINAL INSPECTION RATING: | 87.98% |
|---------------------------------|---------------|